





PERIOD ENDING: DECEMBER 31, 2017

Investment Performance Review for

**Tulare County Employees' Retirement Association** 

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#### **VERUSINVESTMENTS.COM**

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# 4<sup>th</sup> quarter summary

#### THE ECONOMIC CLIMATE

- Global growth forecasts for 2018 have been revised higher, most notably in the Eurozone. U.S. expected 2018 GDP growth is 2.6%, above the expansion average. p. 15
- The Eurozone has experienced an impressive economic recovery. In the third quarter, real GDP accelerated to 2.6%, the fastest pace of growth since 2011. p. 16
- The House and Senate agreed to a final tax bill that was signed into law by President Trump on December 22<sup>nd</sup>.
   The bill, formally known as the Tax Cuts & Jobs Act, represents a major overhaul of the U.S. tax system. p. 27

#### PORTFOLIO IMPACTS

- A synchronized pickup in global economic growth, low inflation, strong employment, and accommodative central banks should support global equities moving forward. We recommend maintaining an overweight equity position. p. 14
- Markets remain expensive by most measures. However, it is important to note the merits and flaws of various valuation metrics. p. 32

#### THE INVESTMENT CLIMATE

- Global equities produced strong returns over the quarter and finished the year on a positive note. Emerging market equities led the way, driven by high earnings growth and expansion of valuation multiples off of low levels. p. 25
- The outlook for U.S. equity earnings has improved further, following the signing of the Tax Cuts and Jobs Act. S&P 500 earnings expectations for 2018 were revised upwards from 11.1% to 13.1%. p. 27
- U.S. high yield spreads became increasingly tight. Credit premiums are near all time lows, which may warrant an underweight to U.S. credit. p. 22

#### **ASSET ALLOCATION ISSUES**

- Risk assets continue to deliver strong performance, fueled by improving fundamentals and accelerating growth. The current environment appears accommodative for further gains. p. 4
- Equity volatility is very low, helped by stable economic conditions and inflation. Historically, low volatility has indicated less risk of an equity downside event. p. 33

We believe a moderate overweight to risk is warranted

# What drove the market in Q4?

#### "Tax plan optimism propels Wall Street to record highs"

#### S&P 500 HIGH TAX RATE BASKET MONTHLY RETURN

Jul	Aug	Sep	Oct	Nov	Dec
0.9%	-1.9%	4.1%	0.5%	6.1%	5.8%

Article Source: Reuters, December 18th, 2017

#### "GDP swings up to 3.2% for best gain in three years"

#### **U.S. REAL GDP (QUARTERLY ANNUALIZED RATE)**

Q2 16	Q3 16	Q4 16	Q1 17	Q2 17	Q3 17
2.2%	2.8%	1.8%	1.2%	3.1%	3.2%

Article Source: U.S. News & World Report, November 29th, 2017

#### "U.S. yield curve hits its flattest point since November 2007"

#### 10-YEAR MINUS 2-YEAR TREASURY YIELD SPREAD (BPS)

Jul	Aug	Sep	Oct	Nov	Dec
94	78	84	78	62	52

Article Source: Financial Times, November 21st, 2017

#### "Global manufacturers strain to keep up with faster economy"

#### **GLOBAL PURCHASING MANAGERS INDEX (PMI)**

Jul	Aug	Sep	Oct	Nov	Dec		
53	53	53	54	54	55		
Article Source: Bloomberg, January 2 <sup>nd</sup> , 2018							

#### S&P 500 HIGH TAX RATE VS. LOW TAX RATE BASKET



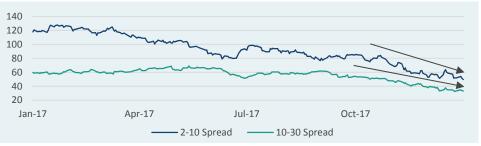
Source: Verus, Bloomberg, as of 1/4/18

#### **REAL GDP VS. EXPANSION AVERAGE**



Source: FRED, as of 9/30/17, quarterly annualized rate

#### U.S. YIELD CURVE SPREADS (BPS)



Source: Bloomberg, as of 1/4/18



# Economic environment



# U.S. economics summary

- U.S. real GDP grew 2.3% from the previous year in Q3, the fastest pace in more than two years.
   Growth was driven by consumer spending, private inventory accumulation, and business investment.
- Growth in business investment has provided a material support to the economy over recent periods for the first time in the recovery. Rising domestic and external demand has influenced companies to ramp up production. Survey based measures indicate firms are planning to increase capex over the next six months.
- Core inflation rose slightly from 1.7% to 1.8% over the quarter, driven by higher shelter prices.
   Strong demand, higher raw material prices, and a weaker dollar may provide modest pressures on inflation, but overall levels remain low. Any material rise

- in inflation would likely be met by more aggressive monetary tightening than what is priced into markets.
- The U3 unemployment rate fell further from 4.2% to 4.1%, its lowest level in 17 years.
- Net job creation averaged 204,000 per month in Q3 above the expansion average of 196,000.
   Despite robust job gains and low unemployment, wage growth remained modest at 2.5% YoY.
- The Fed raised interest rates for the third time this year to a target rate of 1.25-1.50%. Fed dot plots indicate three more interest rate hikes in 2018, while the market is only forecasting two. Officials noted that strong economic growth is expected to continue, and raised the 2018 GDP forecast from 2.1% to 2.5%.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% 9/30/17	1.5% 9/30/16
Inflation (CPI YoY, Core)	1.8% 12/31/17	<b>2.2%</b> 12/31/16
Expected Inflation (5yr-5yr forward)	2.1% 12/31/17	2.1% 12/31/16
Fed Funds Target Range	1.25 – 1.50% 12/31/17	0.50 – 0.75% 12/31/16
10 Year Rate	<b>2.4%</b> 12/31/17	<b>2.4%</b> 12/31/16
U-3 Unemployment	<b>4.1%</b> 12/31/17	<b>4.7%</b> 12/31/16
U-6 Unemployment	8.1% 12/31/17	9.1% 12/31/16



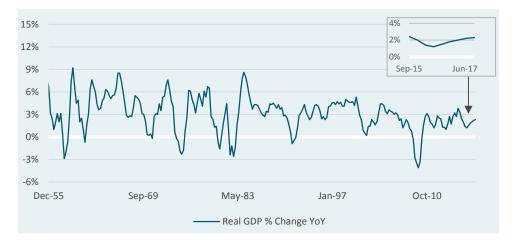
# GDP growth

Real GDP rose by 2.3% from the previous year (3.2% quarterly annualized rate) in Q3, the fastest pace of growth in two years. Economic growth picked up meaningfully in 2017 and consumer and business surveys indicate further strength. Support to the economy includes strong consumer demand both domestically and abroad, low unemployment, and stable core inflation. Despite Fed moves toward normalizing monetary policy, financial conditions have yet to slow down the expansion, likely due to a slower pace of interest rate hikes than expected by the market.

All major components of the economy were positive contributors to growth in Q3, which has only happened in 6% of quarters since 1947. The main source of growth was consumer spending, which rose 2.5% from the previous quarter and contributed 1.4% to the overall growth rate. A faster pace of inventory accumulation was the second largest contributor to GDP, followed by non-residential business investment. According to the Atlanta Fed GDPNow forecast, real GDP growth is expected to be 3.3% in Q4. Looking ahead to 2018, we believe the economic backdrop is positive, and will remain supportive of the recent pickup in growth.

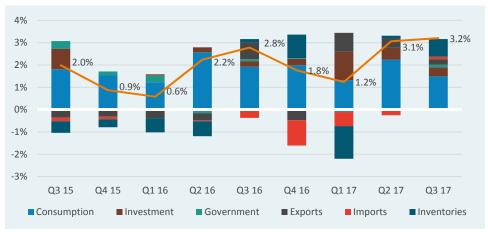
Economic growth has accelerated over the past two quarters

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



Source: Bloomberg, as of 9/30/17

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



Source: BEA, annualized quarterly rate, as of 9/30/17



# Business investment

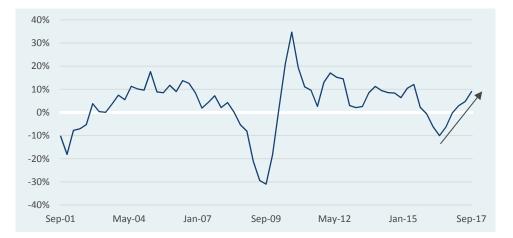
During most of the current expansion, corporate investment has been minimal. Many companies have held higher than normal cash balances or used the abundant liquidity created by easy monetary policy to buy back stock. Over the past year, however, there has been a meaningful increase in business capital expenditure (capex) as firms have needed to ramp up production to meet rising global demand. With the labor market close to full employment and jobs more difficult to fill, businesses may rely on investment to meet rising demand. Moving

forward, business capex will likely be an important factor if economic growth is set to continue.

Survey based measures indicate that businesses are making plans to increase investment over the next six months. In addition to rising demand, the changes to the U.S. tax code should provide incentives for businesses to invest. Most notably, the mandatory repatriation of foreign profits at a special tax rate will give firms an ample source of cash that can be used for investment.

Business investment has been a material contributor to the recent pickup in growth

#### NON-FINANCIAL CORPORATE CAPEX GROWTH (YOY)



Source: Bloomberg, as of 9/30/17

#### SIX MONTH FORECAST OF CAPEX INCREASES



Source: Philadelphia FRB Business Outlook Survey, the x-axis represents the % of firms expecting to increase capex minus the % of firms expecting to decrease capex over the next six months



# Inflation

Core U.S. inflation picked up slightly to 1.8% YoY in December, a rise from 1.7% in September. Increases in housing and healthcare costs contributed to the move. Headline inflation fell from 2.2% to 2.1% over the quarter.

Market based inflation expectations increased slightly as the 10-year TIPS breakeven inflation rate moved from 1.8% to 2.0%. Investors expect inflation to stay low for the long-run based on market pricing. Low inflation remains a roadblock for central banks hoping to normalize interest rates. However, lower inflation may benefit markets overall by dampening the need for central bank market intervention, which contributes to lower borrowing costs and lower market volatility through greater price stability. The current inflation level may provide markets with a happy medium.

Low inflation may be supportive of further economic expansion

#### U.S. CPI (YOY)



#### **U.S. TIPS BREAKEVEN RATES**



#### Source: Federal Reserve, as of 12/31/17

#### INFLATION EXPECTATIONS



Source: Bloomberg, as of 12/31/17



Source: FRED, as of 12/31/17

# Labor market

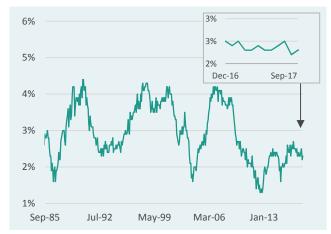
The U.S. labor market tightened further as unemployment fell from 4.2% to 4.1% over the quarter. Net job creation was robust, averaging 204,000 per month in the third quarter, higher than the expansion average of 196,000. A falling unemployment rate and above average job creation points toward some remaining slack in the labor market despite the longer length of the recovery relative to history. Wage growth improved modestly at 2.5% YoY, but remains below average relative to past economic expansions.

In previous quarters, we noted that the headline unemployment rate may be overstating tight labor market conditions due to discouraged or longer-term unemployed workers not included in traditional measures. It appears these individuals are slowly making their way back into the labor force, especially during the past two years. The core age (25-54) participation rate was 81.9% in December, up from a low of 80.6% in September of 2015. This figure was 83.3% prior to the global financial crisis, suggesting there may still be room for additional workers to reenter the labor force.

#### **UNEMPLOYMENT RATE**

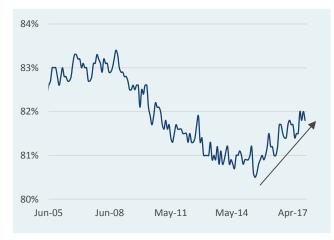


#### **AVERAGE HOURLY EARNINGS (YOY)**



#### Source: Bloomberg, as of 11/30/17

#### **CORE AGE PARTICIPATION RATE**



*Source: FRED, as of 12/31/17* 



Source: FRED, as of 12/31/17

### The consumer

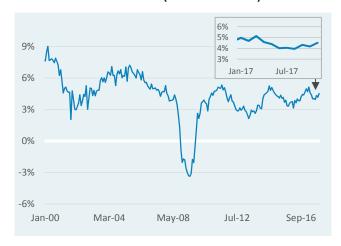
Positive economic conditions are providing continued support to strong consumer demand, although this has not led to signs of late-cycle overheating. Consumer spending was 4.5% YoY in November, up from 4.0% three months prior.

Low unemployment, low inflation, and modest wage gains have helped create consistent growth in consumer spending. Monetary tightening has yet to have a material negative impact on consumers through higher borrowing costs and increasing interest payments on existing debt. Furthermore,

a portion of individual costs are determined by the long end of the curve, which has remained fairly stable.

Low interest rates have not led individuals to take on large debt loads as both borrowers and lenders remain cautious. Consumer debt has seen modest growth, while mortgage debt is still recovering from a sharp decline following the 2008-2009 financial crisis. Growth in consumer debt has been mostly fueled by increases in student and auto loans, which would likely be impacted by further interest rate rises.

#### CONSUMER SPENDING (YOY GROWTH)

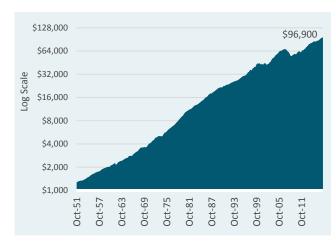


#### **DEBT GROWTH (YOY)**



#### Source: FRED, as of 9/30/17

#### HOUSEHOLD NET WORTH



Source: Bloomberg, as of 7/31/17



Source: Bloomberg, as of 11/30/17

# Sentiment

Measures of consumer and business sentiment remained above average in the fourth quarter. The University of Michigan Consumer Sentiment Index was 95.9 in December, which placed it in the 85<sup>th</sup> percentile relative to its own history, since 1978. The average value of the index in 2017 was the highest since 2000, driven by consumers' positive attitudes toward current economic conditions. U.S. tax reform did not result in an increase in sentiment and was only mentioned by 29% of respondents, who demonstrated mixed reactions.

The NFIB Small Business Optimism Index increased to 107.5 in November – near a record high. This indicator jumped following the election in 2016 and has stayed high, reflecting positive attitudes towards policy changes, deregulation, and economic conditions. A net 37% of small businesses expect the economy to improve and a net 27% are planning on increasing capital outlays. Companies also reported that finding qualified workers to hire is getting increasingly difficult. Higher labor costs would be a headwind to small businesses.

Consumers and small businesses have a positive outlook on the economy

#### CONSUMER COMFORT INDEX



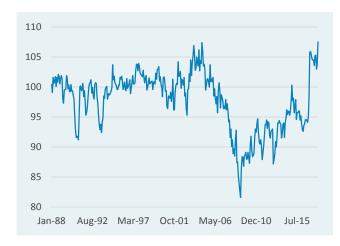
Source: Bloomberg, as of 12/31/17 (see Appendix)

#### **CONSUMER SENTIMENT**



Source: University of Michigan, as of 12/31/17 (see Appendix)

#### NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 11/30/17 (see Appendix for details)



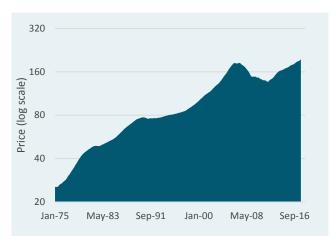
# Housing

Growth in U.S. home prices has steadily accelerated over the past three years. National home prices increased 6.2% YoY in October, according to the S&P/Case-Shiller Index, up from a growth rate of 5.2% one year prior. Sales growth continued to be constrained by a lack of supply, which has helped lead to higher prices due to demand outpacing supply. At the current sales rate, it would take only 4.7 months to completely exhaust the supply in the market, below the long-term historical average of 6.1.

Thus far, tightening from the Fed has not led to a material rise in mortgage rates. Home ownership has remained affordable as lower interest costs have somewhat offset rising home prices.

Total mortgage debt outstanding has just recently recovered from the global financial crisis. Mortgage lending standards are still tight, which has led to a higher quality pool of mortgage borrowers relative to past cycles.

#### CASE-SHILLER HOME PRICE INDEX

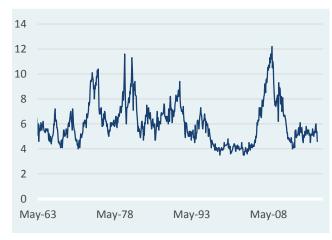


#### **HOUSING SALES**



#### Source: Bloomberg, as of 11/30/17

#### MONTHLY SUPPLY OF HOMES



Source: FRED, as of 11/30/17



Source: FRED, as of 10/31/17

# International economics summary

- Economic growth advanced in the third quarter across developed and emerging markets. The United States grew at 2.3% YoY, the Eurozone improved to 2.6%, and overall growth in the BRICS nations accelerated to 5.6%. Central bank policy is still broadly accommodative, which is supportive of continued progress.
- Expectations for global GDP growth for the next two years has been revised upward in the past six months, according to the consensus estimate from Bloomberg. The upward revision to global growth forecasts were driven by the Eurozone and emerging markets.
- A pickup in lending and investment, strong external demand, and accommodative monetary policy has helped fuel an impressive economic recovery in the Eurozone. GDP grew 2.6% in Q3 from the

- previous year and the unemployment rate fell to 8.8%, the lowest level in nine years.
- PMIs across major markets were all above 50, indicating further expansion in the manufacturing sector.
- There are still concerns of a hard landing in China because the central bank has been tightening financial conditions on the shortend of the yield curve to reign in excessive leverage. Thus far, this process has been successful with economic growth slowing only moderately.
- Low inflation in developed economies has persisted, contributing to slower monetary tightening as central banks have been reluctant to raise rates too quickly.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% 9/30/17	2.1% 12/31/17	<b>4.1%</b> 12/31/17
Western Europe	<b>2.5%</b> 9/30/17	1.6% 12/31/17	<b>7.4%</b> 12/31/17
Japan	2.1%	0.6%	2.7%
	9/30/17	11/30/17	11/30/17
BRICS	5.6%	2.0%	5.7%
Nations	9/30/17	12/31/17	9/30/17
Brazil	1.4%	3.0%	12.1%
	9/30/17	12/31/17	12/31/17
Russia	1.8%	2.5%	5.1%
	9/30/17	12/31/17	11/30/17
India	5.3% 9/30/17	<b>4.9%</b> 11/30/17	8.0% 12/31/16
China	6.8%	1.8%	4.0%
	9/30/17	12/31/17	9/30/17



# International economics

Economic growth accelerated broadly over the quarter, while inflation remained moderate in the developed world and fell in many emerging markets. Emerging economies appear to be very early in their cycle. Brazil and Russia recently pulled out of recession, with economic slack and room for expansion. Improving economic conditions and rising global demand have led to a material pickup in growth expectations for future years. The consensus forecast for 2018 Eurozone real GDP growth was revised upwards by 50 bps over the past six months.

Central bank policies in developed markets remained accommodative, but the intent to move towards tighter financial conditions has been clearly communicated. Stimulus from central banks, notably the ECB and BOJ, is likely still necessary to support the recent improvement in economic growth. A lack of pressure in inflation, however, should allow central banks to take a careful approach to future policy changes.

Growth accelerated, while inflation remained moderate

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



#### INFLATION (CPI)



#### Source: Bloomberg, as of 11/30/17

#### UNEMPLOYMENT



Source: Bloomberg, as of 11/30/17 or most recent release



Source: Bloomberg, as of 9/30/17

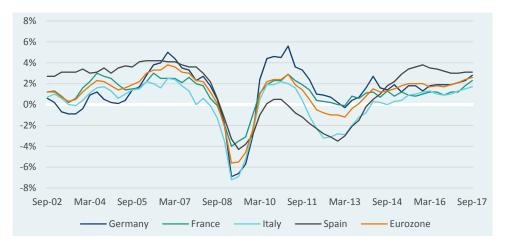
# Eurozone economic recovery

A pickup in lending and investment, strong external demand, and accommodative monetary policy has helped fuel an impressive economic recovery in the Eurozone. In Q3, real GDP was 2.6% YoY - its highest rate of growth since 2011. Economic data has come in better than expected for most of the past year and economic forecasts have been revised upwards significantly. Additionally, labor markets have also improved markedly with the overall Eurozone unemployment rate falling from 9.6% to 8.8% over the past year, with further room for improvement.

The continuing recovery is not without risks. Most notably, economies are still heavily reliant on monetary stimulus. The ECB has already started to taper asset purchases, although any additional tightening will likely be considered with caution. The recovery in economic conditions has been led by Germany, while periphery countries such as Italy and Spain have lagged behind and are still experiencing high unemployment rates. Finally, political risk in Europe, such as the Italian election this year, is still lurking in the background.

The Eurozone is experiencing an impressive economic recovery

#### **REAL GDP GROWTH**



#### **UNEMPLOYMENT RATE**



Source: Bloomberg, as of 10/31/17

Source: Bloomberg, as of 9/30/17



# Global PMIs

#### PMI 1 YEAR (CROSS SECTION) – BLUE HIGH / ORANGE LOW

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Manufacturing												
Global	53	53	53	53	53	53	53	53	53	54	54	55
Developed	54	54	54	54	54	54	54	54	55	55	56	56
US	56	58	57	55	55	58	56	59	61	59	58	60
UK	55	55	54	57	56	54	55	57	56	56	58	56
Eurozone	55	55	56	57	57	57	57	57	58	59	60	61
Germany	56	57	58	58	60	60	58	59	61	61	63	63
Japan	53	53	52	53	53	52	52	52	53	53	54	54
EM	51	51	52	51	51	51	51	52	51	51	52	52
Services												
Global	54	53	54	54	54	54	54	54	54	54	54	54
Developed	55	54	54	54	54	55	55	55	55	55	54	54
US	57	58	55	58	57	57	54	55	60	60	57	56
UK	55	53	55	56	54	53	54	53	54	56	54	54
Eurozone	54	56	56	56	56	55	55	55	56	55	56	57
Germany	53	54	56	55	55	54	53	54	56	55	54	56
Japan	52	51	53	52	53	53	52	52	51	53	51	51
EM	54	56	56	56	56	55	55	55	56	55	56	57

Source: Bloomberg, as of 12/31/17 – PMIs are based on survey data compiled from purchasing and supply managers. Survey questions are asked about several different components of each sector, such as new orders, employment, prices, etc. The final PMI reading is based on the percentage of respondents with a positive view on the sector. A reading above 50 indicates expansion in the sector while a reading below 50 indicates contraction. Historically, PMIs have had a relatively strong positive relationship with actual economic activity.



# Fixed income rates & credit



# Interest rate environment

- On December 13th, the Federal Reserve raised the benchmark interest rate by 25 bps to a target range of 1.25%-1.50%. The Fed has communicated three rate hikes in 2018, while the market is pricing in only two.
- U.S. Treasury yields experienced significant increases on the short end of the curve, while longer term rates were modestly higher. The 2and 10-year yields rose 40 bps and 8 bps, respectively. The increase in short-term rates was likely caused by the Fed raising overnight borrowing rates.
- The Fed began to reduce its balance sheet slowly.
   Approximately \$30 billion in Treasuries and mortgage-backed securities were trimmed from the balance sheet over the quarter, which did not have a material impact on the market.

- Minutes from the ECB meeting in December showed that officials discussed additional tapering of asset purchases in early 2018 due to stronger than expected economic growth.
- Markets generally expect minimal yield rises across developed markets between 0% and 0.3% movement over the next year in U.S., U.K., German, and Japanese sovereign bonds. However, we remain watchful of bond market reactions to balance sheet unwinding, given the unprecedented size of central bank assets.
- We remain underweight to U.S. and developed sovereign bonds (currency hedged) primarily due to low yields. It is important to keep in mind the diversification benefits that fixed income provides to the portfolio, despite near record prices.

Short Term (3M)	10 Year
1.38%	2.41%
(0.80%)	0.42%
(0.78%)	0.78%
(0.58%)	1.56%
(0.63%)	2.00%
1.40%	4.10%
0.36%	1.19%
(0.15%)	0.04%
1.74%	2.63%
3.95%	3.90%
6.77%	10.25%
6.55%	7.42%
	1.38% (0.80%) (0.78%) (0.58%) (0.63%) 1.40% 0.36% (0.15%) 1.74% 3.95% 6.77%

Source: Bloomberg, as of 12/31/17



# Monetary policy

The global shift towards tighter monetary policy will be an important theme in financial markets moving forward, and the possibility of a policy mistake represents a major risk. Thus far, the Fed is the only major central bank to take steps to tighten policy by raising interest rates and trimming its balance sheet. Moderate inflation has allowed the Fed to take a cautious approach to tightening, which at this point does not appear to have had a material impact on markets. While other central banks remain accommodative, several have begun tightening, including a rate hike from the BOE, and asset purchase tapering from the ECB.

Looking ahead at the next two years, there is not much monetary tightening priced into markets, which creates greater chance of a negative surprise. In the current cycle, central banks have been cautious and worked hard to clearly communicate changes in policy to avoid market surprises. We think this behavior is likely to continue, but with so little priced into markets even a slightly faster pace of tightening than expected might have a significant impact. A policy mistake is especially a concern for the Eurozone and Japan because improving economic conditions are probably still dependent on support from monetary stimulus.

Very little monetary tightening is priced into markets

#### MAJOR CENTRAL BANK BALANCE SHEET SIZE



#### MAJOR CENTRAL BANK POLICY RATES AND EXPECTATIONS

	Policy Rate	Rate Hikes in 2017	Market Pricing YE 2018	Market Pricing YE 2019
Fed	1.4%	3	1.9%	2.1%
ECB	-0.4%	0	-0.3%	-0.1%
BOJ	-0.1%	0	-0.1%	0.0%
ВОЕ	0.5%	1	0.7%	0.9%

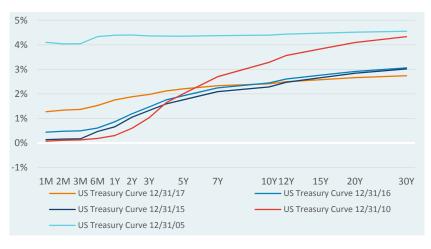
Source: Bloomberg, as of 1/4/18

Source: Bloomberg, as of 11/30/17

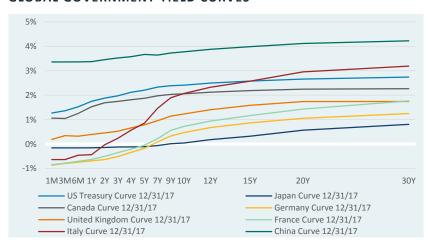


# Yield environment

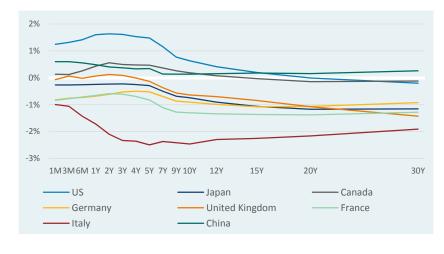
#### **U.S. YIELD CURVE**



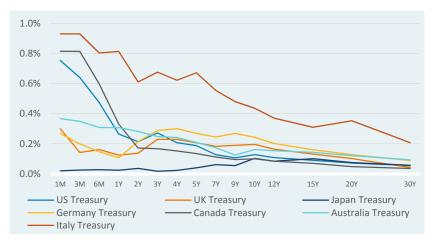
#### **GLOBAL GOVERNMENT YIELD CURVES**



#### YIELD CURVE CHANGES OVER LAST FIVE YEARS



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



Source: Bloomberg, as of 12/31/17



# Credit environment

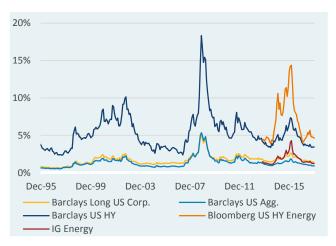
Credit spreads fell throughout 2017 to all-time tight levels. U.S. high yield option-adjusted spreads compressed in the fourth quarter to 3.4%, and the asset class generated a 0.5% total return for the quarter and 7.5% for 2017 (BBgBarc U.S. Corp. High Yield Index). High yield spreads are tighter than those of bank loans on a duration-neutral basis.

Credit spreads in both high yield and loans have continued to tighten close to multi-year lows, driven by strong corporate fundamentals and general macroeconomic improvement. The combination of tighter credit spreads and higher yields over Treasuries led credit to broadly outperform U.S. Treasuries in Q4. High yield spreads began the year at 4.1% and tightened by 66 bps in 2017. Credit spreads have historically been a good indicator of future performance relative to Treasuries.

Based on low interest rates and tight spreads, we recommend an underweight to U.S. investment and high yield credit.

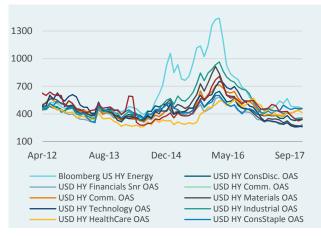
Credit spreads are tight across the capital structure

#### **SPREADS**



Source: Barclays, Bloomberg, as of 12/31/17

#### HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/17

Market	Credit Spread (12/31/17)	Credit Spread (1 Year Ago)
Long US Corporate	1.4%	1.6%
US Aggregate	0.9%	1.2%
US High Yield	3.4%	4.1%
US High Yield Energy	4.6%	4.6%
US Bank Loans	3.6%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/17



# Issuance and default

Default activity remains low and stable in U.S. and international credit markets. The par-weighted U.S. default rate remains below its long-term average of 3.0-3.5%. Four U.S. companies defaulted in December totaling \$1.6 Billion in bonds and \$582 Million in loans. Total default activity during 2017 was at levels not seen since 2013.

Senior loan and high yield markets normalized in 2017, compared to 2016 when a majority of defaults were

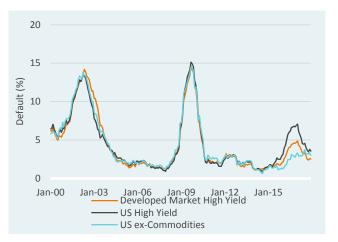
generated from energy and metals/mining sectors.

Issuance in bonds and loans both increased in 2017. The majority of proceeds were used for refinancing activity as the market continues to be borrower-friendly, allowing issuers to refinance at lower rates.

Active management may offer value to investors in the high yield space.

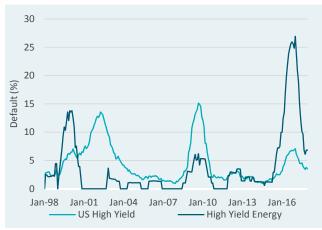
The effects of commodity related defaults are subsiding

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



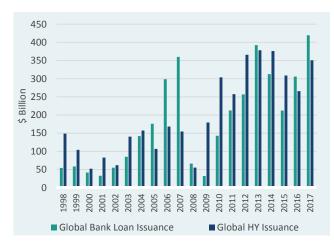
Source: BofA Merrill Lynch, as of 12/31/17

#### **ENERGY DEFAULT TRENDS**



Source: BofA Merrill Lynch, as of 12/31/17

#### **GLOBAL ISSUANCE**



Source: Bloomberg, BofA Merrill Lynch, as of 12/31/17



# Equity



# Equity environment

- We maintain an overweight
   position to equities with a
   preference for emerging markets.
   Equity markets delivered strong
   returns over the quarter and were
   supported by robust earnings
   growth. Emerging markets
   provided outsized gains as is often
   the case in periods of strong
   economic growth.
- U.S. corporate earnings are expected to increase by 13.1%
   YoY in 2018 according to Factset.
   Expectations improved by a net 2% following the Tax Cuts & Jobs Act, which lowered the corporate tax rate from 35% to 21%, effective January 1st, 2018. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively.
- The way businesses spend tax savings may have significant positive effects on wages, capital investment, and equity returns.

- We will be monitoring this activity throughout the year.
- Equity volatility has stayed extraordinarily low. U.S. market volatility over the past year was 3.9% (S&P 500), followed by International at 4.2% (MSCI EAFE) and emerging markets at 6.5% (MSCI Emerging Markets). Low equity volatility has historically indicated less risk of an equity downside event.
- Currency movement contributed to volatility and uncertainty in international assets for investors with unhedged exposure.
   Recently, the U.S. dollar has weakened, creating a tailwind for unhedged performance.

	QTD TOTAL	. RETURN	YTD TOTAL	. RETURN	1 YEAR TRETU	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.6	%	21.7	7%	21.7	7%
US Small Cap (Russell 2000)	3.3	%	14.6%		14.6	5%
US Large Value (Russell 1000 Value)	5.3	5.3%		13.7%		7%
US Large Growth (Russell 1000 Growth)	7.9%		30.2%		30.2%	
International Large (MSCI EAFE)	4.3%	4.0%	25.7%	16.8%	25.7%	16.8%
Eurozone (Euro Stoxx 50)	(0.4%)	(1.8%)	25.3%	11.1%	25.3%	11.1%
U.K. (FTSE 100)	6.0%	5.3%	22.6%	12.9%	22.6%	12.9%
Japan (NIKKEI 225)	12.0%	12.3%	25.7%	21.9%	25.7%	21.9%
Emerging Markets (MSCI Emerging Markets)	7.3%	5.3%	37.3%	28.6%	37.3%	28.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/17



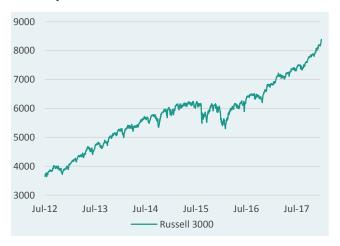
# Domestic equity

U.S. equities produced gains over the quarter (S&P 500 +6.6%), adding to record highs. Over the past year, U.S. equity performance (S&P 500 +21.8%) has lagged international developed equities (MSCI EAFE +25.0%) and emerging markets (MSCI Emerging Markets +37.3%). Performance of each equity market is in line with the degree of earnings growth – emerging markets have produced the strongest year-over-year growth and the U.S. has produced the weakest earnings growth. However, earnings growth in the U.S. has still been strong relative to history.

U.S. corporate earnings are expected to increase by 13.1% YoY in 2018, according to Factset. Forecasts were revised upwards by a net 2% following the passing of tax cuts. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively. The way businesses spend additional tax savings may have significant positive effects on wages, capital investment, and equity returns. We will be monitoring the situation throughout the year.

We maintain a neutral weight to U.S. equities

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



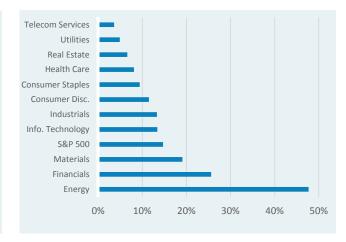
Source: Russell Investments, as of 12/31/17

#### **EARNINGS GROWTH**



Source: MSCI, as of 12/31/17, YoY growth in forward earnings

#### 2018 S&P 500 EARNINGS EXPECTATIONS



Source: FactSet, as of 1/12/18



# U.S. tax reform

The House and Senate passed a final tax bill, which was then signed into law by President Trump on December 22, 2017. The most widely publicized component of the bill is a corporate tax cut that lowers the statutory tax rate from 35% to 21%. The tax cut should result in a material boost to corporate earnings, which was priced into markets as the proposal was negotiated. Equities with relatively high effective tax rates significantly outperformed those with low effective tax rates since November. We believe that higher earnings growth resulting from the one-time tax cut is likely fully priced into equities.

The second component to the tax cut relates to the way corporations choose to use the savings. Its impact is more difficult to determine. In the past, firms have used tax savings to return capital to shareholders, which will likely play an important role once again. We believe that in the current economic and deregulatory environment, a material gain in business investment and wages is possible. A rise in investment could lead to further earnings growth and would have a more lasting impact on the economy than if firms simply return the savings to shareholders.

Corporate tax cuts will be a boost to earnings

#### S&P 500 HIGH TAX RATE VS. LOW TAX RATE BASKET



Source: FactSet, as of 1/5/18 Source: Bloomberg, Verus, as of 1/4/18

#### **S&P 500 2018 EARNINGS EXPECTATIONS**





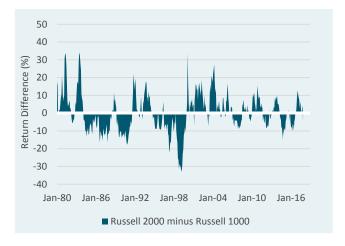
# Domestic equity size and style

Large cap equities (Russell 1000 +6.6%) continued to outperform small cap equities (Russell 2000 +3.3%) during the quarter. Small cap stocks are very expensive relative to history based on traditional measures. It appears that a greater number of companies in the small cap universe with low or negative earnings has contributed to rising price-to-earnings multiples of the index.

Value equities underperformed growth equities over the guarter and the past year — caused by extremely positive

technology sector performance (growth stocks are highly concentrated in the tech sector). Value has now underperformed on a 1-, 3-, 5-, and 10-year basis. Value stocks have underperformed over a 10-year period only twice in the past 100 years — during the great depression (1937) and during the dotcom bubble (1999). Both of these occasions were followed by an impressive bounce back in value performance.

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



Source: Russell Investments, as of 12/31/17

#### U.S. VALUE VS GROWTH RELATIVE PERFORMANCE



Source: Morningstar, as of 12/31/17

#### U.S. LARGE VS. SMALL RELATIVE VALUATIONS



Source: Russell, Bloomberg, as of 12/31/17



# International developed equity

International equities lagged U.S. equities during the fourth quarter as U.S. tax reform contributed to a strong domestic rally. The MSCI EAFE Index returned 4.3% (+4.0% hedged) while the S&P 500 returned 6.6%. Emerging markets continued to outperform (MSCI EM +7.4% unhedged).

Japan outperformed among developed markets, which is particularly notable when considering the pessimism baked into Japan's equity valuations. Japan generated a

12.0% return in the fourth quarter and a 25.7% return in 2017 (Nikkei 225 unhedged). Recent equity gains were fundamentally supported by earnings growth.

Currency effects added a positive 0.3% to the unhedged MSCI EAFE in Q4 (+8.9% year-to-date), as the U.S. dollar weakened slightly against a trade weighted basket of currencies.

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



#### EARNINGS GROWTH



#### Source: MSCI, as of 12/31/17 – YoY growth in forward earnings

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



Source: MSCI, as of 12/31/17



Source: Bloomberg, as of 12/31/17

# Emerging market equity

We maintain an overweight to emerging market equities. These markets have led the way in economic growth, earnings, and equity performance. Emerging market equities delivered exceptional returns in 2017 (MSCI Emerging Markets +37.3%) relative to developed markets (MSCI ACWI +24.2%) and during the fourth quarter (7.4% vs. 4.2%).

Emerging markets have lagged the U.S. significantly since the global financial crisis, prior to the recent rotation. Emerging market currencies remain depressed relative to history, and a reversal could provide additional tailwinds to recent outperformance.

Equity multiples have risen modestly, supported by a brighter earnings outlook. As these economies evolve, it has become more difficult to refer to emerging markets as a distinct category. Different levels of economic progress, capital market development, and valuations can be witnessed across emerging market indices. Active management is typically preferred in this asset class.

Coordinated global growth has helped propel emerging market equities

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



#### **ECONOMIC MOMENTUM**



#### **BRIC VALUATIONS**



Source: Bloomberg, as of 9/30/17

Source: MSCI, as of 12/31/17



Source: Standard & Poor's, MSCI, as of 12/31/17

# Equity valuations

Equity valuations grew slightly richer over the quarter and remain high. However, strong underlying earnings growth has sustained above-average performance. Global economic acceleration, robust earnings growth, and accommodative monetary policies contribute to our view that a risk overweight position is warranted.

Comparing valuation increases to earnings growth demonstrates that the recent pickup in equity performance is fundamentally driven (fueled by earnings rather than higher equity prices). In this environment the forward P/E measure tends to provide a more accurate representation of

valuations. Equity price is a product of expectations for future earnings and cash flows. The forward P/E measure takes into account future earnings while the trailing P/E focuses on past earnings, which leads the trailing P/E measure to incorrectly rise during times when prices and earnings may in fact be rising at the same pace (implying no true valuation movement).

Higher valuations imply lower future equity returns over the longer-term. However, over shorter periods of time equities may produce strong returns despite high valuations, as seen recently.

#### FORWARD P/E RATIOS



#### TRAILING P/E RATIOS



#### Source: Bloomberg, as of 12/31/17

#### **VALUATION METRICS**

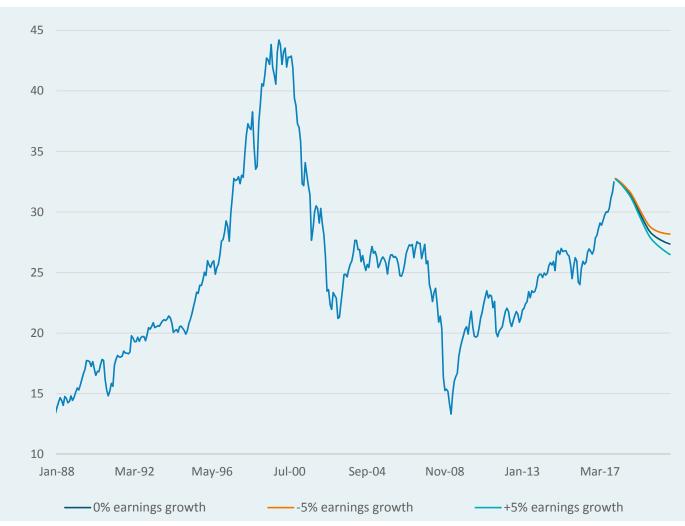


Source: Bloomberg, as of 12/31/17 - trailing P/E



Source: MSCI, as of 12/31/17

# Shiller P/E



- The Shiller P/E, or CAPE ratio
   (cyclically adjusted price-to earnings), uses current market price
   divided by average real (inflation adjusted) corporate earnings of the
   past 10 years to arrive at a
   valuation multiple.
- The CAPE ratio is currently very high relative to history, though this can be partly explained by the fact that the past 10 years of earnings includes the global financial crisis – one of worst earnings depressions in history (which has pushed the CAPE ratio upward).
- The chart on the left illustrates that the CAPE ratio will come down significantly in the near future, all other things being equal, as the global financial crisis falls out of the CAPE's 10 year earnings window.

Source: Robert Shiller, Verus – The light blue line is Robert Shiller's CAPE ratio over the past 30 years. Each line illustrates how the CAPE ratio will move assuming various after-inflation earnings growth rates, and assuming equity prices increase at the rate of inflation.



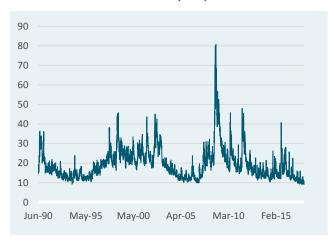
# Equity volatility

Equity volatility has stayed extraordinarily low. U.S. market volatility over the past year was 3.9% (S&P 500), compared to its historical average annualized volatility of 14.2%. International equity volatility has also been low with developed markets at 4.2% (MSCI EAFE) and emerging markets at 6.5% (MSCI Emerging Markets). Implied volatility as indicated by the VIX has also remained suppressed. Muted volatility environments have historically resulted in a lower probability of a significant market drawdown.

The current low volatility environment has been influenced by very few significant economic surprises. Steady increases in GDP growth and consistent inflation, which is likely a byproduct of central bank intervention, has helped lead to stable asset price movements. Volatility may begin to return to more normal levels if central banks stay on course with monetary tightening. However, central banks will likely remain very sensitive to contributing to market volatility.

Equity volatility has trended downwards

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



#### **REALIZED 1-YEAR ROLLING VOLATILITY**



#### Source: Bloomberg, as of 12/31/17

#### **U.S. VOLATILITY SKEW**

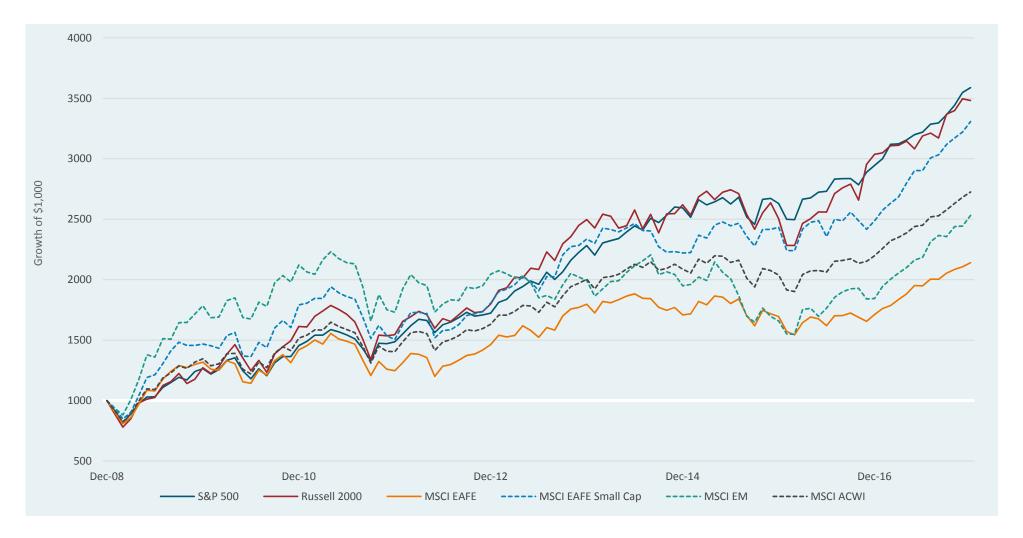


Source: CBOE, as of 12/31/17



Source: CBOE, as of 12/31/17

# Long-term equity performance



Source: MPI, as of 12/31/17



# Other assets



# Real estate

The core real estate market experienced lower returns in recent quarters than earlier in the cycle as price appreciation has slowed. In the third quarter, the NCREIF Property Index returned 1.7%, of which a net 1.1% came from income. With cap rates at 4.4% as of September 30<sup>th</sup>, further real estate price appreciation may be difficult. Income will likely continue to play a central role in overall returns.

Although valuations are high, fundamentals remain positive. Growth in net operating income (NOI) has leveled out, but is still healthy at 5.2% and transaction volumes are

above average. NOI growth has been driven by industrial properties, which have benefitted from the expansion of ecommerce. On the other side of the e-commerce trend, retail properties have experienced weak NOI growth. The downtrend in vacancy rates has flattened out, but vacancies are still low relative to history at 6.7%.

Given where real estate stands in the cycle, we recommend a conservative approach to leverage, liquidity, and quality. We are more constructive on core real estate, as opposed to value add or opportunistic.

### NCREIF PROPERY INDEX RETURNS

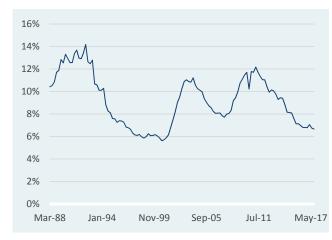


### **NOI GROWTH & CAP RATES**



### Source: NCREIF, as of 9/30/17

### **VACANCY RATES**



Source: NCREIF, as of 9/30/17



Source: NCREIF, as of 9/30/17

# Currency

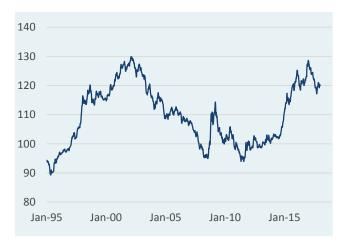
The U.S. dollar was little changed in the fourth quarter, but finished the year down 7%. Investors with unhedged international asset exposure have seen large disparities in performance as currency movement continued to contribute to volatility and uncertainty.

Recent strengthening of developed and developing economies relative to the U.S. has likely contributed to U.S. dollar weakness. The U.S. Federal Reserve is engaged in monetary tightening, which implies a stronger dollar on a standalone basis. However, U.S. growth expectations

have shifted relative to international economies which has influenced exchange rates and contributed to recent U.S. dollar movement. Fluctuations in relative growth expectations implies changes in expected inflation and interest rate levels, which directly impacts the foreign exchange market.

Forecasting currency movement over short periods of time can be extremely difficult. Hedging currency risk is an appropriate method for mitigating currency volatility and uncertainty.

### U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, as of 12/27/17

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



Source: MPI, as of 12/31/17

### U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 12/31/17

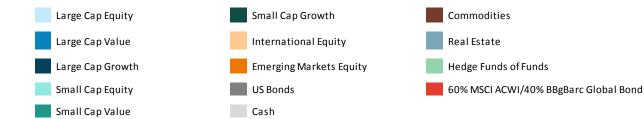


# Appendix



# Periodic table of returns

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD	5-Year	10-Yea
Emerging Markets Equity	16.6	38.4	23.2	35.2	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	17.3	10.0
Large Cap Growth	8.1	37.8	23.1	32.9	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	15.2	9.2
International Equity	6.4	37.2	22.4	31.8	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	15.7	8.7
Small Cap Growth	4.4	31.0	21.6	30.5	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	14.1	8.6
Large Cap Equity	3.2	28.5	21.4	22.4	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	14.0	8.2
60/40 Global Portfolio	2.6	25.7	16.5	16.2	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	13.0	7.1
Small Cap Equity	0.4	19.6	14.4	13.9	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	10.3	6.2
Large Cap Value	-1.5	18.5	11.3	12.9	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	7.9	4.3
Small Cap Value	-1.8	15.2	10.3	10.6	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	6.8	4.0
Hedge Funds of Funds	-2.0	11.6	9.9	9.7	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	4.3	1.9
Real Estate	-2.4	11.1	6.4	5.2	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	5.1	4.0	1.7
US Bonds	-2.9	7.5	6.0	2.1	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	2.1	1.1
Commodities	-3.5	5.7	5.1	-3.4	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	0.3	0.3
Cash	-7.3	-5.2	3.6	-11.6	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-8.5	-6.8
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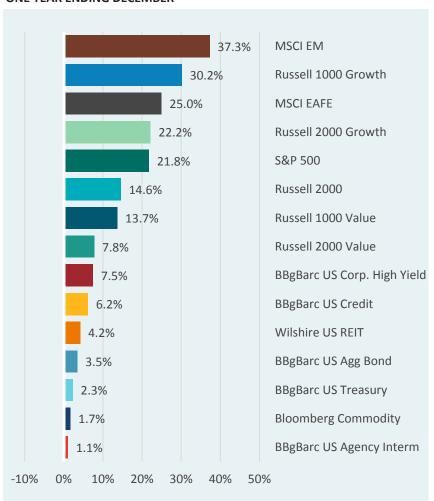
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/17.



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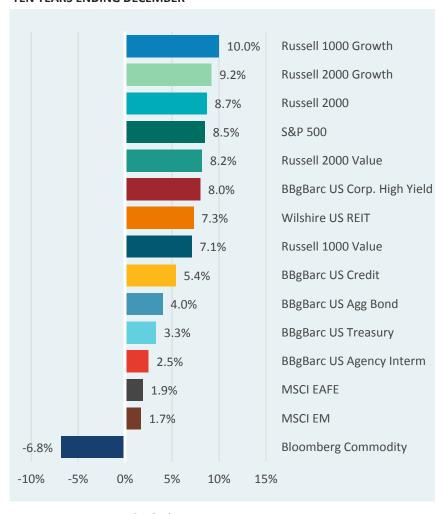
# Major asset class returns

### ONE YEAR ENDING DECEMBER



### Source: Morningstar, as of 12/31/17

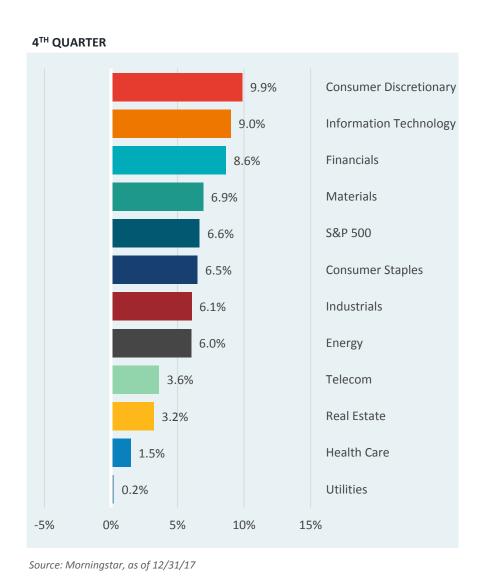
### **TEN YEARS ENDING DECEMBER**



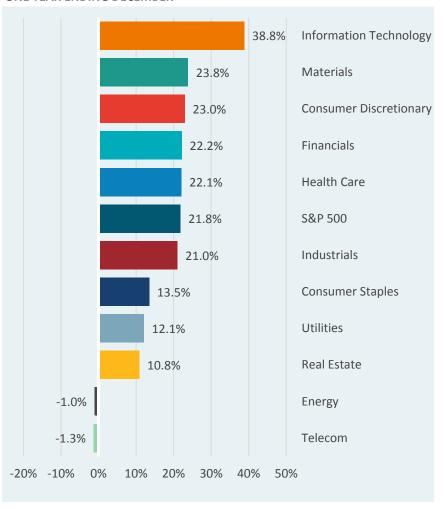
Source: Morningstar, as of 12/31/17



# S&P 500 sector returns







Source: Morningstar, as of 12/31/17



# Detailed index returns

DO	NΛ	ECT	TI (		F	ш	IT۱	,
$\boldsymbol{\nu}$	IVI	LJ		_	Е.	 u		

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	1.1	6.6	21.8	21.8	11.4	15.8	8.5
S&P 500 Equal Weighted	1.2	6.2	18.9	18.9	10.1	15.8	10.2
DJ Industrial Average	1.9	11.0	28.1	28.1	14.4	16.4	9.3
Russell Top 200	1.2	6.8	23.0	23.0	11.9	16.0	8.4
Russell 1000	1.1	6.6	21.7	21.7	11.2	15.7	8.6
Russell 2000	(0.4)	3.3	14.6	14.6	10.0	14.1	8.7
Russell 3000	1.0	6.3	21.1	21.1	11.1	15.6	8.6
Russell Mid Cap	0.9	6.1	18.5	18.5	9.6	15.0	9.1
Style Index							
Russell 1000 Growth	0.8	7.9	30.2	30.2	13.8	17.3	10.0
Russell 1000 Value	1.5	5.3	13.7	13.7	8.7	14.0	7.1
Russell 2000 Growth	0.1	4.6	22.2	22.2	10.3	15.2	9.2
Russell 2000 Value	(1.0)	2.0	7.8	7.8	9.5	13.0	8.2

### **FIXED INCOME**

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US Treasury US TIPS	0.9	1.3	3.0	3.0	2.1	0.1	3.5
BBgBarc US Treasury Bills	0.1	0.2	0.8	0.8	0.4	0.3	0.5
BBgBarc US Agg Bond	0.5	0.4	3.5	3.5	2.2	2.1	4.0
Duration							
BBgBarc US Treasury 1-3 Yr	0.0	(0.3)	0.4	0.4	0.6	0.6	1.5
BBgBarc US Treasury Long	1.7	2.4	8.5	8.5	2.8	3.5	6.6
BBgBarc US Treasury	0.3	0.1	2.3	2.3	1.4	1.3	3.3
Issuer							
BBgBarc US MBS	0.3	0.2	2.5	2.5	1.9	2.0	3.8
BBgBarc US Corp. High Yield	0.3	0.5	7.5	7.5	6.4	5.8	8.0
BBgBarc US Agency Interm	0.0	(0.3)	1.1	1.1	1.1	1.0	2.5
BBgBarc US Credit	0.8	1.0	6.2	6.2	3.6	3.2	5.4

### INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	1.6	5.7	24.0	24.0	9.3	10.8	4.7
MSCI ACWI ex US	2.2	5.0	27.2	27.2	7.8	6.8	1.8
MSCI EAFE	1.6	4.2	25.0	25.0	7.8	7.9	1.9
MSCI EM	3.6	7.4	37.3	37.3	9.1	4.3	1.7
MSCI EAFE Small Cap	2.7	6.1	33.0	33.0	14.2	12.9	5.8
Style Index							
MSCI EAFE Growth	1.7	5.2	28.9	28.9	9.2	8.8	2.7
MSCI EAFE Value	1.5	3.2	21.4	21.4	6.4	6.9	1.1
Regional Index							
MSCI UK	5.0	5.7	22.3	22.3	4.1	5.2	1.5
MSCI Japan	0.7	8.5	24.0	24.0	11.6	11.2	3.2
MSCI Euro	(0.5)	0.4	26.5	26.5	7.6	7.9	(0.3)
MSCI EM Asia	2.8	8.4	42.8	42.8	11.0	7.9	3.6
MSCI EM Latin American	4.4	(2.3)	23.7	23.7	3.8	(3.2)	(1.7)

### **OTHER**

	]						
Index							
Bloomberg Commodity	3.0	4.7	1.7	1.7	(5.0)	(8.5)	(6.8)
Wilshire US REIT	(0.1)	1.7	4.2	4.2	5.2	9.3	7.3
CS Leveraged Loans	0.4	1.2	4.2	4.2	4.5	4.3	4.6
Regional Index							
JPM EMBI Global Div	0.7	1.2	10.3	10.3	7.1	4.6	7.3
JPM GBI-EM Global Div	2.0	8.0	15.2	15.2	2.5	(1.5)	3.6
Hedge Funds							
HFRI Composite	0.9	2.5	8.5	8.5	4.2	4.9	3.2
HFRI FOF Composite	0.9	2.0	7.7	7.7	2.6	4.0	1.1
Currency (Spot)							
Euro	0.7	1.6	13.8	13.8	(0.3)	(1.9)	(1.9)
Pound	(0.1)	0.8	9.5	9.5	(4.6)	(3.6)	(3.8)
Yen	(0.7)	(0.1)	3.5	3.5	2.1	(5.2)	(0.1)

Source: Morningstar, as of 12/31/17



# **Definitions**

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

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

Citi Economic Surprise Index - objective and quantitative measures of economic news. Defined as weighted historical standard deviations of data surprises (actual releases vs Bloomberg survey median). A positive reading of the Economic Surprise Index suggests that economic releases have on balance been beating consensus. The indices are calculated daily in a rolling three-month window. The weights of economic indicators are derived from relative high-frequency spot FX impacts of 1 standard deviation data surprises. The indices also employ a time decay function to replicate the limited memory of markets. (<a href="https://www.Bloomberg.com">www.Bloomberg.com</a>)

**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. (<a href="http://www.nfib-sbet.org/about/">http://www.nfib-sbet.org/about/</a>)

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# **Tulare County Employees' Retirement Association**

**Investment Performance Review** 

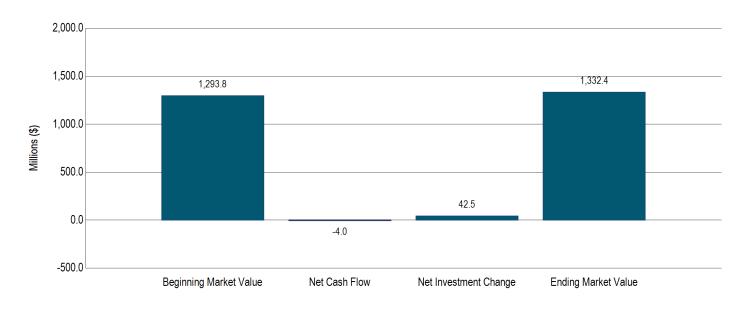
Period Ending: December 31, 2017



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Beginning Market Value	\$1,252,296,144
Net Cash Flow	-\$6,993,078
Net Investment Change	\$87,072,248
Ending Market Value	\$1,332,375,313

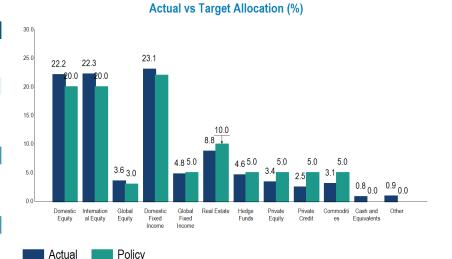
# Change in Market Value Last Three Months



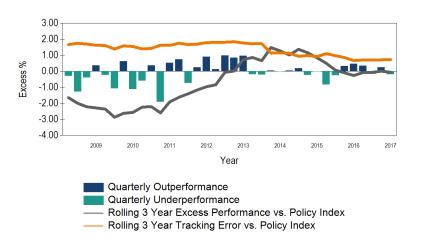
Contributions and withdrawals may include intra-account transfers between managers/funds.



	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	3.3	7.0	14.3	6.7	8.0	4.6	7.7	7.2
Policy Index	3.5	7.0	14.0	6.8	7.5	5.3	7.9	6.8
InvestorForce Public DB Gross Rank	71	59	71	77	76	93	57	18
Total Fund x Clifton	3.3	7.0	14.2	6.7	7.9			
Policy Index	3.5	7.0	14.0	6.8	7.5			
InvestorForce Public DB Gross Rank	73	62	72	78	77			
Total Domestic Equity	6.3	12.1	22.3	11.5	16.2	9.2	11.0	9.9
Russell 3000	6.3	11.2	21.1	11.1	15.6	8.6	10.3	7.4
InvestorForce Public DB US Eq Gross Rank	39	8	16	18	6	15	16	1
Total International Equity	4.4	11.1	26.9	8.3	7.4	0.9	8.2	6.1
MSCI ACWI ex USA Gross	5.1	11.6	27.8	8.3	7.3	2.3	9.2	6.1
InvestorForce Public DB ex-US Eq Gross Rank	76	64	80	70	69	92	84	60
Total Global Equity	8.8	15.4	33.7	11.2		-	-	
MSCI ACWI Gross	5.8	11.5	24.6	9.9				
InvestorForce Public DB Glbl Eq Gross Rank	1	1	1	1				
Total Fixed Income	0.2	1.3	4.3	2.9	2.5	5.0	4.9	
BBgBarc US Aggregate TR	0.4	1.2	3.5	2.2	2.1	4.0	4.1	
InvestorForce Public DB US Fix Inc Gross Rank	66	60	50	43	51	35	37	
Total Domestic Fixed Income	0.5	1.6	4.4	3.1	2.5	-	-	
BBgBarc US Aggregate TR	0.4	1.2	3.5	2.2	2.1			
Total Global Fixed Income	-1.4	-0.1	3.0	2.1	2.3		-	
JPM GBI Global TR USD	1.0	2.7	6.8	1.9	0.3			-



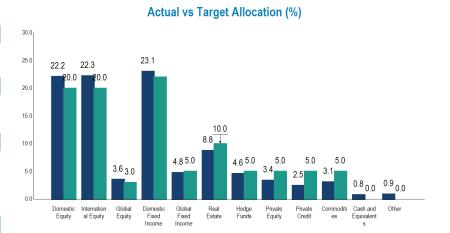
Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



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.

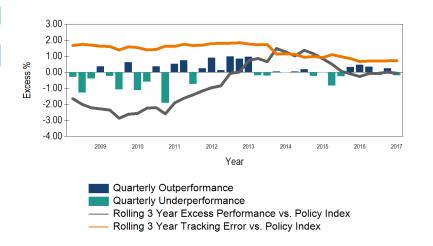


	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Real Assets	3.0	5.4	5.0	5.2			-	
Real Assets Composite Benchmark	2.8	4.8	5.2	4.6				
Total Real Estate	1.6	3.2	4.3	9.7	10.7	3.5	8.4	8.6
NCREIF Property Index	1.8	3.5	7.0	9.4	10.2	6.1	9.0	
NCREIF-ODCE	2.1	4.0	7.6	10.4	11.5	5.0	8.3	8.9
Total Commodities	7.0	12.0	7.5	-3.2			-	
Bloomberg Commodity Index TR USD	4.7	7.3	1.7	-5.0				
Commodities Broad Basket MStar MF Rank	17	26	16	37				
Total Alternatives	2.2	4.6	5.5	0.9	0.7	0.9	-	
CPI + 5%	1.1	3.1	7.2	6.7	6.5	6.7		
Total Private Equity	4.1	7.5	11.0	8.2	12.1	8.8	-	
Russell 3000 + 3%	7.1	12.8	24.7	14.4	19.0	11.8		
Total Private Credit	1.7	3.3	4.3	-			-	
BBgBarc High Yield +2% (Lagged)	2.5	5.2	11.0					
Total Liquid Alts/HFoF	1.0	3.1	5.4	2.1	4.5		-	
CPI + 5%	1.1	3.1	7.2	6.7	6.5			
Total Opportunistic	1.4	3.0	3.6	5.7	12.2			



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

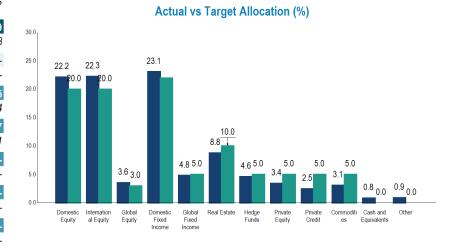
**Policy** 



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.



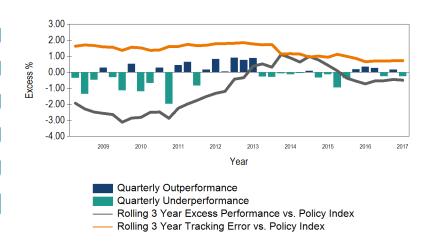
	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs
Total Fund	3.2	6.9	13.9	6.3	7.5	4.3	7.3	6.9
Policy Index	3.5	7.0	14.0	6.8	7.5	5.3	7.9	6.8
Total Fund x Clifton	3.2	6.8	13.8	6.2	7.5			
Policy Index	3.5	7.0	14.0	6.8	7.5			
Total Domestic Equity	6.2	11.9	21.9	11.1	15.7	8.8	10.6	9.5
Russell 3000	6.3	11.2	21.1	11.1	15.6	8.6	10.3	7.4
Total International Equity	4.4	10.9	26.5	7.9	7.1	0.6	7.8	5.7
MSCI ACWI ex USA Gross	5.1	11.6	27.8	8.3	7.3	2.3	9.2	6.1
Total Global Equity	8.6	14.9	32.6	10.2				
MSCI ACWI Gross	5.8	11.5	24.6	9.9				
Total Fixed Income	0.1	1.2	3.9	2.6	2.2	4.7	4.7	
BBgBarc US Aggregate TR	0.4	1.2	3.5	2.2	2.1	4.0	4.1	
Total Domestic Fixed Income	0.5	1.5	4.1	2.8	2.2	-	-	
BBgBarc US Aggregate TR	0.4	1.2	3.5	2.2	2.1			
Total Global Fixed Income	-1.5	-0.4	2.4	1.6	1.8			
JPM GBI Global TR USD	1.0	2.7	6.8	1.9	0.3			
Total Real Assets	3.0	5.4	5.0	4.6	-		-	
Real Assets Composite Benchmark	2.8	4.8	5.2	4.6				
Total Real Estate	1.6	3.2	4.3	9.1	10.2	3.3	7.5	7.7
NCREIF Property Index	1.8	3.5	7.0	9.4	10.2	6.1	9.0	
NCREIF-ODCE	2.1	4.0	7.6	10.4	11.5	5.0	8.3	8.9
Total Commodities	7.0	12.0	7.5	-3.7	-		-	
Bloomberg Commodity Index TR USD	4.7	7.3	1.7	-5.0				
Total Alternatives	2.2	4.6	5.5	0.2	0.0	0.5	-	
CPI + 5%	1.1	3.1	7.2	6.7	6.5	6.7		
Total Private Equity	4.1	7.5	11.0	7.2	11.2	8.3	-	-
Russell 3000 + 3%	7.1	12.8	24.7	14.4	19.0	11.8		
Total Private Credit	1.7	3.3	4.3		-			
BBgBarc High Yield +2% (Lagged)	2.5	5.2	11.0					
Total Liquid Alts/HFoF	1.0	3.1	5.4	1.6	3.8	-		
CPI + 5%	1.1	3.1	7.2	6.7	6.5			
Total Opportunistic	1.4	3.0	3.6	4.6	11.2			_



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

**Policy** 

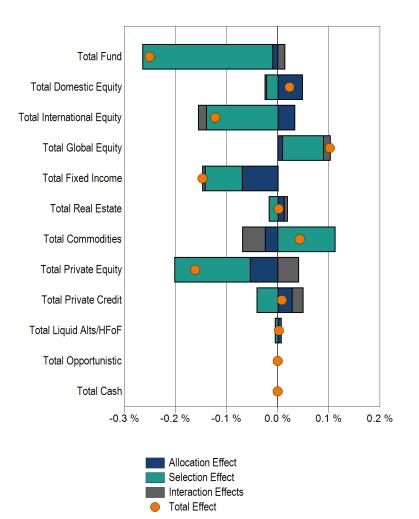
Actual



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.



# Attribution Effects 3 Months Ending December 31, 2017



# **Performance Attribution**

Last 3 Mo.	YTD
3.2%	13.9%
3.5%	14.0%
-0.3%	-0.1%
-0.3%	-0.8%
0.0%	0.5%
0.0%	0.3%
	3.2% 3.5% -0.3% -0.3% 0.0%

<sup>\*</sup>Calculated from policy benchmark returns and policy weightings of each compenent of the policy benchmark.

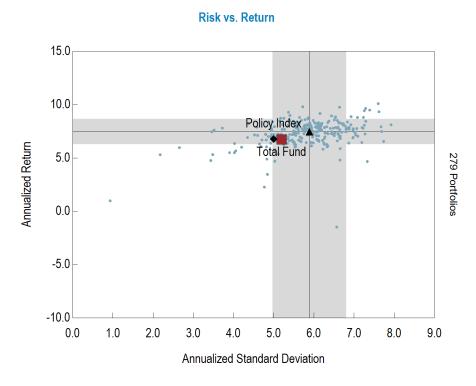
# Attribution Summary 3 Months Ending December 31, 2017

	Wtd. Actual	Vtd. Index	Excess	Selection		Interaction	Total
	Return	Return	Return	Effect	Effect	Effects	Effects
Total Domestic Equity	6.2%	6.3%	-0.1%	0.0%	0.1%	0.0%	0.1%
Total International Equity	4.4%	5.1%	-0.7%	-0.1%	0.1%	0.0%	0.0%
Total Global Equity	8.6%	5.8%	2.7%	0.1%	0.0%	0.0%	0.1%
Total Fixed Income	0.1%	0.4%	-0.3%	-0.1%	0.0%	0.0%	-0.1%
Total Real Estate	1.6%	1.8%	-0.2%	0.0%	0.0%	0.0%	0.0%
Total Commodities	7.0%	4.7%	2.3%	0.1%	-0.1%	0.0%	0.0%
Total Private Equity	4.1%	7.1%	-3.0%	-0.1%	-0.1%	0.0%	-0.2%
Total Private Credit	1.7%	2.5%	-0.8%	0.0%	-0.1%	0.0%	-0.1%
Total Liquid Alts/HFoF	1.0%	1.1%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total Opportunistic							
Total Cash							
Total	3.2%	3.5%	-0.3%	-0.3%	0.0%	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.



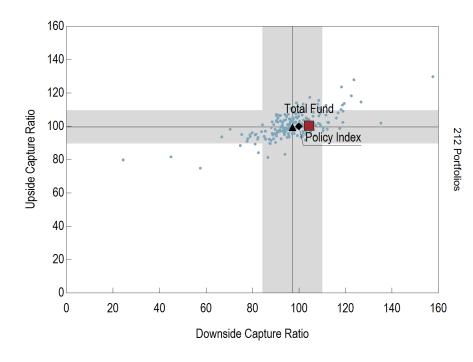
	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.72%	5.20%	-0.26%	1.03	0.72%	0.98	1.22	-0.09	100.37%	104.36%





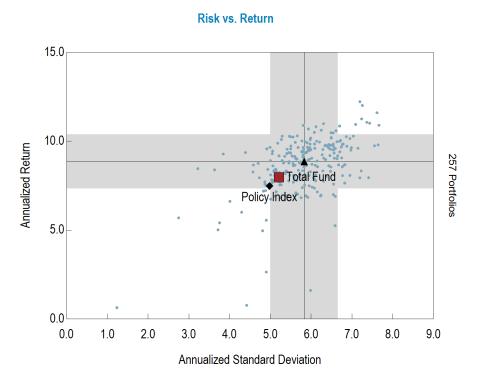
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

# **Up Markets vs. Down Markets**



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

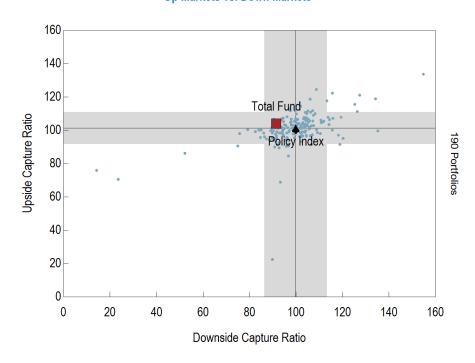
	Anlzd Ret	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	7.96%	5.21%	0.25%	1.03	0.90%	0.97	1.48	0.54	104.11%	91.45%





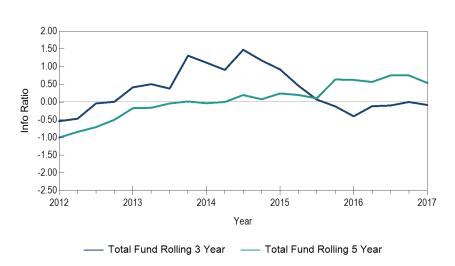
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

# **Up Markets vs. Down Markets**

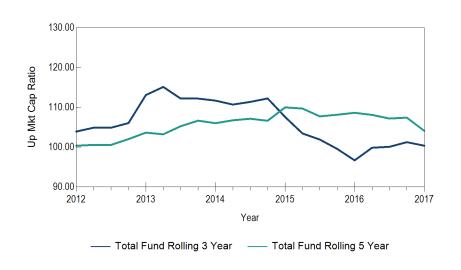


- Total Fund
- Policy Index
- Universe Median
- 68% Confidence Interval
- InvestorForce Public DB Gross

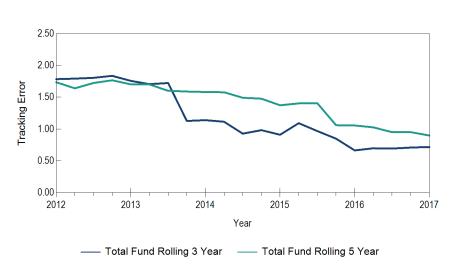
# **Rolling Information Ratio**



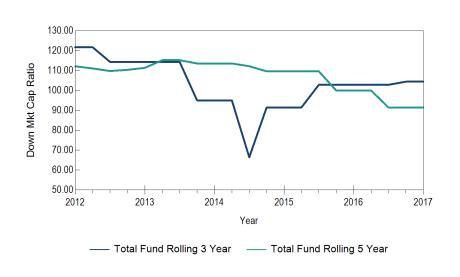
# Rolling Up Market Capture Ratio (%)



# **Rolling Tracking Error**



# Rolling Down Market Capture Ratio (%)



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	1,332,375,313	100.0	3.3	7.0	14.3	6.7	8.0	4.6	14.3	7.6	-1.2	4.2	15.8
Policy Index			3.5	7.0	14.0	6.8	7.5	5.3	14.0	8.0	-1.1	4.6	12.6
InvestorForce Public DB Gross Rank			71	59	71	77	76	93	71	53	80	83	49
Total Fund x Clifton	1,324,781,090	99.4	3.3	7.0	14.2	6.7	7.9		14.2	7.6	-1.1	4.1	15.8
Policy Index			3.5	7.0	14.0	6.8	7.5		14.0	8.0	-1.1	4.6	12.6
InvestorForce Public DB Gross Rank			73	62	72	78	77		72	53	80	87	48
Total Domestic Equity	295,126,057	22.2	6.3	12.1	22.3	11.5	16.2	9.2	22.3	11.5	1.6	12.4	35.9
Russell 3000			6.3	11.2	21.1	11.1	15.6	8.6	21.1	12.7	0.5	12.6	33.6
InvestorForce Public DB US Eq Gross Rank			39	8	16	18	6	15	16	77	10	17	24
SSGA S&P 500 Flagship Fund	55,011,800	4.1	6.7	11.4	21.9	11.5	15.8		21.9	12.0	1.5	13.7	32.4
S&P 500			6.6	11.4	21.8	11.4	15.8	-	21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank			57	54	52	33	43		52	31	40	42	58
QMA Large Cap Core	55,937,934	4.2	7.5	13.7	22.5	12.1	16.9		22.5	12.5	2.1	15.6	34.3
S&P 500			6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank			34	19	42	20	16		42	25	31	20	37
Ivy Large Cap Growth	56,348,555	4.2	6.4	14.7	30.2	12.7	17.3		30.2	2.1	7.6	12.8	37.3
Russell 1000 Growth			7.9	14.2	30.2	13.8	17.3		30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank			67	20	42	47	35		42	72	26	40	25
Boston Partners Large Cap Value	54,647,428	4.1	7.1	12.3	20.1	9.8	15.2	9.2	20.1	14.7	-3.9	11.8	37.0
Russell 1000 Value			5.3	8.6	13.7	8.7	14.0	7.1	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Gross Rank			31	23	22	48	39	23	22	54	65	58	26
SSGA Russell Small Cap Completeness Index	23,367,673	1.8	4.9	10.1	18.2	10.0			18.2	16.5	-3.5	7.4	
Russell Small Cap Completeness			4.9	10.1	18.3	10.0	-	-	18.3	16.6	-3.4	7.4	
eV US Small Cap Core Equity Gross Rank			25	41	23	71		-	23	84	68	37	
William Blair SMID Cap Growth	26,255,732	2.0	5.9	11.7	30.4	14.4	18.7	11.9	30.4	8.2	6.1	9.8	43.1
Russell 2500 Growth			6.3	12.5	24.5	10.9	15.5	9.6	24.5	9.7	-0.2	7.1	40.7
eV US Mid Cap Growth Equity Gross Rank			57	40	16	6	2	5	16	22	7	33	11
Lee Munder Small Value	23,556,935	1.8	3.1	6.3	8.6	11.9	14.4		8.6	28.4	0.4	5.1	33.1
Russell 2000 Value			2.0	7.3	7.8	9.5	13.0	-	7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank			67	83	68	27	54		68	38	9	60	85



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	296,468,138	22.3	4.4	11.1	26.9	8.3	7.4	0.9	26.9	6.2	-5.9	-4.8	18.5
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank			76	64	80	70	69	92	80	13	85	83	44
SSGA MSCI ACWI Ex US Index Fund	98,170,766	7.4	5.0	11.6	27.6	8.1	7.1		27.6	4.8	-5.5	-3.6	15.5
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank			34	39	49	74	95		49	17	96	49	90
Fidelity International Growth	98,766,944	7.4	3.8	9.0	26.3	8.0	7.2	2.2	26.3	1.2	-1.5	-5.3	18.5
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
Tulare International Custom			4.8	10.9	27.4	8.5	7.9	2.4	27.4	3.1	-2.6	-4.0	19.1
eV All EAFE Equity Gross Rank			72	80	57	77	93	85	57	52	77	75	85
PIMCO RAE Fundamental Global Ex US Fund	99,530,428	7.5	4.5	12.7	26.7	8.6	8.5		26.7	13.5	-10.9	-5.7	24.5
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank			44	26	53	64	72		53	1	99	79	51
Total Global Equity	47,314,863	3.6	8.8	15.4	33.7	11.2	-		33.7	16.1	-11.5	-	
MSCI ACWI Gross			5.8	11.5	24.6	9.9			24.6	8.5	-1.8		
InvestorForce Public DB Glbl Eq Gross Rank			1	1	1	1			1	2	99		
Skellig DST Water Fund	47,314,863	3.6	8.8	15.4	33.7	11.2			33.7	16.1	-11.5		
MSCI ACWI Gross			5.8	11.5	24.6	9.9			24.6	8.5	-1.8		
eV Global All Cap Equity Gross Rank			2	6	9	33			9	6	96		
Total Fixed Income	371,549,112	27.9	0.2	1.3	4.3	2.9	2.5	5.0	4.3	5.5	-0.8	4.6	-0.9
BBgBarc US Aggregate TR			0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
InvestorForce Public DB US Fix Inc Gross Rank			66	60	50	43	51	35	50	37	77	69	49
Total Domestic Fixed Income													
BlackRock Fixed Income	134,545,668	10.1	0.4	1.3	3.9	2.7	2.5	4.5	3.9	3.1	1.1	6.2	-1.5
BBgBarc US Aggregate TR			0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
eV All US Fixed Inc Gross Rank			52	56	54	52	53	48	54	53	39	29	75
Doubleline Core Plus	70,749,820	5.3	0.5	1.4	4.2		-		4.2	4.8		-	
BBgBarc US Aggregate TR			0.4	1.2	3.5				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank			75	90	86				86	52			
MacKay Shields Core Plus	70,607,859	5.3	0.7	1.8	5.0				5.0	5.1	-		
BBgBarc US Aggregate TR			0.4	1.2	3.5				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank			44	47	52				52	46			



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Shenkman High Yield	20,409,950	1.5	0.7	2.7	7.2	5.5	5.0		7.2	12.3	-2.4	2.5	6.3
BofA Merrill Lynch US High Yield Master II TR eV US High Yield Fixed Inc Gross Rank			0.4 49	2.5 44	7.5 57	6.4 72	5.8 78	 	7.5 57	17.5 65	-4.6 51	2.5 52	7.4 81
SSGA TIPS	11,168,407	0.8	1.3	2.1	3.0	2.0	0.1		3.0	4.7	-1.4	3.6	-8.6
BBgBarc US TIPS TR eV US TIPS / Inflation Fixed Inc Gross Rank			1.3 54	2.1 64	3. <i>0</i> 69	2.1 71	0.1 84	 	3.0 69	4.7 50	-1.4 63	3.6 44	-8.6 77
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	64,067,409	4.8	-1.4	-0.1	3.0	2.0	2.3		3.0	6.8	-3.5	2.4	3.0
JPM GBI Global TR USD			1.0	2.7	6.8	1.9	0.3		6.8	1.6	-2.6	0.7	-4.5
eV Global Fixed Inc Unhedged Gross Rank			99	99	96	77	48		96	24	67	50	23
Total Real Assets	158,477,430	11.9	3.0	5.4	5.0	5.2			5.0	10.4	0.4		
Real Assets Composite Benchmark			2.8	4.8	5.2	4.6			5.2	9.4	-0.7		
Total Real Estate	117,040,579	8.8	1.6	3.2	4.3	9.7	10.7	3.5	4.3	9.0	16.0	13.1	11.5
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
RREEF	118,601	0.0	14.7	14.2	-17.0	1.6	4.9	3.5	-17.0	11.9	13.0	8.0	12.3
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
RREEF America II	108,636,534	8.2	1.5	3.1	4.4	10.0	11.7	4.9	4.4	9.3	16.7	13.0	15.5
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	8,285,445	0.6	2.9	4.4	5.2	8.7	9.2	2.0	5.2	4.6	16.7	15.1	5.2
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	41,436,851	3.1	7.0	12.0	7.5	-3.2			7.5	14.5	-26.3		
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank			17	26	16	37			16	27	80		
Gresham MTAP Commodity Builder	20,012,682	1.5	6.5	10.4	5.9	-3.9			5.9	12.3	-25.4	-16.1	
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7	-17.0	
Commodities Broad Basket MStar MF Rank			22	33	28	45			28	53	71	34	
Wellington Commodity	21,424,169	1.6	7.4	13.6	9.0	-2.1			9.0	15.8	-25.7		
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank			13	16	9	25			9	13	73		
Total Liquid Alts/HFoF	61,716,566	4.6											
CPI + 5%													
Aetos Capital	31,588,559	2.4	1.0	2.3	6.8	3.5	5.4	3.5	6.8	2.6	1.2	5.2	11.4
BofA ML 90 DAY T-BILLS + 400 bps			1.0	2.0	3.9	3.4	3.6	4.1	3.9	3.3	3.1	3.5	4.1
Titan Advisors	30,128,007	2.3	1.0	3.9	4.0				4.0	0.6			
BofA ML 90 DAY T-BILLS + 400 bps			1.0	2.0	3.9				3.9	3.3			



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	1,332,375,313	100.0	3.2	6.9	13.9	6.3	7.5	4.3	13.9	7.1	-1.6	3.8	15.4
Policy Index			3.5	7.0	14.0	6.8	7.5	5.3	14.0	8.0	-1.1	4.6	12.6
Total Fund x Clifton	1,324,781,090	99.4	3.2	6.8	13.8	6.2	7.5		13.8	7.0	-1.6	3.7	15.5
Policy Index			3.5	7.0	14.0	6.8	7.5		14.0	8.0	-1.1	4.6	12.6
Total Domestic Equity	295,126,057	22.2	6.2	11.9	21.9	11.1	15.7	8.8	21.9	11.1	1.2	12.0	35.3
Russell 3000			6.3	11.2	21.1	11.1	15.6	8.6	21.1	12.7	0.5	12.6	33.6
SSGA S&P 500 Flagship Fund	55,011,800	4.1	6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
S&P 500			6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
QMA Large Cap Core	55,937,934	4.2	7.4	13.5	22.1	11.7	16.6		22.1	12.1	1.8	15.2	33.9
S&P 500			6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
Ivy Large Cap Growth	56,348,555	4.2	6.2	14.4	29.5	12.1	16.6		29.5	1.6	7.1	12.3	36.6
Russell 1000 Growth			7.9	14.2	30.2	13.8	17.3		30.2	7.1	5.7	13.0	33.5
Boston Partners Large Cap Value	54,647,428	4.1	7.0	12.1	19.6	9.3	14.7	8.7	19.6	14.2	-4.4	11.4	36.4
Russell 1000 Value			5.3	8.6	13.7	8.7	14.0	7.1	13.7	17.3	-3.8	13.5	32.5
SSGA Russell Small Cap Completeness Index	23,367,673	1.8	4.9	10.1	18.1	9.9			18.1	16.5	-3.5	7.3	
Russell Small Cap Completeness			4.9	10.1	18.3	10.0			18.3	16.6	-3.4	7.4	
William Blair SMID Cap Growth	26,255,732	2.0	5.7	11.2	29.3	13.4	17.6	11.0	29.3	7.2	5.2	8.8	42.0
Russell 2500 Growth			6.3	12.5	24.5	10.9	15.5	9.6	24.5	9.7	-0.2	7.1	40.7
Lee Munder Small Value	23,556,935	1.8	2.8	5.8	7.7	10.9	13.4		7.7	27.3	-0.5	4.1	31.8
Russell 2000 Value			2.0	7.3	7.8	9.5	13.0		7.8	31.7	-7.5	4.2	34.5
Total International Equity	296,468,138	22.3	4.4	10.9	26.5	7.9	7.1	0.6	26.5	5.9	-6.2	-5.0	18.3
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
SSGA MSCI ACWI Ex US Index Fund	98,170,766	7.4	5.0	11.5	27.5	8.0	7.0		27.5	4.7	-5.5	-3.7	15.5
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
Fidelity International Growth	98,766,944	7.4	3.7	8.8	25.8	7.5	6.7	1.7	25.8	0.7	-1.9	-5.7	17.9
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
Tulare International Custom			4.8	10.9	27.4	8.5	7.9	2.4	27.4	3.1	-2.6	-4.0	19.1
PIMCO RAE Fundamental Global Ex US Fund	99,530,428	7.5	4.4	12.4	26.0	8.1	8.0		26.0	13.0	-11.4	-5.9	23.7
MSCI ACWI ex USA Gross			5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
Total Global Equity	47,314,863	3.6	8.6	14.9	32.6	10.2			32.6	15.1	-12.3		
MSCI ACWI Gross			5.8	11.5	24.6	9.9			24.6	8.5	-1.8		
Skellig DST Water Fund	47,314,863	3.6	8.6	14.9	32.6	10.2			32.6	15.1	-12.3		
MSCI ACWI Gross			5.8	11.5	24.6	9.9			24.6	8.5	-1.8		

BlackRock Commodities liquidated 12/24/13. Gresham MTAP Commodities funded 12/31/13. Wellington Commodity funded 1/3/14. Skellig DST Water Fund funded 10/28/14. 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). MacKay Shields and Doubleline funded 12/1/15. UBP liquidated 12/31/2015. Titan Advisors funded 2/1/2016.



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	371,549,112	27.9	0.1	1.2	3.9	2.6	2.2	4.7	3.9	5.1	-1.1	4.3	-1.2
BBgBarc US Aggregate TR			0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
Total Domestic Fixed Income													
BlackRock Fixed Income	134,545,668	10.1	0.4	1.2	3.6	2.4	2.2	4.3	3.6	2.9	8.0	6.0	-1.8
BBgBarc US Aggregate TR			0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
Doubleline Core Plus	70,749,820	5.3	0.4	1.3	3.9				3.9	4.6	-	-	
BBgBarc US Aggregate TR			0.4	1.2	3.5				3.5	2.6			
MacKay Shields Core Plus	70,607,859	5.3	0.6	1.6	4.5				4.5	4.7			
BBgBarc US Aggregate TR			0.4	1.2	3.5				3.5	2.6			
Shenkman High Yield	20,409,950	1.5	0.6	2.5	6.7	5.0	4.5		6.7	11.7	-2.9	2.0	5.8
BofA Merrill Lynch US High Yield Master II TR			0.4	2.5	7.5	6.4	5.8		7.5	17.5	-4.6	2.5	7.4
SSGA TIPS	11,168,407	0.8	1.2	2.1	3.0	2.0	0.1		3.0	4.6	-1.5	3.6	-8.6
BBgBarc US TIPS TR			1.3	2.1	3.0	2.1	0.1		3.0	4.7	-1.4	3.6	-8.6
Total Global Fixed Income													
Franklin Templeton Global Bond Plus	64,067,409	4.8	-1.5	-0.4	2.4	1.4	1.7		2.4	6.1	-4.1	1.9	2.5
JPM GBI Global TR USD			1.0	2.7	6.8	1.9	0.3		6.8	1.6	-2.6	0.7	-4.5
Total Real Assets	158,477,430	11.9	3.0	5.4	5.0	4.6			5.0	9.5	-0.4	-	
Real Assets Composite Benchmark			2.8	4.8	5.2	4.6			5.2	9.4	-0.7		
Total Real Estate	117,040,579	8.8	1.6	3.2	4.3	9.1	10.2	3.3	4.3	8.0	15.1	12.5	11.5
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
RREEF	118,601	0.0	14.7	14.2	-17.0	1.1	4.3	3.5	-17.0	11.6	11.7	6.6	12.1
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
RREEF America II	108,636,534	8.2	1.5	3.1	4.4	9.3	11.0	4.5	4.4	8.2	15.7	12.0	15.0
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	8,285,445	0.6	2.9	4.4	5.2	8.0	8.7	0.7	5.2	3.7	15.4	14.6	5.1
NCREIF Property Index			1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE			2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9

BlackRock Commodities liquidated 12/24/13. Gresham MTAP Commodities funded 12/31/13. Wellington Commodity funded 1/3/14. Skellig DST Water Fund funded 10/28/14. 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). MacKay Shields and Doubleline funded 12/1/15. UBP liquidated 12/31/2015. Titan Advisors funded 2/1/2016.



	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	41,436,851	3.1	7.0	12.0	7.5	-3.7			7.5	13.6	-26.8		
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	20,012,682	1.5	6.5	10.4	5.9	-4.4			5.9	11.5	-25.9	-16.8	
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7	-17.0	
Wellington Commodity	21,424,169	1.6	7.4	13.6	9.0	-2.6			9.0	14.9	-26.3		
Bloomberg Commodity Index TR USD			4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Total Liquid Alts/HFoF	61,716,566	4.6											
CPI + 5%													
Aetos Capital	31,588,559	2.4	1.0	2.3	6.8	3.0	4.8	3.1	6.8	1.8	0.5	4.5	10.4
BofA ML 90 DAY T-BILLS + 400 bps			1.0	2.0	3.9	3.4	3.6	4.1	3.9	3.3	3.1	3.5	4.1
Titan Advisors	30,128,007	2.3	1.0	3.9	4.0				4.0	-0.1			
BofA ML 90 DAY T-BILLS + 400 bps			1.0	2.0	3.9				3.9	3.3			

BlackRock Commodities liquidated 12/24/13. Gresham MTAP Commodities funded 12/31/13. Wellington Commodity funded 1/3/14. Skellig DST Water Fund funded 10/28/14. 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). MacKay Shields and Doubleline funded 12/1/15. UBP liquidated 12/31/2015. Titan Advisors funded 2/1/2016.



	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	15.85%	7.48%	0.07%	1.00	0.03%	1.00	2.09	1.83	100.34%	99.12%
QMA Large Cap Core	16.93%	7.83%	0.70%	1.03	1.42%	0.97	2.13	0.80	108.55%	95.63%
Ivy Large Cap Growth	17.25%	9.59%	-2.76%	1.15	3.23%	0.90	1.77	-0.02	99.66%	101.97%
Boston Partners Large Cap Value	15.18%	8.79%	1.38%	0.98	2.96%	0.89	1.70	0.39	107.90%	91.26%
William Blair SMID Cap Growth	18.67%	9.85%	5.48%	0.85	3.71%	0.88	1.87	0.86	110.90%	62.68%
Lee Munder Small Value	14.40%	10.38%	3.65%	0.83	3.43%	0.93	1.36	0.41	96.77%	65.75%
SSGA MSCI ACWI Ex US Index Fund	7.07%	10.54%	-0.22%	1.00	0.06%	1.00	0.65	-3.74	98.65%	101.27%
Fidelity International Growth	7.17%	9.74%	0.62%	0.90	2.50%	0.95	0.71	-0.05	92.73%	90.56%
PIMCO RAE Fundamental Global Ex US Fund	8.50%	11.77%	0.88%	1.05	4.15%	0.88	0.70	0.29	97.70%	77.61%
BlackRock Fixed Income	2.52%	3.05%	0.45%	0.99	0.25%	0.99	0.75	1.73	108.42%	91.78%
Shenkman High Yield	5.05%	4.40%	0.41%	0.80	1.49%	0.94	1.09	-0.51	82.79%	81.66%
SSGA TIPS	0.13%	4.92%	-0.01%	1.00	0.03%	1.00	-0.02	-0.29	99.82%	100.05%
Franklin Templeton Global Bond Plus	2.28%	5.06%	2.35%	-0.22	9.33%	0.08	0.40	0.21	8.44%	-41.63%
RREEF	4.93%	15.12%	-32.50%	3.25	14.72%	0.10	0.31	-0.45	37.49%	
RREEF America II	11.66%	2.62%	-5.97%	1.53	1.54%	0.74	4.36	0.09	101.41%	
TA Associates Realty	9.23%	3.42%	-9.27%	1.82	2.83%	0.40	2.63	-0.34	88.93%	

			Total   Capital   %   Remaining   Capital   Market Value as of   Paid-In   Paid-In   (TVPI) <sup>2</sup>   Inception <sup>6</sup>   Date											
Vintage Year	Manager Name/Fund Name	Estimated Market Value as of 12/31/2017 <sup>3</sup>		•		•			Paid-In	Paid-In	Since			
Private E	quity													
2005 2004 2011 2010 2016 2016 2011 Private E 2007	BlackRock Private Capital II <sup>7</sup> Pantheon USA Fund VI PIMCO Bravo KKR Mezzanine Partners Ocean Avenue Fund III Pathway Private Equity Fund Investors 8 Stepstone Secondary Opportunities Fund II <sup>8</sup> quity - Real Estate TA Associates VIII	\$6,425,328 \$4,936,665 \$619,353 \$3,921,508 \$5,336,104 \$9,566,504 \$19,350,179 \$8,285,445	\$15,000,000	\$14,175,000	95%	\$825,000	\$17,205,000	\$5,566,665	121.4%	156.2%	7.3%	09/30/17		
2016	TPG Diversified Credit	\$33,015,186	\$80,000,000	\$32,380,522	40%	\$47,619,478	\$457,144	\$24,102,914	1.4%	103.4%	6.2%	09/30/17		
	Total Private Markets % of Portfolio (Market Value)	\$91,456,272 6.9%	\$237,500,000	\$162,509,107	68%	\$74,990,893	\$115,227,916	\$87,847,011	70.9%	127.2%				

<sup>&</sup>lt;sup>1</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

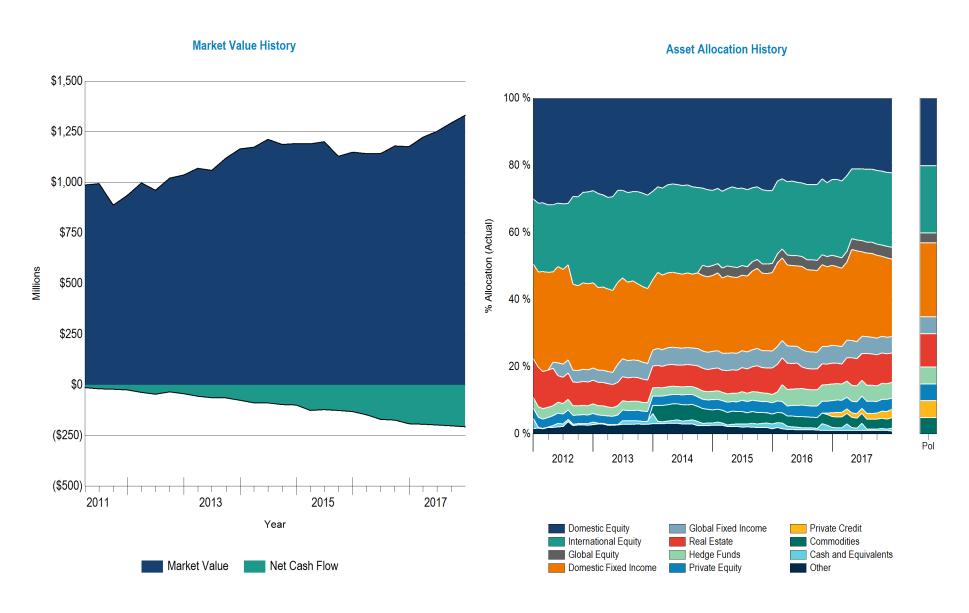
<sup>&</sup>lt;sup>4</sup>IRR currently unavailable for these funds.

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

<sup>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.

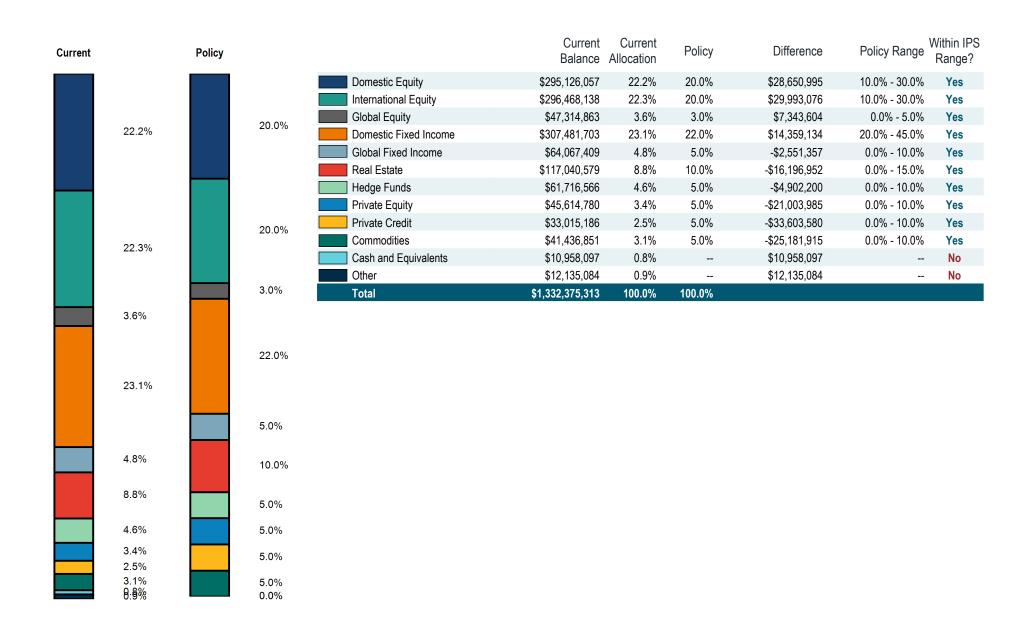
<sup>&</sup>lt;sup>7</sup>BlackRock: Total capital called is \$15,483,125 which includes recycled distributions.

<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.





Account	Fee Schedule	Market Value As of 12/31/2017	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Aetos Capital	0.70% of Assets	\$31,588,559	2.4%	\$221,120	0.70%
BlackRock Alternative Advisors	\$120,000 Annually	\$6,425,328	0.5%	\$120,000	1.87%
BlackRock Fixed Income	0.25% of First \$100.0 Mil, 0.25% of Next \$100.0 Mil	\$134,545,668	10.1%	\$336,364	0.25%
Boston Partners Large Cap Value	0.45% of First \$50.0 Mil, 0.35% of Next \$50.0 Mil, 0.30% Thereafter	\$54,647,428	4.1%	\$241,266	0.44%
Doubleline Core Plus	0.28% of First \$100.0 Mil, 0.25% Thereafter	\$70,749,820	5.3%	\$198,099	0.28%
Fidelity International Growth	0.70% of First \$25.0 Mil, 0.50% of Next \$25.0 Mil, 0.30% Thereafter	\$98,766,944	7.4%	\$446,301	0.45%
Franklin Templeton Global Bond Plus	0.62% of First \$50.0 Mil, 0.51% of Next \$50.0 Mil, 0.45% Thereafter	\$64,067,409	4.8%	\$381,744	0.60%
Gresham MTAP Commodity Builder	0.75% of Assets	\$20,012,682	1.5%	\$150,095	0.75%
Ivy Large Cap Growth	0.60% of First \$25.0 Mil, 0.50% of Next \$25.0 Mil, 0.40% Thereafter	\$56,348,555	4.2%	\$300,394	0.53%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	0.38% of Assets	\$3,921,508	0.3%	\$14,706	0.38%
Lee Munder Small Value	0.90% of First \$25.0 Mil, 0.85% of Next \$75.0 Mil, 0.30% Thereafter	\$23,556,935	1.8%	\$212,012	0.90%
MacKay Shields Core Plus	0.40% of Assets	\$70,607,859	5.3%	\$282,431	0.40%
Mellon Capital Cash Account	No Fee	\$10,958,097	0.8%		
Ocean Avenue Fund III	0.85% of Assets	\$5,336,104	0.4%	\$45,357	0.85%
Pantheon Ventures	0.47% of Assets	\$4,936,665	0.4%	\$23,400	0.47%
Pathway Private Equity Fund Investors 8	0.45% of Assets	\$9,566,504	0.7%	\$43,049	0.45%
PIMCO Bravo	1.60% of Assets	\$619,353	0.0%	\$39,639	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	\$99,530,428	7.5%	\$515,481	0.52%
QMA Large Cap Core	0.35% of First \$50.0 Mil, 0.30% of Next \$50.0 Mil, 0.25% Thereafter	\$55,937,934	4.2%	\$192,814	0.34%

\*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.

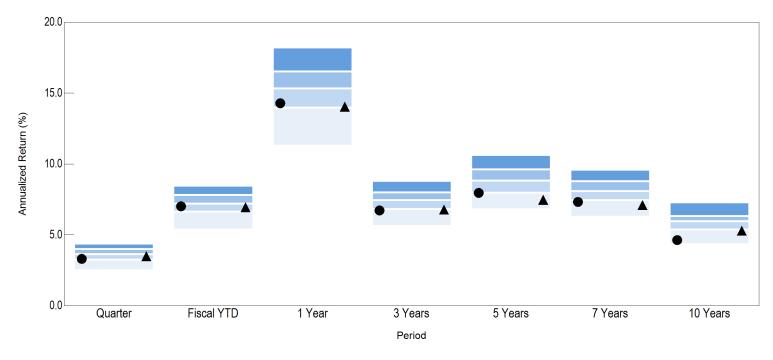


Account	Fee Schedule	Market Value As of 12/31/2017	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
RREEF	Management Fee: 7% of Net Operating Income Incentive Fee: 15% of excess returns over a 6% hurdle rate	\$118,601	0.0%	-	-
RREEF America II	0.95% of Assets	\$108,636,534	8.2%	\$1,032,047	0.95%
Shenkman High Yield	0.50% of Assets	\$20,409,950	1.5%	\$102,050	0.50%
Skellig DST Water Fund	0.85% of Assets	\$47,314,863	3.6%	\$402,176	0.85%
SSGA MSCI ACWI Ex US Index Fund	0.08% of First \$25.0 Mil, 0.07% of Next \$25.0 Mil, 0.06% Thereafter	\$98,170,766	7.4%	\$66,402	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	\$23,367,673	1.8%	\$11,684	0.05%
SSGA S&P 500 Flagship Fund	0.03% of Assets	\$55,011,800	4.1%	\$16,504	0.03%
SSGA TIPS	0.06% of First \$50.0 Mil, 0.05% of Next \$50.0 Mil, 0.04% Thereafter	\$11,168,407	0.8%	\$6,701	0.06%
Stepstone Secondary Opportunities Fund II	\$343,750 Annually	\$19,350,179	1.5%	\$343,750	1.78%
TA Associates Realty	0.60% of Assets	\$8,285,445	0.6%	\$49,713	0.60%
The Clifton Group	Asset Based Fee: 0.0375% (Quarterly) Retainer Fee: \$4,500 (Quarterly) Minimum Expense: \$50,000 (Annual)	\$7,594,223	0.6%		
Titan Advisors	.75% on AUM, 10% on performance, 5% hurdle rate.	\$30,128,007	2.3%		
TPG Diversified Credit	No Fee	\$33,015,186	2.5%		
Wellington Commodity	0.75% of Assets	\$21,424,169	1.6%	\$160,681	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	\$26,255,732	2.0%	\$225,046	0.86%
Investment Management Fee		\$1,332,375,313	100.0%	\$6,181,026	0.46%

<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.





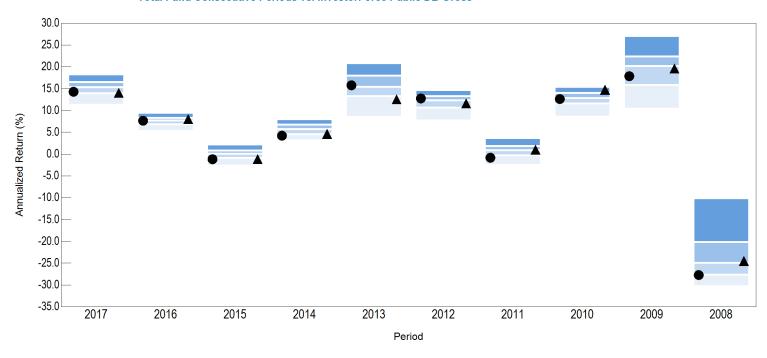


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Total FundPolicy Index

eturn (Rar	nk)												
4.4		8.5		18.2		8.8		10.6		9.6		7.3	
4.0		7.8		16.5		8.0		9.6		8.8		6.3	
3.7		7.2		15.3		7.5		8.9		8.1		6.0	
3.3		6.7		14.0		6.8		8.0		7.5		5.4	
2.5		5.4		11.3		5.6		6.8		6.3		4.3	
307		304		304		279		257		226		207	
3.3	(71)	7.0	(59)	14.3	(71)	6.7	(77)	8.0	(76)	7.3	(80)	4.6	(93)
3.5	(63)	7.0	(62)	14.0	(74)	6.8	(77)	7.5	(87)	7.1	(84)	5.3	(78)

# Total Fund Consecutive Periods vs. InvestorForce Public DB Gross

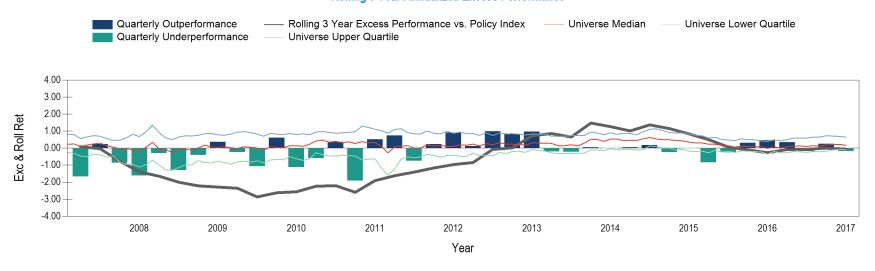


5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

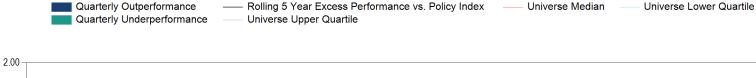
Total FundPolicy Index

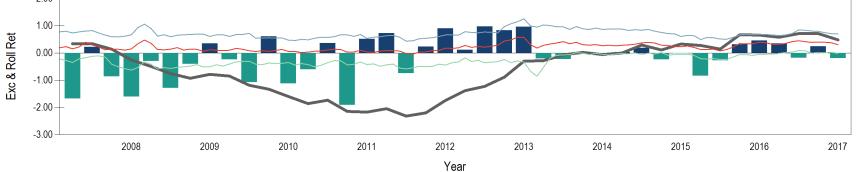
(Rank)									
	9.4	2.2	8.0	20.8	14.6	3.6	15.4	27.0	-10.1
	8.4	0.9	6.8	18.0	13.4	1.9	14.0	22.4	-20.1
	7.7	0.1	5.8	15.5	12.4	0.9	12.9	20.2	-24.9
	6.9	-0.9	4.6	13.3	10.7	-0.3	11.7	15.9	-27.6
	5.3	-2.6	3.2	8.5	7.8	-2.5	8.6	10.5	-30.3
	305	316	248	231	236	206	188	184	181
(71) (74)	,	,			12.8 (43) 11.6 (67)	-0.8 (86) 1.0 (46)	12.6 (57) 14.7 (13)	17.8 (67) 19.6 (53)	-27.7 (77) -24.5 (46)
	(71)	9.4 8.4 7.7 6.9 5.3 305 (71) 7.6 (5	9.4 2.2 8.4 0.9 7.7 0.1 6.9 -0.9 5.3 -2.6 305 316 (71) 7.6 (53) -1.2 (80	9.4 2.2 8.0 8.4 0.9 6.8 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	9.4 2.2 8.0 20.8 8.4 0.9 6.8 18.0 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)	9.4 2.2 8.0 20.8 14.6 8.4 0.9 6.8 18.0 13.4 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)	9.4 2.2 8.0 20.8 14.6 3.6 8.4 0.9 6.8 18.0 13.4 1.9 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)	9.4 2.2 8.0 20.8 14.6 3.6 15.4 8.4 0.9 6.8 18.0 13.4 1.9 14.0 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)	9.4 2.2 8.0 20.8 14.6 3.6 15.4 27.0 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)

# **Rolling 3 Year Annualized Excess Performance**



# **Rolling 5 Year Annualized Excess Performance**





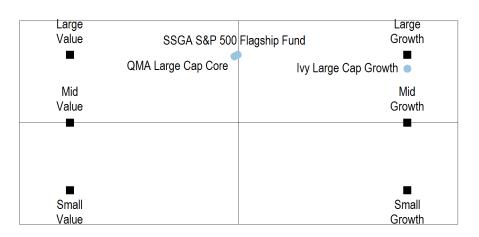
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	295,126,057	6.3	12.1	22.3	11.5	16.2	9.2	22.3	11.5	1.6	12.4	35.9
Russell 3000		6.3	11.2	21.1	11.1	15.6	8.6	21.1	12.7	0.5	12.6	33.6
InvestorForce Public DB US Eq Gross Rank		39	8	16	18	6	15	16	77	10	17	24
SSGA S&P 500 Flagship Fund	55,011,800	6.7	11.4	21.9	11.5	15.8		21.9	12.0	1.5	13.7	32.4
S&P 500		6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank		57	54	52	33	43		52	31	40	42	58
QMA Large Cap Core	55,937,934	7.5	13.7	22.5	12.1	16.9		22.5	12.5	2.1	15.6	34.3
S&P 500		6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
eV US Large Cap Core Equity Gross Rank		34	19	42	20	16		42	25	31	20	37
Ivy Large Cap Growth	56,348,555	6.4	14.7	30.2	12.7	17.3		30.2	2.1	7.6	12.8	37.3
Russell 1000 Growth		7.9	14.2	30.2	13.8	17.3		30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank		67	20	42	47	35		42	72	26	40	25

U.S. Effective Style Map 3 Years

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

Small
Value
Growth
Growth

U.S. Effective Style Map 5 Years



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



	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Boston Partners Large Cap Value	54,647,428	7.1	12.3	20.1	9.8	15.2	9.2	20.1	14.7	-3.9	11.8	37.0
Russell 1000 Value		5.3	8.6	13.7	8.7	14.0	7.1	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Gross Rank		31	23	22	48	39	23	22	54	65	58	26
SSGA Russell Small Cap Completeness Index	23,367,673	4.9	10.1	18.2	10.0			18.2	16.5	-3.5	7.4	
Russell Small Cap Completeness		4.9	10.1	18.3	10.0			18.3	16.6	-3.4	7.4	
eV US Small Cap Core Equity Gross Rank		25	41	23	71			23	84	68	37	
William Blair SMID Cap Growth	26,255,732	5.9	11.7	30.4	14.4	18.7	11.9	30.4	8.2	6.1	9.8	43.1
Russell 2500 Growth		6.3	12.5	24.5	10.9	15.5	9.6	24.5	9.7	-0.2	7.1	40.7
eV US Mid Cap Growth Equity Gross Rank		57	40	16	6	2	5	16	22	7	33	11
Lee Munder Small Value	23,556,935	3.1	6.3	8.6	11.9	14.4		8.6	28.4	0.4	5.1	33.1
Russell 2000 Value		2.0	7.3	7.8	9.5	13.0		7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank		67	83	68	27	54		68	38	9	60	85

U.S. Effective Style Map 3 Years

Large Large Value Growth Boston Partners Large Cap Value Mid Mid Value Growth Lee Munder Small Value William Blair SMID Cap Growth SSGA Russell Small Cap Completeness Index Small Small Value Growth

U.S. Effective Style Map 5 Years



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



	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	295,126,057	6.2	11.9	21.9	11.1	15.7	8.8	21.9	11.1	1.2	12.0	35.3
Russell 3000		6.3	11.2	21.1	11.1	15.6	8.6	21.1	12.7	0.5	12.6	33.6
SSGA S&P 500 Flagship Fund	55,011,800	6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
S&P 500		6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
QMA Large Cap Core	55,937,934	7.4	13.5	22.1	11.7	16.6		22.1	12.1	1.8	15.2	33.9
S&P 500		6.6	11.4	21.8	11.4	15.8		21.8	12.0	1.4	13.7	32.4
Ivy Large Cap Growth	56,348,555	6.2	14.4	29.5	12.1	16.6		29.5	1.6	7.1	12.3	36.6
Russell 1000 Growth		7.9	14.2	30.2	13.8	17.3		30.2	7.1	5.7	13.0	33.5
Boston Partners Large Cap Value	54,647,428	7.0	12.1	19.6	9.3	14.7	8.7	19.6	14.2	-4.4	11.4	36.4
Russell 1000 Value		5.3	8.6	13.7	8.7	14.0	7.1	13.7	17.3	-3.8	13.5	32.5
SSGA Russell Small Cap Completeness Index	23,367,673	4.9	10.1	18.1	9.9			18.1	16.5	-3.5	7.3	
Russell Small Cap Completeness		4.9	10.1	18.3	10.0			18.3	16.6	-3.4	7.4	
William Blair SMID Cap Growth	26,255,732	5.7	11.2	29.3	13.4	17.6	11.0	29.3	7.2	5.2	8.8	42.0
Russell 2500 Growth		6.3	12.5	24.5	10.9	15.5	9.6	24.5	9.7	-0.2	7.1	40.7
Lee Munder Small Value	23,556,935	2.8	5.8	7.7	10.9	13.4		7.7	27.3	-0.5	4.1	31.8
Russell 2000 Value		2.0	7.3	7.8	9.5	13.0		7.8	31.7	-7.5	4.2	34.5

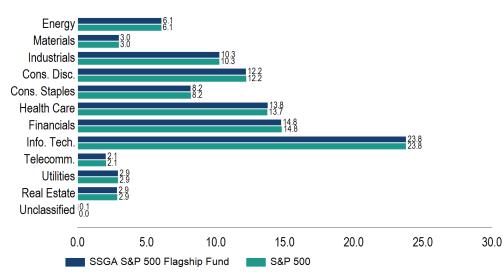
Seca Sep Storing	ON Chris Chris	A Large of	13. Con	OSTON	P Parties	Nille Statos	ight Sair	SMID CS	SGA PUL	Sell Spaint	JU C 20 C C	Onpleten.	Ss Inde	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
SSGA S&P 500 Flagship Fund			136	90.9	42	97.4	65	88.1	6	8.9	3	3.9	0	0.0
QMA Large Cap Core	136	57.7			24	55.1	32	59.9	4	5.9	6	5.7	64	5.2
lvy Large Cap Growth	42	26.0	24	25.0			8	12.0	0	0.0	0	0.0	1	0.4
Boston Partners Large Cap Value	65	32.6	32	28.8	8	22.6			2	3.1	0	0.0	5	1.1
William Blair SMID Cap Growth	6	0.3	4	0.1	0	0.0	2	2.1			6	7.2	58	6.4
Lee Munder Small Value	3	0.1	6	0.7	0	0.0	0	0.0	6	7.6			88	5.1
SSGA Russell Small Cap Completeness Index	0	0.0	64	8.6	1	0.8	5	4.0	58	85.2	88	91.5		

Correlation Matrix
January 1, 2017 Through December 31, 2017

					S.C.A.R.	r <sub>o</sub>			
A. S.	Sep On	h.	Ecolon Sathers Lay	Millen Steir SMI	Cooper State of the State of th	Shall Salle			
	500 1997 1997	Ago Cap Cope	Call Grown	Te Cap Vo.	O Cap Gr.	Shall V	Oleness In	S42500	
		COR	NAY.	41/6	ONTH	W <sub>6</sub>	76 <sub>4</sub>	500	
SSGA S&P 500 Flagship Fund	1.00								
QMA Large Cap Core	0.93	1.00							
lvy Large Cap Growth	0.52	0.30	1.00						
Boston Partners Large Cap Value	0.77	0.92	-0.05	1.00					
William Blair SMID Cap Growth	0.58	0.52	0.27	0.38	1.00				
Lee Munder Small Value	0.45	0.65	-0.31	0.75	0.45	1.00			
SSGA Russell Small Cap Completeness Index	0.58	0.73	-0.11	0.76	0.58	0.95	1.00		
S&P 500	1.00	0.93	0.52	0.77	0.58	0.45	0.58	1.00	

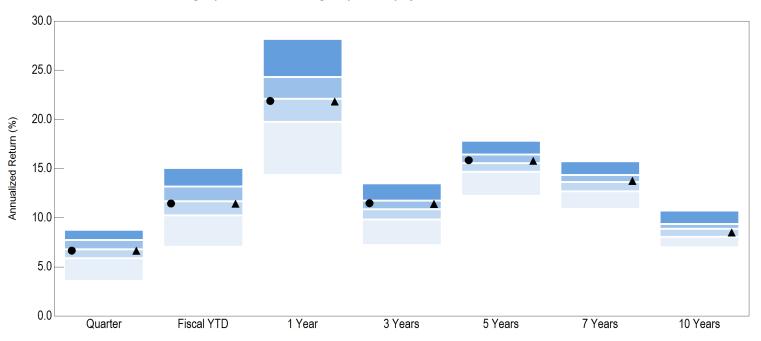
	Portfolio	S&P 500
Number of Holdings	504	505
Weighted Avg. Market Cap. (\$B)	180.72	180.13
Median Market Cap. (\$B)	21.62	21.55
Price To Earnings	27.49	24.81
Price To Book	6.08	4.93
Price To Sales	3.80	3.50
Return on Equity (%)	24.53	20.41
Yield (%)	1.88	1.87
Beta	1.00	1.00

# Sector Allocation (%) vs S&P 500



Top Holdings		1	Top Contributo	rs			<b>Bottom Contributors</b>				
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
APPLE	3.81%	MICROSOFT	2.67	15.42	0.41	GENERAL ELECTRIC	0.97	-27.34	-0.27		
MICROSOFT	2.90%	AMAZON.COM	1.78	21.65	0.39	CELGENE	0.53	-28.43	-0.15		
AMAZON.COM	2.05%	APPLE	3.70	10.20	0.38	MERCK & COMPANY	0.81	-11.37	-0.09		
FACEBOOK CLASS A	1.84%	JP MORGAN CHASE & CO.	1.56	12.61	0.20	ALLERGAN	0.32	-19.87	-0.06		
BERKSHIRE HATHAWAY 'B'	1.67%	BANK OF AMERICA	1.16	16.99	0.20	PG&E	0.16	-34.16	-0.05		
JOHNSON & JOHNSON	1.65%	INTEL	0.83	21.93	0.18	GILEAD SCIENCES	0.49	-10.96	-0.05		
JP MORGAN CHASE & CO.	1.63%	HOME DEDOT	0.90	16.46	0.15	CVS HEALTH	0.39	-10.26	-0.04		
EXXON MOBIL	1.56%	WALMART	0.53	27.04	0.14	AMGEN	0.63	-6.10	-0.04		
ALPHABET 'C'	1.39%	BERKSHIRE HATHAWAY 'B'	1.64	8.13	0.13	TIME WARNER	0.37	-10.37	-0.04		
ALPHABET A	1.38%	JOHNSON & JOHNSON	1.62	8.12	0.13	PHILIP MORRIS INTL.	0.80	-3.85	-0.03		
Total	19.88%										

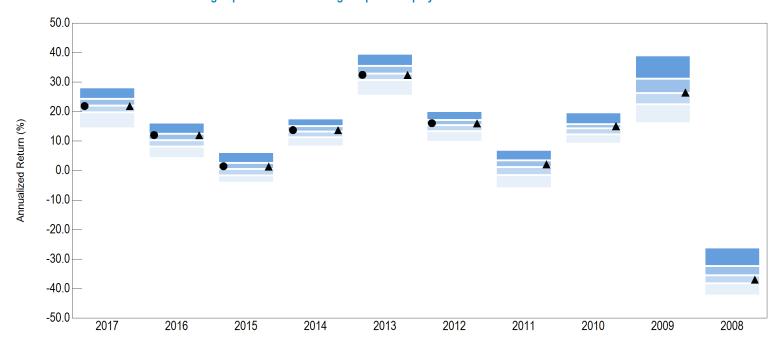
SSGA S&P 500 Flagship Fund vs. eV US Large Cap Core Equity Gross Universe



	Return (Ran	ık)												
5th Percentile	8.8		15.1		28.2		13.5		17.8		15.7		10.7	
25th Percentile	7.8		13.2		24.3		11.7		16.4		14.4		9.4	
Median	6.8		11.7		22.1		10.9		15.6		13.6		8.9	
75th Percentile	5.9		10.3		19.8		9.8		14.7		12.7		8.1	
95th Percentile	3.6		7.1		14.4		7.2		12.2		10.9		7.0	
# of Portfolios	318		318		318		308		289		263		232	
<ul><li>SSGA S&amp;P 500 Flagship Fund</li><li>S&amp;P 500</li></ul>	6.7 6.6	(57) (57)	11.4 11.4	(54) (55)	21.9 21.8	(52) (53)	11.5 11.4	(33) (36)	15.8 15.8	(43) (45)	 13.8	() (47)	 8.5	() (66)



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

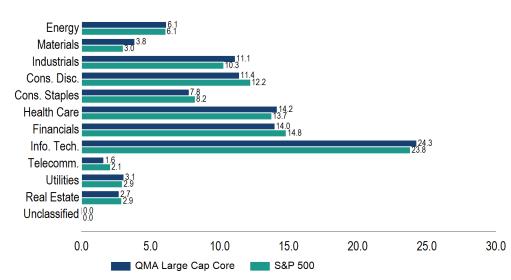


5th Percentile 25th Percentile Median	
75th Percentile 95th Percentile	
# of Portfolios	
SSGA S&P 500 Flagship Fi	und

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	208	505
Weighted Avg. Market Cap. (\$B)	162.50	180.13
Median Market Cap. (\$B)	24.73	21.55
Price To Earnings	23.89	24.81
Price To Book	6.06	4.93
Price To Sales	3.24	3.50
Return on Equity (%)	27.50	20.41
Yield (%)	1.78	1.87
Beta	1.02	1.00

# Sector Allocation (%) vs S&P 500



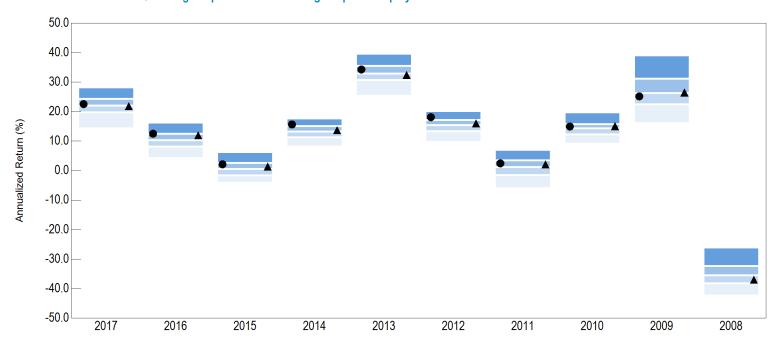
Top Holdings			Top Contributo	rs			Bottom Contribut		
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
APPLE	3.43%	APPLE	2.79	10.20	0.28	CELGENE	1.26	-28.43	-0.36
JP MORGAN CHASE & CO.	2.34%	INTEL	1.30	21.93	0.28	ALLERGAN	0.90	-19.87	-0.18
FACEBOOK CLASS A	2.12%	BANK OF AMERICA	1.67	16.99	0.28	GENERAL ELECTRIC	0.42	-27.34	-0.12
MICROSOFT	2.10%	JP MORGAN CHASE & CO.	2.24	12.61	0.28	PPL	0.63	-17.53	-0.11
ALPHABET 'C'	2.01%	WALMART	1.01	27.04	0.27	ELECTRONIC ARTS	0.86	-11.01	-0.10
BANK OF AMERICA	1.81%	MICROSOFT	1.63	15.42	0.25	CVS HEALTH	0.80	-10.26	-0.08
EXXON MOBIL	1.74%	TEXAS INSTRUMENTS	1.16	17.26	0.20	BOSTON SCIENTIFIC	0.54	-15.02	-0.08
VERIZON COMMUNICATIONS	1.58%	ALPHABET 'C'	1.98	9.10	0.18	MERCK & COMPANY	0.46	-11.37	-0.05
UNITEDHEALTH GROUP	1.46%	UNITEDHEALTH GROUP	1.36	12.94	0.18	ARGAN	0.13	-32.08	-0.04
VISA 'A'	1.40%	AMAZON.COM	0.80	21.65	0.17	NAVIENT	0.29	-10.19	-0.03
Total	19 98%								

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



Return (Ran	ık)												
8.8		15.1		28.2		13.5		17.8		15.7		10.7	
7.8		13.2		24.3		11.7		16.4		14.4		9.4	
6.8		11.7		22.1		10.9		15.6		13.6		8.9	
5.9		10.3		19.8		9.8		14.7		12.7		8.1	
3.6		7.1		14.4		7.2		12.2		10.9		7.0	
318		318		318		308		289		263		232	
7.5 6.6	(34) (57)	13.7 11.4	(19) (55)	22.5 21.8	(42) (53)	12.1 11.4	(20) (36)	16.9 15.8	(16) (45)	14.9 13.8	(12) (47)	 8.5	() (66)
	8.8 7.8 6.8 5.9 3.6 318	7.8 6.8 5.9 3.6 318 7.5 (34)	8.8 15.1 7.8 13.2 6.8 11.7 5.9 10.3 3.6 7.1 318 318 7.5 (34) 13.7	8.8 15.1 7.8 13.2 6.8 11.7 5.9 10.3 3.6 7.1 318 318 7.5 (34) 13.7 (19)	8.8     15.1     28.2       7.8     13.2     24.3       6.8     11.7     22.1       5.9     10.3     19.8       3.6     7.1     14.4       318     318     318       7.5     (34)     13.7     (19)     22.5	8.8     15.1     28.2       7.8     13.2     24.3       6.8     11.7     22.1       5.9     10.3     19.8       3.6     7.1     14.4       318     318     318       7.5     (34)     13.7     (19)     22.5     (42)	8.8     15.1     28.2     13.5       7.8     13.2     24.3     11.7       6.8     11.7     22.1     10.9       5.9     10.3     19.8     9.8       3.6     7.1     14.4     7.2       318     318     318     308       7.5     (34)     13.7     (19)     22.5     (42)     12.1	8.8     15.1     28.2     13.5       7.8     13.2     24.3     11.7       6.8     11.7     22.1     10.9       5.9     10.3     19.8     9.8       3.6     7.1     14.4     7.2       318     318     318     308       7.5     (34)     13.7     (19)     22.5     (42)     12.1     (20)	8.8     15.1     28.2     13.5     17.8       7.8     13.2     24.3     11.7     16.4       6.8     11.7     22.1     10.9     15.6       5.9     10.3     19.8     9.8     14.7       3.6     7.1     14.4     7.2     12.2       318     318     318     308     289       7.5     (34)     13.7     (19)     22.5     (42)     12.1     (20)     16.9	8.8     15.1     28.2     13.5     17.8       7.8     13.2     24.3     11.7     16.4       6.8     11.7     22.1     10.9     15.6       5.9     10.3     19.8     9.8     14.7       3.6     7.1     14.4     7.2     12.2       318     318     318     308     289       7.5     (34)     13.7     (19)     22.5     (42)     12.1     (20)     16.9     (16)	8.8     15.1     28.2     13.5     17.8     15.7       7.8     13.2     24.3     11.7     16.4     14.4       6.8     11.7     22.1     10.9     15.6     13.6       5.9     10.3     19.8     9.8     14.7     12.7       3.6     7.1     14.4     7.2     12.2     10.9       318     318     318     308     289     263       7.5     (34)     13.7     (19)     22.5     (42)     12.1     (20)     16.9     (16)     14.9	8.8     15.1     28.2     13.5     17.8     15.7       7.8     13.2     24.3     11.7     16.4     14.4       6.8     11.7     22.1     10.9     15.6     13.6       5.9     10.3     19.8     9.8     14.7     12.7       3.6     7.1     14.4     7.2     12.2     10.9       318     318     318     308     289     263       7.5     (34)     13.7     (19)     22.5     (42)     12.1     (20)     16.9     (16)     14.9     (12)	8.8       15.1       28.2       13.5       17.8       15.7       10.7         7.8       13.2       24.3       11.7       16.4       14.4       9.4         6.8       11.7       22.1       10.9       15.6       13.6       8.9         5.9       10.3       19.8       9.8       14.7       12.7       8.1         3.6       7.1       14.4       7.2       12.2       10.9       7.0         318       318       318       308       289       263       232         7.5       (34)       13.7       (19)       22.5       (42)       12.1       (20)       16.9       (16)       14.9       (12)

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



5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios
OMA Large Can C

Return (Rai	nk)									
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	2) 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)	

■ QMA Large Cap Core ■ S&P 500 Risk vs. Return

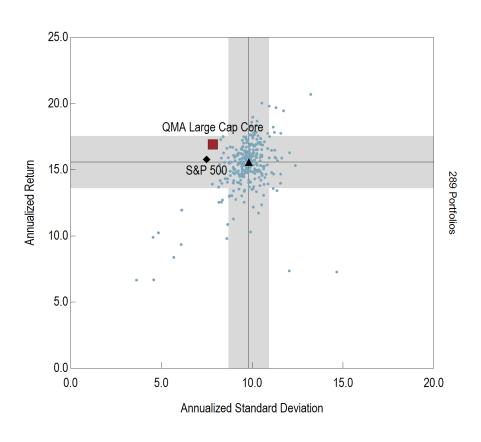
3 Years

35.0 30.0 25.0 Annualized Return 20.0 308 Portfolios 15.0 QMA Large Cap Core 10.0 5.0 0.0 15.0 0.0 5.0 10.0 20.0 **Annualized Standard Deviation** 

QMA Large Cap Core

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

Risk vs. Return 5 Years

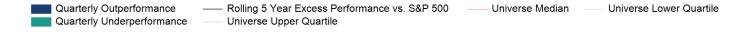


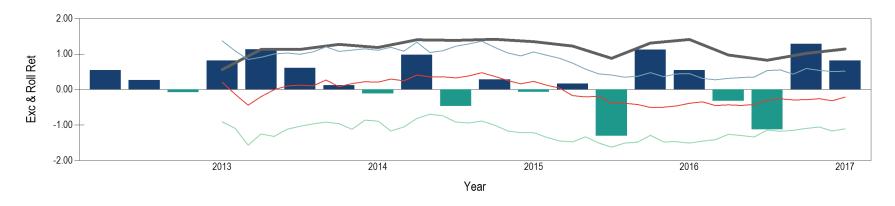
- QMA Large Cap Core
- S&P 500
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

### **Rolling 3 Year Annualized Excess Performance**



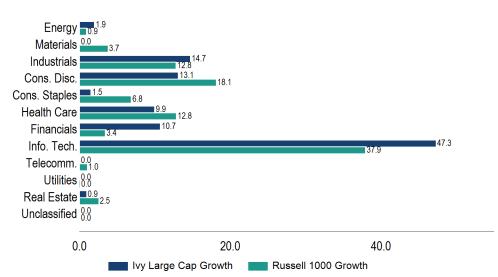
### **Rolling 5 Year Annualized Excess Performance**





	Portfolio	Russell 1000 Growth
Number of Holdings	44	551
Weighted Avg. Market Cap. (\$B)	202.21	204.47
Median Market Cap. (\$B)	71.32	11.69
Price To Earnings	36.05	28.84
Price To Book	9.08	7.69
Price To Sales	5.86	4.68
Return on Equity (%)	40.83	27.71
Yield (%)	0.98	1.32
Beta	1.12	1.00

# Sector Allocation (%) vs Russell 1000 Growth



Top Holdings		Top Contributor	S		Bottom Contributors					
Ending Period Weig	iht		Avg Wgt		Contribution		Avg Wgt	Return	Contribution	
APPLE	4.70%	AMAZON.COM	3.82	21.65	0.83	CELGENE	4.16	-28.43	-1.18	
MICROSOFT	4.68%	HOME DEPOT	4.14	16.46	0.68	ELECTRONIC ARTS	2.71	-11.01	-0.30	
HOME DEPOT	4.63%	MICROSOFT	4.41	15.42	0.68	PHILIP MORRIS INTL.	3.69	-3.85	-0.14	
PAYPAL HOLDINGS	4.60%	CATERPILLAR	2.16	27.11	0.58	ALEXION PHARMS.	0.81	-14.76	-0.12	
MASTERCARD	4.35%	ADOBE SYSTEMS	3.26	17.47	0.57	FERRARI	2.06	-5.11	-0.11	
AMAZON.COM	4.30%	PAYPAL HOLDINGS	3.77	14.98	0.57	PRICELINE GROUP	2.04	-5.08	-0.10	
VISA 'A'	4.05%	APPLE	4.63	10.20	0.47	MICROCHIP TECH.	2.87	-1.73	-0.05	
FACEBOOK CLASS A	4.02%	CHARLES SCHWAB	2.51	17.66	0.44	VERTEX PHARMS.	1.74	-1.43	-0.03	
CME GROUP	3.77%	VISA 'A'	4.05	8.53	0.35	APPLIED MATS.	1.26	-1.69	-0.02	
CATERPILLAR	3.63%	CME GROUP	3.23	10.70	0.35	BRISTOL MYERS SQUIBB	0.51	-3.27	-0.02	
Total	12 73%									

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

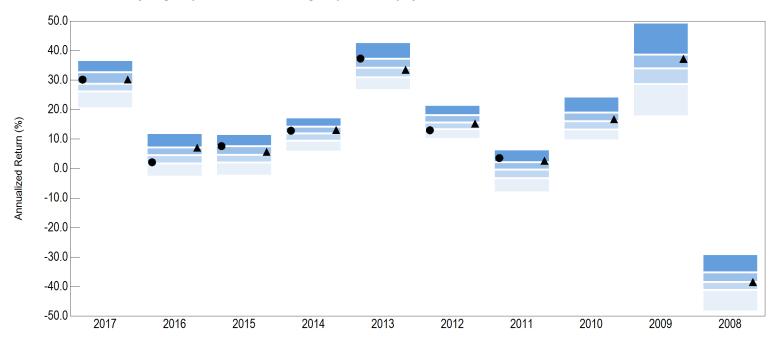


	5th Percentile
	25th Percentile
	Median
	75th Percentile
	95th Percentile
	# of Portfolios
•	lvy Large Cap Growth
▲	Russell 1000 Growth

Return (Rai	nk)												
9.2	-	16.9		36.7		15.6		19.5		16.6		11.5	
7.8		14.3		32.7		13.8		17.6		15.1		10.4	
7.0		12.7		28.8		12.3		16.7		14.0		9.6	
6.1		11.2		26.2		10.9		15.2		13.0		8.7	
4.0		8.6		20.5		8.7		13.4		11.5		7.3	
265		265		265		261		250		236		225	
6.4 7.9	(67) (23)	14.7 14.2	(20) (26)	30.2 30.2	(42) (42)	12.7 13.8	(47) (26)	17.3 17.3	(35) (34)	14.6 14.8	(35) (29)	 10.0	() (36)



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



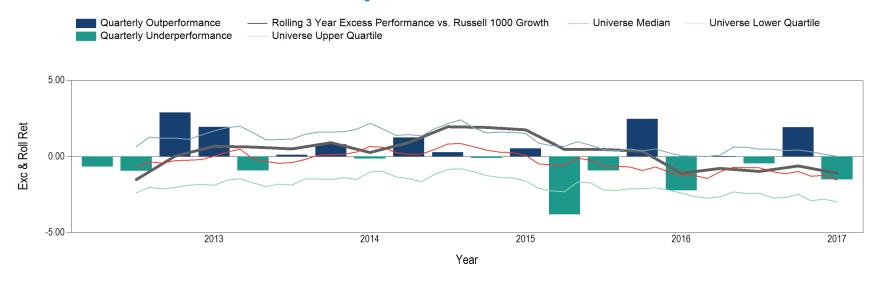
5th Percentile
25th Percentile
Median
75th Percentile
95th Percentile
# of Portfolios

Ivy Large Cap GrowthRussell 1000 Growth

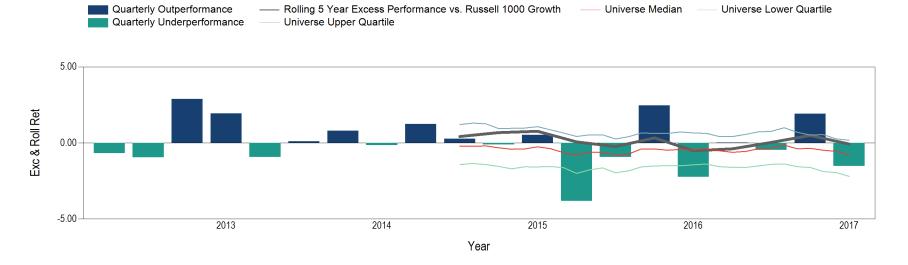
Return (Rai	nk)								
36.7	12.0	11.6	17.3	42.8	21.6	6.4	24.4	49.5	-29.1
32.7	7.3	7.6	14.3	37.3	18.2	2.2	19.1	38.6	-35.1
28.8	4.6	4.7	12.0	34.3	15.7	-0.3	16.1	34.0	-38.4
26.2	1.8	2.1	9.5	31.0	13.4	-3.2	13.2	28.7	-41.1
20.5	-2.7	-2.4	5.8	26.6	10.2	-8.0	9.6	17.7	-48.4
265	282	270	291	274	274	294	304	350	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)

Risk vs. Return Risk vs. Return 3 Years 5 Years 35.0 35.0 30.0 30.0 25.0 25.0 Annualized Return Annualized Return 261 Portfolios 250 Portfolios 20.0 20.0 Ivy Large Cap Growth Russell 1000 Growth 15.0 Russell 1000 Growth 15.0 lvy Large Cap Growth 10.0 10.0 5.0 5.0 0.0 5.0 10.0 15.0 20.0 25.0 0.0 5.0 10.0 15.0 20.0 25.0 Annualized Standard Deviation **Annualized Standard Deviation** Ivy Large Cap Growth Ivy Large Cap Growth Russell 1000 Growth Russell 1000 Growth Universe Median Universe Median 68% Confidence Interval 68% Confidence Interval eV US Large Cap Growth Equity Gross eV US Large Cap Growth Equity Gross

### **Rolling 3 Year Annualized Excess Performance**

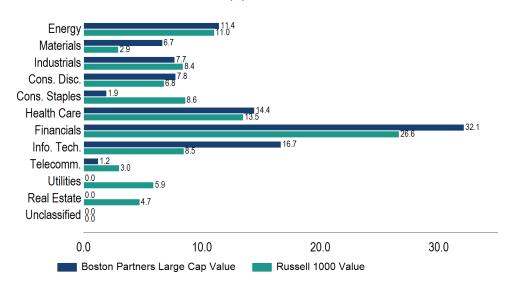


#### **Rolling 5 Year Annualized Excess Performance**



	Portfolio	Russell 1000 Value
Number of Holdings	82	713
Weighted Avg. Market Cap. (\$B)	160.24	119.36
Median Market Cap. (\$B)	39.67	9.42
Price To Earnings	22.26	21.04
Price To Book	3.10	2.73
Price To Sales	2.42	2.88
Return on Equity (%)	18.25	11.48
Yield (%)	1.95	2.31
Beta	1.05	1.00

### Sector Allocation (%) vs Russell 1000 Value



Top Holdings	Т	Top Contributors			Bottom Contributors					
Ending Period Weight		Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
JP MORGAN CHASE & CO.	5.01%	BANK OF AMERICA	4.57	16.99	0.78	MERCK & COMPANY	2.30	-11.37	-0.26	
BANK OF AMERICA	4.96%	JP MORGAN CHASE & CO.	4.80	12.61	0.61	GILEAD SCIENCES	2.07	-10.96	-0.23	
BERKSHIRE HATHAWAY 'B'	4.10%	CISCO SYSTEMS	2.25	14.87	0.33	TIME WARNER	1.49	-10.37	-0.15	
CITIGROUP	3.63%	TWENTY-FIRST CENTURY	1.08	20.00	0.33	SANOFI ADR 2:1	1.01	-13.64	-0.14	
JOHNSON & JOHNSON		.01% BANK OF AMERICA .96% JP MORGAN CHASE & CO10% CISCO SYSTEMS .63% TWENTY-FIRST CENTURY FOX CL.A BERKSHIRE HATHAWAY 'B' DIAMONDBACK ENERGY TE CONNECTIVITY WELLS FARGO & CO CHEVRON .14%	1.00	30.89	0.33	CVS HEALTH	1.23	-10.26	-0.13	
CISCO SYSTEMS		BERKSHIRE HATHAWAY 'B'	3.75	8.13	0.30	CEMEX SPN.ADR 1:10	0.67	-17.40	-0.12	
CHEVRON		DIAMONDBACK ENERGY	1.02	28.88	0.29	KONINKLIJKE PHILIPS ADR	1.11	-8.25	-0.09	
WELLS FARGO & CO		TE CONNECTIVITY	1.95	14.91	0.29	1:1	1.11	-0.23	-0.09	
PFIZER		WELLS FARGO & CO	2.66	10.77	0.29	BARRICK GOLD (NYS)	0.57	-9.88	-0.06	
ROYAL DUTCH SHELL A ADR 1:2		CHEVRON	3.43	7.55	0.26	NAVIENT	0.44	-10.19	-0.04	
Total	33.87%	JOHNSON & JOHNSON	3.00	8.12	0.24	ORACLE	2.29	-1.83	-0.04	
Total	33.01 /0									

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



	Return (Rank)												
5th Percentile	8.7	14.5		24.0		12.7		17.1		15.0		10.6	
25th Percentile	7.3	12.2		19.8		10.8		15.9		13.9		9.1	
Median	6.2	10.7		17.2		9.7		14.6		12.9		8.2	
75th Percentile	5.3	9.1		15.1		8.5		13.6		11.8		7.4	
95th Percentile	3.1	5.6		11.2		6.0		11.7		10.0		5.8	
# of Portfolios	342	342		342		338		326		300		267	
<ul><li>Boston Partners Large Cap Value</li><li>Russell 1000 Value</li></ul>		(31) 12.3 (75) 8.6	(23) (80)	20.1 13.7	(22) (87)	9.8 8.7	(48) (74)	15.2 14.0	(39) (65)	13.9 12.5	(24) (60)	9.2 7.1	(23) (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	
<ul><li>■ Boston Partners Large Ca</li><li>▲ Russell 1000 Value</li></ul>	p Value

Return (R	Rank)									
24.0	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	
	22) 14.7 87) 17.3	(54) -3.9 (26) -3.8	(65) 11.8 (64) 13.5	(58) 37.0 (33) 32.5	(26) 21.5 (60) 17.5	(6) 1.2 (30) 0.4	(43) 13.8 (51) 15.5	(61) 26.7 (35) 19.7	(35) -33.0 (75) -36.8	(30) (68)

Risk vs. Return

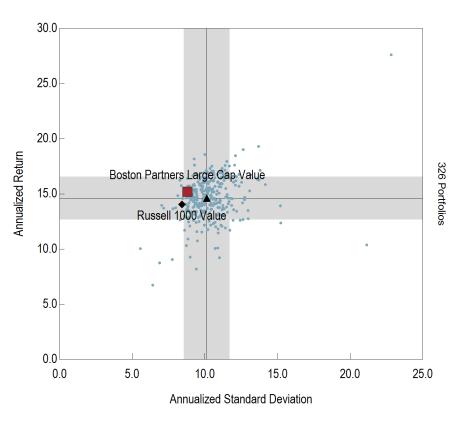
3 Years

20.0 15.0 Annualized Return 338 Portfolios Boston Partners Large Cap Value 10.0 Russell 1000 Value 5.0 0.0 20.0 0.0 5.0 10.0 15.0 25.0 30.0 **Annualized Standard Deviation** 



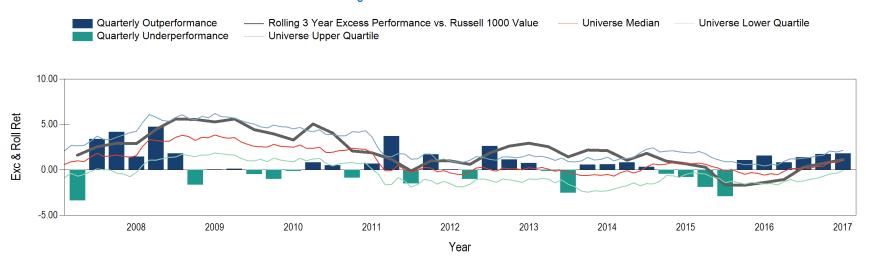
- Russell 1000 Value
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Value Equity Gross



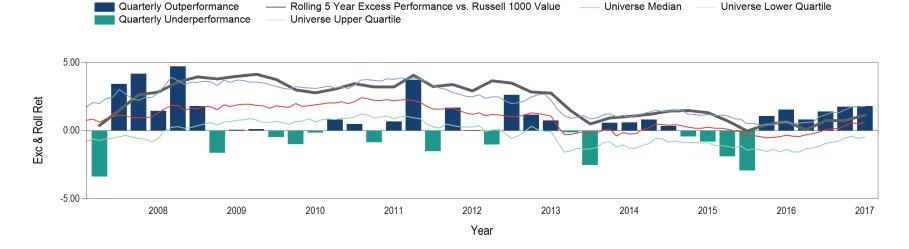


- Boston Partners Large Cap Value
- Russell 1000 Value
- Universe Median
- 68% Confidence Interval
- eV US Large Cap Value Equity Gross

#### **Rolling 3 Year Annualized Excess Performance**

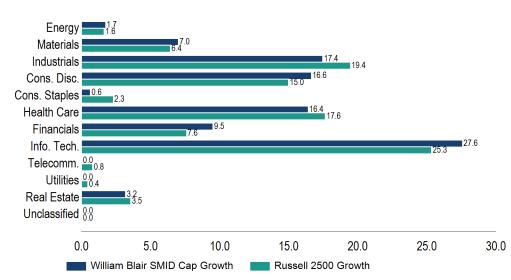


### **Rolling 5 Year Annualized Excess Performance**



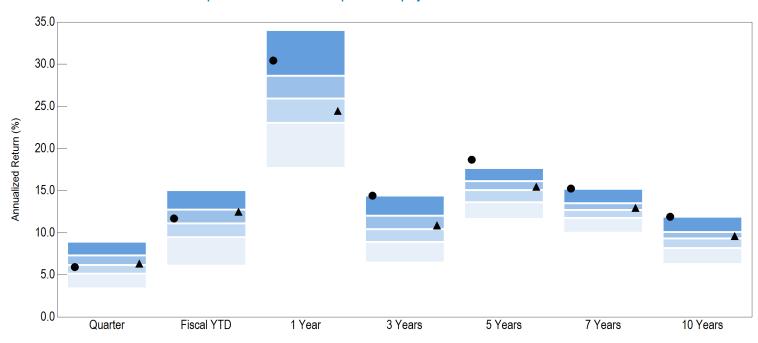
	Portfolio	Russell 2500 Growth
Number of Holdings	70	1,435
Weighted Avg. Market Cap. (\$B)	6.73	5.52
Median Market Cap. (\$B)	5.55	1.36
Price To Earnings	44.15	25.91
Price To Book	7.37	6.65
Price To Sales	4.34	3.66
Return on Equity (%)	23.19	14.72
Yield (%)	0.61	0.68
Beta	0.77	1.00

# Sector Allocation (%) vs Russell 2500 Growth



Top Holdings			Top Contributor	rs		<b>Bottom Contributors</b>						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
COPART	3.34%	COPART	2.71	25.66	0.70	ACADIA HEALTHCARE CO.	1.22	-31.68	-0.39			
BWX TECHNOLOGIES	2.95%	ARISTA NETWORKS	1.91	24.24	0.46	UNIVERSAL ELECTRONICS	1.24	-25.47	-0.31			
COSTAR GP.	2.76%	WEX	1.49	25.85	0.38	GLAUKOS	0.74	-22.27	-0.16			
SIX FLAGS ENTM.	2.43%	SITEONE LANDSCAPE	1.14	32.01	0.36	BALL	1.95	-8.12	-0.16			
DOMINO'S PIZZA	2.35%	SUPPLY	1.14	32.01	0.36	CAMBREX	1.15	-12.73	-0.15			
MARTIN MRTA.MATS.	2.16%	SBA COMMS.	2.25	13.41	0.30	EURONET WWD.	1.11	-11.10	-0.12			
WEX	2.16%	ALIGN TECHNOLOGY	1.55	19.28	0.30	GUIDEWIRE SOFTWARE	2.27	-4.62	-0.11			
MIDDLEBY	2.00%	COSTAR GP.	2.77	10.70	0.30	VAIL RESORTS	1.57	-5.95	-0.09			
BOOZ ALLEN HAMILTN.HLDG.	2.03%	TRACTOR SUPPLY	1.45	18.60	0.27	COOPER COS.	0.96	-8.11	-0.08			
WORLDPAY		2U	1.71	15.11	0.26	CSRA	1.04	-7.28	-0.08			
Total	1.96% <b>24.05</b> %	DIAMONDBACK ENERGY	0.89	28.88	0.26							

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



	Return (Ran	ık)													
5th Percentile	8.9		15.1		34.0		14.4		17.7		15.2		11.9		
25th Percentile	7.3		12.8		28.7		12.0		16.1		13.5		10.1		
Median	6.2		11.1		25.9		10.5		15.1		12.7		9.3		
75th Percentile	5.2		9.5		23.1		8.9		13.6		11.8		8.2		
95th Percentile	3.4		6.1		17.7		6.5		11.7		10.0		6.3		
# of Portfolios	97		97		97		96		92		87		78		
<ul><li>William Blair SMID Cap Growth</li><li>Russell 2500 Growth</li></ul>	5.9 6.3	(57) (45)	11.7 12.5	(40) (30)	30.4 24.5	(16) (62)	14.4 10.9	(6) (43)	18.7 15.5	(2) (41)	15.3 13.0	(4) (42)	11.9 9.6	(5) (42)	



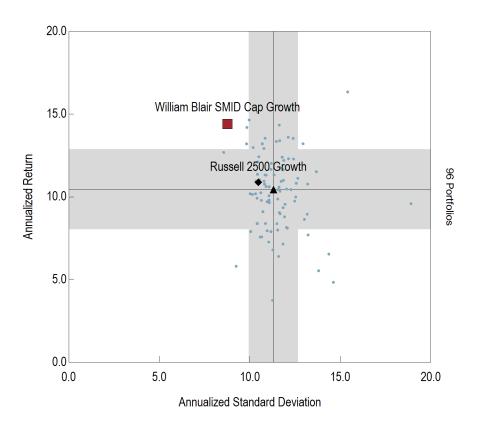
# William Blair SMID Cap Growth vs. eV US Mid Cap Growth Equity Gross Universe



5th Percentile 25th Percentile Median 75th Percentile 95th Percentile
# of Portfolios
<ul><li>William Blair SMID Cap Growth</li><li>Russell 2500 Growth</li></ul>

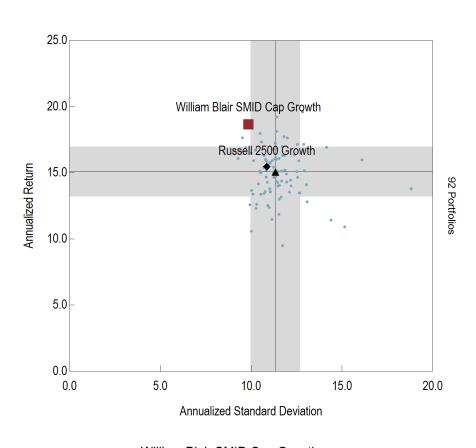
Return (Ran	k)								
34.0	13.9	6.7	14.2	46.0	21.3	6.1	35.3	59.6	-32.0
28.7	8.0	2.5	10.9	39.2	17.6	1.3	29.8	47.2	-39.3
25.9	5.4	0.0	8.6	36.4	15.4	-2.1	26.7	41.9	-43.2
23.1	2.6	-2.1	6.1	33.2	12.2	-6.1	22.5	34.9	-45.5
17.7	-0.5	-6.3	2.6	29.0	6.0	-10.4	18.3	25.7	-49.8
97	105	105	117	106	111	122	127	142	158
30.4 (16)	8.2 (22	) 6.1 (7)	9.8 (33)	43.1 (11)	13.8 (68)	0.9 (28	3) 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	3) 28.9 (35)	41.7 (51	) -41.5 (39)

Risk vs. Return 3 Years



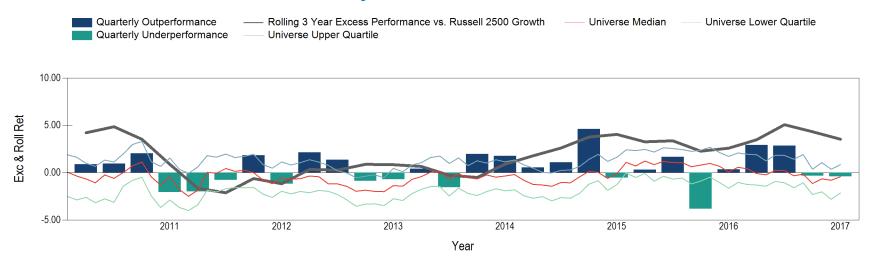
- William Blair SMID Cap Growth
- Russell 2500 Growth
- ▲ Universe Median
- 68% Confidence Interval
- eV US Mid Cap Growth Equity Gross

Risk vs. Return 5 Years

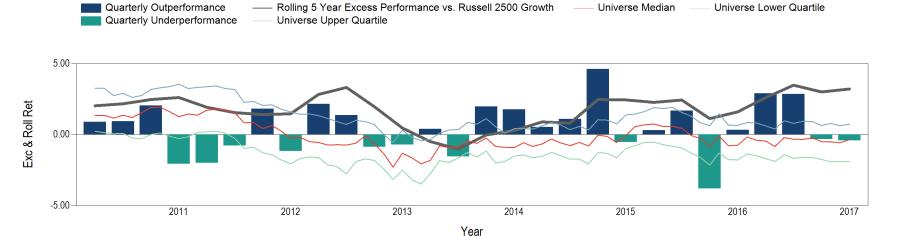


- William Blair SMID Cap Growth
- Russell 2500 Growth
- ▲ Universe Median
- 68% Confidence Interval
- eV US Mid Cap Growth Equity Gross

### **Rolling 3 Year Annualized Excess Performance**

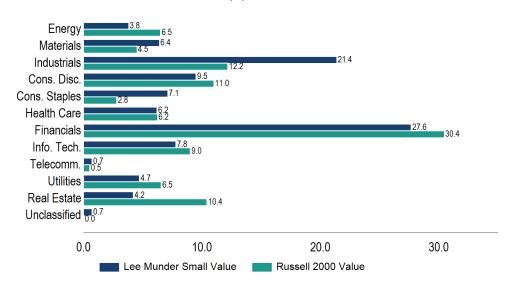


### **Rolling 5 Year Annualized Excess Performance**



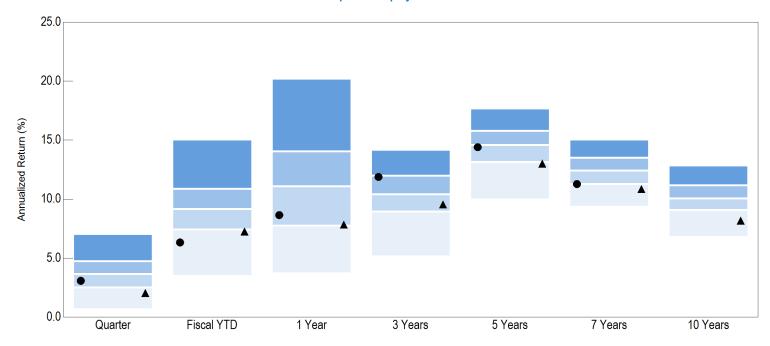
	Portfolio	Russell 2000 Value
Number of Holdings	95	1,387
Weighted Avg. Market Cap. (\$B)	3.12	2.06
Median Market Cap. (\$B)	2.75	0.72
Price To Earnings	18.03	17.61
Price To Book	3.04	1.83
Price To Sales	2.36	2.70
Return on Equity (%)	13.74	5.50
Yield (%)	1.59	1.60
Beta	0.78	1.00

### Sector Allocation (%) vs Russell 2000 Value



Top Holdings			<b>Top Contributor</b>	S		<b>Bottom Contributors</b>						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution			
MURPHY USA	2.51%	NEXSTAR MEDIA GROUP	1.41	26.10	0.37	MACOM TECH.SLTN.HDG.	1.41	-27.06	-0.38			
STERLING BANCORP	2.31%	CL.A	1.71	20.10	0.01	TREEHOUSE FOODS	1.21	-26.97	-0.33			
FNB	2.01%	MURPHY USA	2.21	16.46	0.36	DIEBOLD NIXDORF	1.01	-28.05	-0.28			
BANKUNITED	1.91%	ENPRO INDS.	1.81	16.41	0.30	BLACKHAWK NETWORK	1.51	-18.61	-0.28			
BLACKSTONE MGE.TST.CL.A	1.81%	SNYDERS LANCE	0.90	31.88	0.29	HDG.	1.51	-10.01	-0.20			
		BANKUNITED	1.71	15.18	0.26	ENVISION HEALTHCARE	1.01	-23.11	-0.23			
	1.81%	ITT	1.21	20.85	0.25	HORIZON GLOBAL	0.90	-20.52	-0.19			
MACOM TECH.SLTN.HDG.	1.81%	EMCOR GROUP	1.31	17.96	0.23	UNIVEST OF PENN.	1.51	-11.73	-0.18			
NEXSTAR MEDIA GROUP CL.A	1.81%	TCF FINANCIAL	1.11	20.81	0.23	CORPORATE OFFICE	1.41	-10.22	-0.14			
	1.61%	VIRTUSA	1.31	16.68	0.22	PROPS. TST.	1.41	-10.22	-0.14			
-	1.61%	HORACE MANN				MATTHEWS INTL.'A'	0.80	-14.88	-0.12			
Total	19.20%	EDUCATORS	1.61	12.78	0.21	SRC ENERGY	1.01	-11.79	-0.12			

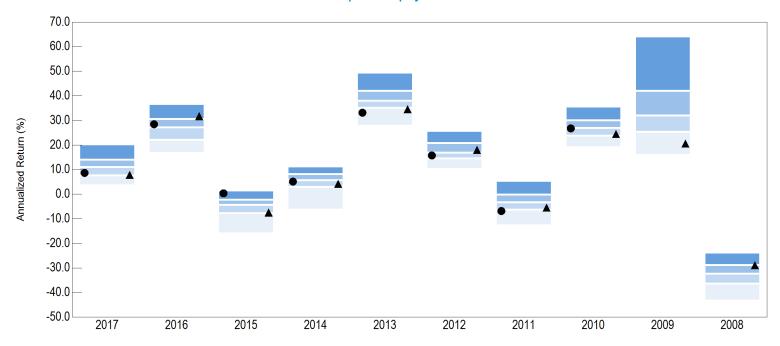
# Lee Munder Small Value vs. eV US Small Cap Value Equity Gross Universe



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15.0		20.0									
		20.2		14.2		17.7		15.0		12.8	
10.9		14.1		12.0		15.8		13.5		11.2	
9.2		11.1		10.4		14.6		12.4		10.1	
7.4		7.8		9.0		13.2		11.3		9.1	
3.5		3.7		5.2		10.0		9.4		6.8	
224		224		215		207		198		178	
,	(83) (77)	8.6 7.8	(68) (75)	11.9 9.5	(27) (68)	14.4 13.0	(54) (78)	11.3 10.8	(76) (82)	 8.2	() (87)
	7.4 3.5 224 67) 6.3	7.4 3.5 224 6.3 (83)	7.4 7.8 3.5 3.7 224 224 77) 6.3 (83) 8.6	7.4 7.8 3.5 3.7 224 224 77) 6.3 (83) 8.6 (68)	7.4 7.8 9.0 3.5 3.7 5.2 224 224 215 77) 6.3 (83) 8.6 (68) 11.9	7.4 7.8 9.0 3.5 3.7 5.2 224 224 215 77) 6.3 (83) 8.6 (68) 11.9 (27)	7.4 7.8 9.0 13.2 3.5 3.7 5.2 10.0 224 224 215 207 77) 6.3 (83) 8.6 (68) 11.9 (27) 14.4	7.4 7.8 9.0 13.2 3.5 3.7 5.2 10.0 224 224 215 207 77) 6.3 (83) 8.6 (68) 11.9 (27) 14.4 (54)	7.4 7.8 9.0 13.2 11.3 3.5 3.7 5.2 10.0 9.4 224 224 215 207 198 77) 6.3 (83) 8.6 (68) 11.9 (27) 14.4 (54) 11.3	7.4 7.8 9.0 13.2 11.3 3.5 3.7 5.2 10.0 9.4 224 224 215 207 198 77) 6.3 (83) 8.6 (68) 11.9 (27) 14.4 (54) 11.3 (76)	7.4 7.8 9.0 13.2 11.3 9.1 3.5 3.7 5.2 10.0 9.4 6.8 224 224 215 207 198 178 178 170 6.3 (83) 8.6 (68) 11.9 (27) 14.4 (54) 11.3 (76)

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



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

Lee Munder Small Value

Russell 2000 Value

Return	(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)		()		()	
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)	



Risk vs. Return

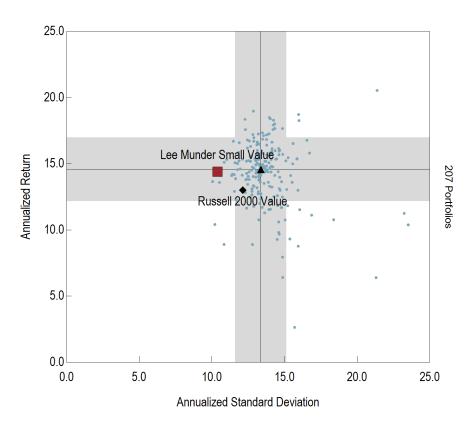
3 Years

20.0 15.0 Lee Munder Small Value 10.0 Russell 2000 Value Annualized Return 215 Portfolios 5.0 0.0 -5.0 -10.0 0.0 5.0 10.0 15.0 20.0 25.0 30.0 **Annualized Standard Deviation** 

Lee Munder Small Value

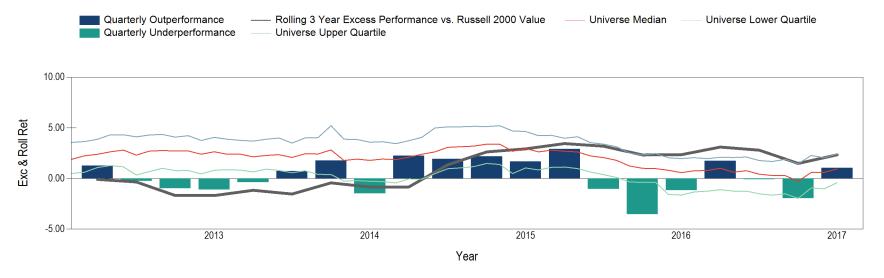
- Russell 2000 Value
- ▲ Universe Median
- 68% Confidence Interval
- eV US Small Cap Value Equity Gross

Risk vs. Return 5 Years

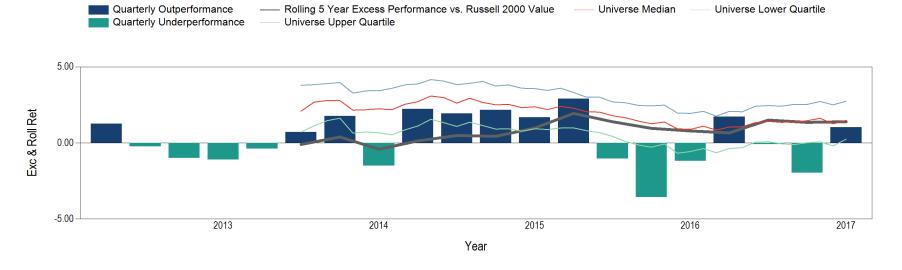


- Lee Munder Small Value
- Russell 2000 Value
- Universe Median
- 68% Confidence Interval
- eV US Small Cap Value Equity Gross

### **Rolling 3 Year Annualized Excess Performance**

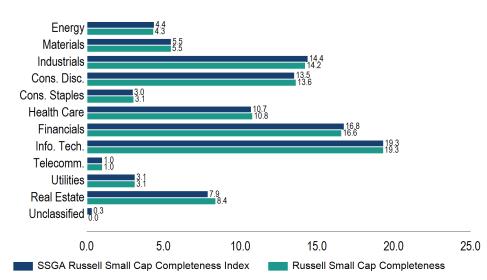


### **Rolling 5 Year Annualized Excess Performance**



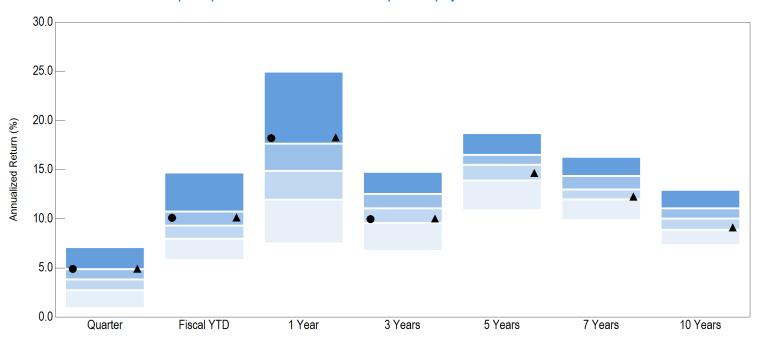
	Portfolio	Russell Small Cap Completeness
Number of Holdings	2,437	2,457
Weighted Avg. Market Cap. (\$B)	6.60	6.59
Median Market Cap. (\$B)	1.19	1.19
Price To Earnings	22.85	20.55
Price To Book	4.55	3.81
Price To Sales	3.60	3.38
Return on Equity (%)	10.38	9.41
Yield (%)	1.38	1.10
Beta	1.00	1.00

# Sector Allocation (%) vs Russell Small Cap Completeness



Top Holdings		To	op Contributo	rs	<b>Bottom Contributors</b>						
Ending Period Weight			Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution		
TESLA	0.87%	NEKTAR THERAPEUTICS	0.08	148.83	0.11	TESLA	0.96	-8.72	-0.08		
NXP SEMICONDUCTORS	0.84%	TWITTER	0.24	42.32	0.10	FIRST REPUBLIC BANK	0.35	-16.92	-0.06		
LAS VEGAS SANDS	0.52%	SAGE THERAPEUTICS	0.05	164.38	0.08	TESARO	0.10	-35.81	-0.04		
SERVICENOW	0.45%	FLEETCOR TECHNOLOGIES	0.31	24.33	0.08	MALLINCKRODT	80.0	-39.63	-0.03		
T-MOBILE US	0.39%	DIAMONDBACK ENERGY	0.21	28.88	0.06	ACADIA HEALTHCARE CO.	80.0	-31.68	-0.03		
FLEETCOR TECHNOLOGIES	0.36%	HOLLYFRONTIER	0.14	43.46	0.06	SPRINT	0.11	-24.29	-0.03		
DELL TECHNOLOGIES	0.35%	XPO LOGISTICS	0.17	35.13	0.06	LIBERTY BROADBAND	0.21	-10.64	-0.02		
TWITTER	0.33%	SVB FINANCIAL GROUP	0.21	24.95	0.05	SR.C	0.21	-10.0-			
BIOMARIN PHARM.	0.32%	ARISTA NETWORKS	0.22	24.24	0.05	PROTHENA	0.05	-42.12	-0.02		
MARKEL	0.32%	ALLY FINANCIAL	0.24	20.75	0.05	TREEHOUSE FOODS	0.08	-26.97	-0.02		
Total	4.76%					SPARK THERAPEUTICS	0.05	-42.33	-0.02		

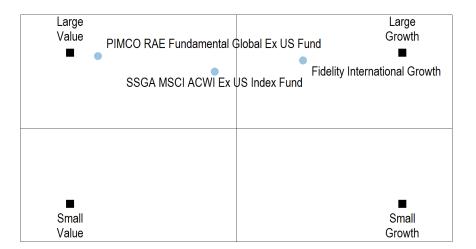
SSGA Russell Small Cap Completeness Index vs. eV US Small Cap Core Equity Gross Universe



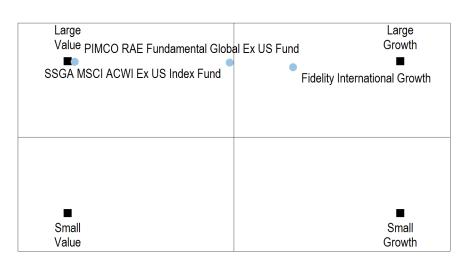
F	Return (Rar	ık)													
5th Percentile	7.1		14.7		24.9		14.8		18.7		16.3		12.9		
25th Percentile	4.9		10.7		17.6		12.5		16.5		14.4		11.1		
Median	3.8		9.3		14.9		11.1		15.5		13.0		10.0		
75th Percentile	2.7		8.0		12.0		9.6		13.9		12.0		8.9		
95th Percentile	0.9		5.8		7.5		6.7		10.9		9.9		7.3		
# of Portfolios	172		172		171		168		160		149		124		
<ul> <li>SSGA Russell Small Cap Completeness Index</li> <li>Russell Small Cap Completeness</li> </ul>	4.9 4.9	(25) (25)	10.1 10.1	(41) (40)	18.2 18.3	(23) (23)	10.0 10.0	(71) (70)	 14.7	() (62)	 12.3	() (70)	 9.1	() (73)	

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	296,468,138	4.4	11.1	26.9	8.3	7.4	0.9	26.9	6.2	-5.9	-4.8	18.5
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank		76	64	80	70	69	92	80	13	85	83	44
SSGA MSCI ACWI Ex US Index Fund	98,170,766	5.0	11.6	27.6	8.1	7.1		27.6	4.8	-5.5	-3.6	15.5
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank		34	39	49	74	95		49	17	96	49	90
Fidelity International Growth	98,766,944	3.8	9.0	26.3	8.0	7.2	2.2	26.3	1.2	-1.5	-5.3	18.5
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank		72	80	57	77	93	85	57	52	77	75	85
PIMCO RAE Fundamental Global Ex US Fund	99,530,428	4.5	12.7	26.7	8.6	8.5		26.7	13.5	-10.9	-5.7	24.5
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
eV All EAFE Equity Gross Rank		44	26	53	64	72		53	1	99	79	51

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.

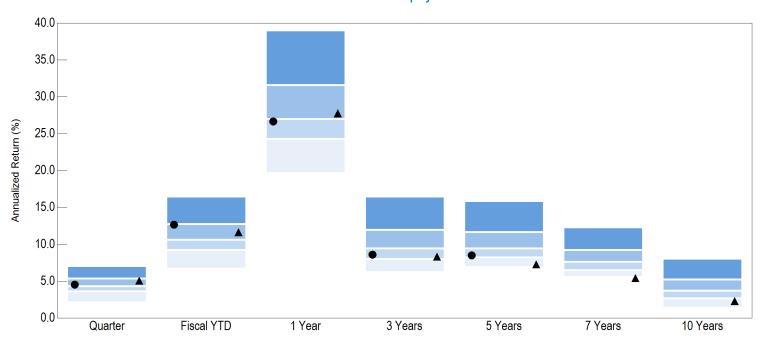


	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	296,468,138	4.4	10.9	26.5	7.9	7.1	0.6	26.5	5.9	-6.2	-5.0	18.3
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
SSGA MSCI ACWI Ex US Index Fund	98,170,766	5.0	11.5	27.5	8.0	7.0		27.5	4.7	-5.5	-3.7	15.5
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8
Fidelity International Growth	98,766,944	3.7	8.8	25.8	7.5	6.7	1.7	25.8	0.7	-1.9	-5.7	17.9
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
PIMCO RAE Fundamental Global Ex US Fund	99,530,428	4.4	12.4	26.0	8.1	8.0		26.0	13.0	-11.4	-5.9	23.7
MSCI ACWI ex USA Gross		5.1	11.6	27.8	8.3	7.3		27.8	5.0	-5.3	-3.4	15.8

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).

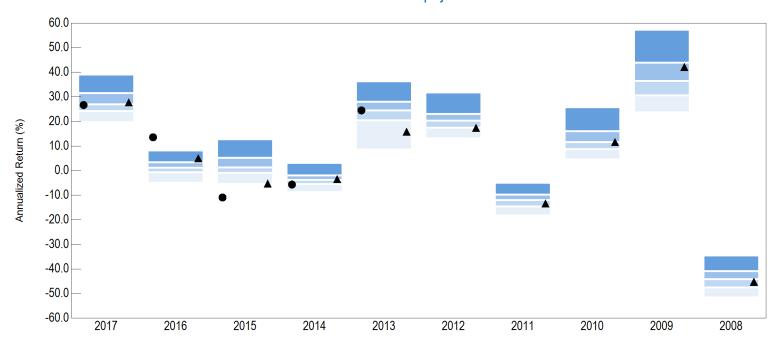


PIMCO RAE Fundamental Global Ex US Fund vs. eV All EAFE Equity Gross Universe



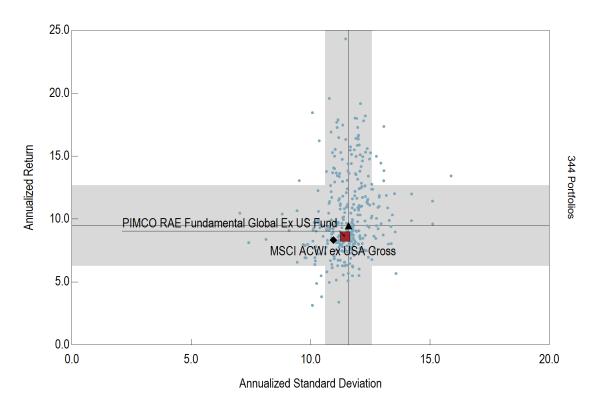
	Return (Rank)	)											
5th Percentile	7.0	16.4		39.0		16.5		15.8		12.3		8.0	
25th Percentile	5.4	12.8		31.6		12.0		11.7		9.3		5.2	
Median	4.3	10.7		27.0		9.5		9.4		7.7		3.7	
75th Percentile	3.7	9.3		24.3		8.0		8.3		6.5		2.7	
95th Percentile	2.2	6.7		19.7		6.3		6.9		5.6		1.4	
# of Portfolios	370	370		370		344		314		288		249	
<ul> <li>PIMCO RAE Fundamental Global Ex US Fun</li> <li>MSCI ACWI ex USA Gross</li> </ul>	<b>d</b> 4.5 5.1	(44) 12.7 (33) 11.6	(26) (38)	26.7 27.8	(53) (48)	8.6 8.3	(64) (69)	8.5 7.3	(72) (92)	 5.4	() (97)	2.3	() (83)

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



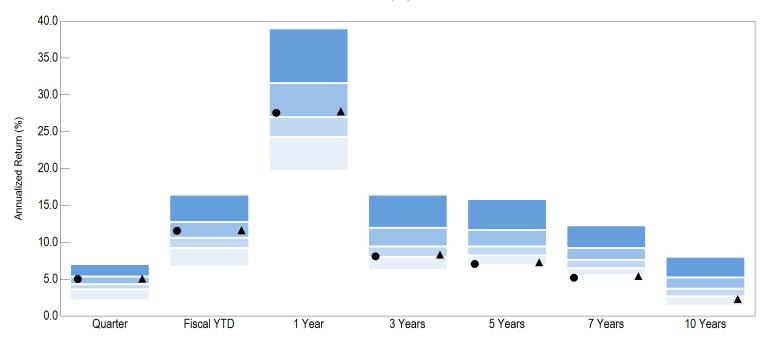
	Return (Rank	)								
5th Percentile	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7	57.3	-34.5
25th Percentile	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1	44.0	-40.8
Median	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7	36.5	-44.1
75th Percentile	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7	30.7	-47.5
95th Percentile	19.7	-4.9	-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
<ul> <li>PIMCO RAE Fundamental Global Ex US F</li> <li>MSCI ACWI ex USA Gross</li> </ul>	Fund 26.7 (53) 27.8 (48)	13.5 (1) 5.0 (16)	-10.9 (99) -5.3 (95)	-5.7 (79) -3.4 (47)	24.5 (51) 15.8 (90)	() 17.4 (77)	() -13.3 (62)	() 11.6 (52)	() 42.1 (30)	() -45.2 (59)

Risk vs. Return 3 Years



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

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



	Return (Rank)									
5th Percentile	7.0	16.4	39.	)	16.5	15.8	12.	3	8.0	
25th Percentile	5.4	12.8	31.	3	12.0	11.7	9.	3	5.2	
Median	4.3	10.7	27.	)	9.5	9.4	7.	7	3.7	
75th Percentile	3.7	9.3	24.	3	8.0	8.3	6.	5	2.7	
95th Percentile	2.2	6.7	19.	7	6.3	6.9	5.	6	1.4	
# of Portfolios	370	370	37	)	344	314	28	8	249	
<ul> <li>SSGA MSCI ACWI Ex US Index Fund</li> <li>MSCI ACWI ex USA Gross</li> </ul>	5.0 (3 5.1 (3	34) 11.6 33) 11.6	(39) 27. (38) 27.	( /	8.1 8.3	(74) 7.1 (69) 7.3	(95) 5. (92) 5.	( )	2.3	() (83)



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



	Return (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
<ul> <li>SSGA MSCI ACWI Ex US Index Fund</li> <li>MSCI ACWI ex USA Gross</li> </ul>	27.6 (49) 27.8 (48)	4.8 (17) 5.0 (16)	-5.5 (96) -5.3 (95)	-3.6 (49) -3.4 (47)	15.5 (90) 15.8 (90)	17.1 (81) 17.4 (77)	-13.5 (64) -13.3 (62)	11.2 (55) 11.6 (52)	() 42.1 (30)	() -45.2 (59)



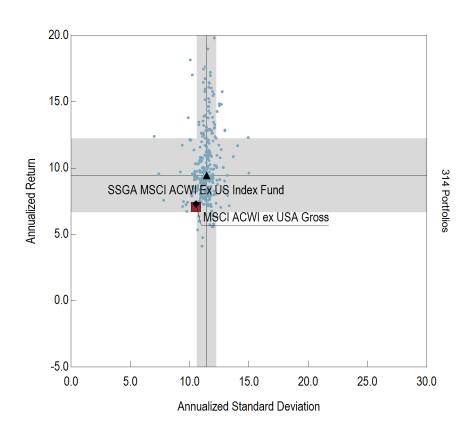
Risk vs. Return

3 Years 25.0 20.0 Annualized Return 15.0 344 Portfolios 10.0 MSCI ACWI ex USA Gross SSGA MSCI ACWI Ex US Index Fund 5.0 0.0 0.0 5.0 10.0 15.0 20.0 Annualized Standard Deviation

SSGA MSCI ACWI Ex US Index Fund

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

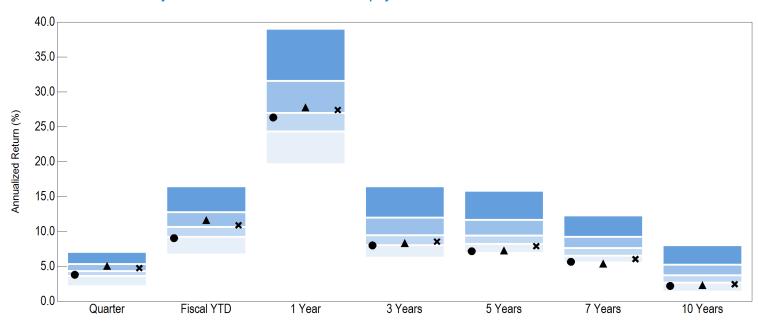




- SSGA MSCI ACWI Ex US Index Fund
- MSCI ACWI ex USA Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

Return (Rank)

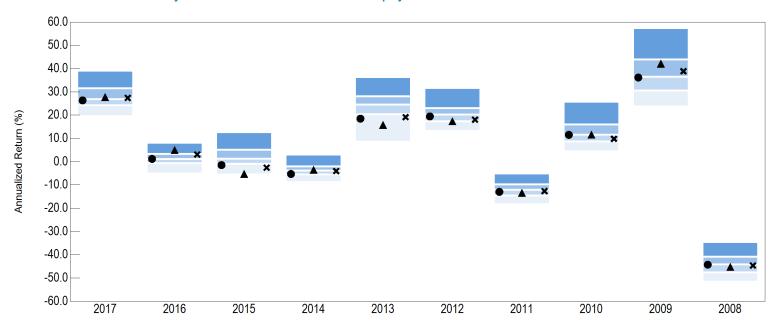
## Fidelity International Growth vs. eV All EAFE Equity Gross Universe



Return (Rank)								
7.0	16.4	;	39.0	16.5	15.8	12.3	8.0	
5.4	12.8	;	31.6	12.0	11.7	9.3	5.2	
4.3	10.7		27.0	9.5	9.4	7.7	3.7	
3.7	9.3	:	24.3	8.0	8.3	6.5	2.7	
2.2	6.7		19.7	6.3	6.9	5.6	1.4	
370	370		370	344	314	288	249	
3.8 (72)	9.0	(80)	26.3 (57)	8.0	(77) 7.2	(93) 5.7	(95) 2.2	(85)
5.1 (33)	11.6	(38)	27.8 (48)	8.3	(69) 7.3	(92) 5.4	(97) 2.3	(83)
4.8 (39)	10.9	(47)	27.4 (50)	8.5	(65) 7.9	(83) 6.0	(89) 2.4	(80)
	7.0 5.4 4.3 3.7 2.2 370 3.8 (72) 5.1 (33)	7.0 16.4 5.4 12.8 4.3 10.7 3.7 9.3 2.2 6.7 370 370 3.8 (72) 9.0 5.1 (33) 11.6	7.0 16.4 5.4 12.8 4.3 10.7 3.7 9.3 2.2 6.7 370 370 3.8 (72) 9.0 (80) 5.1 (33) 11.6 (38)	7.0 16.4 39.0 5.4 12.8 31.6 4.3 10.7 27.0 3.7 9.3 24.3 2.2 6.7 19.7 370 370 370 3.8 (72) 9.0 (80) 26.3 (57) 5.1 (33) 11.6 (38) 27.8 (48)	7.0 16.4 39.0 16.5 5.4 12.8 31.6 12.0 4.3 10.7 27.0 9.5 3.7 9.3 24.3 8.0 2.2 6.7 19.7 6.3 370 370 370 344  3.8 (72) 9.0 (80) 26.3 (57) 8.0 5.1 (33) 11.6 (38) 27.8 (48) 8.3	7.0         16.4         39.0         16.5         15.8           5.4         12.8         31.6         12.0         11.7           4.3         10.7         27.0         9.5         9.4           3.7         9.3         24.3         8.0         8.3           2.2         6.7         19.7         6.3         6.9           370         370         344         314           3.8         (72)         9.0         (80)         26.3         (57)         8.0         (77)         7.2           5.1         (33)         11.6         (38)         27.8         (48)         8.3         (69)         7.3	7.0         16.4         39.0         16.5         15.8         12.3           5.4         12.8         31.6         12.0         11.7         9.3           4.3         10.7         27.0         9.5         9.4         7.7           3.7         9.3         24.3         8.0         8.3         6.5           2.2         6.7         19.7         6.3         6.9         5.6           370         370         344         314         288           3.8         (72)         9.0         (80)         26.3         (57)         8.0         (77)         7.2         (93)         5.7           5.1         (33)         11.6         (38)         27.8         (48)         8.3         (69)         7.3         (92)         5.4	7.0         16.4         39.0         16.5         15.8         12.3         8.0           5.4         12.8         31.6         12.0         11.7         9.3         5.2           4.3         10.7         27.0         9.5         9.4         7.7         3.7           3.7         9.3         24.3         8.0         8.3         6.5         2.7           2.2         6.7         19.7         6.3         6.9         5.6         1.4           370         370         370         344         314         288         249           3.8         (72)         9.0         (80)         26.3         (57)         8.0         (77)         7.2         (93)         5.7         (95)         2.2           5.1         (33)         11.6         (38)         27.8         (48)         8.3         (69)         7.3         (92)         5.4         (97)         2.3



## Fidelity International Growth vs. eV All EAFE Equity Gross Universe



	Return (Rank	<b>:</b> )								
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
Fidelity International Growth	26.3 (57)	1.2 (52)	-1.5 (77)	-5.3 (75)	18.5 (85)	19.4 (59	9) -13.0 (59)	11.5 (53)	36.1 (51)	-44.3 (52)
▲ MSCI ACWI ex USA Gross	27.8 (48)	5.0 (16)	-5.3 (95)	-3.4 (47)	15.8 (90)	17.4 (77	r) -13.3 (62)	11.6 (52)	42.1 (30)	-45.2 (59)
× Tulare International Custom	27.4 (50)	3.1 (29)	-2.6 (83)	-4.0 (55)	19.1 (83)	18.1 (70	) -12.6 (56)	9.8 (67)	38.9 (40)	-44.6 (56)



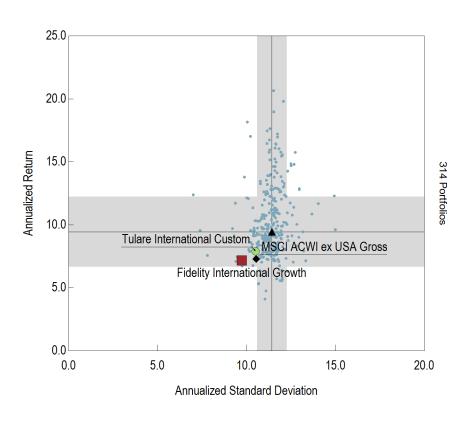
Risk vs. Return

3 Years 25.0 20.0 Annualized Return 15.0 344 Portfolios 10.0 Tulare International Custom MSCI ACWI ex USA Gross Fidelity International Growth 5.0 0.0 0.0 5.0 15.0 10.0 20.0 **Annualized Standard Deviation** 

Fidelity International Growth

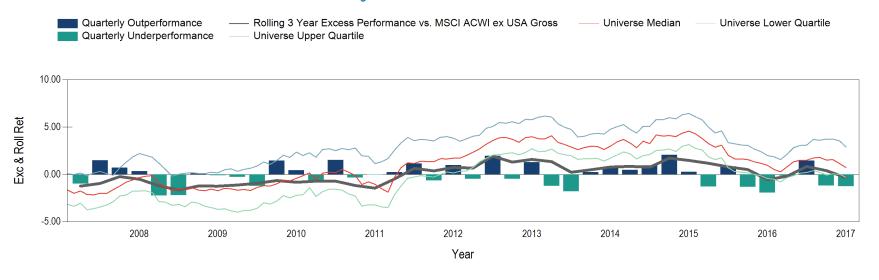
- MSCI ACWI ex USA Gross
- Tulare International Custom
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



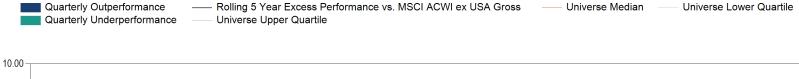


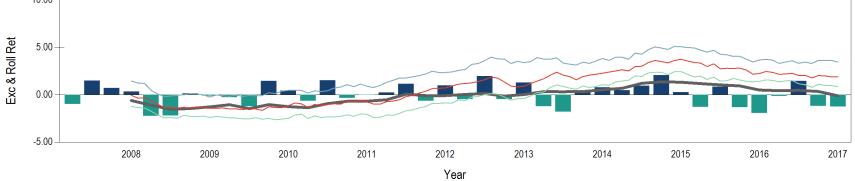
- Fidelity International Growth
- MSCI ACWI ex USA Gross
- Tulare International Custom
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

## **Rolling 3 Year Annualized Excess Performance**



### **Rolling 5 Year Annualized Excess Performance**





	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	371,549,112	0.2	1.3	4.3	2.9	2.5	5.0	4.3	5.5	-0.8	4.6	-0.9
BBgBarc US Aggregate TR		0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
InvestorForce Public DB US Fix Inc Gross Rank		66	60	50	43	51	35	50	37	77	69	49
Total Domestic Fixed Income												
BlackRock Fixed Income	134,545,668	0.4	1.3	3.9	2.7	2.5	4.5	3.9	3.1	1.1	6.2	-1.5
BBgBarc US Aggregate TR		0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
eV All US Fixed Inc Gross Rank		52	56	54	52	53	48	54	53	39	29	75
Doubleline Core Plus	70,749,820	0.5	1.4	4.2				4.2	4.8			
BBgBarc US Aggregate TR		0.4	1.2	3.5				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank		75	90	86				86	52			
MacKay Shields Core Plus	70,607,859	0.7	1.8	5.0				5.0	5.1			
BBgBarc US Aggregate TR		0.4	1.2	3.5				3.5	2.6			
eV US Core Plus Fixed Inc Gross Rank		44	47	52				52	46			
Shenkman High Yield	20,409,950	0.7	2.7	7.2	5.5	5.0		7.2	12.3	-2.4	2.5	6.3
BofA Merrill Lynch US High Yield Master II TR		0.4	2.5	7.5	6.4	5.8		7.5	17.5	-4.6	2.5	7.4
eV US High Yield Fixed Inc Gross Rank		49	44	57	72	78		57	65	51	52	81
SSGA TIPS	11,168,407	1.3	2.1	3.0	2.0	0.1		3.0	4.7	-1.4	3.6	-8.6
BBgBarc US TIPS TR		1.3	2.1	3.0	2.1	0.1		3.0	4.7	-1.4	3.6	-8.6
eV US TIPS / Inflation Fixed Inc Gross Rank		54	64	69	71	84		69	50	63	44	77
Total Global Fixed Income												
Franklin Templeton Global Bond Plus	64,067,409	-1.4	-0.1	3.0	2.0	2.3		3.0	6.8	-3.5	2.4	3.0
JPM GBI Global TR USD		1.0	2.7	6.8	1.9	0.3		6.8	1.6	-2.6	0.7	-4.5
eV Global Fixed Inc Unhedged Gross Rank		99	99	96	77	48		96	24	67	50	23

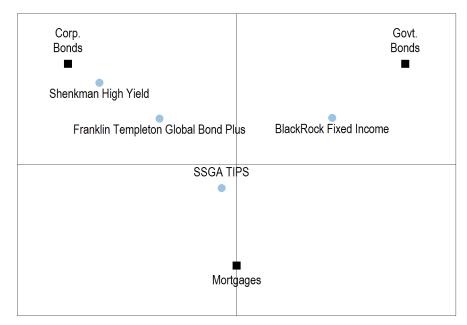
Vertas Transition Account used to liquidated PIMCO Core Plus on 11/15/15, remaining balance is residual cash. MacKay Shields and Doubleline funded 12/1/15. Effective 1/1/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross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



Fixed Income Style Map 3 Years



# Fixed Income Style Map 5 Years

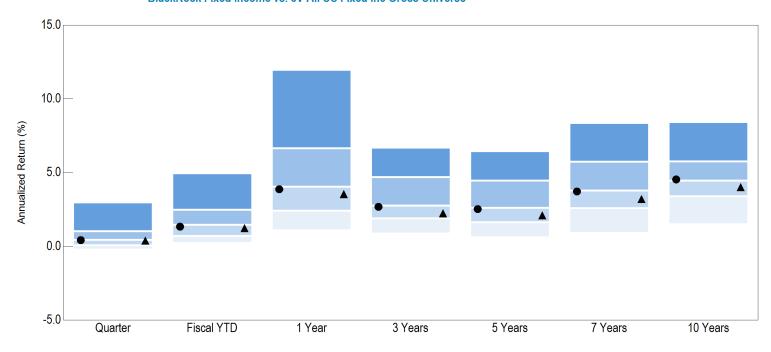


	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fixed Income	371,549,112	0.1	1.2	3.9	2.6	2.2	4.7	3.9	5.1	-1.1	4.3	-1.2
BBgBarc US Aggregate TR		0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
Total Domestic Fixed Income												
BlackRock Fixed Income	134,545,668	0.4	1.2	3.6	2.4	2.2	4.3	3.6	2.9	0.8	6.0	-1.8
BBgBarc US Aggregate TR		0.4	1.2	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
Doubleline Core Plus	70,749,820	0.4	1.3	3.9				3.9	4.6			
BBgBarc US Aggregate TR		0.4	1.2	3.5				3.5	2.6			
MacKay Shields Core Plus	70,607,859	0.6	1.6	4.5				4.5	4.7			
BBgBarc US Aggregate TR		0.4	1.2	3.5				3.5	2.6			-
Shenkman High Yield	20,409,950	0.6	2.5	6.7	5.0	4.5		6.7	11.7	-2.9	2.0	5.8
BofA Merrill Lynch US High Yield Master II TR		0.4	2.5	7.5	6.4	5.8		7.5	17.5	-4.6	2.5	7.4
SSGA TIPS	11,168,407	1.2	2.1	3.0	2.0	0.1		3.0	4.6	-1.5	3.6	-8.6
BBgBarc US TIPS TR		1.3	2.1	3.0	2.1	0.1		3.0	4.7	-1.4	3.6	-8.6
Total Global Fixed Income												
Franklin Templeton Global Bond Plus	64,067,409	-1.5	-0.4	2.4	1.4	1.7		2.4	6.1	-4.1	1.9	2.5
JPM GBI Global TR USD		1.0	2.7	6.8	1.9	0.3		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.



#### BlackRock Fixed Income vs. eV All US Fixed Inc Gross Universe



	Return (Rar	ık)												
5th Percentile	3.0		5.0		12.0		6.7		6.4		8.4		8.4	
25th Percentile	1.0		2.5		6.6		4.7		4.5		5.8		5.8	
Median	0.5		1.5		4.1		2.8		2.6		3.8		4.5	
75th Percentile	0.1		0.7		2.4		1.9		1.6		2.6		3.4	
95th Percentile	-0.2		0.2		1.1		0.9		0.6		0.9		1.5	
# of Portfolios	1,843		1,843		1,843		1,794		1,706		1,591		1,324	
BlackRock Fixed Income	0.4	(52)	1.3	(56)	3.9	(54)	2.7	(52)	2.5	(53)	3.7	(52)	4.5	(48)
BBgBarc US Aggregate TR	0.4	(54)	1.2	(59)	3.5	(59)	2.2	(65)	2.1	(63)	3.2	(62)	4.0	(61)

#### BlackRock Fixed Income vs. eV All US Fixed Inc Gross Universe



	Return	(Rank)																			
5th Percentile	12.0		14.5		3.0		17.7		8.7		16.2		18.6		15.5		47.9		9.4		
25th Percentile	6.6		7.0		1.4		6.4		0.9		10.2		8.2		9.7		16.3		5.4		
Median	4.1		3.3		8.0		4.2		-0.3		6.1		6.5		6.9		9.3		2.4		
75th Percentile	2.4		1.8		-0.5		2.0		-1.5		3.8		4.0		4.8		5.7		-4.3		
95th Percentile	1.1		0.4		-4.1		0.5		-7.5		1.1		0.4		1.4		1.2		-25.4		
# of Portfolios	1,843		1,722		1,394		1,364		1,281		1,241		1,211		1,157		1,287		1,380		
<ul><li>BlackRock Fixed Income</li><li>BBgBarc US Aggregate TR</li></ul>	3.9 3.5	(54) (59)	3.1 2.6	(53) (60)	1.1 0.6	(39) (59)	6.2 6.0	(29) (33)	-1.5 -2.0	(75) (83)	5.5 4.2	(56) (70)	8.1 7.8	(28) (32)	7.2 6.5	(45) (57)	9.4 5.9	(50) (73)	2.9 5.2	(48) (27)	



Risk vs. Return Risk vs. Return 3 Years 5 Years 15.0 20.0 15.0 10.0 10.0 Annualized Return Annualized Return 5.0 1794 Portfolios 1706 Portfolios 5.0 BlackRock Fixed Income BlackRock Fixed Income BBgBarc U\$ Aggregate TR BBgBarc US Aggregate TR 0.0 0.0 -5.0 -5.0 -10.0 -10.0 -15.0 15.0 10.0 -10.0 -5.0 0.0 5.0 10.0 20.0 -10.0 -5.0 0.0 5.0 15.0 20.0 25.0 Annualized Standard Deviation Annualized Standard Deviation BlackRock Fixed Income BlackRock Fixed Income BBgBarc US Aggregate TR BBgBarc US Aggregate TR Universe Median Universe Median 68% Confidence Interval 68% Confidence Interval eV All US Fixed Inc Gross eV All US Fixed Inc Gross

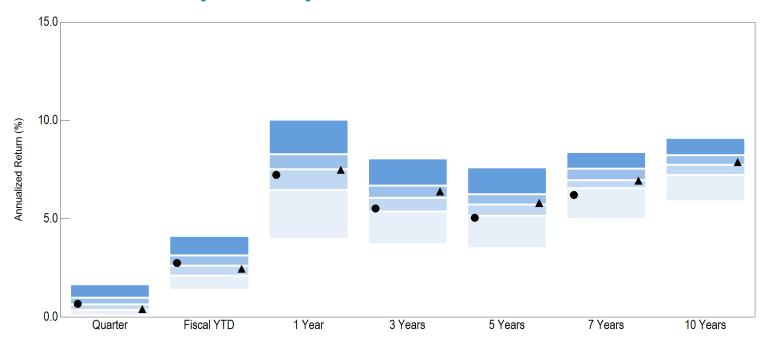
#### **Rolling 3 Year Annualized Excess Performance**



### **Rolling 5 Year Annualized Excess Performance**



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



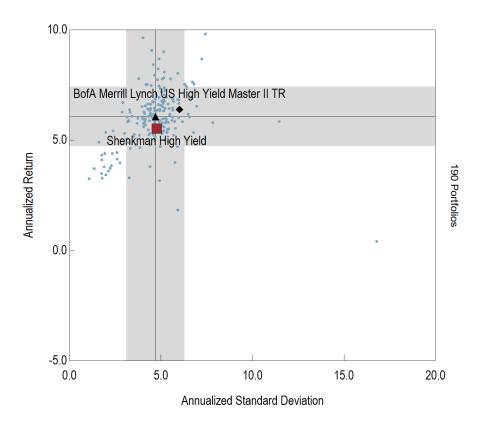
	Return (Rank)												
5th Percentile	1.7	4.1		10.0		8.1		7.6		8.4		9.1	
25th Percentile	1.0	3.1		8.3		6.7		6.3		7.6		8.2	
Median	0.6	2.6		7.5		6.1		5.7		7.0		7.7	
75th Percentile	0.4	2.1		6.5		5.4		5.2		6.6		7.2	
95th Percentile	0.1	1.4		4.0		3.7		3.5		5.0		5.9	
# of Portfolios	198	198		198		190		170		144		117	
<ul><li>Shenkman High Yield</li><li>BofA Merrill Lynch US High Yield Master II T</li></ul>	0.7 (49 R 0.4 (74	,	(44) (59)	7.2 7.5	(57) (53)	5.5 6.4	(72) (35)	5.0 5.8	(78) (47)	6.2 6.9	(85) (54)	 7.9	() (43)

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



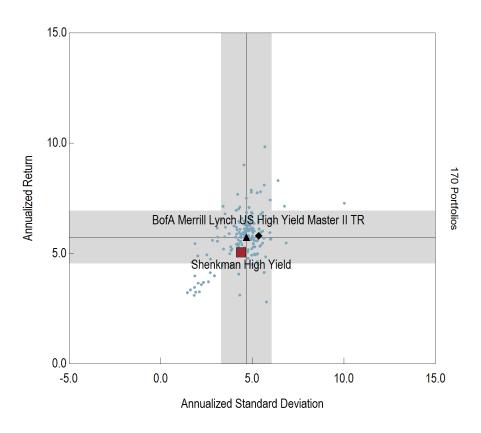
F	Return (Rank)	)								
5th Percentile	10.0	20.3	2.3	5.2	11.7	19.4	7.9	22.8	70.8	-13.1
25th Percentile	8.3	16.0	-0.7	3.5	9.1	16.7	6.2	16.3	51.8	-18.6
Median	7.5	14.0	-2.4	2.5	7.6	15.5	4.9	14.9	45.0	-21.2
75th Percentile	6.5	11.3	-3.8	1.5	6.6	14.0	3.5	13.6	37.4	-24.9
95th Percentile	4.0	6.6	-7.2	0.0	5.0	8.9	-0.7	10.9	29.6	-35.7
# of Portfolios	198	183	155	141	130	129	117	106	123	131
<ul><li>Shenkman High Yield</li><li>BofA Merrill Lynch US High Yield Master II TR</li></ul>	7.2 (57) 7.5 (53)	12.3 (65) 17.5 (14)	-2.4 (51) -4.6 (83)	2.5 (52) 2.5 (51)	6.3 (81) 7.4 (55)	12.3 (89) 15.6 (47)	6.1 (27) 4.4 (60)	() 15.2 (42)	() 57.5 (16)	() -26.4 (82)

Risk vs. Return 3 Years



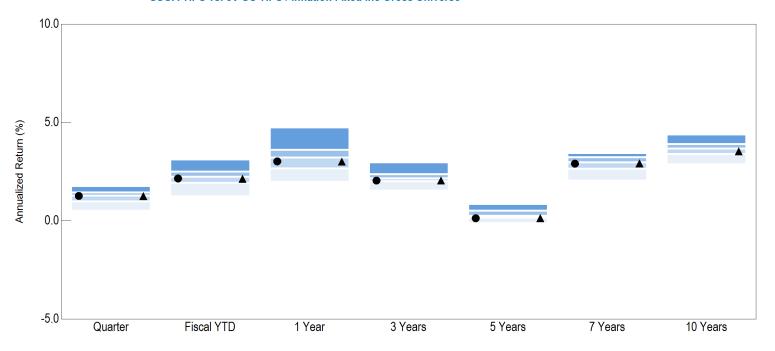
- Shenkman High Yield
- BofA Merrill Lynch US High Yield Master II TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US High Yield Fixed Inc Gross

Risk vs. Return 5 Years



- Shenkman High Yield
- BofA Merrill Lynch US High Yield Master II TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US High Yield Fixed Inc Gross

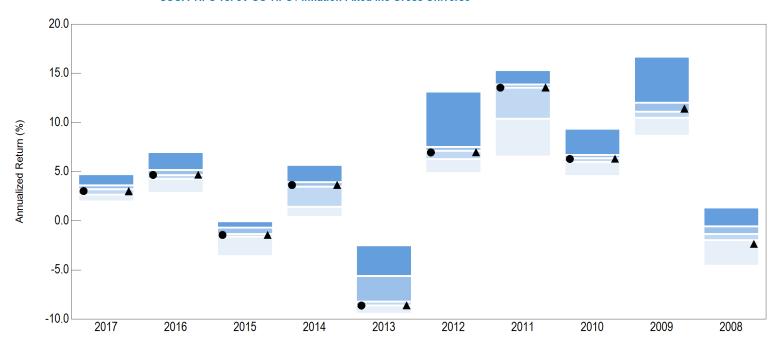
## SSGA TIPS vs. eV US TIPS / Inflation Fixed Inc Gross Universe



	Return (Ran	k)												
5th Percentile	1.8	-	3.1		4.7		3.0		0.8		3.4		4.4	
25th Percentile	1.4		2.5		3.6		2.4		0.5		3.2		3.9	
Median	1.3		2.2		3.2		2.2		0.3		3.0		3.7	
75th Percentile	1.0		1.9		2.7		2.0		0.2		2.7		3.4	
95th Percentile	0.5		1.3		2.0		1.6		-0.1		2.1		2.9	
# of Portfolios	38		38		38		38		38		36		32	
<ul><li>SSGA TIPS</li><li>BBgBarc US TIPS TR</li></ul>	1.3 1.3	(54) (54)	2.1 2.1	(64) (65)	3.0 3.0	(69) (71)	2.0 2.1	(71) (70)	0.1 0.1	(84) (83)	2.9 2.9	(65) (64)	 3.5	() (68)



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



	Return (Rank)									
5th Percentile	4.7	7.0	-0.1	5.7	-2.5	13.1	15.3	9.4	16.7	1.3
25th Percentile	3.6	5.2	-0.7	4.0	-5.6	7.5	13.9	6.7	12.0	-0.5
Median	3.2	4.7	-1.3	3.5	-8.2	7.1	13.5	6.4	11.1	-1.4
75th Percentile	2.7	4.3	-1.6	1.4	-8.6	6.3	10.4	6.0	10.5	-1.9
95th Percentile	2.0	2.8	-3.6	0.4	-9.4	4.9	6.6	4.6	8.7	-4.6
# of Portfolios	38	42	44	50	43	43	47	39	37	40
<ul><li>SSGA TIPS</li><li>BBgBarc US TIPS TR</li></ul>	3.0 (69) 3.0 (71)	4.7 (50) 4.7 (47)	-1.4 (63) -1.4 (59)	3.6 (44) 3.6 (44)	-8.6 (77) -8.6 (76)	6.9 (67) 7.0 (66)	13.5 (51) 13.6 (49)	6.3 (62) 6.3 (57)	() 11.4 (35)	() -2.4 (85)

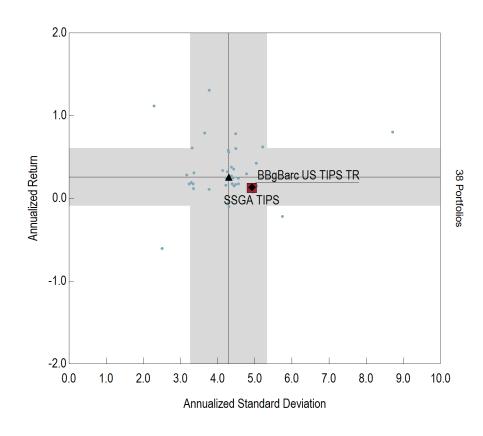


Risk vs. Return

3 Years 5.0 4.0 Annualized Return 3.0 38 Portfolios BBgBarc US TIPS TR 2.0 • SSGA TIPS 1.0 0.0 5.0 0.0 1.0 2.0 3.0 4.0 6.0 7.0 8.0 **Annualized Standard Deviation** 

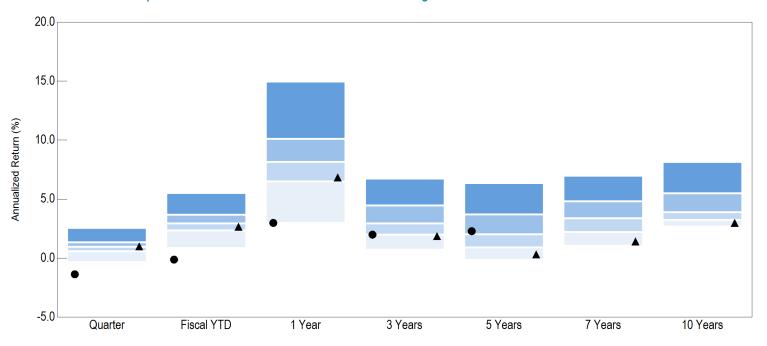
- SSGA TIPS
- BBgBarc US TIPS TR
- ▲ Universe Median
- 68% Confidence Interval
- eV US TIPS / Inflation Fixed Inc Gross





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

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



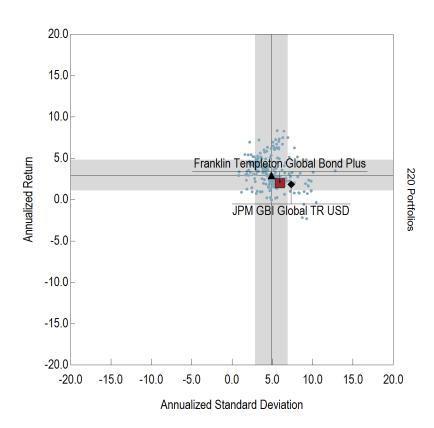
	Return (Rank)												
5th Percentile	2.5	5.5		15.0		6.7		6.4		7.0		8.1	
25th Percentile	1.4	3.7		10.1		4.5		3.7		4.8		5.5	
Median	1.0	2.9		8.2		3.0		2.0		3.4		3.9	
75th Percentile	0.6	2.4		6.5		2.0		0.9		2.2		3.3	
95th Percentile	-0.3	0.9		3.0		0.7		-0.1		1.1		2.7	
# of Portfolios	232	232		231		220		193		159		112	
<ul><li>Franklin Templeton Global Bond Plus</li><li>JPM GBI Global TR USD</li></ul>	,	99) -0.1 50) 2.7	(99) (59)	3.0 6.8	(96) (72)	2.0 1.9	(77) (81)	2.3 0.3	(48) (88)	 1.4	() (91)	3.0	() (88)

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



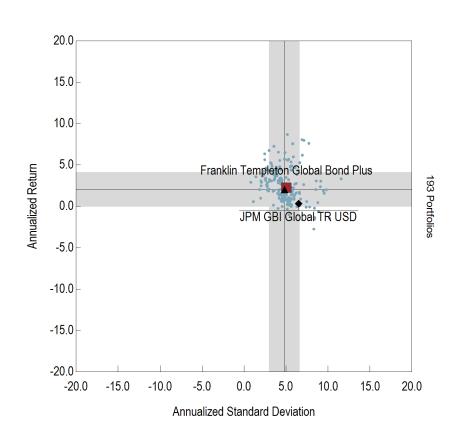
	Return (Rank	<b>(</b> )								
5th Percentile	15.0	14.5	2.0	7.1	9.8	20.2	10.4	15.5	50.1	12.8
25th Percentile	10.1	6.5	-0.6	4.2	2.8	14.3	6.9	9.9	18.4	8.2
Median	8.2	4.0	-2.7	2.3	-0.4	9.4	5.0	7.5	10.1	4.0
75th Percentile	6.5	1.8	-4.0	0.6	-3.2	5.9	3.2	6.0	5.4	-3.8
95th Percentile	3.0	-1.5	-9.2	-2.7	-5.6	2.2	-4.2	3.0	3.2	-23.0
# of Portfolios	231	221	189	159	142	118	108	76	72	73
<ul><li>Franklin Templeton Global Bond Plus</li><li>JPM GBI Global TR USD</li></ul>	3.0 (96) 6.8 (72)	6.8 (24) 1.6 (79)	-3.5 (67) -2.6 (48)	2.4 (50) 0.7 (75)	3.0 (23) -4.5 (89)	() 1.3 (98)	() 7.2 (19)	() 6.4 (72)	() 1.9 (99)	() 12.0 (7)

Risk vs. Return 3 Years



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

Risk vs. Return 5 Years



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

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	117,040,579	1.6	3.2	4.3	9.7	10.7	3.5	4.3	9.0	16.0	13.1	11.5
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
RREEF	118,601	14.7	14.2	-17.0	1.6	4.9	3.5	-17.0	11.9	13.0	8.0	12.3
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
RREEF America II	108,636,534	1.5	3.1	4.4	10.0	11.7	4.9	4.4	9.3	16.7	13.0	15.5
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	8,285,445	2.9	4.4	5.2	8.7	9.2	2.0	5.2	4.6	16.7	15.1	5.2
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	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.



	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	117,040,579	1.6	3.2	4.3	9.1	10.2	3.3	4.3	8.0	15.1	12.5	11.5
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
RREEF	118,601	14.7	14.2	-17.0	1.1	4.3	3.5	-17.0	11.6	11.7	6.6	12.1
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
RREEF America II	108,636,534	1.5	3.1	4.4	9.3	11.0	4.5	4.4	8.2	15.7	12.0	15.0
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
TA Associates Realty	8,285,445	2.9	4.4	5.2	8.0	8.7	0.7	5.2	3.7	15.4	14.6	5.1
NCREIF Property Index		1.8	3.5	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
NCREIF-ODCE		2.1	4.0	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	41,436,851	7.0	12.0	7.5	-3.2			7.5	14.5	-26.3		
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		-
Commodities Broad Basket MStar MF Rank		17	26	16	37			16	27	80		
Gresham MTAP Commodity Builder	20,012,682	6.5	10.4	5.9	-3.9			5.9	12.3	-25.4	-16.1	
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7	-17.0	
Commodities Broad Basket MStar MF Rank		22	33	28	45			28	53	71	34	
Wellington Commodity	21,424,169	7.4	13.6	9.0	-2.1			9.0	15.8	-25.7		
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Commodities Broad Basket MStar MF Rank		13	16	9	25			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	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	41,436,851	7.0	12.0	7.5	-3.7			7.5	13.6	-26.8		
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	20,012,682	6.5	10.4	5.9	-4.4			5.9	11.5	-25.9	-16.8	
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7	-17.0	
Wellington Commodity	21,424,169	7.4	13.6	9.0	-2.6			9.0	14.9	-26.3		
Bloomberg Commodity Index TR USD		4.7	7.3	1.7	-5.0			1.7	11.8	-24.7		

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Liquid Alts/HFoF	61,716,566											
CPI + 5%				-	-				-			
Aetos Capital	31,588,559	1.0	2.3	6.8	3.5	5.4	3.5	6.8	2.6	1.2	5.2	11.4
BofA ML 90 DAY T-BILLS + 400 bps		1.0	2.0	3.9	3.4	3.6	4.1	3.9	3.3	3.1	3.5	4.1
Titan Advisors	30,128,007	1.0	3.9	4.0				4.0	0.6			
BofA ML 90 DAY T-BILLS + 400 bps		1.0	2.0	3.9				3.9	3.3			

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



	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Liquid Alts/HFoF	61,716,566											
CPI + 5%		-										
Aetos Capital	31,588,559	1.0	2.3	6.8	3.0	4.8	3.1	6.8	1.8	0.5	4.5	10.4
BofA ML 90 DAY T-BILLS + 400 bps		1.0	2.0	3.9	3.4	3.6	4.1	3.9	3.3	3.1	3.5	4.1
Titan Advisors	30,128,007	1.0	3.9	4.0				4.0	-0.1			
BofA ML 90 DAY T-BILLS + 400 bps		1.0	2.0	3.9				3.9	3.3			

#### Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are linked geometrically and annualized for periods longer than one year.

#### Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

#### Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

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

#### 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.

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