



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2017

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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Investment Landscape

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Investment Performance
Review

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**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

1ST QUARTER 2018
Investment Landscape

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4th 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 22nd. 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

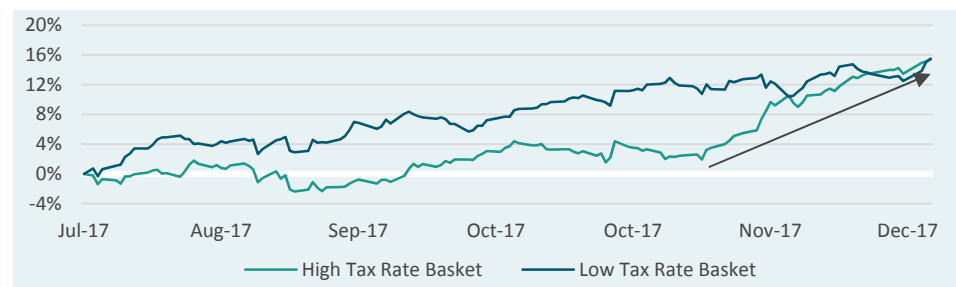
“Global manufacturers strain to keep up with faster economy”

GLOBAL PURCHASING MANAGERS INDEX (PMI)

Jul	Aug	Sep	Oct	Nov	Dec
53	53	53	54	54	55

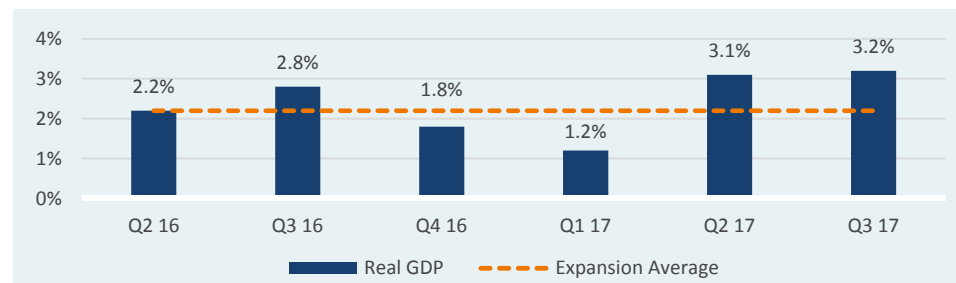
Article Source: Bloomberg, January 2nd, 2018

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



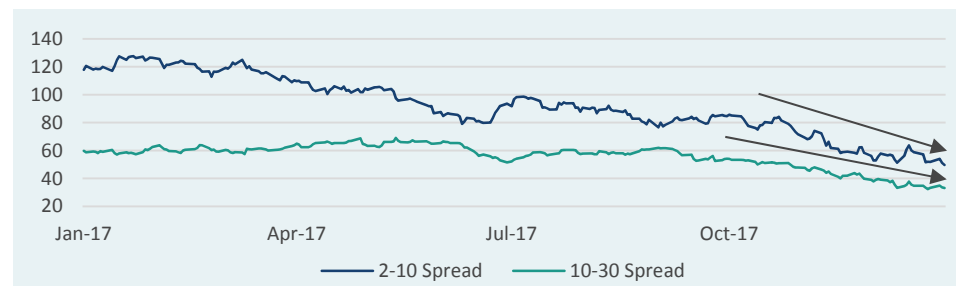
Source: Verus, Bloomberg, as of 1/4/18

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	2.2% 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	2.4% 12/31/17	2.4% 12/31/16
U-3 Unemployment	4.1% 12/31/17	4.7% 12/31/16
U-6 Unemployment	8.1% 12/31/17	9.1% 12/31/16

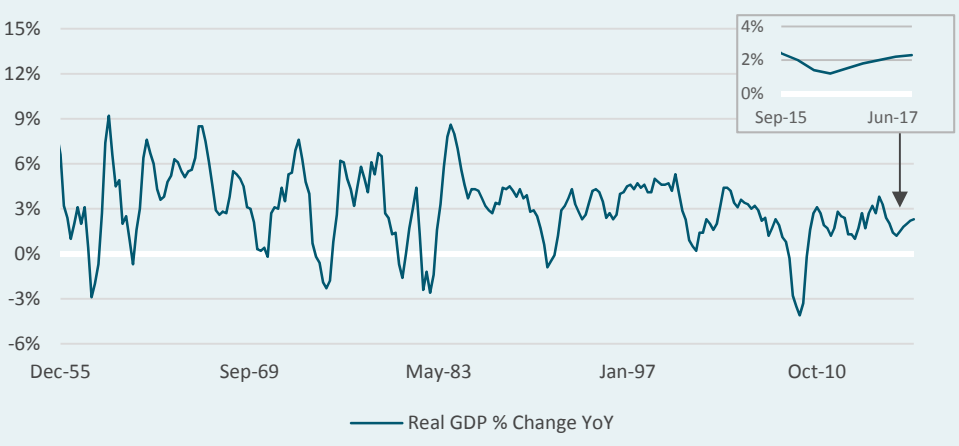
GDP growth

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.

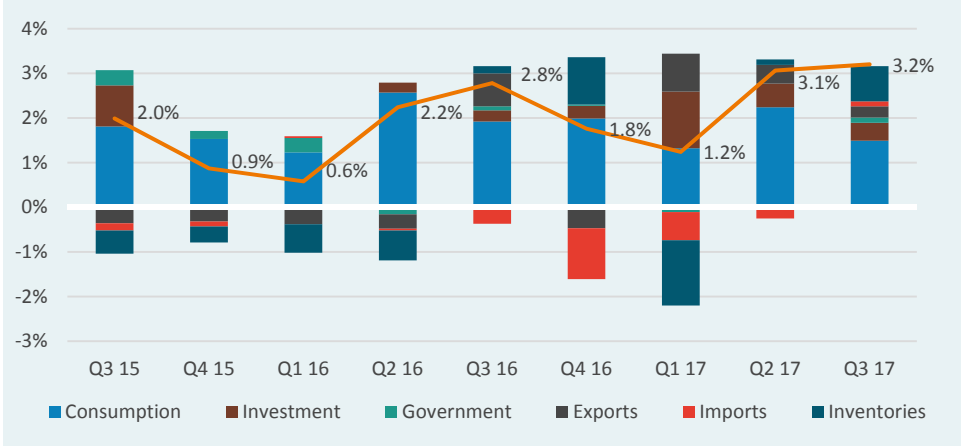
Economic growth has accelerated over the past two quarters

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.

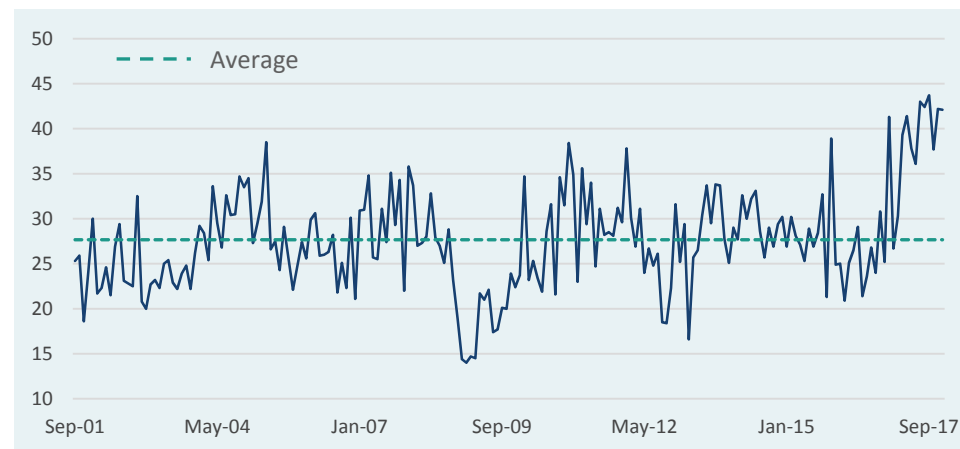
Business investment has been a material contributor to the recent pickup in growth

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

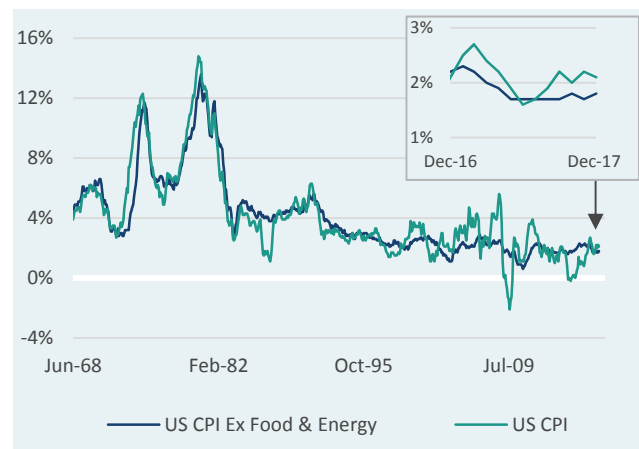
Core U.S. inflation picked up slightly to 1.8% YoY in December, a rise from 1.7% in September. Increases in housing and healthcare costs contributed to the move. Headline inflation fell from 2.2% to 2.1% over the quarter.

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.

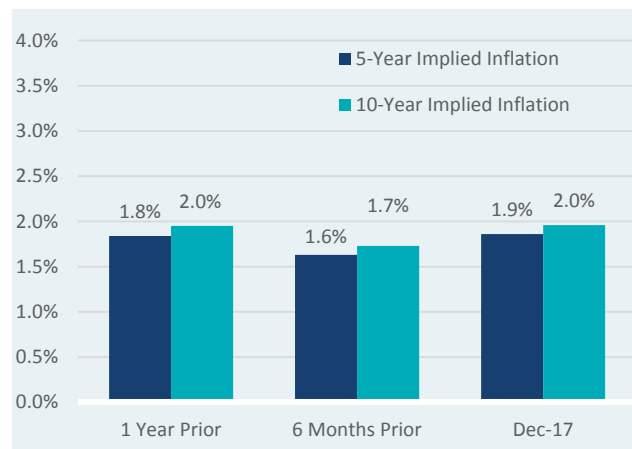
Low inflation may be supportive of further economic expansion

U.S. CPI (YOY)



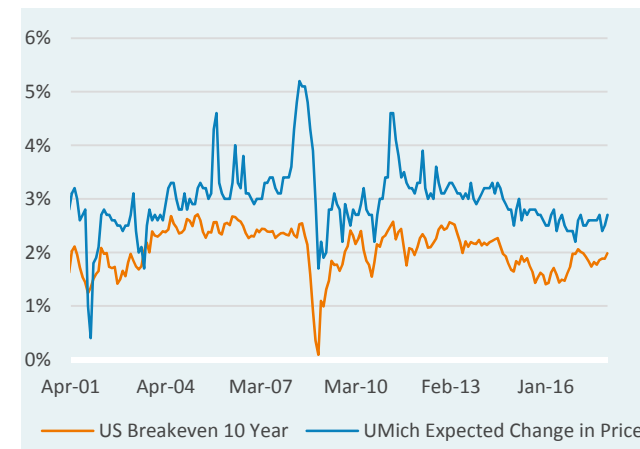
Source: FRED, as of 12/31/17

U.S. TIPS BREAKEVEN RATES



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

INFLATION EXPECTATIONS



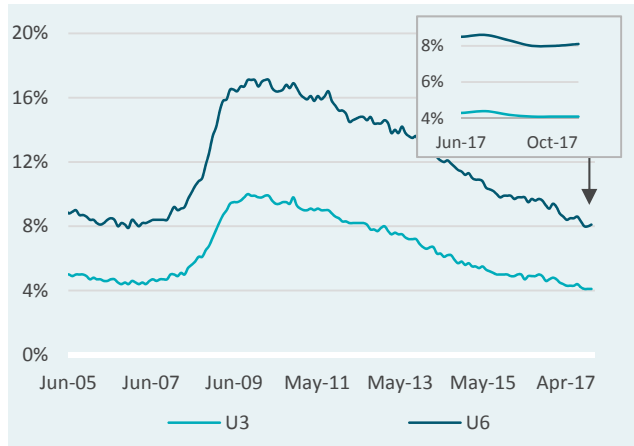
Source: Bloomberg, as of 12/31/17

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.

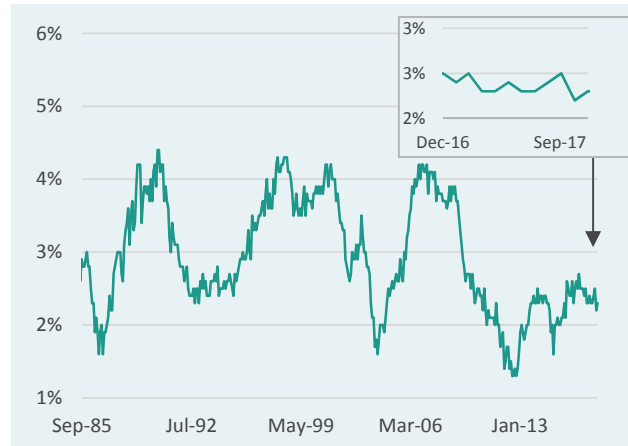
In previous quarters, we noted that the headline unemployment rate may be overstating tight labor market conditions due to discouraged or longer-term unemployed workers not included in traditional measures. It appears these individuals are slowly making their way back into the labor force, especially 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



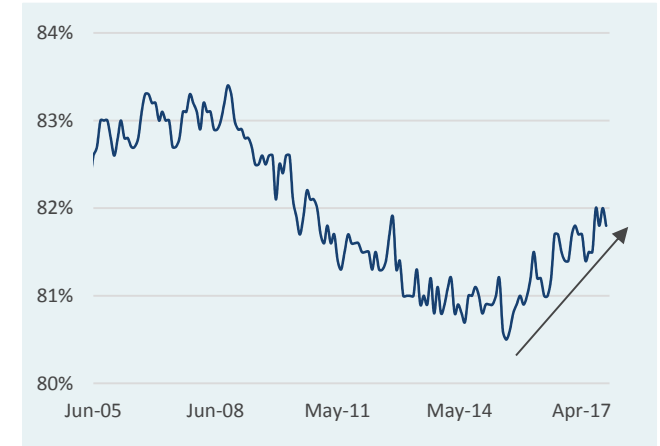
Source: FRED, as of 12/31/17

AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as of 11/30/17

CORE AGE PARTICIPATION RATE



Source: FRED, as of 12/31/17

The consumer

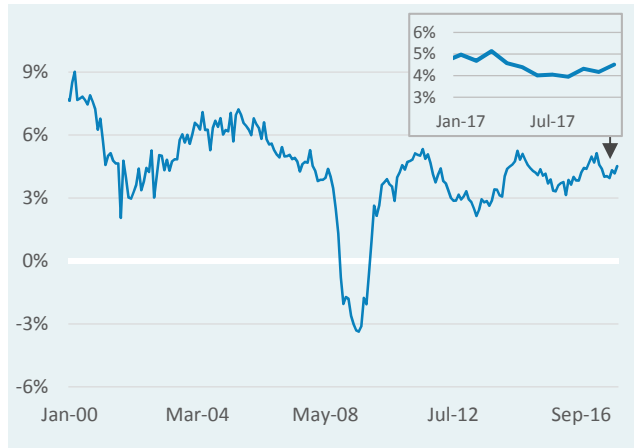
Positive economic conditions are providing continued support to strong consumer demand, although this has not led to signs of late-cycle overheating. Consumer spending was 4.5% YoY in November, up from 4.0% three months prior.

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.

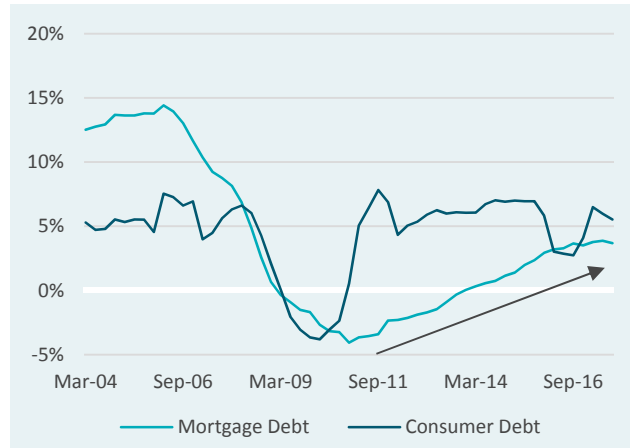
Low interest rates have not led individuals to take on large debt loads as both borrowers and lenders remain cautious. Consumer debt has seen modest growth, while mortgage debt is still recovering from a sharp decline following the 2008-2009 financial crisis. Growth in consumer debt has been mostly fueled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

CONSUMER SPENDING (YOY GROWTH)



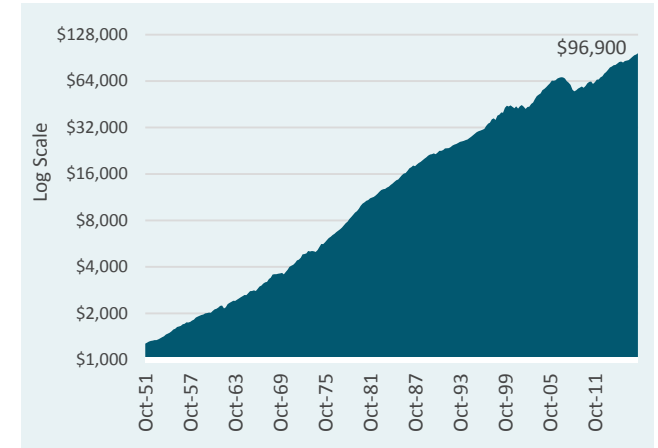
Source: Bloomberg, as of 11/30/17

DEBT GROWTH (YOY)



Source: FRED, as of 9/30/17

HOUSEHOLD NET WORTH



Source: Bloomberg, as of 7/31/17

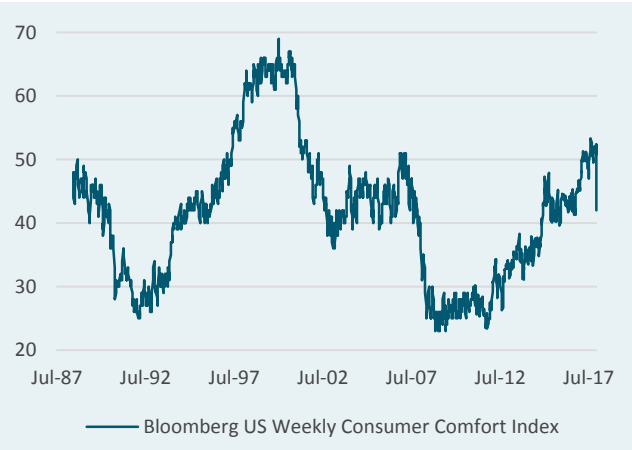
Sentiment

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 85th 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.

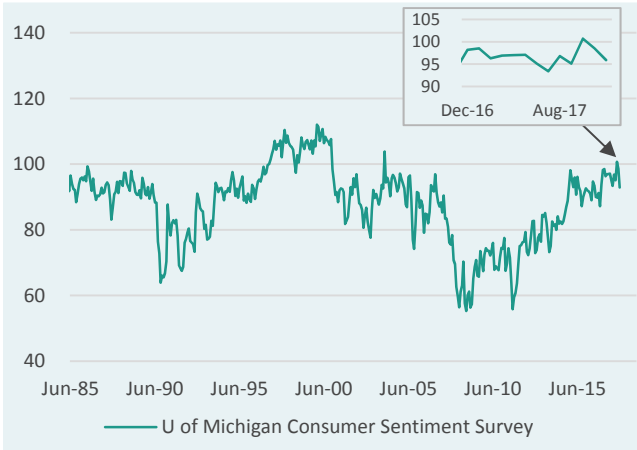
Consumers and small businesses have a positive outlook on the economy

CONSUMER COMFORT INDEX



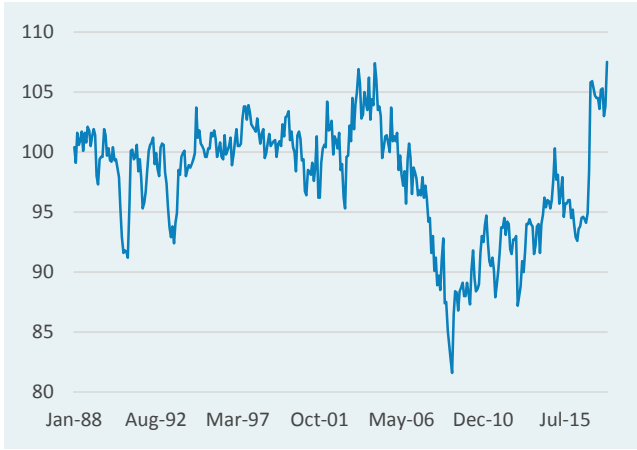
Source: Bloomberg, as of 12/31/17 (see Appendix)

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)

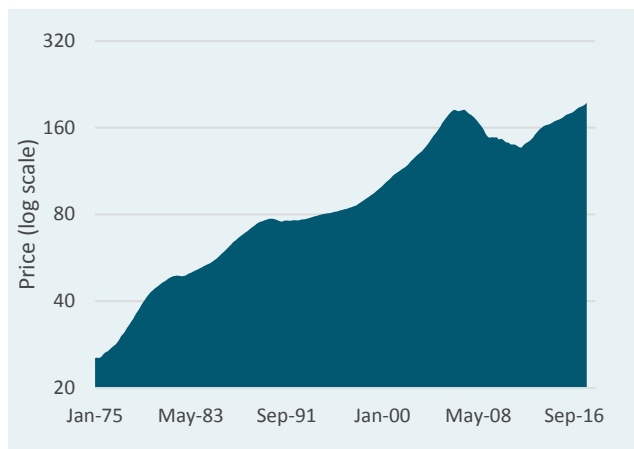
Housing

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.

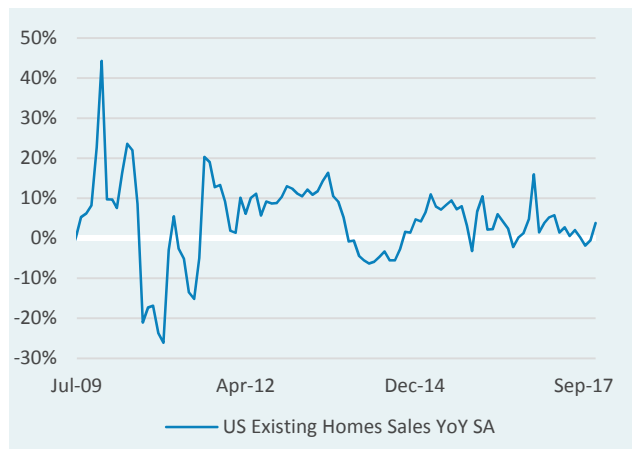
Total mortgage debt outstanding has just recently recovered from the global financial crisis. Mortgage lending standards are still tight, which has led to a higher quality pool of mortgage borrowers relative to past cycles.

CASE-SHILLER HOME PRICE INDEX



Source: FRED, as of 10/31/17

HOUSING SALES



Source: Bloomberg, as of 11/30/17

MONTHLY SUPPLY OF HOMES



Source: FRED, as of 11/30/17

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 short-end 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% <i>9/30/17</i>	2.1% <i>12/31/17</i>	4.1% <i>12/31/17</i>
Western Europe	2.5% <i>9/30/17</i>	1.6% <i>12/31/17</i>	7.4% <i>12/31/17</i>
Japan	2.1% <i>9/30/17</i>	0.6% <i>11/30/17</i>	2.7% <i>11/30/17</i>
BRICS Nations	5.6% <i>9/30/17</i>	2.0% <i>12/31/17</i>	5.7% <i>9/30/17</i>
Brazil	1.4% <i>9/30/17</i>	3.0% <i>12/31/17</i>	12.1% <i>12/31/17</i>
Russia	1.8% <i>9/30/17</i>	2.5% <i>12/31/17</i>	5.1% <i>11/30/17</i>
India	5.3% <i>9/30/17</i>	4.9% <i>11/30/17</i>	8.0% <i>12/31/16</i>
China	6.8% <i>9/30/17</i>	1.8% <i>12/31/17</i>	4.0% <i>9/30/17</i>

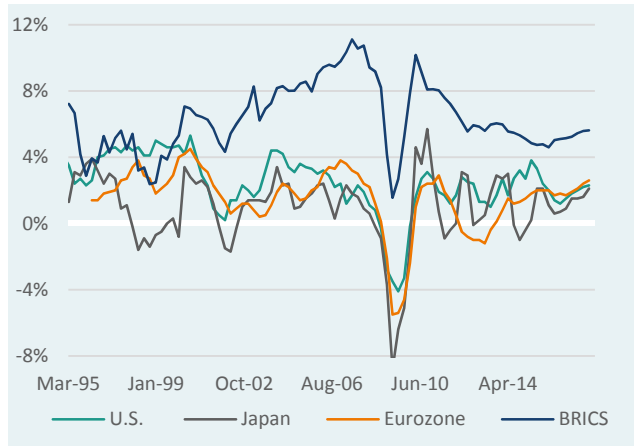
International economics

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.

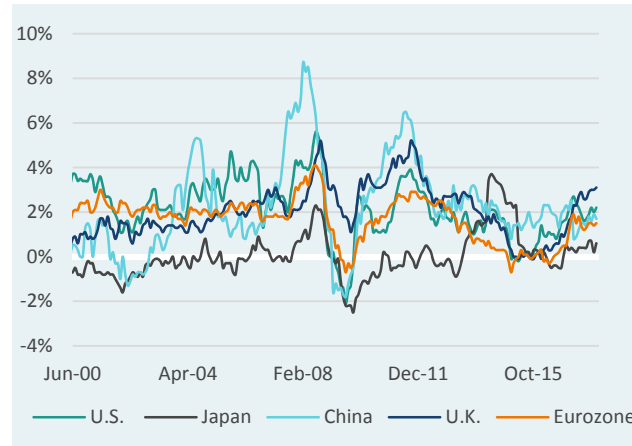
Growth accelerated, while inflation remained moderate

REAL GDP GROWTH (YOY)



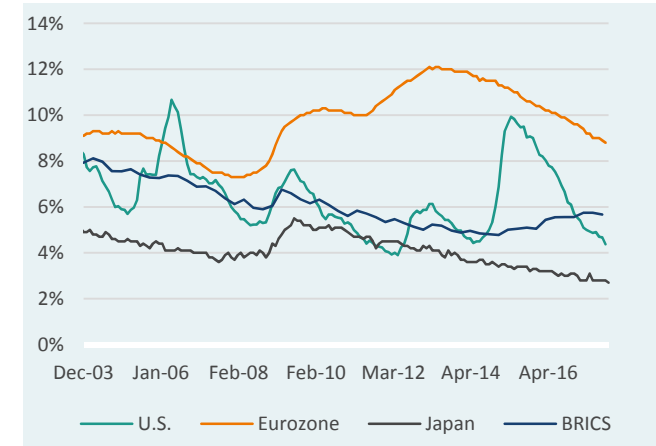
Source: Bloomberg, as of 9/30/17

INFLATION (CPI)



Source: Bloomberg, as of 11/30/17

UNEMPLOYMENT



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

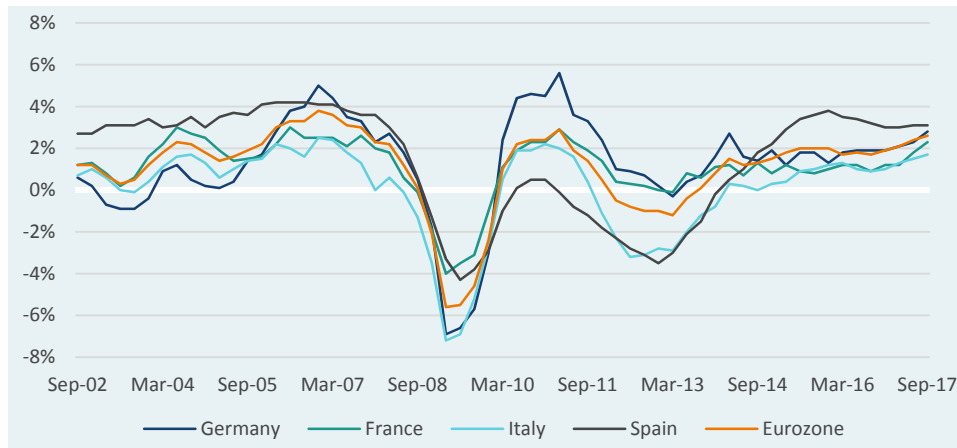
Eurozone economic recovery

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.

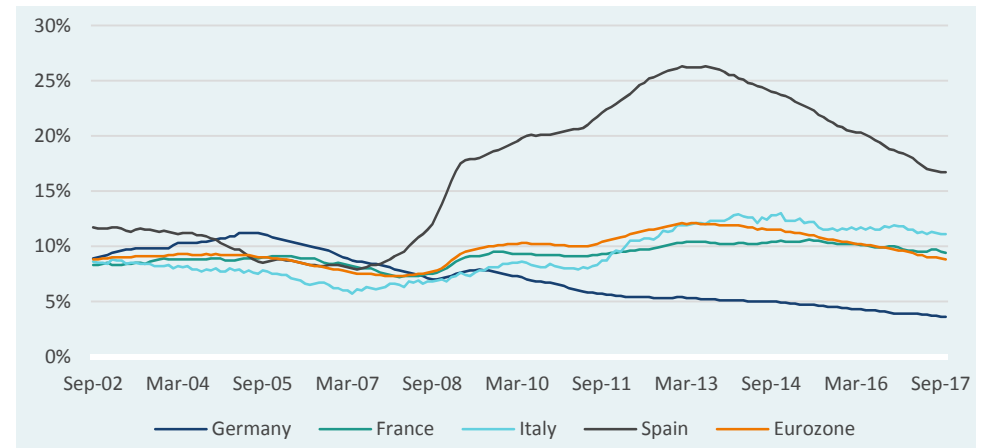
The Eurozone is experiencing an impressive economic recovery

REAL GDP GROWTH



Source: Bloomberg, as of 9/30/17

UNEMPLOYMENT RATE



Source: Bloomberg, as of 10/31/17

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 2- and 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.

Area	Short Term (3M)	10 Year
United States	1.38%	2.41%
Germany	(0.80%)	0.42%
France	(0.78%)	0.78%
Spain	(0.58%)	1.56%
Italy	(0.63%)	2.00%
Greece	1.40%	4.10%
U.K.	0.36%	1.19%
Japan	(0.15%)	0.04%
Australia	1.74%	2.63%
China	3.95%	3.90%
Brazil	6.77%	10.25%
Russia	6.55%	7.42%

Source: Bloomberg, as of 12/31/17

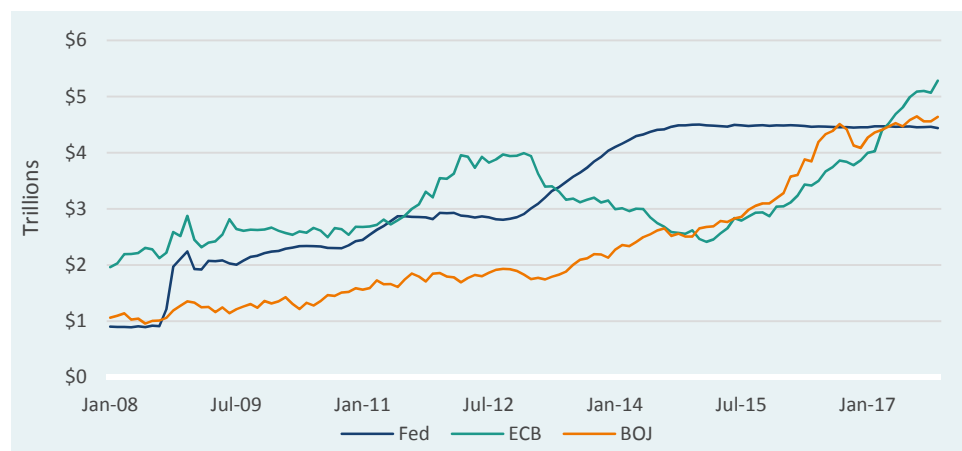
Monetary policy

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



Source: Bloomberg, as of 11/30/17

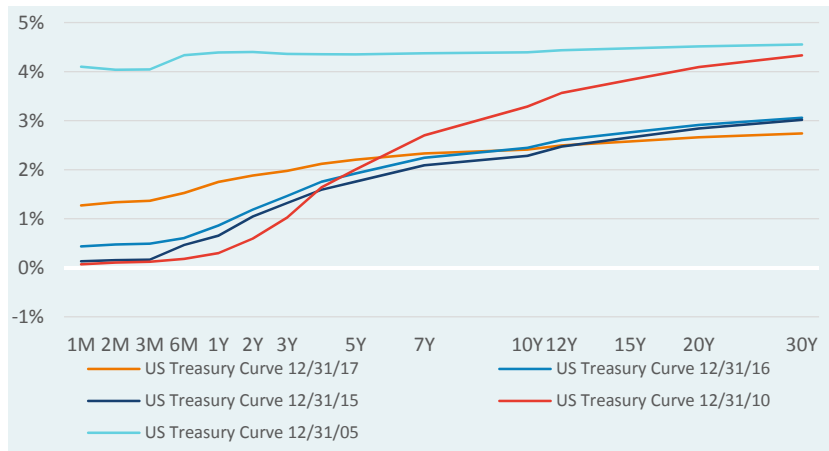
MAJOR CENTRAL BANK POLICY RATES AND EXPECTATIONS

	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%
BOE	0.5%	1	0.7%	0.9%

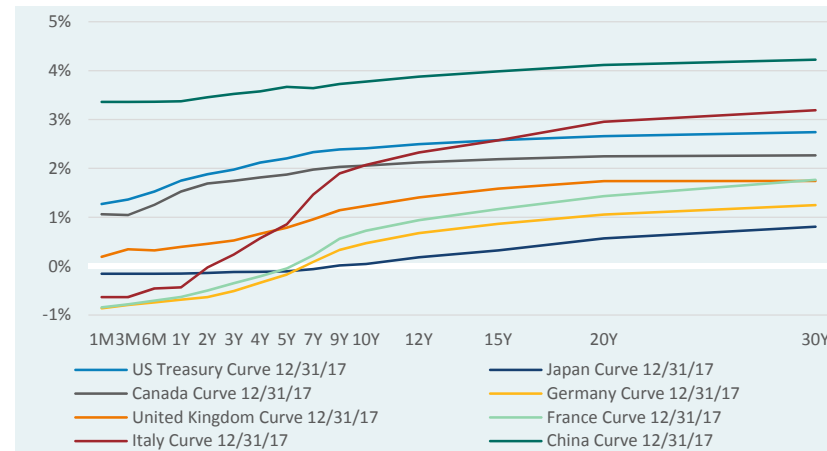
Source: Bloomberg, as of 1/4/18

Yield environment

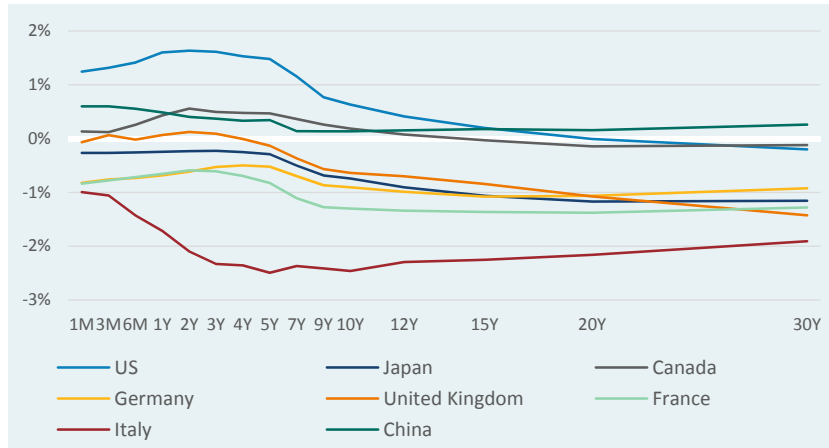
U.S. YIELD CURVE



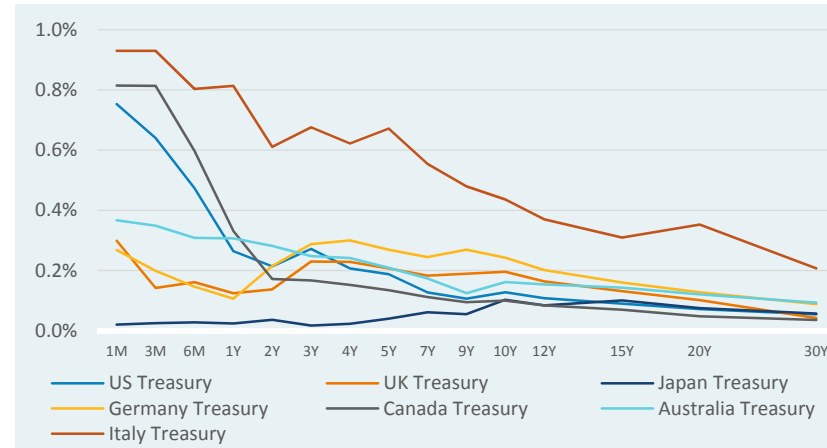
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 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.

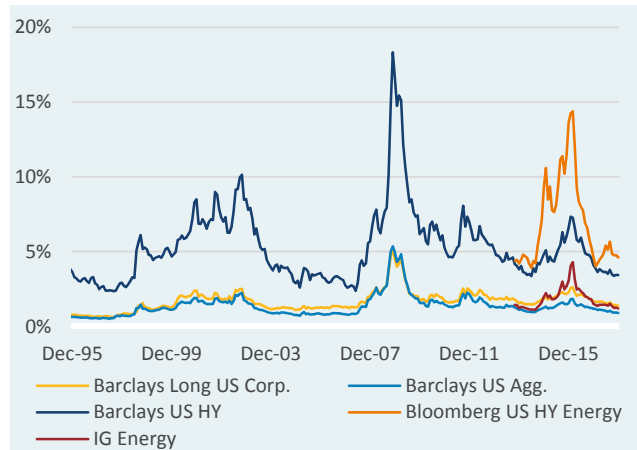
Credit spreads in both high yield and loans have continued to tighten close to multi-year lows, driven by strong corporate fundamentals and general macroeconomic improvement.

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.

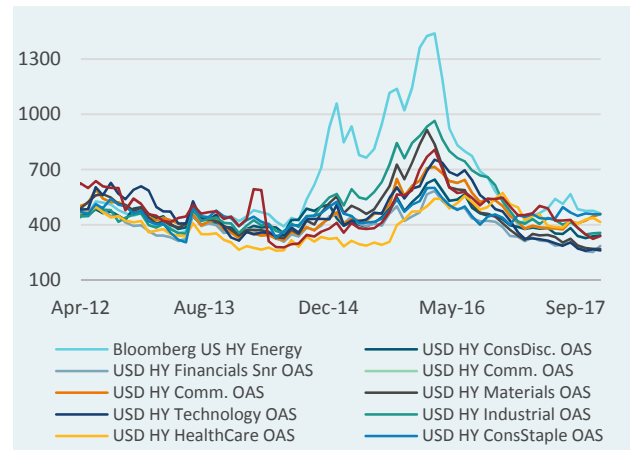
Credit spreads are tight across the capital structure

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.

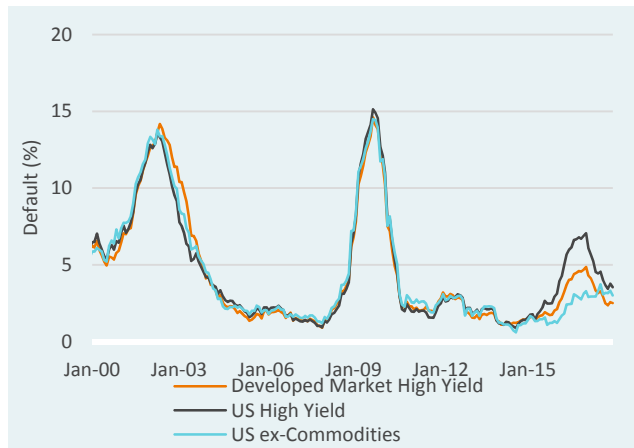
Senior loan and high yield markets normalized in 2017, compared to 2016 when a majority of defaults were generated from energy and metals/mining sectors.

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.

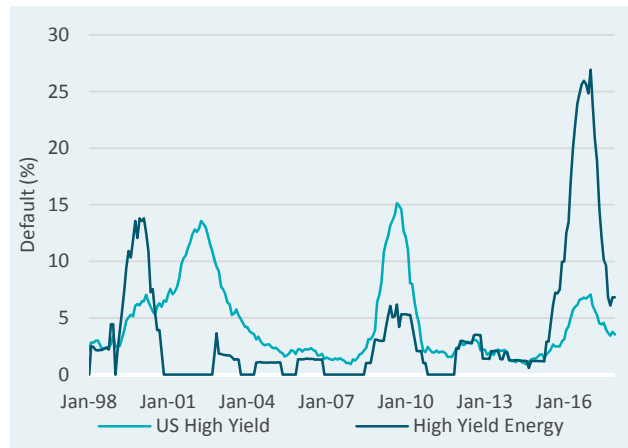
The effects of commodity related defaults are subsiding

HY DEFAULT TRENDS (ROLLING 1 YEAR)



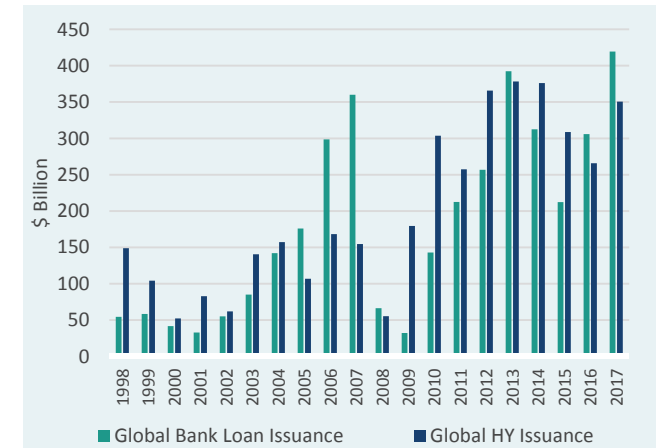
Source: BofA Merrill Lynch, as of 12/31/17

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 TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.6%		21.7%		21.7%	
US Small Cap (Russell 2000)	3.3%		14.6%		14.6%	
US Large Value (Russell 1000 Value)	5.3%		13.7%		13.7%	
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



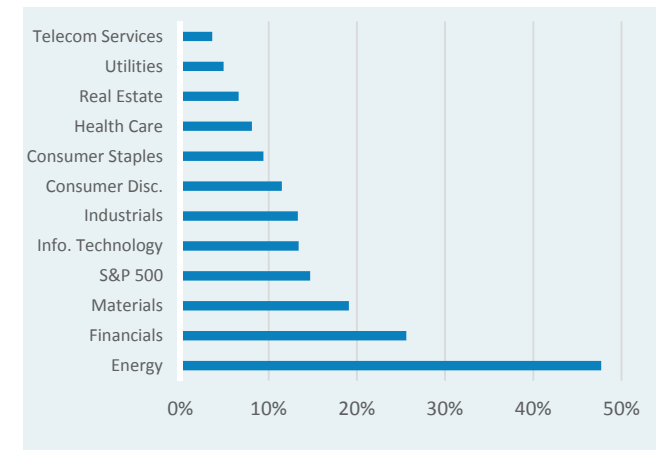
Source: Russell Investments, as of 12/31/17

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

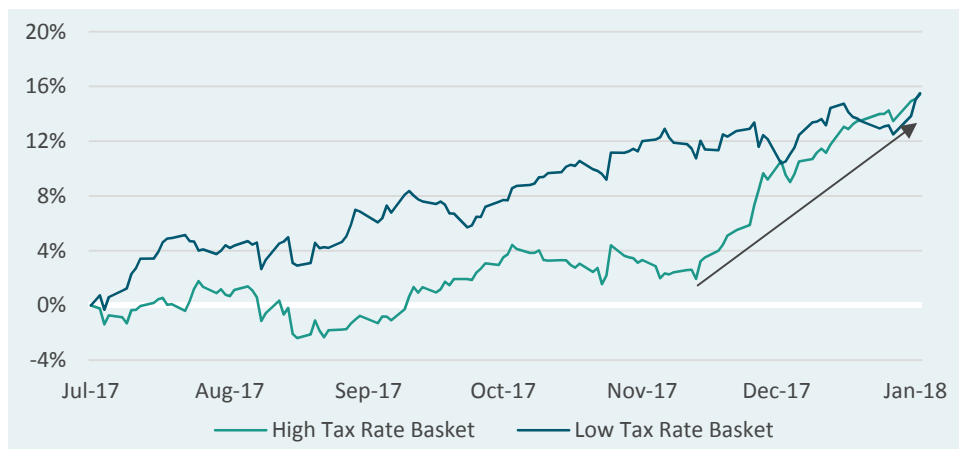
U.S. tax reform

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.

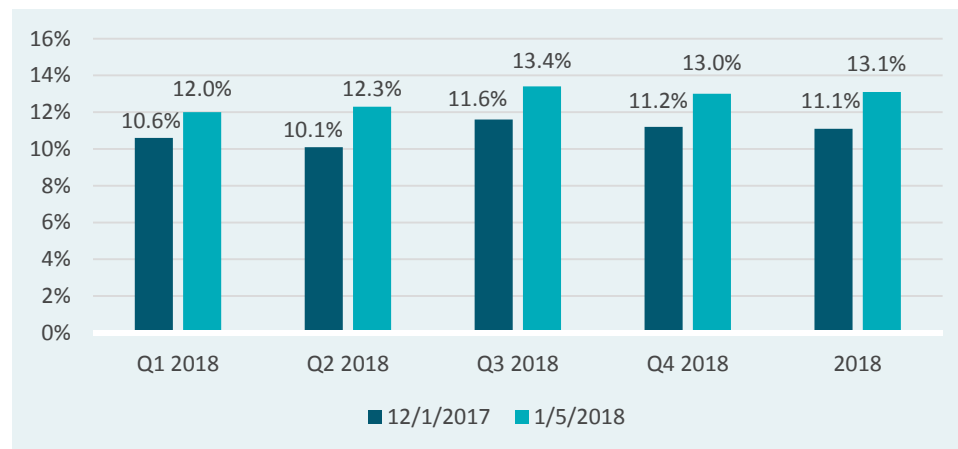
Corporate tax cuts will be a boost to earnings

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



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

S&P 500 2018 EARNINGS EXPECTATIONS



Source: FactSet, as of 1/5/18

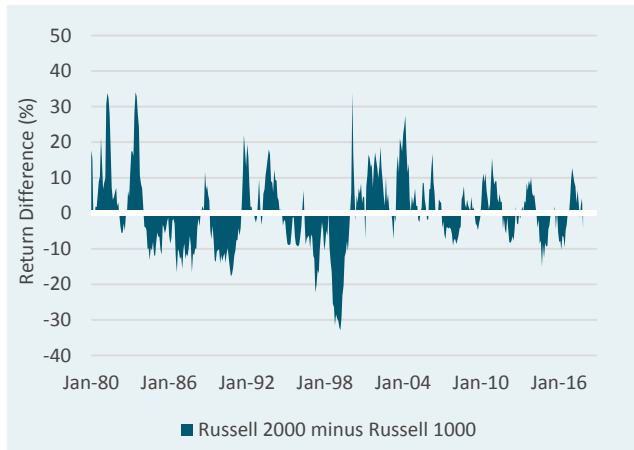
Domestic equity size and style

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 quarter and the past year – caused by extremely positive

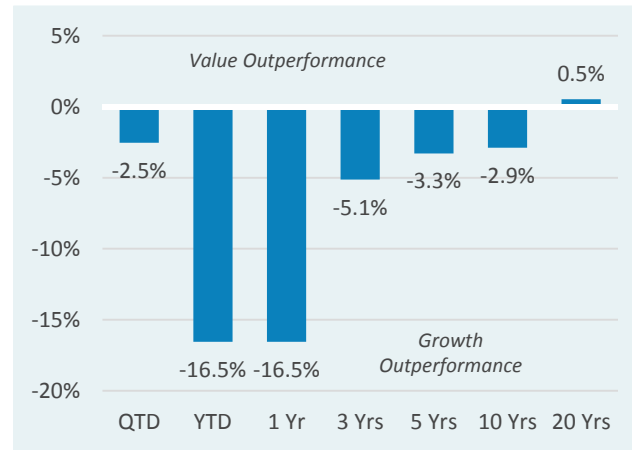
technology sector performance (growth stocks are highly concentrated in the tech sector). Value has now underperformed on a 1-, 3-, 5-, and 10-year basis. Value stocks have underperformed over a 10-year period only twice in the past 100 years – during the great depression (1937) and during the dotcom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

SMALL CAP VS LARGE CAP (YOY)



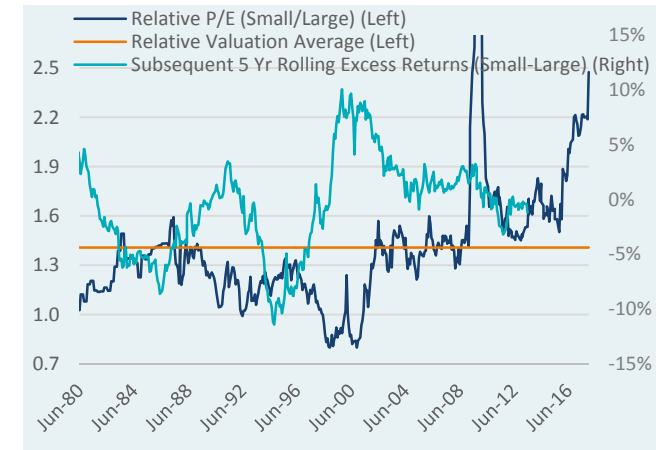
Source: Russell Investments, as of 12/31/17

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

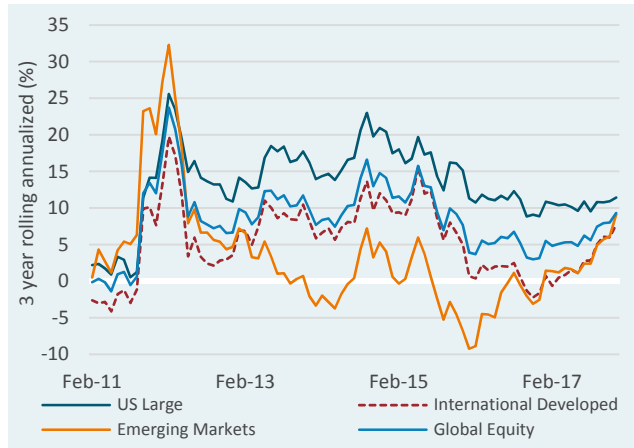
International equities lagged U.S. equities during the fourth quarter as U.S. tax reform contributed to a strong domestic rally. The MSCI EAFE Index returned 4.3% (+4.0% hedged) while the S&P 500 returned 6.6%. Emerging markets continued to outperform (MSCI EM +7.4% unhedged).

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.

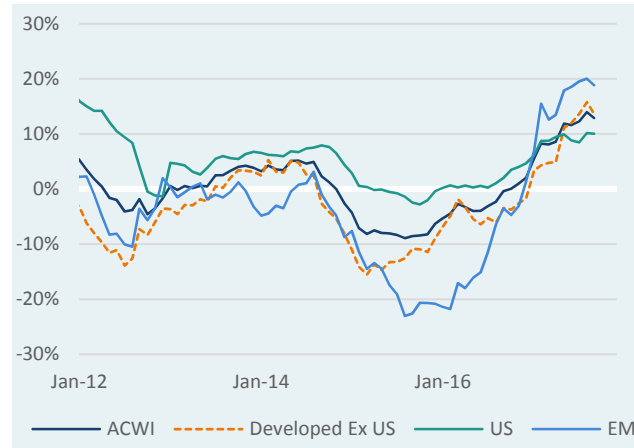
Currency effects added a positive 0.3% to the unhedged MSCI EAFE in Q4 (+8.9% year-to-date), as the U.S. dollar weakened slightly against a trade weighted basket of currencies.

EQUITY PERFORMANCE (3YR ROLLING)



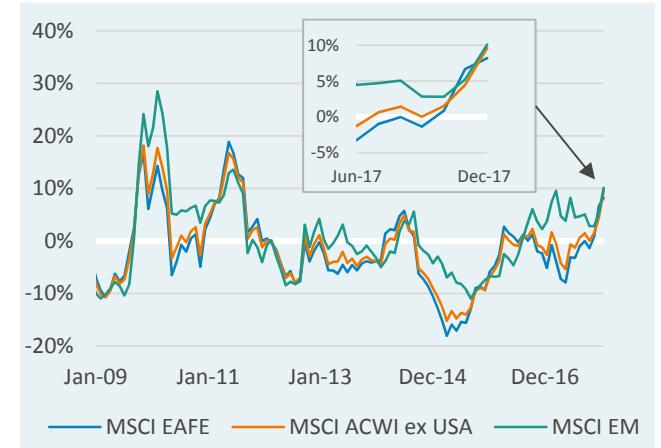
Source: Bloomberg, as of 12/31/17

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

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%).

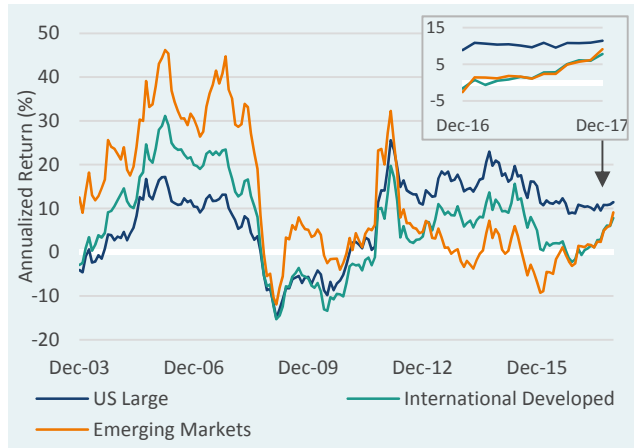
Emerging markets have lagged the U.S. significantly since the global financial crisis, prior to the recent rotation. Emerging market currencies remain depressed relative to

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.

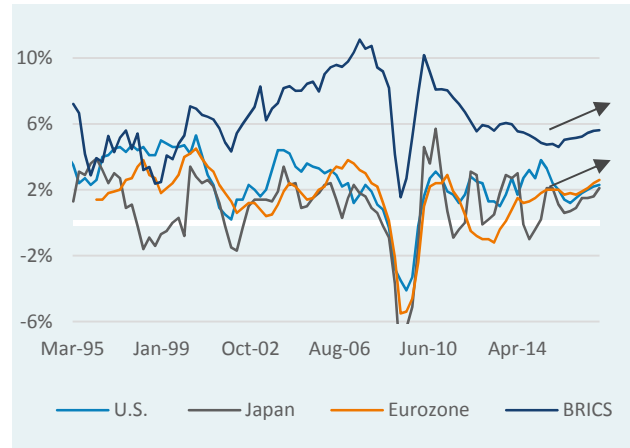
Coordinated global growth has helped propel emerging market equities

EQUITY PERFORMANCE (3YR ROLLING)



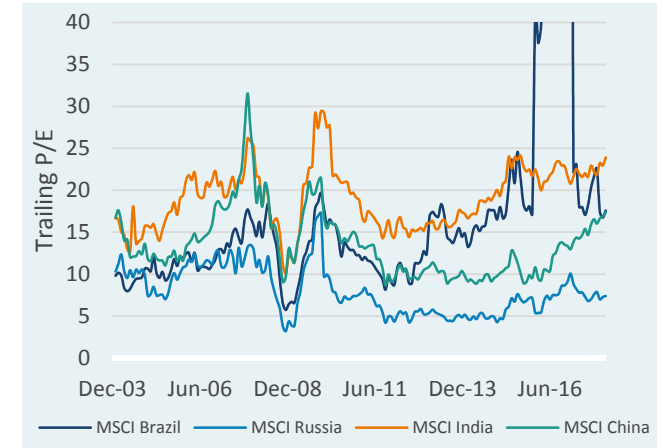
Source: Standard & Poor's, MSCI, as of 12/31/17

ECONOMIC MOMENTUM



Source: Bloomberg, as of 9/30/17

BRIC VALUATIONS



Source: MSCI, as of 12/31/17

Equity valuations

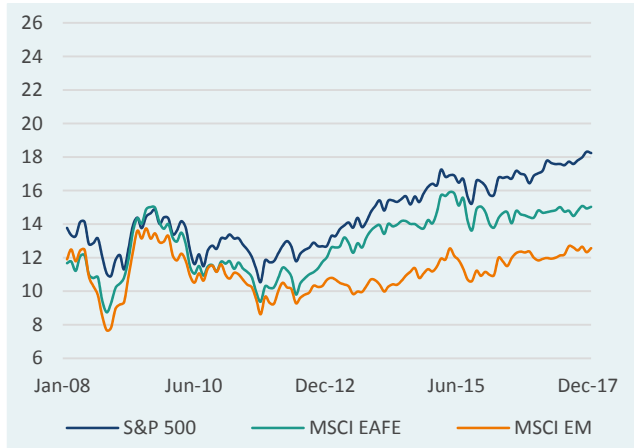
Equity valuations grew slightly richer over the quarter and remain high. However, strong underlying earnings growth has sustained above-average performance. Global economic acceleration, robust earnings growth, and accommodative monetary policies contribute to our view that a risk overweight position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

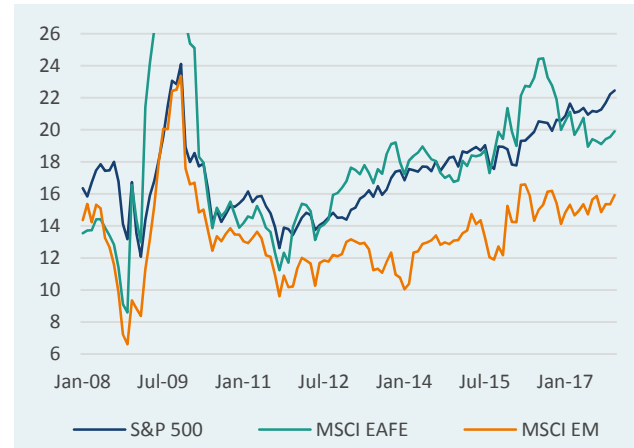
Higher valuations imply lower future equity returns over the longer-term. However, over shorter periods of time equities may produce strong returns despite high valuations, as seen recently.

FORWARD P/E RATIOS



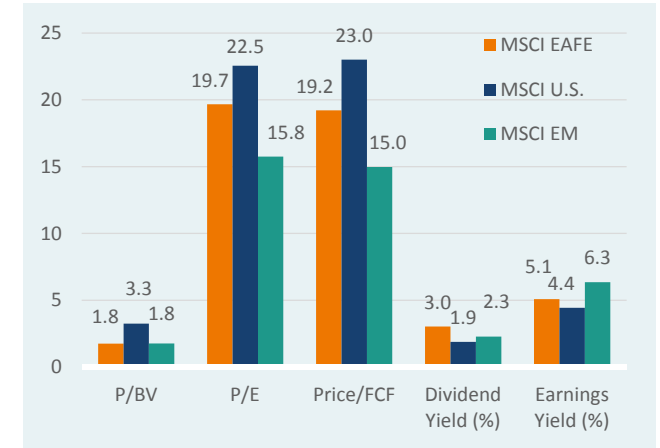
Source: MSCI, as of 12/31/17

TRAILING P/E RATIOS



Source: Bloomberg, as of 12/31/17

VALUATION METRICS



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

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.

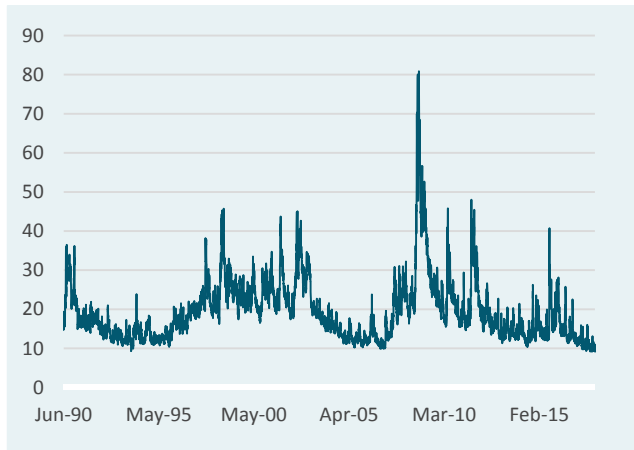
Equity volatility

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.

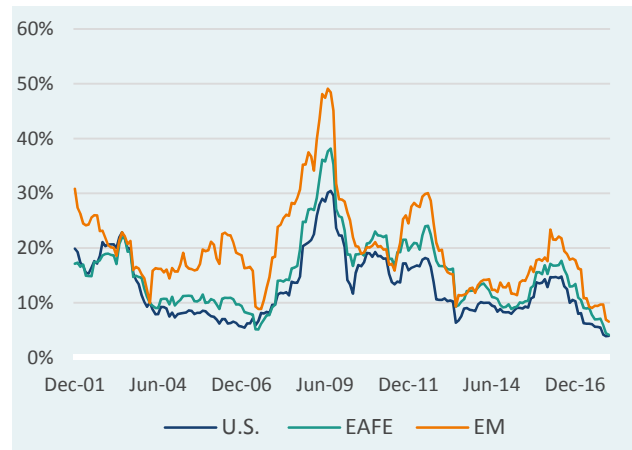
Equity volatility has trended downwards

U.S. IMPLIED VOLATILITY (VIX)



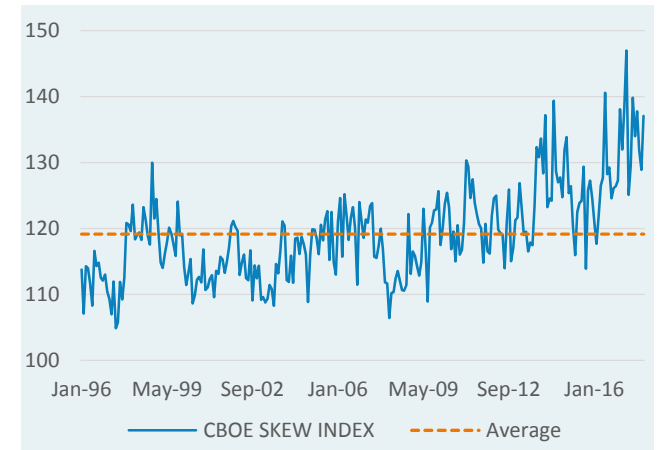
Source: CBOE, as of 12/31/17

REALIZED 1-YEAR ROLLING VOLATILITY



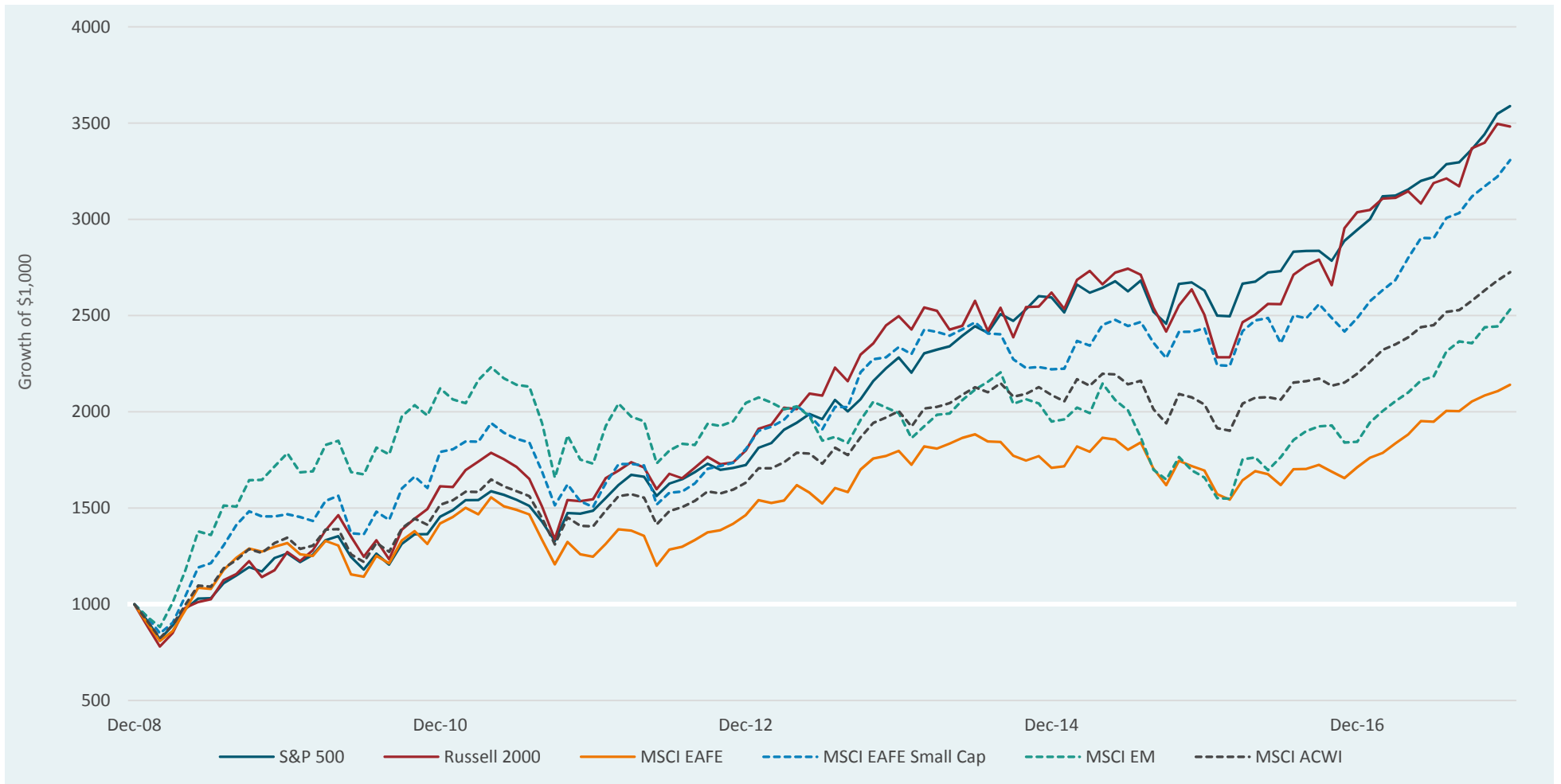
Source: Bloomberg, as of 12/31/17

U.S. VOLATILITY SKEW



Source: CBOE, as of 12/31/17

Long-term equity performance



Source: MPI, as of 12/31/17

Other assets

Real estate

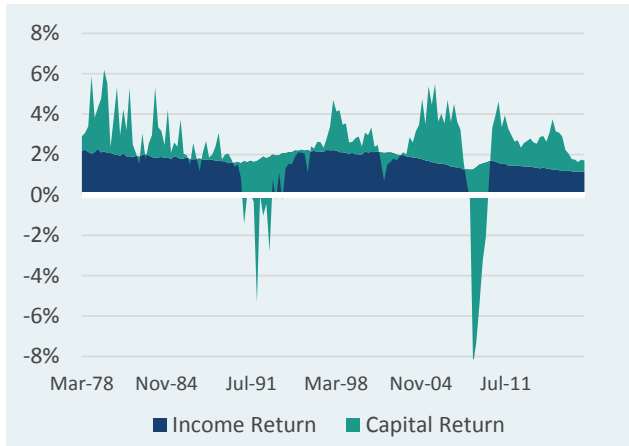
The core real estate market experienced lower returns in recent quarters than earlier in the cycle as price appreciation has slowed. In the third quarter, the NCREIF Property Index returned 1.7%, of which a net 1.1% came from income. With cap rates at 4.4% as of September 30th, further real estate price 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 e-commerce. 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%.

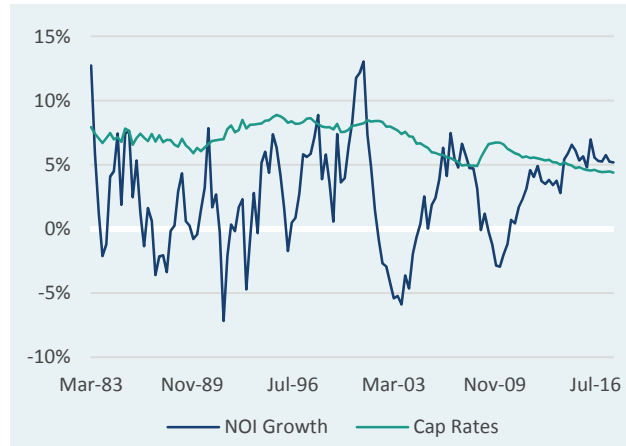
Given where real estate stands in the cycle, we recommend a conservative approach to leverage, liquidity, and quality. We are more constructive on core real estate, as opposed to value add or opportunistic.

NCREIF PROPERTY INDEX RETURNS



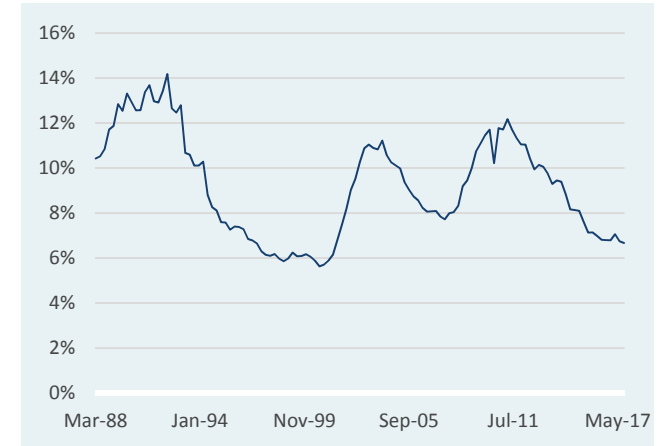
Source: NCREIF, as of 9/30/17

NOI GROWTH & CAP RATES



Source: NCREIF, as of 9/30/17

VACANCY RATES



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.

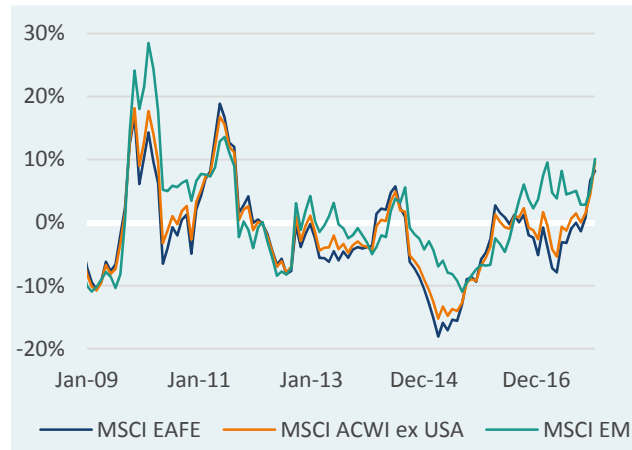
Forecasting currency movement over short periods of time can be extremely difficult. Hedging currency risk is an appropriate method for mitigating currency volatility and uncertainty.

U.S. DOLLAR TRADE WEIGHTED INDEX



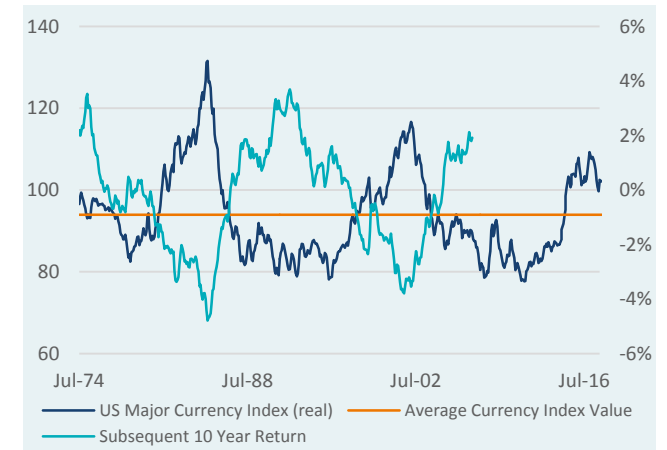
Source: Federal Reserve, as of 12/27/17

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-Year
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

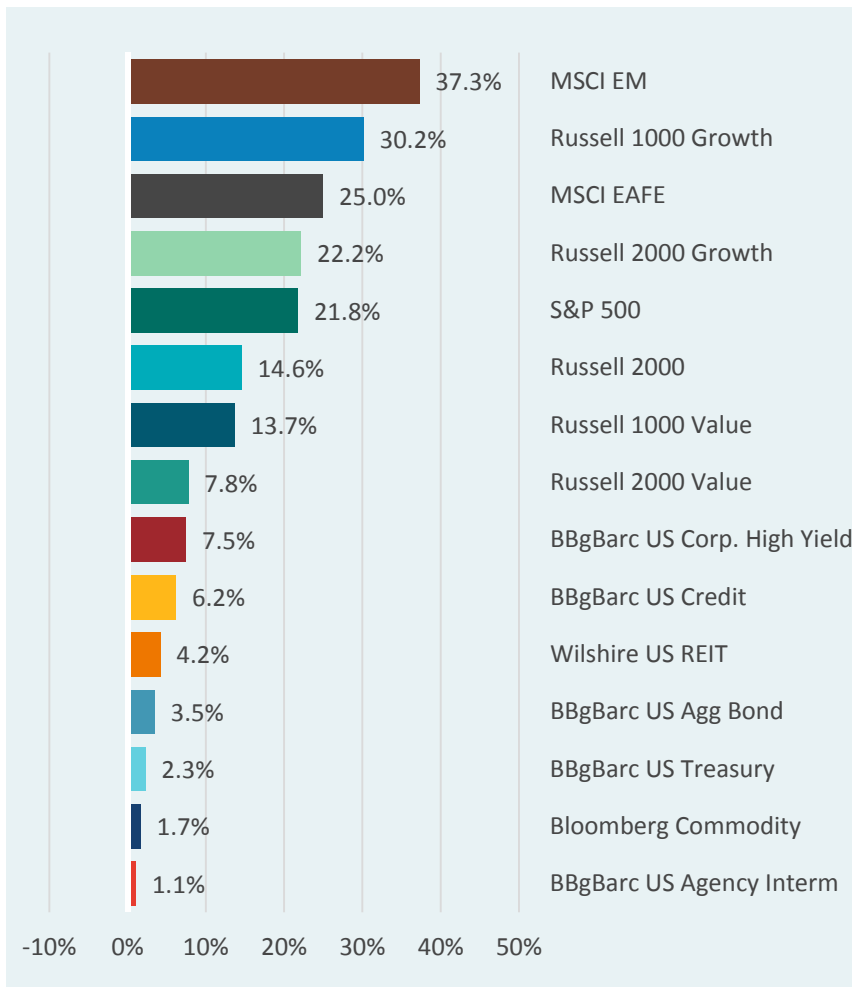
WORST



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/17.

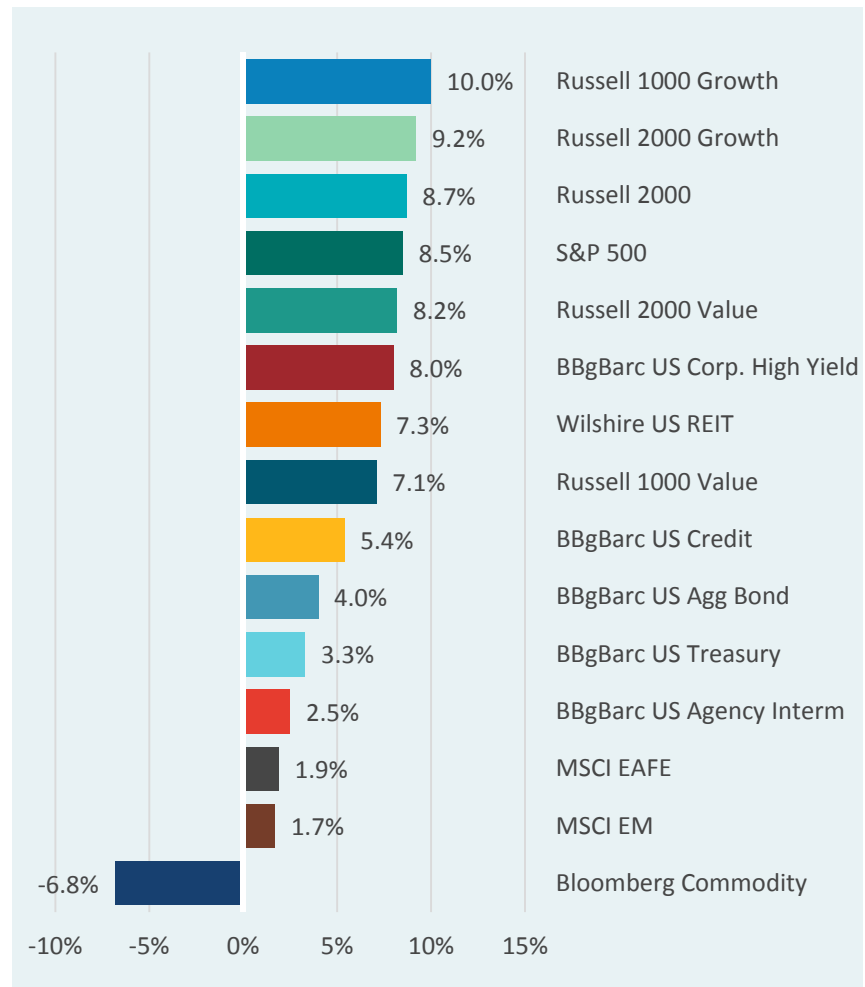
Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/17

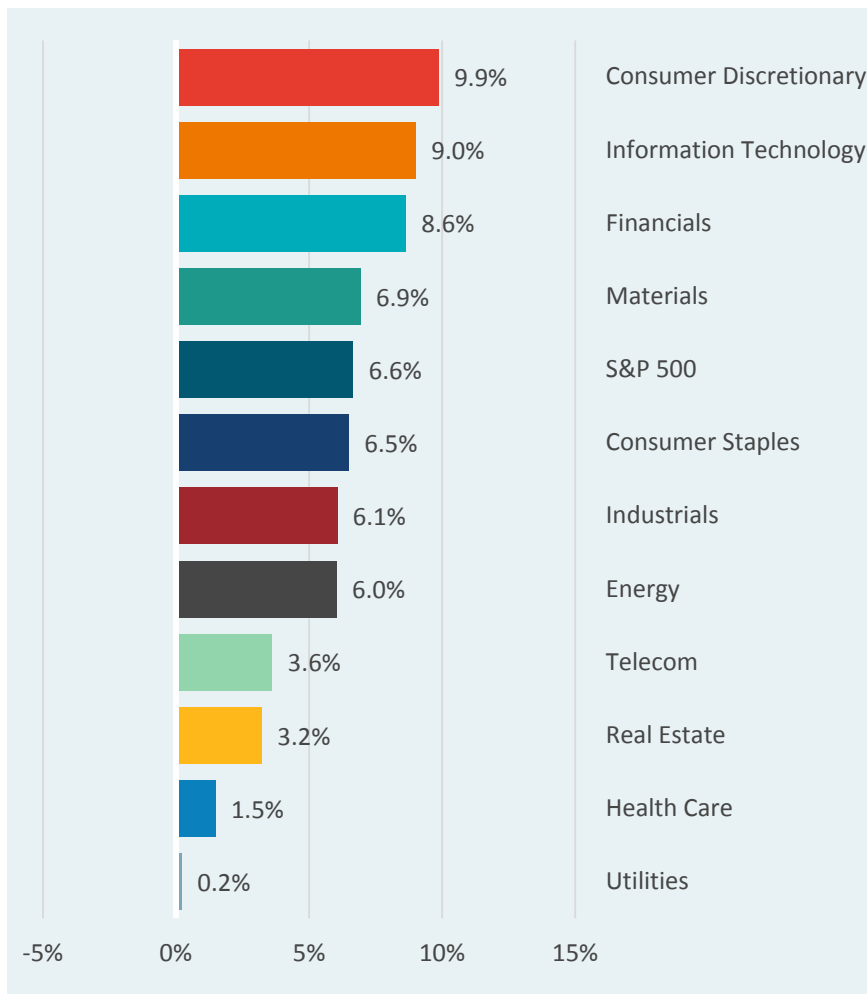
TEN YEARS ENDING DECEMBER



Source: Morningstar, as of 12/31/17

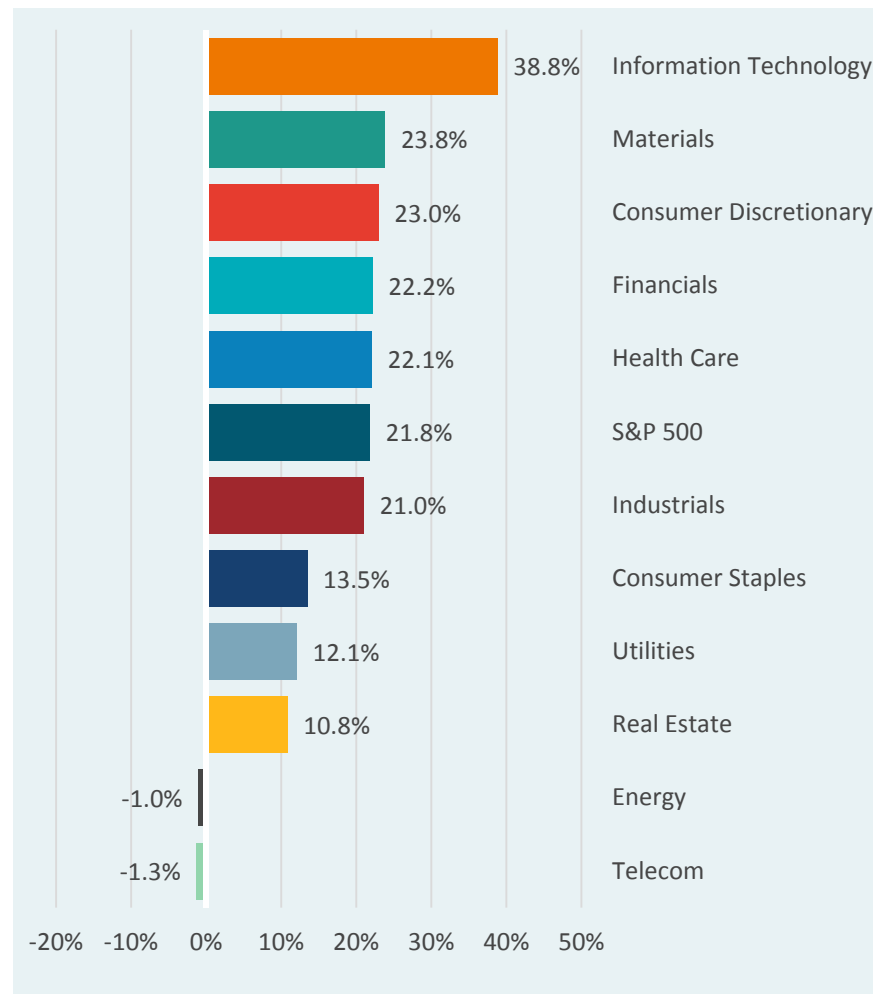
S&P 500 sector returns

4TH QUARTER



Source: Morningstar, as of 12/31/17

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/17

Detailed index returns

DOMESTIC EQUITY

	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

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
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)

Source: Morningstar, as of 12/31/17

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

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
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	0.8	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)

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.lanqerresearch.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.Bloombera.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. (www.Bloomberg.com)

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

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Contra Costa County Employees' Retirement Association

Investment Performance Review
Period Ending: December 31, 2017



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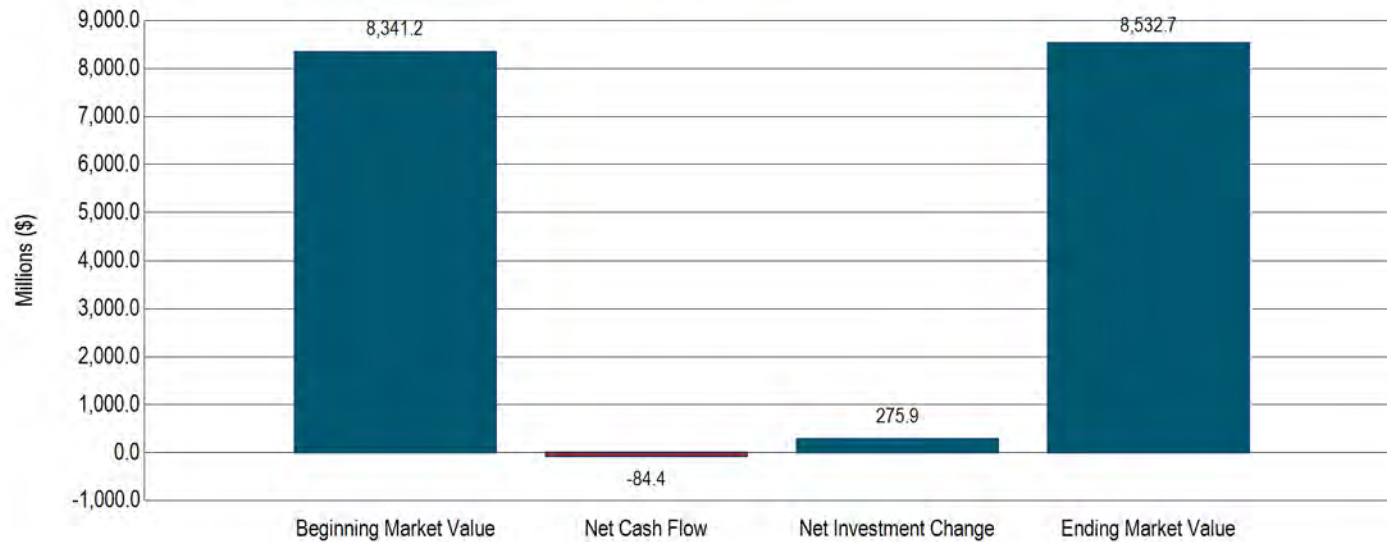
LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Portfolio Reconciliation

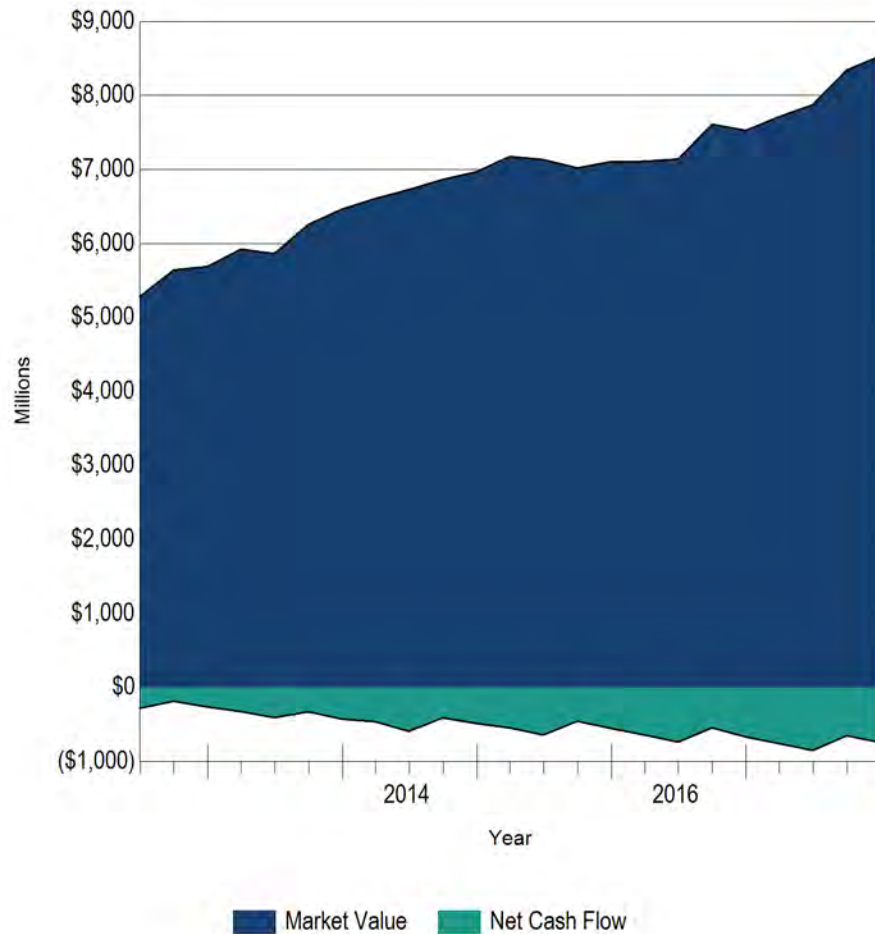
	Last Three Months	Year-To-Date
Beginning Market Value	\$8,341,177,260	\$7,526,951,623
Net Cash Flow	-\$84,360,517	-\$51,652,817
Net Investment Change	\$275,880,280	\$1,057,398,217
Ending Market Value	\$8,532,697,023	\$8,532,697,023

Change in Market Value
Last Three Months

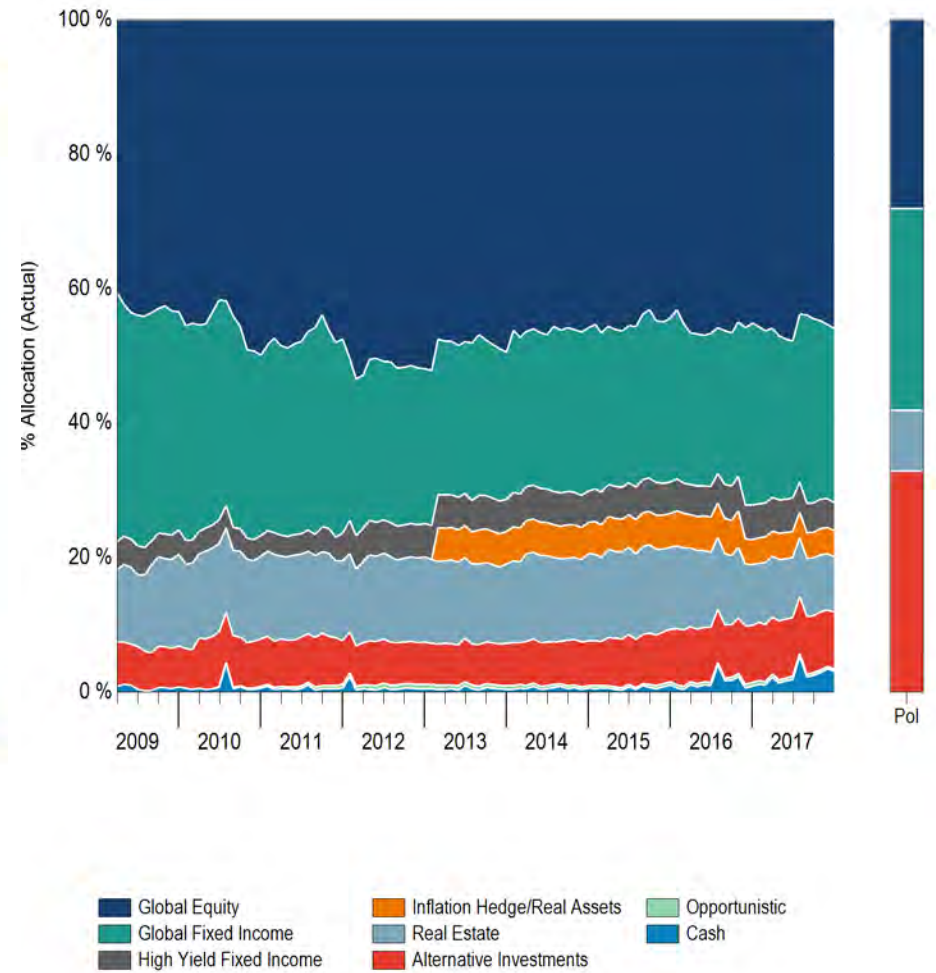


Contributions and withdrawals may include intra-account transfers between managers/funds.

Market Value History
Cumulative Cash Flows



Asset Allocation History

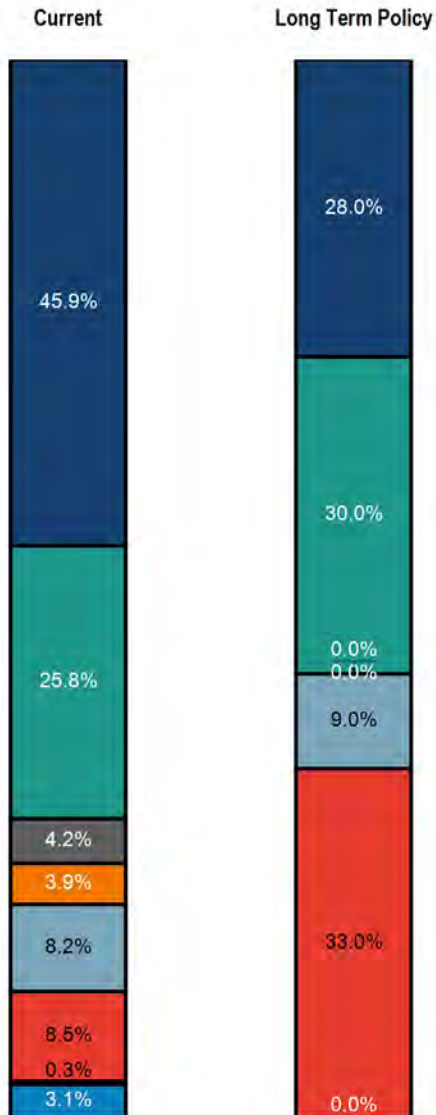


Policy reflects FFP 4-Yr allocations approved in May 2017.

Total Fund

Asset Allocation vs. Long Term Target Policy

Period Ending: December 31, 2017



Allocation vs. Long Term Target

	Current Balance	Current Allocation	Long Term Target	Difference
Global Equity	\$3,915,894,259	45.9%	28.0%	\$1,526,739,093
Global Fixed Income	\$2,203,655,771	25.8%	30.0%	-\$356,153,336
High Yield Fixed Income	\$358,938,580	4.2%	0.0%	\$358,938,580
Inflation Hedge/Real Assets	\$332,688,752	3.9%	0.0%	\$332,688,752
Real Estate	\$703,643,028	8.2%	9.0%	-\$64,299,704
Alternative Investments	\$722,208,767	8.5%	33.0%	-\$2,093,581,251
Opportunistic	\$28,373,301	0.3%	0.0%	\$28,373,301
Cash	\$267,294,564	3.1%	0.0%	\$267,294,564
Total	\$8,532,697,023	100.0%	100.0%	

Allocation vs. Current Targets

	Current Balance	Current Allocation	Current Target	Difference
Global Equity	\$3,915,894,259	45.9%	44.4%	\$127,376,781
Global Fixed Income	\$2,203,655,771	25.8%	27.4%	-\$134,303,213
High Yield Fixed Income	\$358,938,580	4.2%	5.0%	-\$67,696,271
Inflation Hedge/Real Assets	\$332,688,752	3.9%	3.9%	-\$86,432
Real Estate	\$703,643,028	8.2%	9.2%	-\$81,365,098
Alternative Investments	\$722,208,767	8.5%	8.2%	\$22,527,611
Opportunistic	\$28,373,301	0.3%	0.5%	-\$14,290,184
Cash	\$267,294,564	3.1%	1.4%	\$147,836,806
Total	\$8,532,697,023	100.0%	100.0%	

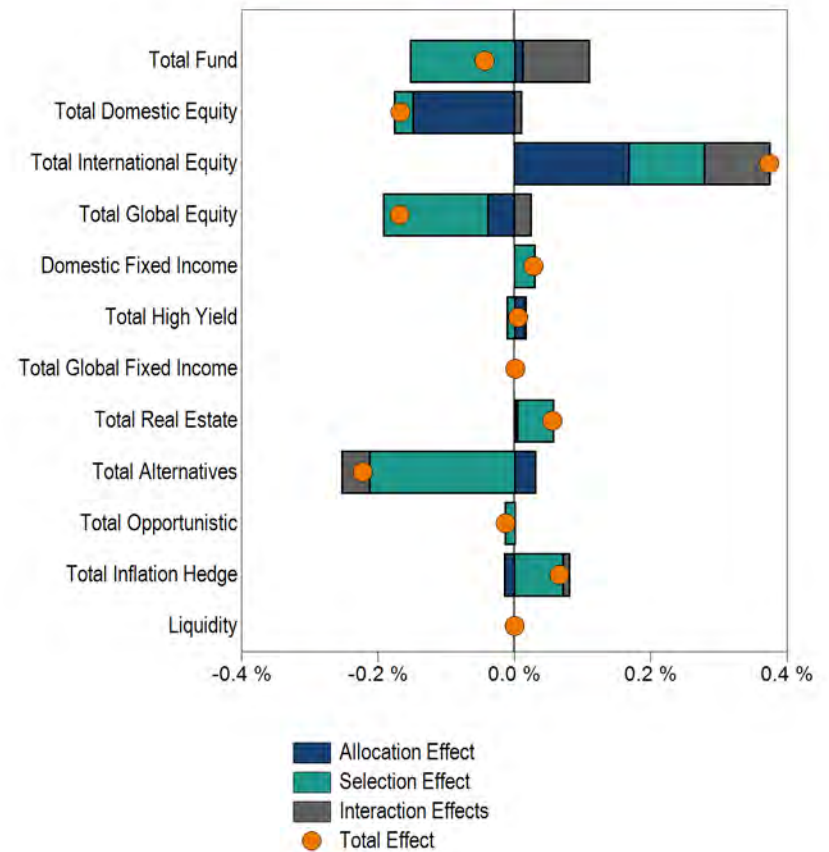
Long Term Targets reflect FFP 4-Yr allocations approved in May 2017.
Current Targets reflect Phase 2a Targets approved in March 2017.

Total Fund Executive Summary (Gross of Fees)

Period Ending: December 31, 2017

	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	100.0	3.3	14.2	14.2	8.0	9.7	6.7
Policy Index		3.3	13.8	13.8	7.6	9.4	--
InvestorForce Public DB > \$1B Gross Rank		82	83	83	46	35	12
Total Fund ex Overlay & Cash	96.9	3.3	14.1	14.1	8.0	9.7	6.6
Policy Index		3.3	13.8	13.8	7.6	9.4	--
InvestorForce Public DB > \$1B Gross Rank		83	84	84	46	35	12
Growth	68.8	4.5	--	--	--	--	--
Total Domestic Equity	17.3	6.2	23.9	23.9	11.8	16.2	9.3
Russell 3000		6.3	21.1	21.1	11.1	15.6	8.6
InvestorForce Public DB US Eq Gross Rank		48	6	6	8	6	13
Total International Equity	19.8	6.1	25.5	25.5	7.9	8.2	1.5
MSCI ACWI ex USA Gross		5.1	27.8	27.8	8.3	7.3	2.3
MSCI EAFE Gross		4.3	25.6	25.6	8.3	8.4	2.4
InvestorForce Public DB ex-US Eq Gross Rank		6	90	90	84	47	84
International Equity	11.2	4.3	25.3	25.3	7.8	8.2	1.5
MSCI ACWI ex USA Gross		5.1	27.8	27.8	8.3	7.3	2.3
InvestorForce Public DB ex-US Eq Gross Rank		80	93	93	85	48	84
Emerging Markets Equity	8.5	8.5	--	--	--	--	--
MSCI Emerging Markets		7.4	--	--	--	--	--
InvestorForce Public DB Emg Mkt Eq Gross Rank		1	--	--	--	--	--

Attribution Effects
3 Months Ending December 31, 2017



Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills.

Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund Executive Summary (Gross of Fees)

Period Ending: December 31, 2017

	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Global Equity	8.8	4.3	23.7	23.7	10.8	12.1	--
<i>MSCI ACWI</i>		5.7	24.0	24.0	9.3	10.8	--
<i>InvestorForce Public DB Gbl Eq Gross Rank</i>		87	79	79	4	57	--
Domestic Fixed Income	1.7	2.5	7.5	7.5	3.9	4.2	--
<i>BofA ML High Yield Master II +2%</i>		0.9	9.6	9.6	8.5	7.9	--
Total High Yield	4.2	0.2	6.5	6.5	5.5	5.3	7.8
<i>BofA ML High Yield Master II</i>		0.4	7.5	7.5	6.4	5.8	7.9
<i>eV US High Yield Fixed Inc Gross Rank</i>		90	74	74	73	73	47
Total Real Estate	8.2	2.5	11.1	11.1	10.0	12.1	6.1
<i>Real Estate Benchmark</i>		2.0	7.1	7.1	7.4	9.5	7.0
<i>NCREIF-ODCE</i>		2.1	7.6	7.6	10.4	11.5	5.0
<i>NCREIF Property Index</i>		1.8	7.0	7.0	9.4	10.2	6.1
Total Alternatives	8.5	2.7	10.9	10.9	11.1	13.1	10.0
<i>S&P 500 Index +4% (Lagged)</i>		5.5	23.3	23.3	15.2	18.7	11.7
Total Opportunistic	0.3	2.2	11.6	11.6	2.6	6.5	--
<i>CPI + 4%</i>		0.9	6.2	6.2	5.7	5.5	--
Risk Diversifying	7.7	1.7	--	--	--	--	--
Risk Diversifying Fixed Income	3.8	0.3	3.6	3.6	2.5	2.4	4.3
<i>eV US Core Fixed Inc Gross Rank</i>		81	76	76	66	60	74
Total Inflation Hedge	3.9	2.8	8.2	8.2	3.3	2.1	--
<i>CPI + 4%</i>		0.9	6.2	6.2	5.7	5.5	--

Attribution Effects
1 Year Ending December 31, 2017



Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills.
 Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
 Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Executive Summary (Gross of Fees)

Period Ending: December 31, 2017

	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Liquidity	20.3	-0.1	1.5	1.5	--	--	--
BBgBarc US Govt/Credit 1-3 Yr. TR		-0.2	0.8	0.8	--	--	--
eV US Short Duration Fixed Inc Gross Rank		60	50	50	--	--	--
Total Cash	2.7	0.3	0.9	0.9	0.6	1.5	--
91 Day T-Bills		0.3	0.9	0.9	0.4	0.3	--

Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills.

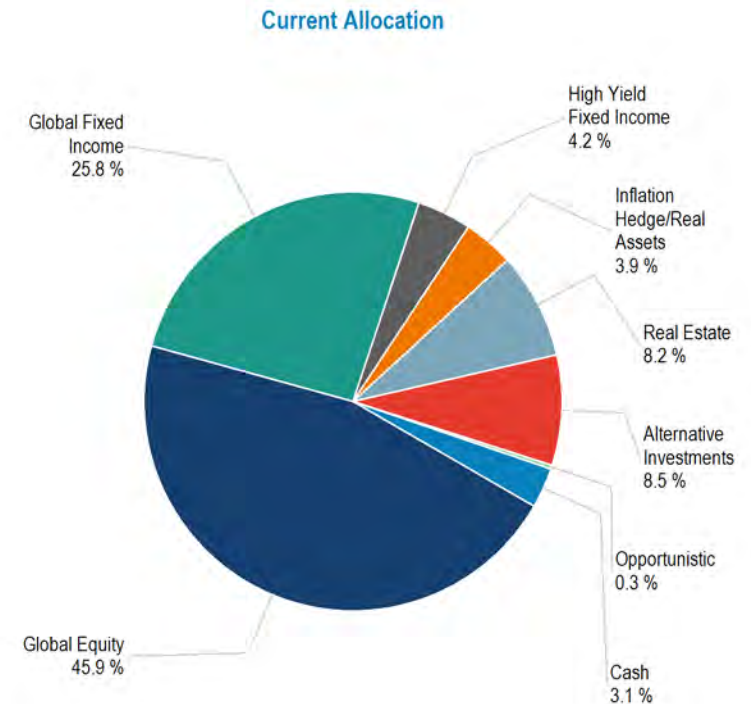
Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Executive Summary (Net of Fees)

Period Ending: December 31, 2017

	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	100.0	3.3	13.9	13.9	7.5	9.1	6.1
<i>Policy Index</i>		3.3	13.8	13.8	7.6	9.4	--
Total Fund ex Overlay & Cash	96.9	3.2	13.8	13.8	7.5	9.1	6.0
<i>Policy Index</i>		3.3	13.8	13.8	7.6	9.4	--
Growth	68.8	4.4	--	--	--	--	--
Total Domestic Equity	17.3	6.1	23.5	23.5	11.3	15.7	8.9
<i>Russell 3000</i>		6.3	21.1	21.1	11.1	15.6	8.6
Total International Equity	19.8	6.0	25.0	25.0	7.4	7.8	1.0
<i>MSCI ACWI ex USA Gross</i>		5.1	27.8	27.8	8.3	7.3	2.3
<i>MSCI EAFE Gross</i>		4.3	25.6	25.6	8.3	8.4	2.4
International Equity	11.2	4.2	24.8	24.8	7.4	7.8	1.1
<i>MSCI ACWI ex USA Gross</i>		5.1	27.8	27.8	8.3	7.3	2.3
Emerging Markets Equity	8.5	8.3	--	--	--	--	--
<i>MSCI Emerging Markets</i>		7.4	--	--	--	--	--
Total Global Equity	8.8	4.1	22.8	22.8	10.1	11.4	--
<i>MSCI ACWI</i>		5.7	24.0	24.0	9.3	10.8	--
Domestic Fixed Income	1.7	2.5	7.5	7.5	3.7	3.9	--
<i>BofA ML High Yield Master II +2%</i>		0.9	9.6	9.6	8.5	7.9	--
Total High Yield	4.2	0.1	6.1	6.1	5.1	4.9	7.6
<i>BofA ML High Yield Master II</i>		0.4	7.5	7.5	6.4	5.8	7.9
Total Real Estate	8.2	2.5	11.0	11.0	9.3	11.2	5.1
<i>Real Estate Benchmark</i>		2.0	7.1	7.1	7.4	9.5	7.0
<i>NCREIF-ODCE</i>		2.1	7.6	7.6	10.4	11.5	5.0
<i>NCREIF Property Index</i>		1.8	7.0	7.0	9.4	10.2	6.1



Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills.

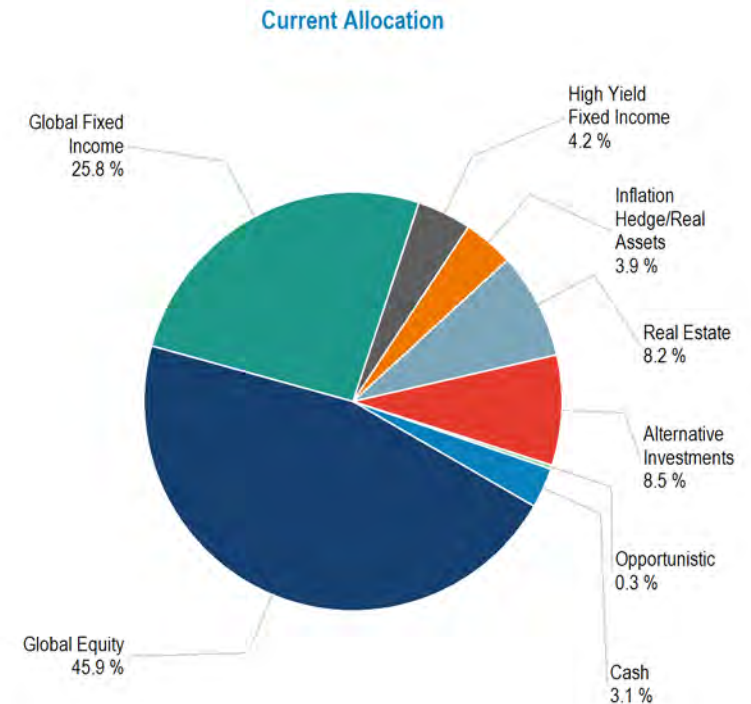
Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Executive Summary (Net of Fees)

Period Ending: December 31, 2017

	% of Portfolio	QTD	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Alternatives	8.5	2.7	10.9	10.9	10.4	11.8	7.9
S&P 500 Index +4% (Lagged)		5.5	23.3	23.3	15.2	18.7	11.7
Total Opportunistic	0.3	2.2	11.6	11.6	2.3	6.4	--
CPI + 4%		0.9	6.2	6.2	5.7	5.5	--
Risk Diversifying	7.7	1.6	--	--	--	--	--
Risk Diversifying Fixed Income	3.8	0.2	3.2	3.2	2.1	2.0	3.9
Total Inflation Hedge	3.9	2.8	8.2	8.2	2.7	1.4	--
CPI + 4%		0.9	6.2	6.2	5.7	5.5	--
Liquidity	20.3	-0.1	1.4	1.4	--	--	--
BBgBarc US Govt/Credit 1-3 Yr. TR		-0.2	0.8	0.8	--	--	--
Total Cash	2.7	0.3	0.9	0.9	0.6	1.5	--
91 Day T-Bills		0.3	0.9	0.9	0.4	0.3	--



Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills.

Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.

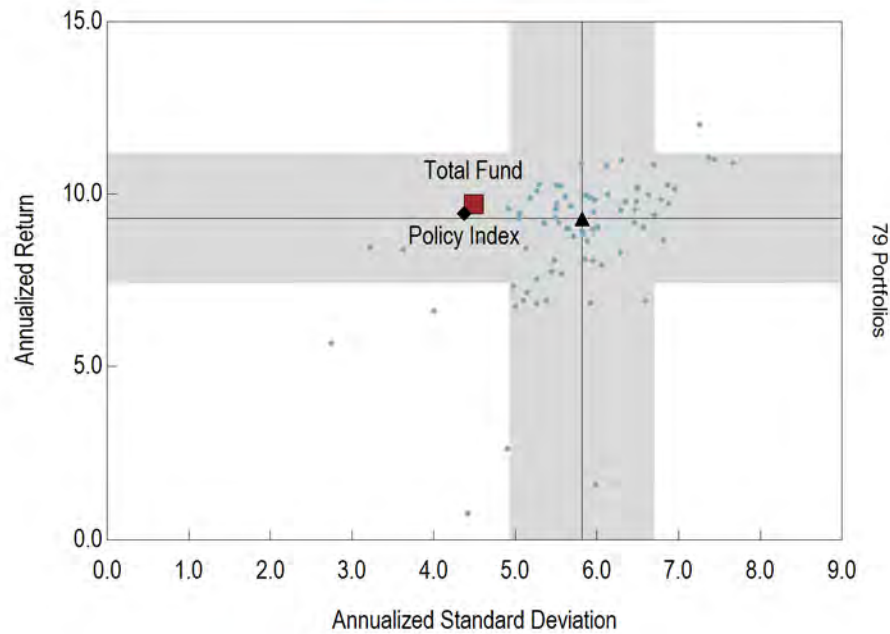
Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

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

Period Ending: December 31, 2017

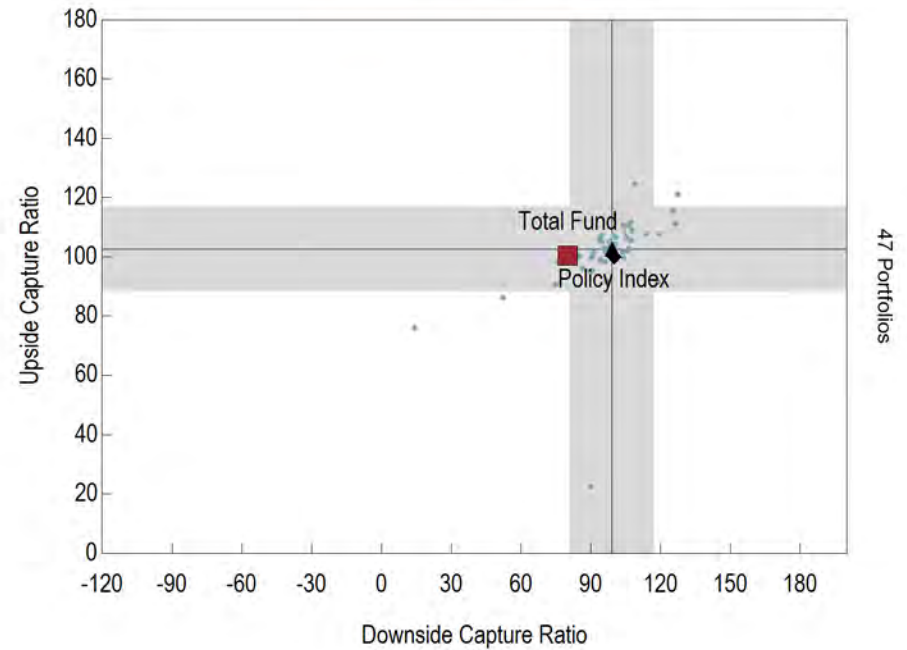
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	9.71%	0.27%	4.49%	0.31%	1.00	1.07%	0.94	2.10	0.25	100.46%	80.15%

Risk vs. Return



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- ▣ 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Up Markets vs. Down Markets



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- ▣ 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	8,532,697,023	100.0	3.3	14.2	14.2	8.0	9.7	6.7	14.2	7.4	2.7	8.4	16.4
Policy Index			3.3	13.8	13.8	7.6	9.4	--	13.8	8.8	0.6	9.0	15.6
InvestorForce Public DB > \$1B Gross Rank			82	83	83	46	35	12	83	74	5	6	33
Total Fund ex Overlay & Cash	8,265,402,458	96.9	3.3	14.1	14.1	8.0	9.7	6.6	14.1	7.4	2.7	8.4	16.4
Policy Index			3.3	13.8	13.8	7.6	9.4	--	13.8	8.8	0.6	9.0	15.6
InvestorForce Public DB > \$1B Gross Rank			83	84	84	46	35	12	84	74	5	6	33
Growth	5,870,819,642	68.8	4.5	--	--	--	--	--	--	--	--	--	--
Total Domestic Equity	1,480,291,240	17.3	6.2	23.9	23.9	11.8	16.2	9.3	23.9	11.5	1.1	11.4	36.2
Russell 3000			6.3	21.1	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			48	6	6	8	6	13	6	77	21	50	19
BlackRock Russell 1000 Index	119,996,103	1.4	6.6	--	--	--	--	--	--	--	--	--	--
Russell 1000			6.6	--	--	--	--	--	--	--	--	--	--
eV US Large Cap Equity Gross Rank			54	--	--	--	--	--	--	--	--	--	--
Jackson Square Partners	401,340,082	4.7	3.4	29.3	29.3	9.4	15.1	9.3	29.3	-4.4	6.1	13.9	35.4
Russell 1000 Growth			7.9	30.2	30.2	13.8	17.3	10.0	30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank			99	47	47	92	77	59	47	98	37	31	40
Robeco Boston Partners	404,800,288	4.7	7.2	20.1	20.1	9.9	15.3	9.2	20.1	15.1	-3.9	12.0	37.4
Russell 1000 Value			5.3	13.7	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			29	23	23	45	35	23	23	50	65	55	24
Emerald Advisers	288,874,678	3.4	7.9	28.8	28.8	13.9	18.9	12.0	28.8	10.1	4.1	7.3	50.3
Russell 2000 Growth			4.6	22.2	22.2	10.3	15.2	9.2	22.2	11.3	-1.4	5.6	43.3
eV US Small Cap Growth Equity Gross Rank			11	26	26	19	14	14	26	54	19	21	27
Ceredex	265,221,052	3.1	7.3	11.4	11.4	11.4	14.3	--	11.4	29.8	-4.4	3.3	36.5
Russell 2000 Value			2.0	7.8	7.8	9.5	13.0	--	7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank			5	48	48	35	59	--	48	32	52	74	66
Total International Equity	1,687,222,650	19.8	6.1	25.5	25.5	7.9	8.2	1.5	25.5	1.2	-1.2	0.3	17.8
MSCI ACWI ex USA Gross			5.1	27.8	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
MSCI EAFE Gross			4.3	25.6	25.6	8.3	8.4	2.4	25.6	1.5	-0.4	-4.5	23.3
InvestorForce Public DB ex-US Eq Gross Rank			6	90	90	84	47	84	90	89	28	5	50
International Equity	957,723,640	11.2	4.3	25.3	25.3	7.8	8.2	1.5	25.3	1.2	-1.2	0.3	17.8
MSCI ACWI ex USA Gross			5.1	27.8	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			80	93	93	85	48	84	93	89	28	5	50

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Pyrford	462,487,249	5.4	3.8	19.8	19.8	6.4	--	--	19.8	3.4	-2.9	--	--
<i>MSCI ACWI ex USA Value</i>			4.2	22.7	22.7	6.3	--	--	22.7	8.9	-10.1	--	--
<i>eV ACWI ex-US Value Equity Gross Rank</i>			63	84	84	93	--	--	84	74	59	--	--
William Blair	495,236,391	5.8	4.8	30.9	30.9	9.0	9.1	--	30.9	-1.4	0.5	-1.2	20.9
<i>MSCI ACWI ex USA Growth</i>			5.8	32.0	32.0	9.3	8.0	--	32.0	0.1	-1.3	-2.6	15.5
<i>eV ACWI ex-US Growth Equity Gross Rank</i>			76	81	81	86	72	--	81	55	69	37	44
Emerging Markets Equity	729,499,010	8.5	8.5	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
<i>InvestorForce Public DB Emg Mkt Eq Gross Rank</i>			1	--	--	--	--	--	--	--	--	--	--
PIMCO RAE Emerging Markets	370,514,509	4.3	6.9	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
<i>eV Emg Mkts Equity Gross Rank</i>			58	--	--	--	--	--	--	--	--	--	--
TT Emerging Markets	358,984,501	4.2	10.1	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
<i>eV Emg Mkts Equity Gross Rank</i>			5	--	--	--	--	--	--	--	--	--	--
Total Global Equity	748,380,369	8.8	4.3	23.7	23.7	10.8	12.1	--	23.7	7.6	2.2	5.2	23.7
<i>MSCI ACWI</i>			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8
<i>InvestorForce Public DB Glbl Eq Gross Rank</i>			87	79	79	4	57	--	79	40	16	41	64
Artisan Partners	380,816,392	4.5	4.7	32.9	32.9	15.3	15.0	--	32.9	5.6	9.2	3.9	26.1
<i>MSCI ACWI</i>			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8
<i>eV All Global Equity Gross Rank</i>			71	11	11	5	12	--	11	61	4	56	51
First Eagle	367,319,441	4.3	4.0	15.1	15.1	8.8	9.7	--	15.1	11.7	0.2	4.5	17.9
<i>MSCI ACWI</i>			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8
<i>eV All Global Equity Gross Rank</i>			84	89	89	70	80	--	89	19	49	51	80
Domestic Fixed Income	141,730,049	1.7	2.5	7.5	7.5	3.9	4.2	--	7.5	2.6	1.7	7.4	2.0
<i>BofA ML High Yield Master II +2%</i>			0.9	9.6	9.6	8.5	7.9	--	9.6	19.8	-2.7	4.5	9.6
Total High Yield	358,938,580	4.2	0.2	6.5	6.5	5.5	5.3	7.8	6.5	14.3	-3.5	1.2	8.8
<i>BofA ML High Yield Master II</i>			0.4	7.5	7.5	6.4	5.8	7.9	7.5	17.5	-4.6	2.5	7.4
<i>eV US High Yield Fixed Inc Gross Rank</i>			90	74	74	73	73	47	74	47	68	83	28

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Allianz Global Investors	358,938,580	4.2	0.2	6.5	6.5	5.5	5.3	7.8	6.5	14.3	-3.5	1.2	8.8
<i>BofA ML High Yield Master II</i>			0.4	7.5	7.5	6.4	5.8	7.9	7.5	17.5	-4.6	2.5	7.4
<i>eV US High Yield Fixed Inc Gross Rank</i>			90	74	74	73	73	47	74	47	68	83	28
Total Real Estate	703,643,028	8.2	2.5	11.1	11.1	10.0	12.1	6.1	11.1	5.5	13.5	20.6	10.5
<i>Real Estate Benchmark</i>			2.0	7.1	7.1	7.4	9.5	7.0	7.1	6.7	8.3	18.8	7.1
<i>NCREIF-ODCE</i>			2.1	7.6	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
<i>NCREIF Property Index</i>			1.8	7.0	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
Adelante	68,201,810	0.8	2.3	7.8	7.8	5.6	10.2	6.9	7.8	4.1	5.1	33.4	3.6
<i>Wilshire REIT</i>			1.7	4.2	4.2	5.2	9.3	7.3	4.2	7.2	4.2	31.8	1.9
Total Alternatives	722,208,767	8.5	2.7	10.9	10.9	11.1	13.1	10.0	10.9	9.0	13.3	17.3	15.0
<i>S&P 500 Index +4% (Lagged)</i>			5.5	23.3	23.3	15.2	18.7	11.7	23.3	20.0	3.4	24.5	24.0
Total Opportunistic	28,373,301	0.3	2.2	11.6	11.6	2.6	6.5	--	11.6	10.1	-12.2	8.7	16.8
<i>CPI + 4%</i>			0.9	6.2	6.2	5.7	5.5	--	6.2	6.2	4.8	4.8	5.6
Risk Diversifying	659,819,866	7.7	1.7	--	--	--	--	--	--	--	--	--	--
Risk Diversifying Fixed Income	327,131,114	3.8	0.3	3.6	3.6	2.5	2.4	4.3	3.6	2.4	1.6	6.6	-1.9
<i>eV US Core Fixed Inc Gross Rank</i>			81	76	76	66	60	74	76	87	15	25	78
AFL-CIO	327,131,114	3.8	0.3	3.6	3.6	2.5	2.4	4.4	3.6	2.4	1.6	6.6	-1.9
<i>BBgBarc US Aggregate TR</i>			0.4	3.5	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
<i>eV US Core Fixed Inc Gross Rank</i>			81	76	76	66	60	69	76	87	15	25	78
Total Inflation Hedge	332,688,752	3.9	2.8	8.2	8.2	3.3	2.1	--	8.2	7.4	-4.9	-0.6	1.3
<i>CPI + 4%</i>			0.9	6.2	6.2	5.7	5.5	--	6.2	6.2	4.8	4.8	5.6
Wellington Real Total Return	189,760,551	2.2	0.4	1.9	1.9	-1.0	--	--	1.9	-0.1	-4.9	-2.5	--
<i>CPI + 4%</i>			0.9	6.2	6.2	5.7	--	--	6.2	6.2	4.8	4.8	--
Liquidity	1,734,762,951	20.3	-0.1	1.5	1.5	--	--	--	1.5	--	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			-0.2	0.8	0.8	--	--	--	0.8	--	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			60	50	50	--	--	--	50	--	--	--	--

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
DFA Short Credit	408,202,187	4.8	-0.2	1.9	1.9	--	--	--	1.9	--	--	--	--
<i>BofA Merrill Lynch US Corp & Gov 1-5 Yrs</i>			-0.3	1.3	1.3	--	--	--	1.3	--	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			93	26	26	--	--	--	26	--	--	--	--
Insight Short Duration	837,519,570	9.8	0.0	1.5	1.5	--	--	--	1.5	--	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			-0.2	0.8	0.8	--	--	--	0.8	--	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			33	50	50	--	--	--	50	--	--	--	--
Sit Short Duration	489,041,194	5.7	-0.1	1.3	1.3	--	--	--	1.3	--	--	--	--
<i>BBgBarc US Govt 1-3 Yr TR</i>			-0.3	0.4	0.4	--	--	--	0.4	--	--	--	--
<i>eV US Short Duration Fixed Inc Gross Rank</i>			79	68	68	--	--	--	68	--	--	--	--
Total Cash	228,406,853	2.7	0.3	0.9	0.9	0.6	1.5	--	0.9	0.9	0.1	-3.0	8.8
<i>91 Day T-Bills</i>			0.3	0.9	0.9	0.4	0.3	--	0.9	0.3	0.0	0.0	0.0
Cash	228,406,853	2.7	0.3	0.9	0.9	0.6	1.5	3.3	0.9	0.9	0.1	1.4	4.5

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	8,532,697,023	100.0	3.3	13.9	13.9	7.5	9.1	6.1	13.9	6.9	2.1	7.7	15.6
<i>Policy Index</i>			3.3	13.8	13.8	7.6	9.4	--	13.8	8.8	0.6	9.0	15.6
Total Fund ex Overlay & Cash	8,265,402,458	96.9	3.2	13.8	13.8	7.5	9.1	6.0	13.8	6.9	2.1	7.7	15.6
<i>Policy Index</i>			3.3	13.8	13.8	7.6	9.4	--	13.8	8.8	0.6	9.0	15.6
Growth	5,870,819,642	68.8	4.4	--	--	--	--	--	--	--	--	--	--
Total Domestic Equity	1,480,291,240	17.3	6.1	23.5	23.5	11.3	15.7	8.9	23.5	11.1	0.6	11.0	35.7
<i>Russell 3000</i>			6.3	21.1	21.1	11.1	15.6	8.6	21.1	12.7	0.5	12.6	33.6
BlackRock Russell 1000 Index	119,996,103	1.4	6.6	--	--	--	--	--	--	--	--	--	--
<i>Russell 1000</i>			6.6	--	--	--	--	--	--	--	--	--	--
Jackson Square Partners	401,340,082	4.7	3.3	28.7	28.7	9.0	14.6	8.9	28.7	-4.8	5.6	13.4	35.0
<i>Russell 1000 Growth</i>			7.9	30.2	30.2	13.8	17.3	10.0	30.2	7.1	5.7	13.0	33.5
Robeco Boston Partners	404,800,288	4.7	7.1	19.7	19.7	9.6	15.0	8.9	19.7	14.7	-4.2	11.6	37.0
<i>Russell 1000 Value</i>			5.3	13.7	13.7	8.7	14.0	7.1	13.7	17.3	-3.8	13.5	32.5
Emerald Advisers	288,874,678	3.4	7.7	28.0	28.0	13.2	18.2	11.3	28.0	9.4	3.5	6.6	49.4
<i>Russell 2000 Growth</i>			4.6	22.2	22.2	10.3	15.2	9.2	22.2	11.3	-1.4	5.6	43.3
Ceredex	265,221,052	3.1	7.1	10.7	10.7	10.7	13.6	--	10.7	29.1	-5.0	2.7	35.8
<i>Russell 2000 Value</i>			2.0	7.8	7.8	9.5	13.0	--	7.8	31.7	-7.5	4.2	34.5
Total International Equity	1,687,222,650	19.8	6.0	25.0	25.0	7.4	7.8	1.0	25.0	0.8	-1.6	0.0	17.4
<i>MSCI ACWI ex USA Gross</i>			5.1	27.8	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
<i>MSCI EAFE Gross</i>			4.3	25.6	25.6	8.3	8.4	2.4	25.6	1.5	-0.4	-4.5	23.3
International Equity	957,723,640	11.2	4.2	24.8	24.8	7.4	7.8	1.1	24.8	0.8	-1.6	0.0	17.4
<i>MSCI ACWI ex USA Gross</i>			5.1	27.8	27.8	8.3	7.3	2.3	27.8	5.0	-5.3	-3.4	15.8
Pyrford	462,487,249	5.4	3.7	19.3	19.3	5.9	--	--	19.3	3.0	-3.3	--	--
<i>MSCI ACWI ex USA Value</i>			4.2	22.7	22.7	6.3	--	--	22.7	8.9	-10.1	--	--
William Blair	495,236,391	5.8	4.7	30.4	30.4	8.6	8.7	--	30.4	-1.8	0.0	-1.7	20.4
<i>MSCI ACWI ex USA Growth</i>			5.8	32.0	32.0	9.3	8.0	--	32.0	0.1	-1.3	-2.6	15.5
Emerging Markets Equity	729,499,010	8.5	8.3	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
PIMCO RAE Emerging Markets	370,514,509	4.3	6.8	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
TT Emerging Markets	358,984,501	4.2	10.0	--	--	--	--	--	--	--	--	--	--
<i>MSCI Emerging Markets</i>			7.4	--	--	--	--	--	--	--	--	--	--
Total Global Equity	748,380,369	8.8	4.1	22.8	22.8	10.1	11.4	--	22.8	6.9	1.6	4.5	22.9
<i>MSCI ACWI</i>			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Artisan Partners	380,816,392	4.5	4.5	31.9	31.9	14.4	14.1	--	31.9	4.8	8.4	3.1	25.2
MSCI ACWI			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8
First Eagle	367,319,441	4.3	3.8	14.3	14.3	8.0	8.9	--	14.3	10.9	-0.6	3.7	17.1
MSCI ACWI			5.7	24.0	24.0	9.3	10.8	--	24.0	7.9	-2.4	4.2	22.8
Domestic Fixed Income	141,730,049	1.7	2.5	7.5	7.5	3.7	3.9	--	7.5	2.1	1.4	6.9	1.6
BofA ML High Yield Master II +2%			0.9	9.6	9.6	8.5	7.9	--	9.6	19.8	-2.7	4.5	9.6
Total High Yield	358,938,580	4.2	0.1	6.1	6.1	5.1	4.9	7.6	6.1	13.9	-3.9	0.8	8.4
BofA ML High Yield Master II			0.4	7.5	7.5	6.4	5.8	7.9	7.5	17.5	-4.6	2.5	7.4
Allianz Global Investors	358,938,580	4.2	0.1	6.1	6.1	5.1	4.9	7.4	6.1	13.9	-3.9	0.8	8.4
BofA ML High Yield Master II			0.4	7.5	7.5	6.4	5.8	7.9	7.5	17.5	-4.6	2.5	7.4
Total Real Estate	703,643,028	8.2	2.5	11.0	11.0	9.3	11.2	5.1	11.0	4.8	12.4	19.1	8.9
Real Estate Benchmark			2.0	7.1	7.1	7.4	9.5	7.0	7.1	6.7	8.3	18.8	7.1
NCREIF-ODCE			2.1	7.6	7.6	10.4	11.5	5.0	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.8	7.0	7.0	9.4	10.2	6.1	7.0	8.0	13.3	11.8	11.0
Adelante	68,201,810	0.8	2.2	7.2	7.2	5.1	9.7	6.4	7.2	3.6	4.6	32.7	3.0
Wilshire REIT			1.7	4.2	4.2	5.2	9.3	7.3	4.2	7.2	4.2	31.8	1.9
Total Alternatives	722,208,767	8.5	2.7	10.9	10.9	10.4	11.8	7.9	10.9	8.6	11.7	15.2	12.7
S&P 500 Index +4% (Lagged)			5.5	23.3	23.3	15.2	18.7	11.7	23.3	20.0	3.4	24.5	24.0
Total Opportunistic	28,373,301	0.3	2.2	11.6	11.6	2.3	6.4	--	11.6	9.5	-12.3	8.7	16.8
CPI + 4%			0.9	6.2	6.2	5.7	5.5	--	6.2	6.2	4.8	4.8	5.6
Risk Diversifying	659,819,866	7.7	1.6	--	--	--	--	--	--	--	--	--	--
Risk Diversifying Fixed Income	327,131,114	3.8	0.2	3.2	3.2	2.1	2.0	3.9	3.2	1.9	1.1	6.1	-2.4
AFL-CIO	327,131,114	3.8	0.2	3.2	3.2	2.1	2.0	3.9	3.2	1.9	1.1	6.1	-2.4
BBgBarc US Aggregate TR			0.4	3.5	3.5	2.2	2.1	4.0	3.5	2.6	0.6	6.0	-2.0
Total Inflation Hedge	332,688,752	3.9	2.8	8.2	8.2	2.7	1.4	--	8.2	6.5	-5.8	-1.5	0.3
CPI + 4%			0.9	6.2	6.2	5.7	5.5	--	6.2	6.2	4.8	4.8	5.6
Wellington Real Total Return	189,760,551	2.2	0.4	1.9	1.9	-1.4	--	--	1.9	-0.6	-5.4	-3.1	--
CPI + 4%			0.9	6.2	6.2	5.7	--	--	6.2	6.2	4.8	4.8	--
Liquidity	1,734,762,951	20.3	-0.1	1.4	1.4	--	--	--	1.4	--	--	--	--
BBgBarc US Govt/Credit 1-3 Yr. TR			-0.2	0.8	0.8	--	--	--	0.8	--	--	--	--
DFA Short Credit	408,202,187	4.8	-0.2	1.8	1.8	--	--	--	1.8	--	--	--	--
BofA Merrill Lynch US Corp & Gov 1-5 Yrs			-0.3	1.3	1.3	--	--	--	1.3	--	--	--	--

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Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	Market Value	% of Portfolio	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Insight Short Duration	837,519,570	9.8	0.0	1.5	1.5	--	--	--	1.5	--	--	--	--
<i>BBgBarc US Govt/Credit 1-3 Yr. TR</i>			-0.2	0.8	0.8	--	--	--	0.8	--	--	--	--
Sit Short Duration	489,041,194	5.7	-0.2	1.1	1.1	--	--	--	1.1	--	--	--	--
<i>BBgBarc US Govt 1-3 Yr TR</i>			-0.3	0.4	0.4	--	--	--	0.4	--	--	--	--
Total Cash	228,406,853	2.7	0.3	0.9	0.9	0.6	1.5	--	0.9	0.9	0.1	-3.0	8.8
<i>91 Day T-Bills</i>			0.3	0.9	0.9	0.4	0.3	--	0.9	0.3	0.0	0.0	0.0
Cash	228,406,853	2.7	0.3	0.9	0.9	0.6	1.5	2.9	0.9	0.9	0.1	1.4	4.5

Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$16,948 of residual cash. JPM Global has \$219,748 of residual cash. Lazard has \$31,658 of residual cash. TT Emerging Markets funded 7/27/2017. PIMCO Stock Plus, Intech Large Cap and Global Low Vol liquidated 7/27/2017. Intech Large Cap has -\$1,320 of residual cash. Intech Global Low Vol has \$24,787 of residual cash. PIMCO Stock Plus has \$60,357 of residual cash.

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2017

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/17 ³	Total Commitment	% Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁴	Remaining Commitment	Distrib./Paid-In (DPI) ¹	Tot. Value/Paid-In (TVPI) ²	Latest Valuation
Fixed Income												
7/1/2006	Torchlight II	\$40,952,608	\$128,000,000	100%	\$128,000,000	\$0	\$3,805,573	\$162,016,952	\$0	1.27	1.59	12/31/2017
12/12/2008	Torchlight III	\$5,835,470	\$75,000,000	100%	\$75,000,000	\$0	\$4,000,600	\$105,630,171	\$0	1.41	1.49	12/31/2017
8/1/2012	Torchlight IV	\$47,098,025	\$60,000,000	100%	\$60,000,000	\$0	\$6,447,144	\$60,822,344	\$0	1.01	1.80	12/31/2017
3/12/2015	Torchlight V	\$47,813,695	\$75,000,000	60%	\$44,999,912	\$0	\$596,963	\$0	\$30,000,088	0.00	1.06	9/30/2017
Total Fixed Income		\$141,699,798										
% of Portfolio (Market Value)		1.7%										
Inflation Hedge												
11/27/2013	Aether Real Assets III	\$22,939,665	\$25,000,000	75%	\$18,685,595	\$1,026,537	\$58,220	\$816,903	\$7,121,496	0.04	1.27	9/30/2017
11/27/2013	Aether Real Assets III Surplus	\$58,031,803	\$50,000,000	87%	\$43,493,368	\$1,956,346	\$99,998	\$611,973	\$7,070,113	0.01	1.35	9/30/2017
3/16/2016	Aether Real Assets IV	\$19,838,895	\$50,000,000	37%	\$18,673,836	\$2,567,620	\$19,901	\$148,954	\$31,177,210	0.01	1.07	9/30/2017
6/28/2013	Commonfund	\$42,117,838	\$50,000,000	76%	\$37,750,000	\$1,750,000	\$809,937	\$0	\$12,250,000	0.00	1.12	9/30/2017
Total Inflation Hedge		\$142,928,201										
% of Portfolio (Market Value)		1.7%										
Opportunistic												
2/18/2010	Oaktree PIF 2009	\$12,978,212	\$40,000,000	87%	\$34,800,000	\$0	\$0	\$34,638,579	\$6,308,960	1.00	1.37	12/31/2017
9/24/2015	Angelo Gordon Energy Credit Opp.	\$10,574,258	\$28,125,000	67%	\$18,750,000	\$0	\$3,671,250	\$13,095,816	\$9,375,000	0.70	1.26	9/30/2017
12/8/2015	Wastewater Opportunity Fund	\$4,820,831	\$25,000,000	31%	\$7,721,934	\$0	\$0	\$0	\$17,278,066	0.00	0.62	9/30/2017
Total Opportunistic		\$28,373,301										
% of Portfolio (Market Value)		0.3%										

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

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

³Latest valuation + capital calls - distributions

⁴Total distributions may contain recallable capital

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2017

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/17 ³	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions ⁶	Remaining Commitment	Distrib./Paid-In (DPI) ¹	Tot. Value/Paid-In (TVPI) ²	Latest Valuation
Real Estate												
1/23/2012	Angelo Gordon Realty Fund VIII	\$42,909,010	\$80,000,000	94%	\$75,401,855	\$0	\$3,800,000	\$74,352,397	\$12,334,302	0.99	1.56	9/30/2017
12/8/2014	Angelo Gordon Realty Fund IX	\$43,482,711	\$65,000,000	61%	\$39,487,500	\$0	\$0	\$975,000	\$25,844,000	0.02	1.13	9/30/2017
6/23/2005	DLJ RECP III	\$24,056,472	\$75,000,000	95%	\$70,968,662	\$0	\$1,723,412	\$72,565,242	\$4,031,338	1.02	1.36	9/30/2017
2/11/2008	DLJ RECP IV	\$95,338,587	\$100,000,000	92%	\$92,307,371	\$1,576,447	\$2,550,031	\$59,145,666	\$7,692,629	0.64	1.67	9/30/2017
7/1/2014	DLJ RECP V	\$34,187,821	\$75,000,000	71%	\$53,538,538	\$2,985,676	\$4,270,711	\$39,992,931	\$40,791,875	0.75	1.39	9/30/2017
6/17/1998	Hearthstone II ⁴	-\$16,918	\$25,000,000	80%	\$19,932,386	\$0	\$0	\$19,952,734	\$2,520,348	1.00	1.00	9/30/2017
11/26/2007	Invesco Real Estate II	\$447,927	\$85,000,000	92%	\$78,202,813	\$0	\$0	\$100,620,489	\$6,797,187	1.29	1.29	12/31/2017
6/30/2013	Invesco Real Estate III	\$13,176,883	\$35,000,000	93%	\$32,386,423	\$376,749	\$2,365,683	\$32,987,218	\$2,613,577	1.02	1.43	12/31/2017
6/30/2014	Invesco Real Estate IV	\$20,796,007	\$35,000,000	70%	\$24,520,622	\$0	\$2,849,230	\$4,729,246	\$10,479,378	0.19	1.04	12/31/2017
7/16/2013	LaSalle Income & Growth VI	\$38,742,816	\$75,000,000	95%	\$71,428,571	\$0	\$1,345,728	\$65,236,547	\$3,571,429	0.91	1.46	9/30/2017
2/28/2017	LaSalle Income & Growth VII	\$51,052,709	\$75,000,000	62%	\$46,589,379	\$4,785,024	\$0	\$0	\$28,410,621	0.00	1.10	9/30/2017
3/30/2007	Long Wharf Fund III	\$0	\$75,000,000	89%	\$66,940,230	\$0	\$255,266	\$88,857,041	\$8,059,770	1.33	1.33	12/31/2017
7/3/2013	Long Wharf Fund IV	\$18,237,243	\$25,000,000	100%	\$25,000,000	\$0	\$2,465,970	\$16,038,666	\$0	0.64	1.37	12/31/2017
9/30/2016	Long Wharf Fund V	\$24,795,426	\$50,000,000	51%	\$25,459,842	\$3,427,396	\$0	\$1,028,219	\$24,540,158	0.04	1.01	12/31/2017
12/31/2011	Oaktree REOF V	\$9,351,718	\$50,000,000	100%	\$50,000,000	\$0	\$5,069,277	\$75,623,376	\$25,750,000	1.51	1.70	12/31/2017
9/30/2013	Oaktree REOF VI ⁵	\$58,581,234	\$80,000,000	100%	\$80,000,000	\$0	\$11,242,340	\$50,993,860	\$18,400,000	0.64	1.37	12/31/2017
4/1/2015	Oaktree REOF VII	\$8,862,050	\$65,000,000	15%	\$9,750,000	\$3,250,000	\$780,000	\$4,615,000	\$59,865,000	0.47	1.38	12/31/2017
11/10/2013	Paulson Real Estate Fund II	\$22,902,095	\$20,000,000	97%	\$19,345,623	\$2,338,500	\$4,594,996	\$4,594,996	\$654,377	0.24	1.42	9/30/2017
1/25/2012	Siguler Guff DREOF	\$51,956,326	\$75,000,000	93%	\$69,375,000	\$0	\$2,467,100	\$64,285,703	\$5,625,000	0.93	1.68	9/30/2017
8/31/2013	Siguler Guff DREOF II	\$58,357,463	\$70,000,000	80%	\$55,720,000	\$3,115,000	\$4,816,677	\$10,314,189	\$14,280,000	0.19	1.23	9/30/2017
1/27/2016	Siguler Guff DREOF II Co-Inv	\$18,223,638	\$25,000,000	68%	\$17,100,362	\$2,000,000	\$0	\$0	\$7,899,638	0.00	1.07	9/30/2017
Total Closed End Real Estate		\$635,441,218	\$1,260,000,000	81%	\$1,023,455,178	\$23,854,793	\$50,596,422	\$786,908,520	\$310,160,626	0.30	0.92	
% of Portfolio (Market Value)		7.4%										

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

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

³Latest valuation + capital calls - distributions

⁴No further capital to be called

⁵Actual capital called is \$85,600,000 which includes recallable distributions

⁶Total distributions may include recallable distributions

Total Fund
Closed End Funds - Investment Summary

Period Ending: December 31, 2017

Verus Internal Analysis												
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/17 ³	Total Commitment	Total % Called	Capital Called	Current Qtr. Capital Called	Current Qtr. Distributions	Total Distributions	Remaining Commitment	Distrib./Paid-In (DPI) ¹	Tot. Value/Paid-In (TVPI) ²	Latest Valuation
Private Equity & Venture Capital												
3/18/1996	Adams Street Partners	\$135,810,591	\$210,000,000	82%	\$171,342,618	\$1,628,493	\$5,913,757	\$109,514,053	\$38,657,382	0.64	1.43	9/30/2017
1/16/2009	Adams Street Partners II	\$11,121,722	\$30,000,000	95%	\$28,365,000	\$0	\$2,002,714	\$35,718,244	\$1,635,000	1.26	1.65	9/30/2017
9/21/2012	Adams Street Partners - Fund 5	\$24,889,953	\$40,000,000	77%	\$30,611,900	\$800,000	\$896,082	\$9,706,785	\$9,388,100	0.32	1.13	9/30/2017
1/18/1996	Adams Street Partners - BPF	\$3,303,661	\$59,565,614	97%	\$57,517,409	\$0	\$261,570	\$101,069,889	\$2,048,205	1.76	1.81	9/30/2017
4/28/2017	Adams Street Venture Innovation	\$2,398,006	\$75,000,000	5%	\$3,412,500	\$0	\$0	\$0	\$71,587,500	0.00	0.70	9/30/2017
6/14/2004	Bay Area Equity Fund	\$2,959,621	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$36,331,243	\$0	3.63	3.93	9/30/2017
12/7/2009	Bay Area Equity Fund II	\$9,413,997	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$2,026,313	\$0	0.20	1.14	9/30/2017
11/26/2003	EIF US Power Fund I	\$753,735	\$30,000,000	100%	\$30,000,000	\$0	\$0	\$64,404,030	\$0	2.15	2.17	9/30/2017
8/16/2005	EIF US Power Fund II ⁵	\$33,886,652	\$50,000,000	100%	\$50,000,000	\$0	\$0	\$48,553,275	\$0	0.97	1.65	9/30/2017
5/30/2007	EIF US Power Fund III ⁶	\$42,275,939	\$65,000,000	100%	\$65,000,000	\$407,972	\$328,119	\$55,110,202	\$0	0.85	1.50	9/30/2017
11/28/2011	EIF US Power Fund IV ⁴	\$48,672,364	\$50,000,000	112%	\$56,176,153	\$405,308	\$592,557	\$18,410,084	\$6,308,439	0.33	1.19	9/30/2017
11/28/2016	EIF US Power Fund V	\$10,962,067	\$50,000,000	22%	\$11,078,680	\$0	\$330,655	\$4,254,292	\$38,921,320	0.38	1.37	9/30/2017
5/24/2011	Pathway 6	\$35,817,463	\$40,000,000	83%	\$33,219,285	\$1,189,711	\$1,110,827	\$9,656,223	\$6,780,715	0.29	1.37	9/30/2017
2/7/2013	Pathway 7	\$55,102,855	\$70,000,000	76%	\$53,349,382	\$6,072,983	\$1,261,118	\$5,884,866	\$16,650,618	0.11	1.14	9/30/2017
11/23/2015	Pathway 8	\$23,904,648	\$50,000,000	43%	\$21,480,030	\$2,807,629	\$160,902	\$1,027,313	\$28,519,970	0.05	1.16	9/30/2017
11/9/1998	Pathway	\$26,648,445	\$125,000,000	98%	\$122,393,914	\$173,250	\$5,256,030	\$158,412,147	\$2,606,086	1.29	1.51	9/30/2017
12/26/2008	Pathway 2008	\$23,678,754	\$30,000,000	92%	\$27,655,768	\$340,804	\$1,808,791	\$17,992,173	\$2,344,232	0.65	1.51	9/30/2017
1/31/2008	Carpenter Bancfund	\$6,048,507	\$30,000,000	97%	\$29,239,890	\$0	\$19,562,763	\$43,976,891	\$979,075	1.50	1.71	9/30/2017
2/15/2004	Nogales	\$34,188	\$15,000,000	99%	\$14,805,103	\$0	\$11,778	\$12,326,577	\$111,251	0.83	0.83	3/31/2017
11/30/2007	Paladin III	\$27,882,343	\$25,000,000	101%	\$25,326,455	\$527,262	\$0	\$15,604,222	\$697,306	0.62	1.72	9/30/2017
6/11/2014	Ocean Avenue Fund II	\$23,624,970	\$30,000,000	70%	\$21,000,000	\$1,500,000	\$1,500,000	\$3,589,938	\$9,000,000	0.17	1.30	9/30/2017
4/15/2016	Ocean Avenue Fund III	\$13,410,909	\$50,000,000	25%	\$12,500,000	\$0	\$0	\$0	\$37,500,000	0.00	1.07	9/30/2017
6/3/2014	Siguler Guff CCCERA Opportunities	\$141,589,081	\$200,000,000	61%	\$122,652,500	\$7,000,000	\$1,653,005	\$7,365,989	\$77,347,500	0.06	1.21	9/30/2017
11/30/2016	Siguler Guff Secondary Opportunities	\$18,018,296	\$50,000,000	49%	\$24,616,556	\$16,366,556	\$8,767,501	\$13,175,070	\$25,383,444	0.54	1.27	9/30/2017
Total Private Equity and Venture Capital		\$722,208,767	\$1,394,565,614	72%	\$1,007,126,587	\$39,219,968	\$51,418,170	\$774,109,819	\$376,466,144	0.77	1.49	
% of Portfolio (Market Value)		8.5%										

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

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

³Latest valuation + capital calls - distributions

⁴EIF IV has \$12,677,767 of recallable distributions

⁵EIF II has \$15,029,557 of recallable distributions

⁶EIF III has \$6,125,861 of recallable distributions

Total Fund
Closed End Funds - IRR Summary

Period Ending: December 31, 2017

Fixed Income	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Torchlight II	07/01/2006	-	-	-	-1.4%	12/31/2017
Torchlight III	12/12/2008	-	-	-	13.7%	12/31/2017
Torchlight IV	08/01/2012	-	-	-	11.1%	12/31/2017
Torchlight V	03/12/2015	-	-	-	12.9%	09/30/2017
Inflation Hedge	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Aether Real Assets III ⁴	11/27/2013	-	-	14.9%	-	09/30/2017
Aether Real Assets III Surplus ⁴	11/27/2013	-	-	16.9%	-	09/30/2017
Aether Real Assets IV ¹	01/01/2016	-	-	-	-	-
CommonFund ⁴	06/28/2013	-	11.4%	-	8.4%	09/30/2017
Wastewater Opportunity Fund	12/08/2015	-1.9%	-	-24.5%	-	09/30/2017
Opportunistic	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Oaktree PIF 2009	02/18/2010	7.3%	-	7.1%	-	12/31/2017
Angelo Gordon Energy Cred Opp.	09/24/2015	-	-	-	15.2%	09/30/2017
Real Estate	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Angelo Gordon VIII	01/23/2012	-	-	-	16.4%	09/30/2017
Angelo Gordon IX	12/08/2014	-	-	-	10.9%	09/30/2017
DLJ RECP III	06/23/2005	1.0%	1.0%	-1.0%	-1.0%	09/30/2017
DLJ RECP IV	02/11/2008	7.0%	7.0%	5.0%	5.0%	09/30/2017
DLJ RECP V	07/01/2014	32.0%	32.0%	17.0%	17.0%	09/30/2017
Hearthstone II	06/17/1998	-	30.1%	-	30.1%	12/31/2017
Invesco Fund II	11/26/2007	8.2%	-	6.8%	-	12/31/2016
Invesco Fund III	06/30/2013	19.4%	21.9%	-	15.9%	09/30/2017
Invesco Fund IV	06/30/2014	16.6%	22.6%	-	15.9%	09/30/2017
LaSalle Income & Growth VI	07/16/2013	-	-	13.8%	-	12/31/2017
LaSalle Income & Growth VII ¹	02/28/2017	-	-	-	-	-
Long Wharf III	03/30/2007	9.4%	9.3%	7.3%	7.1%	12/31/2017
Long Wharf IV	07/03/2013	18.1%	17.5%	12.9%	12.1%	12/31/2017
Long Wharf V	09/30/2016	8.9%	11.9%	1.4%	1.8%	12/31/2017
Oaktree REOF V	12/31/2011	17.4%	-	12.9%	-	12/31/2017
Oaktree REOF VI	09/30/2013	15.4%	-	10.3%	-	12/31/2017
Oaktree REOF VII ¹	04/01/2015	172.2%	-	78.7%	-	12/31/2017
Paulson ¹	11/10/2013	-	-	-	-	-
Siguler Guff I	01/25/2012	-	18.7%	-	13.8%	09/30/2017
Siguler Guff II	08/31/2013	-	13.4%	-	9.3%	09/30/2017
Siguler Guff DREOF II Co-Inv	01/27/2016	-	7.5%	-	5.6%	09/30/2017

¹Manager has yet to report IRR figure due to no capital invested or meaningful distributions.

²Fund level data includes CCCERA and all other fund investors.

³Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴Manager has reported IRR figures, but does not consider them to be meaningful, due to the age of the fund.

Total Fund
Closed End Funds - IRR Summary

Period Ending: December 31, 2017

Private Equity & Venture Capital	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Adams Street Partners	03/18/1996	-	12.1%	-	9.5%	09/30/2017
Adams Street Partners II	01/16/2009	17.3%	17.5%	-	15.0%	09/30/2017
Adams Street Partners - Fund 5	09/21/2012	9.2%	9.0%	-	6.2%	09/30/2017
Adams Street Partners Venture ¹	04/28/2017	-	-	-	-	-
Adams Street Partners - BPF	01/18/1996	14.3%	14.3%	-	11.6%	09/30/2017
Bay Area Equity Fund I	06/14/2004	26.0%	-	23.3%	-	09/30/2017
Bay Area Equity Fund II	12/07/2009	3.5%	-	2.8%	-	09/30/2017
Energy Investor Fund	11/26/2003	33.6%	34.7%	28.6%	28.4%	09/30/2017
Energy Investor Fund II	08/16/2005	7.3%	6.7%	4.6%	4.1%	09/30/2017
Energy Investor Fund III	05/30/2007	8.9%	8.9%	6.4%	6.4%	09/30/2017
Energy Investor Fund IV	11/28/2011	12.3%	12.6%	7.4%	7.1%	09/30/2017
Energy Investor Fund V	11/26/2016	-	-	-	-	-
Pathway 6	05/24/2011	15.3%	15.3%	12.1%	12.1%	09/30/2017
Benchmark ⁴		14.1%	-	-	-	09/30/2017
Pathway 7	02/07/2013	12.1%	12.1%	8.3%	8.3%	09/30/2017
Benchmark ⁵		13.2%	-	-	-	09/30/2017
Pathway 8 ¹	11/06/2015	-	-	-	-	-
Pathway Private Equity Fund	11/09/1998	10.3%	10.3%	8.4%	8.4%	09/30/2017
Benchmark ⁶		10.4%	-	-	-	09/30/2017
Pathway Private Equity Fund 2008	12/26/2008	14.9%	14.9%	12.0%	12.0%	09/30/2017
Benchmark ⁷		13.1%	-	-	-	09/30/2017
Carpenter Bancfund	01/31/2008	-	-	-	10.6%	09/30/2017
Nogales	02/15/2004	-	-4.5%	-8.6%	-8.8%	03/31/2017
Paladin III	11/30/2007	15.5%	-	7.5%	-	09/30/2017
Ocean Avenue II	06/11/2014	-	-	11.8%	-	09/30/2017
Ocean Avenue III	04/15/2016	-	-	10.0%	-	09/30/2017
Siguler Guff CCCERA Opportunities	06/03/2014	-	21.9%	-	18.6%	09/30/2017
Siguler Guff Secondary Opportunities	11/30/2016	-	-	-	25+%	09/30/2017

¹Manager has yet to report IRR figure due to no capital invested or meaningful distributions.

²Fund level data includes CCCERA and all other fund investors.

³Net IRR calculated after deductions of management fees and carried interest to the General Partner.

⁴Private iQ global all private equity median pooled return for vintage years 2011-2014, as of September 30, 2017.

⁵Private iQ global all private equity median pooled return for vintage years 2012-2016, as of September 30, 2017.

⁶Private iQ global all private equity median pooled return for vintage years 1999-2011, as of September 30, 2017.

⁷Private iQ global all private equity median pooled return for vintage years 2008-2014, as of September 30, 2017.

Total Fund
Performance Analysis - 3 Years (Net of Fees)

Period Ending: December 31, 2017

	3 Years											
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio	
Intech Large Cap Core	35.91%	24.49%	47.70%	3.02%	2.88	44.97%	0.19	0.74	0.54	336.59%	58.84%	
PIMCO Stocks+ Absolute Return	21.01%	9.60%	20.53%	-1.98%	2.01	16.15%	0.51	1.00	0.59	203.63%	158.51%	
Jackson Square Partners	8.96%	-4.82%	11.67%	-7.68%	1.21	6.53%	0.71	0.73	-0.74	70.95%	136.22%	
Robeco Boston Partners	9.55%	0.90%	8.94%	0.47%	1.05	3.02%	0.89	1.02	0.30	108.03%	98.30%	
Emerald Advisers	13.17%	2.89%	12.65%	3.29%	0.96	5.39%	0.82	1.01	0.54	117.47%	93.68%	
Ceredex	10.75%	1.20%	9.22%	5.24%	0.58	7.97%	0.55	1.12	0.15	88.39%	45.03%	
Pyrford	5.92%	-0.39%	8.41%	2.04%	0.62	6.45%	0.68	0.65	-0.06	63.51%	40.50%	
William Blair	8.60%	-0.68%	11.19%	0.00%	0.93	2.80%	0.94	0.73	-0.24	93.84%	98.18%	
Artisan Partners	14.44%	5.14%	12.08%	3.67%	1.16	6.71%	0.70	1.16	0.77	144.26%	89.62%	
First Eagle	8.00%	-1.30%	6.53%	1.68%	0.68	3.89%	0.83	1.16	-0.33	79.47%	71.73%	
Intech Global Low Vol	7.57%	-1.73%	6.05%	4.29%	0.35	7.69%	0.26	1.18	-0.22	63.15%	28.41%	
AFL-CIO	2.07%	-0.17%	3.08%	0.01%	0.92	0.49%	0.98	0.54	-0.34	92.51%	93.41%	
Allianz Global Investors	5.11%	-1.28%	5.33%	-0.42%	0.87	1.36%	0.96	0.88	-0.94	80.63%	88.17%	
Wellington Real Total Return	-1.40%	-7.10%	7.22%	-10.53%	1.60	7.02%	0.07	-0.25	-1.01	-22.92%	--	
Adelante	5.13%	-0.08%	8.49%	0.46%	0.90	2.16%	0.95	0.56	-0.04	98.06%	98.21%	

Performance Analysis excludes closed end funds and those funds without 3 years of performance.

Total Fund
Performance Analysis - 5 Years (Net of Fees)

Period Ending: December 31, 2017

	5 Years											
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio	
Intech Large Cap Core	30.54%	14.75%	36.88%	2.94%	1.75	34.93%	0.13	0.82	0.42	240.05%	58.84%	
PIMCO Stocks+ Absolute Return	21.33%	5.54%	16.30%	-1.60%	1.45	12.60%	0.45	1.29	0.44	157.45%	158.51%	
Jackson Square Partners	14.64%	-2.69%	11.06%	-7.00%	1.25	5.40%	0.79	1.30	-0.50	84.12%	136.22%	
Robeco Boston Partners	14.99%	0.95%	8.82%	1.14%	0.99	2.97%	0.89	1.67	0.32	106.67%	93.29%	
Emerald Advisers	18.22%	3.01%	13.89%	2.72%	1.02	5.42%	0.85	1.29	0.55	117.53%	90.70%	
Ceredex	13.63%	0.63%	11.68%	2.91%	0.82	6.39%	0.73	1.14	0.10	95.56%	77.52%	
William Blair	8.69%	0.72%	10.22%	1.30%	0.93	2.68%	0.94	0.82	0.27	99.11%	88.14%	
First Eagle	8.87%	-1.93%	6.45%	1.08%	0.72	3.38%	0.85	1.33	-0.57	78.93%	87.20%	
Intech Global Low Vol	11.31%	0.51%	7.68%	5.51%	0.54	7.35%	0.33	1.44	0.07	90.10%	45.80%	
AFL-CIO	1.96%	-0.14%	2.99%	-0.06%	0.96	0.47%	0.98	0.56	-0.31	93.28%	94.88%	
Allianz Global Investors	4.87%	-0.93%	4.90%	-0.32%	0.89	1.19%	0.95	0.94	-0.79	84.89%	94.55%	
Adelante	9.71%	0.36%	10.32%	1.27%	0.90	2.17%	0.97	0.92	0.17	94.27%	81.67%	

Performance Analysis excludes closed end funds and those funds without 5 years of performance.

Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2017

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
BlackRock Russell 1000 Index	Global Equity	0.03% of Assets	\$119,996,103	\$35,999	0.03%
Jackson Square Partners	Global Equity	0.50% of First \$100.0 Mil, 0.40% of Next \$150.0 Mil, 0.35% Thereafter	\$401,340,082	\$1,629,690	0.41%
Robeco Boston Partners	Global Equity	0.50% of First \$25.0 Mil, 0.30% Thereafter	\$404,800,288	\$1,264,401	0.31%
Emerald Advisers	Global Equity	0.75% of First \$10.0 Mil, 0.60% Thereafter	\$288,874,678	\$1,748,248	0.61%
Ceredex	Global Equity	0.85% of First \$10.0 Mil, 0.68% of Next \$40.0 Mil, 0.51% Thereafter	\$265,221,052	\$1,454,627	0.55%
Pyrford	Global Equity	0.70% of First \$50.0 Mil, 0.50% of Next \$50.0 Mil, 0.35% Thereafter	\$462,487,249	\$1,868,705	0.40%
William Blair	Global Equity	0.80% of First \$20.0 Mil, 0.60% of Next \$30.0 Mil, 0.50% of Next \$50.0 Mil, 0.45% of Next \$50.0 Mil, 0.40% of Next \$50.0 Mil, 0.30% Thereafter	\$495,236,391	\$1,900,709	0.38%
PIMCO RAE Emerging Markets	Global Equity	0.75% of First \$50.0 Mil, 0.68% of Next \$50.0 Mil, 0.50% of Next \$100.0 Mil, 0.45% Thereafter	\$370,514,509	\$1,979,815	0.53%
TT Emerging Markets	Global Equity	0.70% of First \$100.0 Mil, 0.65% of Next \$100.0 Mil, 0.60% Thereafter	\$358,984,501	\$2,303,907	0.64%
Artisan Partners	Global Equity	0.75% of Assets	\$380,816,392	\$2,856,123	0.75%
First Eagle	Global Equity	0.75% of Assets	\$367,319,441	\$2,754,896	0.75%
Allianz Global Investors	High Yield Fixed Income	0.50% of First \$50.0 Mil, 0.40% of Next \$50.0 Mil, 0.35% Thereafter	\$358,938,580	\$1,356,285	0.38%
AFL-CIO	Global Fixed Income	0.43% of Assets	\$327,131,114	\$1,406,664	0.43%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund
Investment Fund Fee Analysis

Period Ending: December 31, 2017

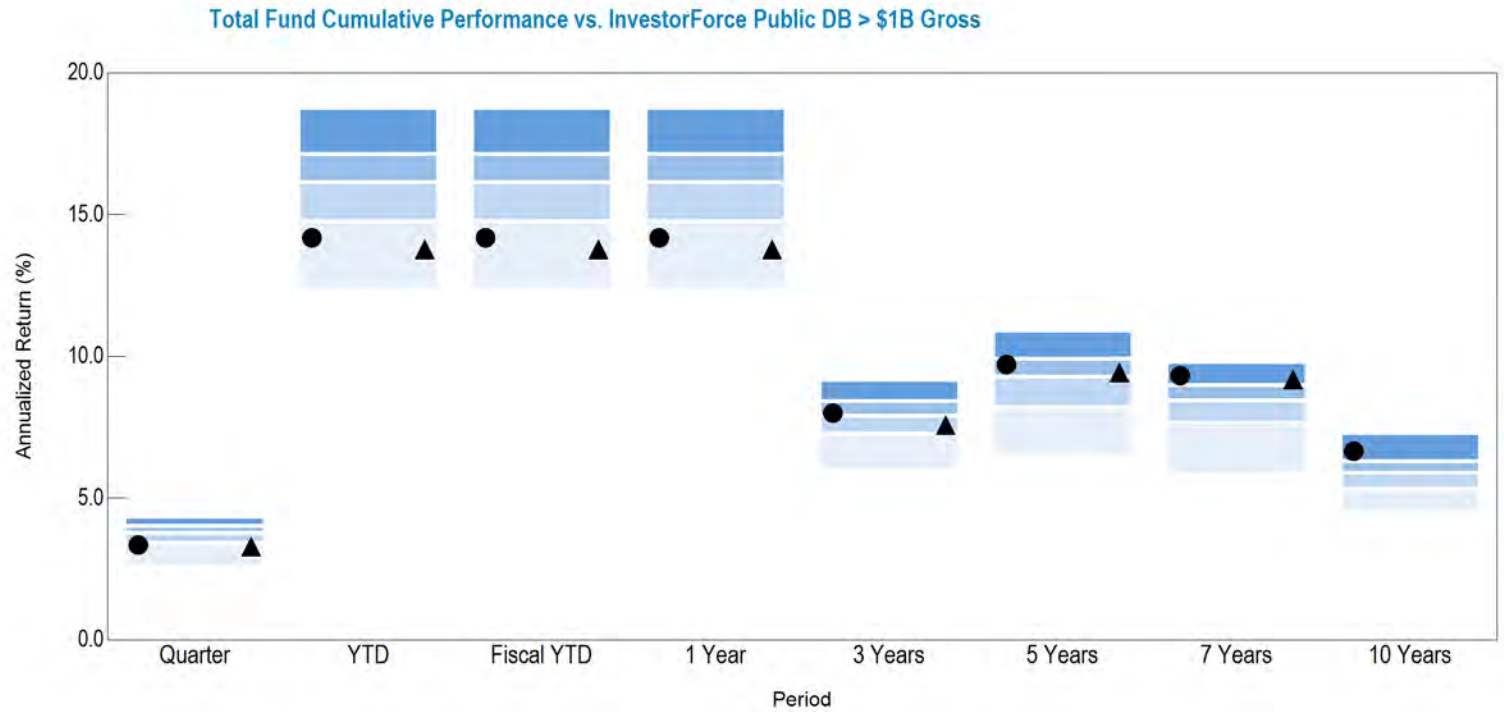
Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Wellington Real Total Return	Inflation Hedge/Real Assets	0.55% of Assets	\$189,760,551	\$1,043,683	0.55%
DFA Short Credit	Global Fixed Income	0.20% of First \$25.0 Mil, 0.10% Thereafter	\$408,202,187	\$433,202	0.11%
Insight Short Duration	Global Fixed Income	0.06% of First \$500.0 Mil, 0.05% of Next \$500.0 Mil, 0.04% Thereafter	\$837,519,570	\$468,760	0.06%
Sit Short Duration	Global Fixed Income	0.15% of Assets	\$489,041,194	\$733,562	0.15%

Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: December 31, 2017



	Return (Rank)															
	Quarter		YTD		Fiscal YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	4.3	(82)	18.8	(83)	18.8	(83)	18.8	(83)	9.2	(46)	10.9	(35)	9.8	(14)	7.3	(12)
25th Percentile	4.0	(85)	17.2	(89)	17.2	(89)	17.2	(89)	8.4	(71)	9.9	(44)	9.0	(19)	6.3	(-)
Median	3.8		16.2		16.2		16.2		7.9		9.3		8.4		5.9	
75th Percentile	3.4		14.8		14.8		14.8		7.3		8.2		7.7		5.4	
95th Percentile	2.6		12.4		12.4		12.4		6.0		6.5		5.9		4.5	
# of Portfolios	100		98		98		98		82		79		70		68	
● Total Fund	3.3	(82)	14.2	(83)	14.2	(83)	14.2	(83)	8.0	(46)	9.7	(35)	9.3	(14)	6.7	(12)
▲ Policy Index	3.3	(85)	13.8	(89)	13.8	(89)	13.8	(89)	7.6	(71)	9.4	(44)	9.2	(19)	--	(-)

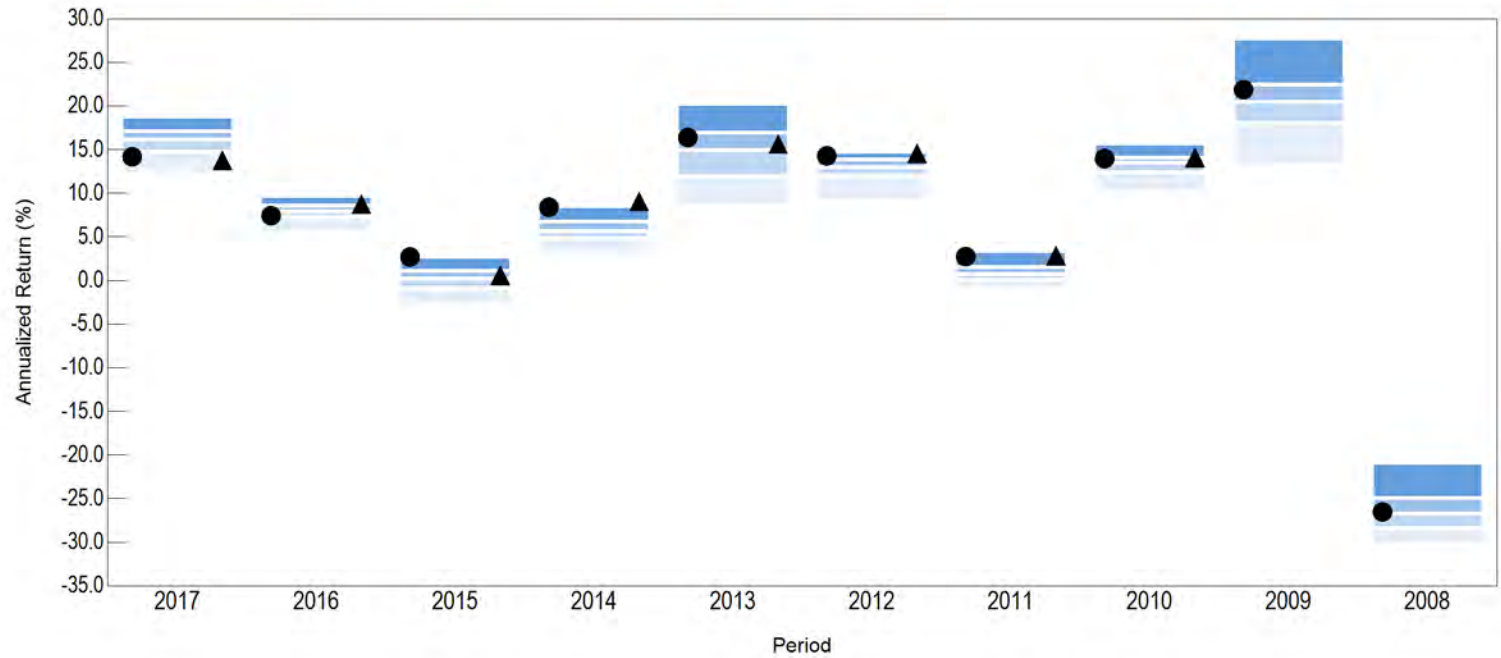
Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: December 31, 2017

Total Fund Consecutive Periods vs. InvestorForce Public DB > \$1B Gross



	Return (Rank)									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
5th Percentile	18.8	9.7	2.7	8.5	20.2	14.7	3.3	15.7	27.7	-21.0
25th Percentile	17.2	8.6	1.1	6.8	17.0	13.9	1.6	14.2	22.5	-24.9
Median	16.2	8.0	0.3	5.7	15.0	13.0	0.8	13.5	20.5	-26.7
75th Percentile	14.8	7.4	-0.7	4.9	12.0	12.1	0.1	12.5	18.1	-28.3
95th Percentile	12.4	5.5	-2.8	3.1	8.7	9.2	-0.9	10.2	13.4	-30.2
# of Portfolios	98	92	98	79	67	74	68	66	66	65
● Total Fund	14.2 (83)	7.4 (74)	2.7 (5)	8.4 (6)	16.4 (33)	14.3 (13)	2.7 (9)	14.0 (29)	21.9 (34)	-26.5 (48)
▲ Policy Index	13.8 (89)	8.8 (17)	0.6 (40)	9.0 (2)	15.6 (43)	14.6 (8)	2.8 (9)	14.1 (27)	-- (--)	-- (--)

Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund

Peer Universe Comparison: Consecutive Periods (Net of Fees)

Period Ending: December 31, 2017

Total Fund Consecutive Periods vs. InvestorForce Public DB > \$1B Net



	Return (Rank)									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
5th Percentile	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5	-20.9
25th Percentile	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7	-25.7
Median	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0	-26.9
75th Percentile	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7	-28.3
95th Percentile	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4	-30.5
# of Portfolios	61	62	57	55	48	44	42	41	40	39
● Total Fund	13.9 (81)	6.9 (78)	2.1 (12)	7.7 (5)	15.6 (33)	13.6 (21)	2.1 (12)	13.3 (34)	21.1 (33)	-26.9 (51)
▲ Policy Index	13.8 (84)	8.8 (14)	0.6 (29)	9.0 (2)	15.6 (33)	14.6 (1)	2.8 (11)	14.1 (15)	-- (--)	-- (--)

Total Fund
 Sharpe Ratio Ranking (Gross of Fees)

Period Ending: December 31, 2017



Domestic Equity Managers

Jackson Square Partners Manager Portfolio Overview

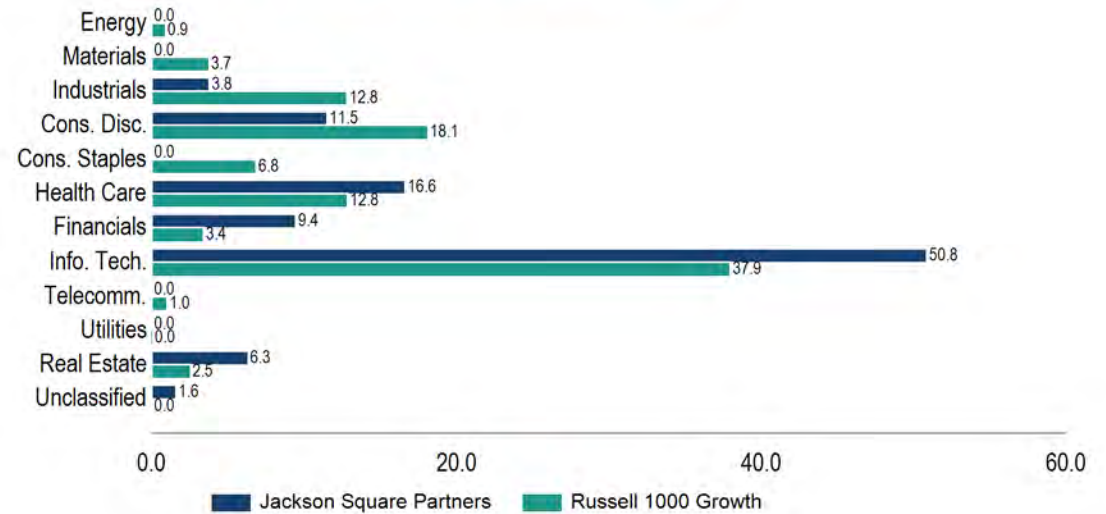
Period Ending: December 31, 2017

Domestic equity large cap growth portfolio concentrated in companies with sustainable long-term growth characteristics. Primary personnel include Jeffrey Van Harte, Christopher Bonavico, Christopher Ericksen, and Daniel Prislín.

Characteristics

	Portfolio	Russell 1000 Growth
Number of Holdings	33	551
Weighted Avg. Market Cap. (\$B)	128.07	204.47
Median Market Cap. (\$B)	43.19	11.69
Price To Earnings	35.09	28.84
Price To Book	7.29	7.69
Price To Sales	6.28	4.68
Return on Equity (%)	22.94	27.71
Yield (%)	0.65	1.32
Beta	1.21	1.00

Sector Allocation (%) vs Russell 1000 Growth



Largest Holdings

	End Weight	Return
PAYPAL HOLDINGS	7.07	14.98
MICROSOFT	6.20	15.42
VISA 'A'	5.93	8.53
MASTERCARD	4.93	7.36
CROWN CASTLE INTL.	4.30	12.09
ALPHABET A	3.88	8.18
BIOGEN	3.85	1.74
FEDEX	3.76	10.85
INTERCONTINENTAL EX.	3.65	3.00
CELGENE	3.58	-28.43

Top Contributors

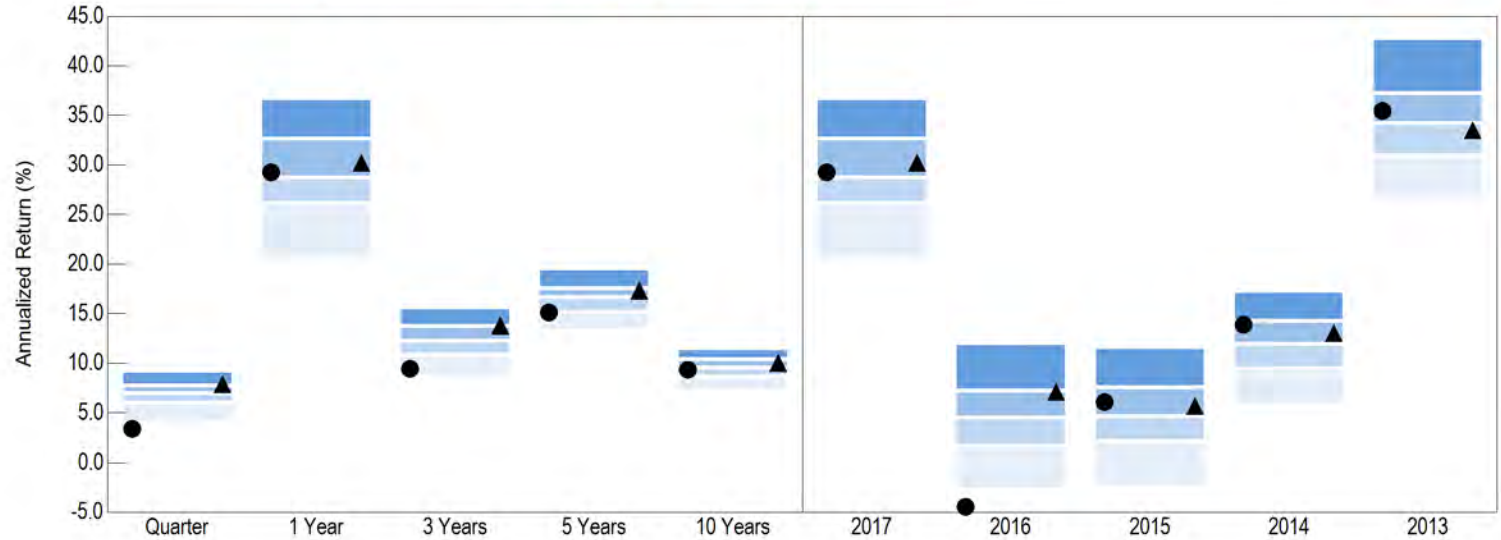
	Avg Wgt	Return	Contribution
PAYPAL HOLDINGS	7.23	14.98	1.08
MICROSOFT	6.18	15.42	0.95
CHARLES SCHWAB	3.19	17.66	0.56
CROWN CASTLE INTL.	4.29	12.09	0.52
VISA 'A'	5.97	8.53	0.51
FEDEX	3.52	10.85	0.38
MASTERCARD	5.07	7.36	0.37
DOLLAR GENERAL	2.16	15.13	0.33
ALPHABET A	3.83	8.18	0.31
DENTSPLY SIRONA	2.90	10.21	0.30

Bottom Contributors

	Avg Wgt	Return	Contribution
CELGENE	4.18	-28.43	-1.19
SYMANTEC	2.97	-14.25	-0.42
ALLERGAN	1.87	-19.87	-0.37
TRIPADVISOR 'A'	2.05	-14.98	-0.31
ELECTRONIC ARTS	2.71	-11.01	-0.30
NIELSEN	1.82	-11.35	-0.21
EBAY	3.65	-1.87	-0.07
SYNGENTA SPN.ADR 5:1 SUSP - SUSP.06/01/18	0.00	0.85	0.00
NOVO NORDISK 'B' ADR 1:1	0.01	11.46	0.00
ASML HLDG.ADR 1:1	2.29	1.53	0.04

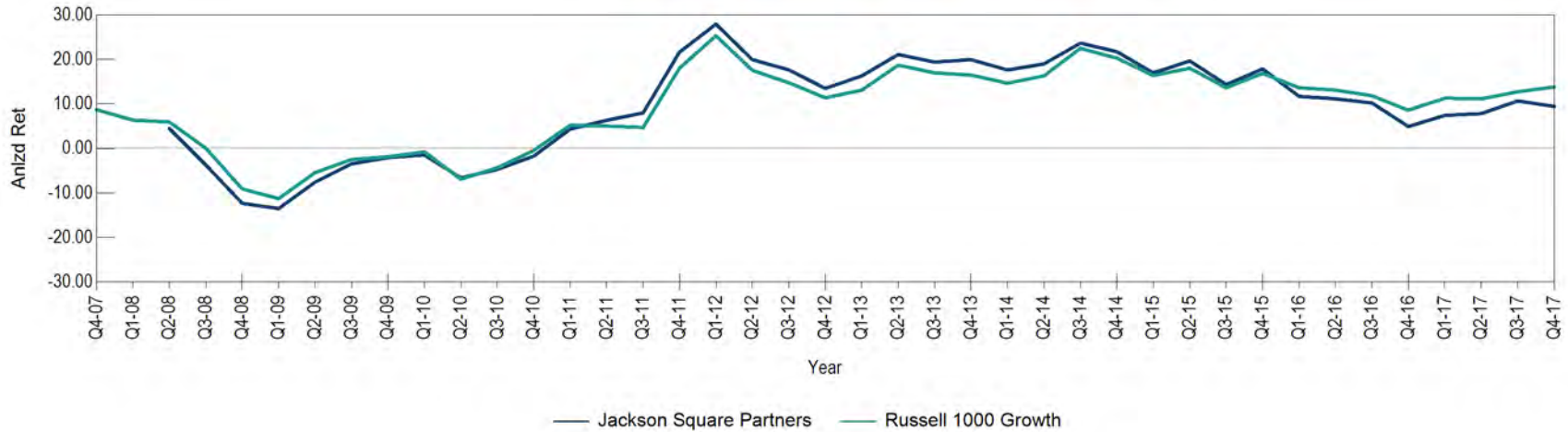
Unclassified sector allocation includes cash allocations.

Jackson Square Partners vs. eV US Large Cap Growth Equity Gross Universe

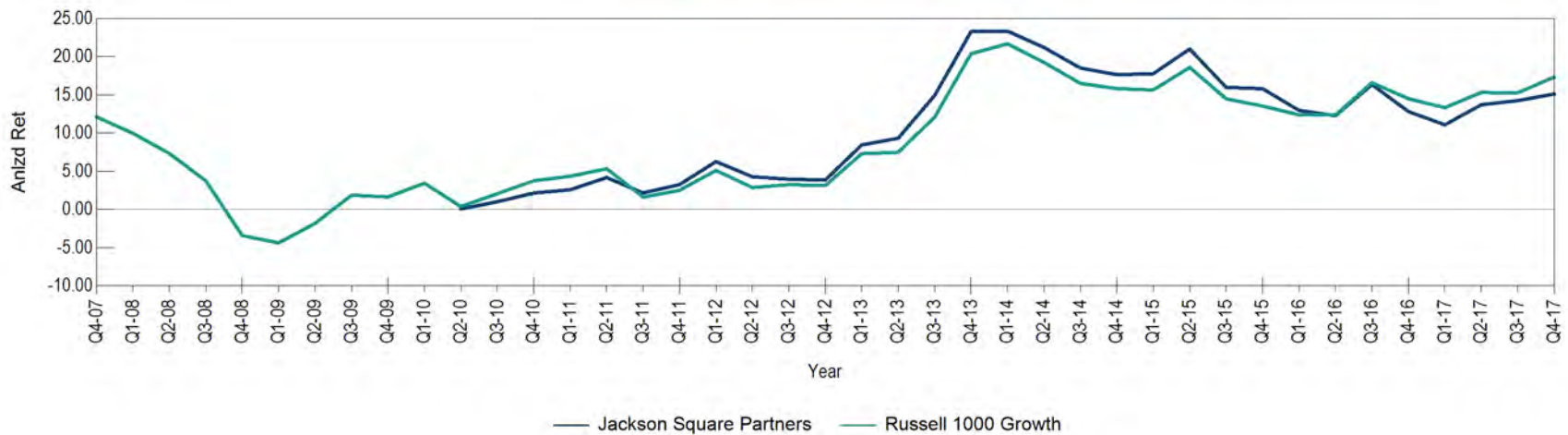


	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	9.2	36.7	15.6	19.5	11.5	36.7	12.0	11.6	17.3	42.8
25th Percentile	7.8	32.7	13.8	17.6	10.4	32.7	7.3	7.6	14.3	37.3
Median	7.0	28.8	12.3	16.7	9.6	28.8	4.6	4.7	12.0	34.3
75th Percentile	6.1	26.2	10.9	15.2	8.7	26.2	1.8	2.1	9.5	31.0
95th Percentile	4.0	20.5	8.7	13.4	7.3	20.5	-2.7	-2.4	5.8	26.6
# of Portfolios	265	265	261	250	225	265	282	270	291	274
● Jackson Square Partners	3.4 (99)	29.3 (47)	9.4 (92)	15.1 (77)	9.3 (59)	29.3 (47)	-4.4 (98)	6.1 (37)	13.9 (31)	35.4 (40)
▲ Russell 1000 Growth	7.9 (23)	30.2 (42)	13.8 (26)	17.3 (34)	10.0 (36)	30.2 (42)	7.1 (26)	5.7 (42)	13.0 (38)	33.5 (56)

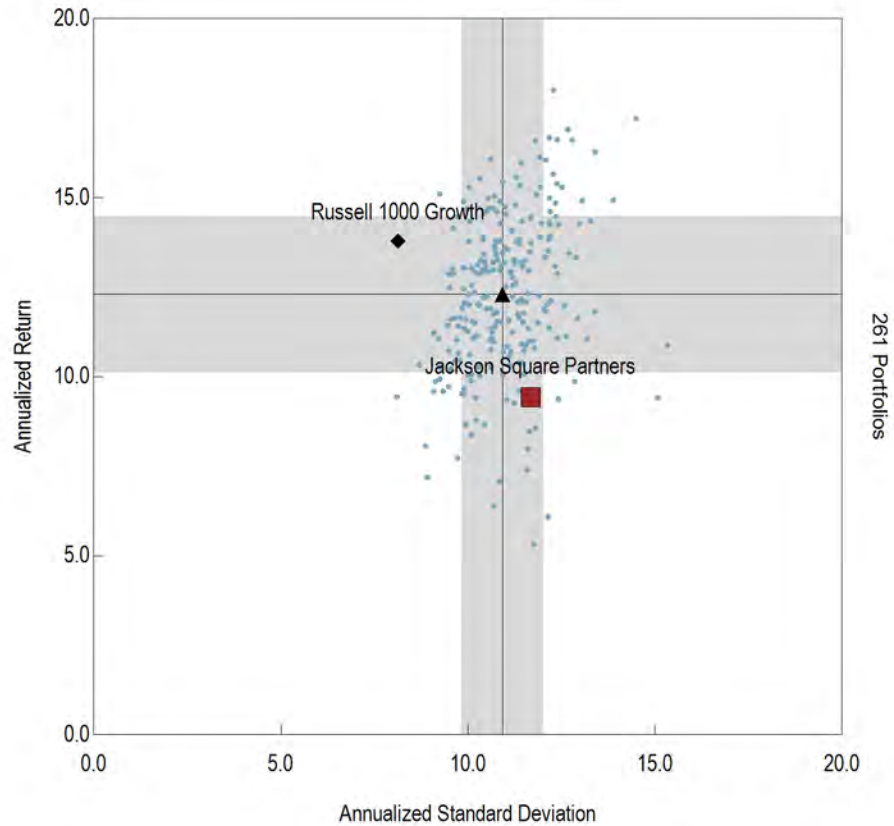
Rolling 3 Year Annualized Return (%)



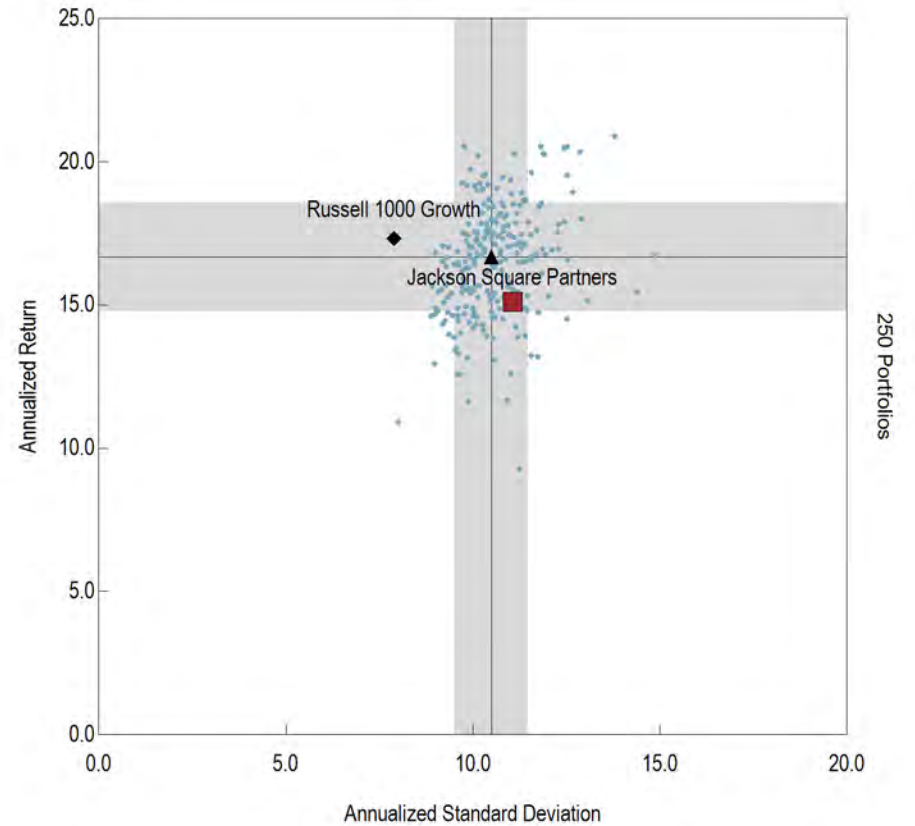
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	9.4%	11.7%	0.8
Russell 1000 Growth	13.8%	8.1%	1.6
eV US Large Cap Growth Equity Gross Median	12.3%	10.9%	1.1

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Jackson Square Partners	15.1%	11.1%	1.3
Russell 1000 Growth	17.3%	7.9%	2.2
eV US Large Cap Growth Equity Gross Median	16.7%	10.5%	1.6

Robeco Boston Partners Manager Portfolio Overview

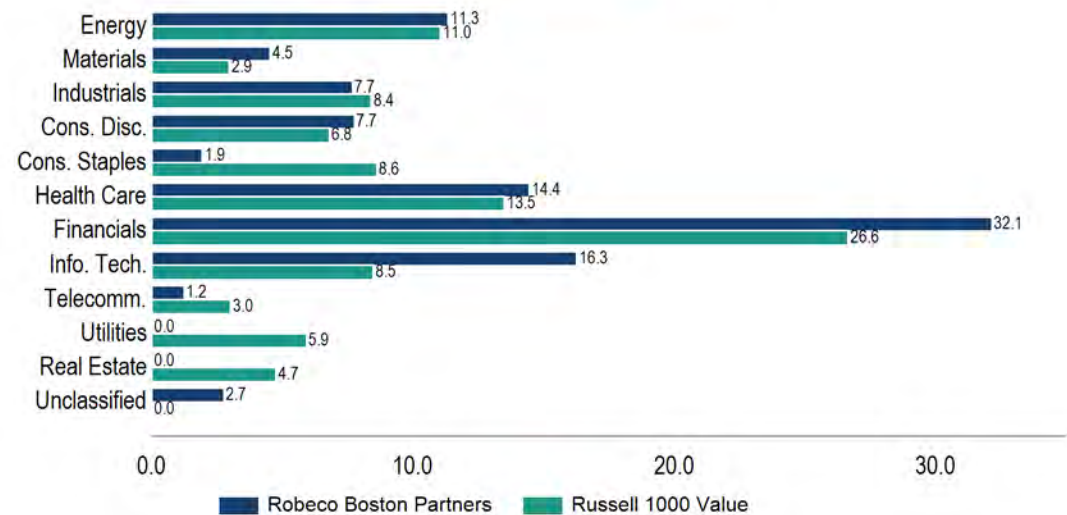
Period Ending: December 31, 2017

Domestic equity large cap value portfolio exhibiting low turnover in companies with low valuations relative to intrinsic value. Primary personnel include Mark Donovan and David Pyle.

Characteristics

	Portfolio	Russell 1000 Value
Number of Holdings	82	713
Weighted Avg. Market Cap. (\$B)	163.50	119.36
Median Market Cap. (\$B)	39.93	9.42
Price To Earnings	21.54	21.04
Price To Book	3.04	2.73
Price To Sales	2.43	2.88
Return on Equity (%)	18.30	11.48
Yield (%)	1.96	2.31
Beta	1.05	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest Holdings

	End Weight	Return
BANK OF AMERICA	5.00	16.99
JP MORGAN CHASE & CO.	4.95	12.61
BERKSHIRE HATHAWAY 'B'	4.15	8.13
CITIGROUP	3.65	2.74
JOHNSON & JOHNSON	3.00	8.12
CISCO SYSTEMS	2.88	14.87
CHEVRON	2.86	7.55
WELLS FARGO & CO	2.72	10.77
PFIZER	2.53	2.38
APPLE	2.09	10.20

Top Contributors

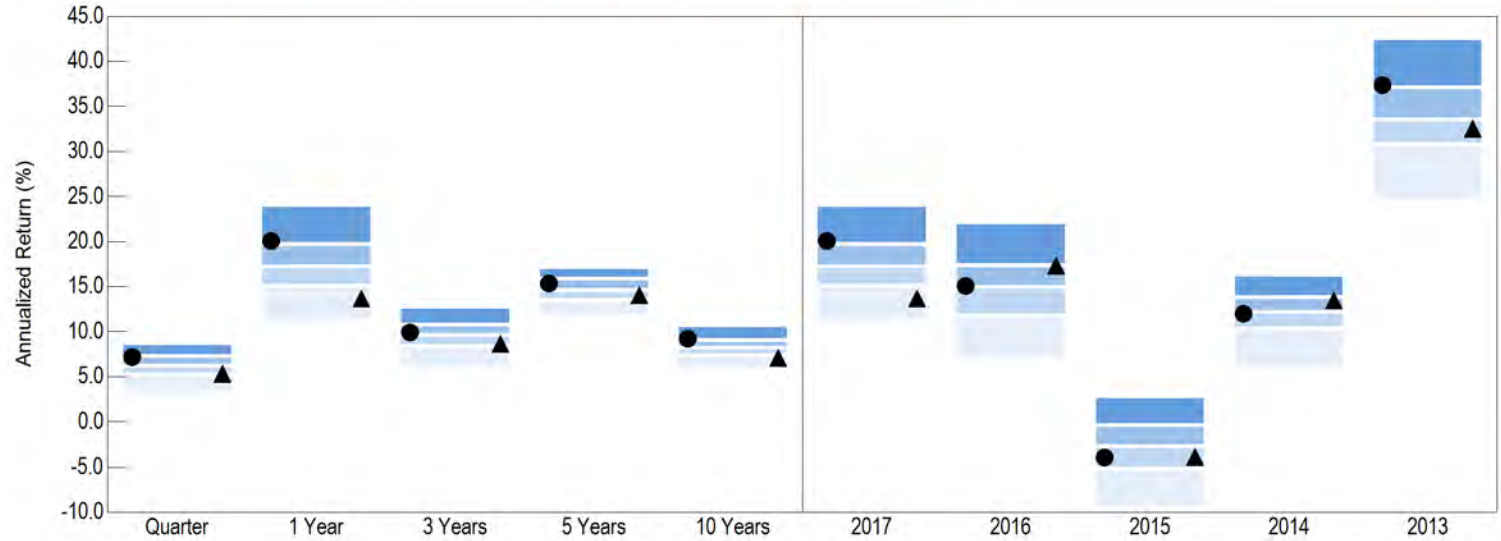
	Avg Wgt	Return	Contribution
BANK OF AMERICA	4.79	16.99	0.81
JP MORGAN CHASE & CO.	4.85	12.61	0.61
CISCO SYSTEMS	2.44	14.87	0.36
BERKSHIRE HATHAWAY 'B'	3.89	8.13	0.32
TE CONNECTIVITY	2.04	14.91	0.30
DIAMONDBACK ENERGY	1.04	28.88	0.30
WELLS FARGO & CO	2.60	10.77	0.28
ANTHEM	1.35	18.87	0.25
JOHNSON & JOHNSON	3.07	8.12	0.25
DISCOVER FINANCIAL SVS.	1.13	19.93	0.23

Bottom Contributors

	Avg Wgt	Return	Contribution
MERCK & COMPANY	2.06	-11.37	-0.23
GILEAD SCIENCES	1.76	-10.96	-0.19
TIME WARNER	1.32	-10.37	-0.14
SANOFI ADR 2:1	0.95	-13.64	-0.13
CVS HEALTH	1.20	-10.26	-0.12
CEMEX SPN.ADR 1:10	0.59	-17.40	-0.10
BARRICK GOLD (NYS)	0.52	-9.88	-0.05
KONINKLIJKE PHILIPS ADR 1:1	0.57	-8.25	-0.05
XL GROUP	0.41	-10.32	-0.04
ORACLE	2.26	-1.83	-0.04

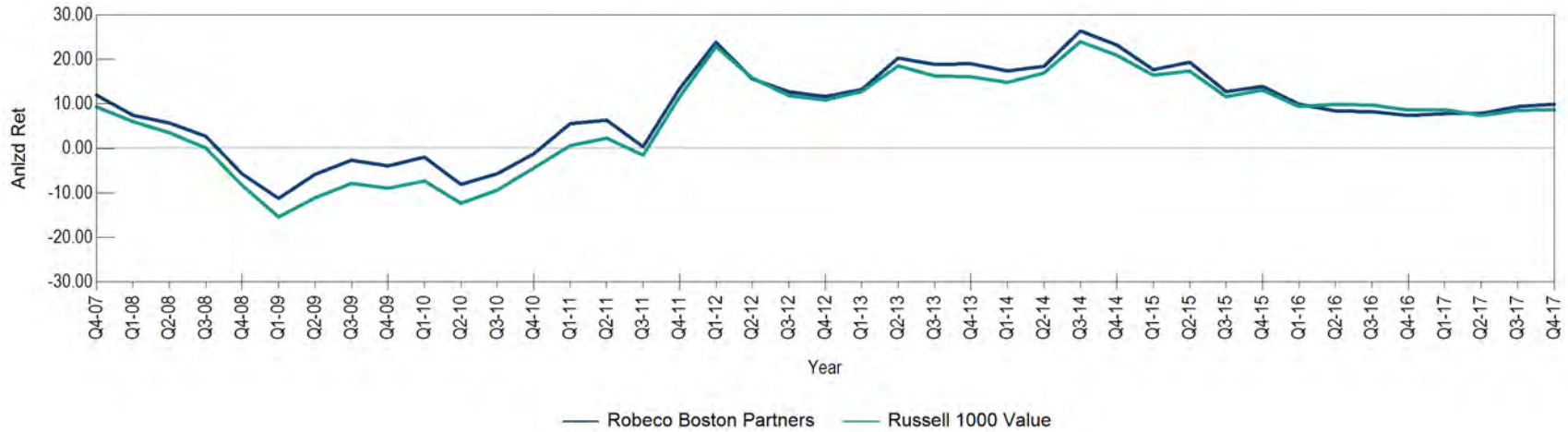
Unclassified sector allocation includes cash allocations.

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

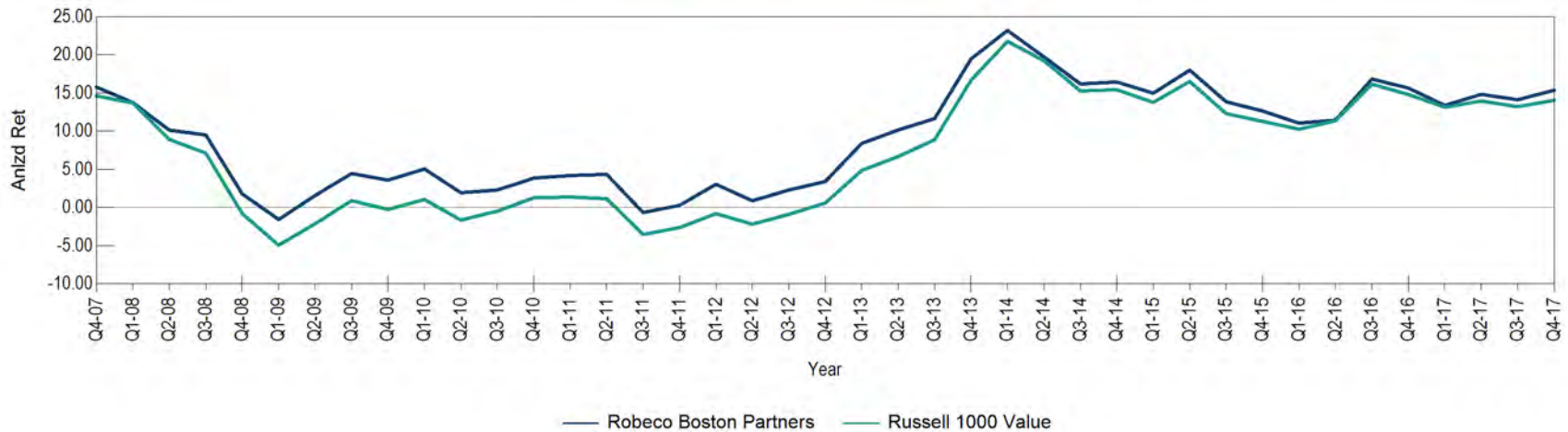


	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	8.7	24.0	12.7	17.1	10.6	24.0	22.1	2.8	16.3	42.5
25th Percentile	7.3	19.8	10.8	15.9	9.1	19.8	17.4	-0.4	13.9	37.2
Median	6.2	17.2	9.7	14.6	8.2	17.2	15.0	-2.6	12.2	33.6
75th Percentile	5.3	15.1	8.5	13.6	7.4	15.1	11.8	-5.1	10.4	30.8
95th Percentile	3.1	11.2	6.0	11.7	5.8	11.2	7.0	-9.4	5.9	24.6
# of Portfolios	342	342	338	326	267	342	346	312	307	310
● Robeco Boston Partners	7.2 (29)	20.1 (23)	9.9 (45)	15.3 (35)	9.2 (23)	20.1 (23)	15.1 (50)	-3.9 (65)	12.0 (55)	37.4 (24)
▲ Russell 1000 Value	5.3 (75)	13.7 (87)	8.7 (74)	14.0 (65)	7.1 (82)	13.7 (87)	17.3 (26)	-3.8 (64)	13.5 (33)	32.5 (60)

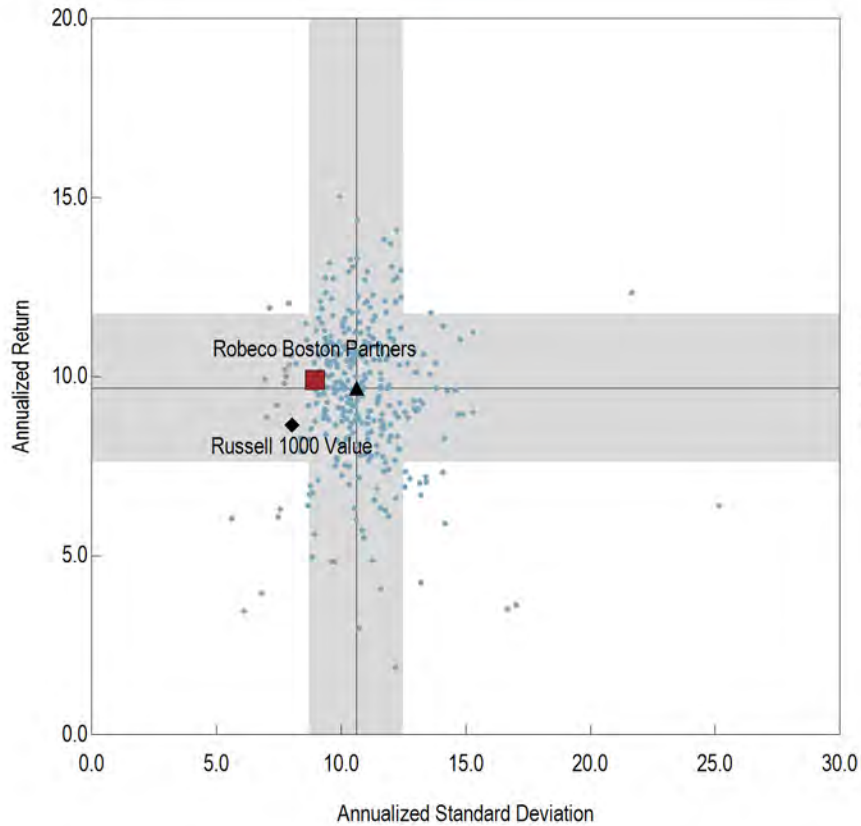
Rolling 3 Year Annualized Return (%)



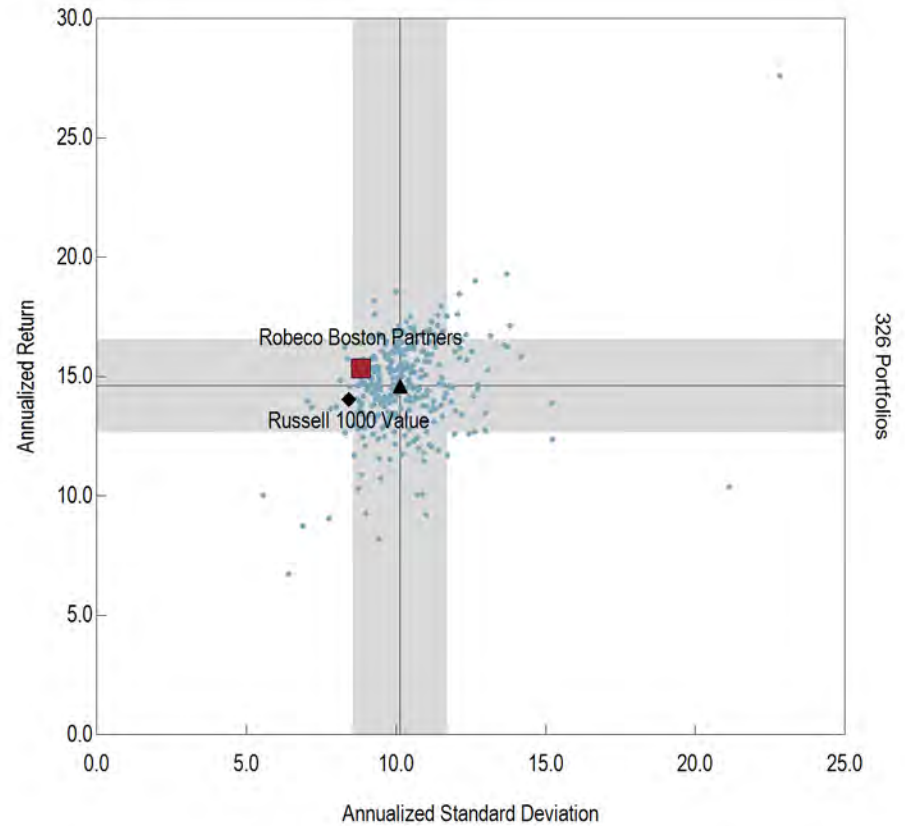
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Robeco Boston Partners	9.9%	8.9%	1.1
Russell 1000 Value	8.7%	8.0%	1.0
eV US Large Cap Value Equity Gross Median	9.7%	10.6%	0.9

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Robeco Boston Partners	15.3%	8.8%	1.7
Russell 1000 Value	14.0%	8.4%	1.6
eV US Large Cap Value Equity Gross Median	14.6%	10.1%	1.4

Emerald Advisers Manager Portfolio Overview

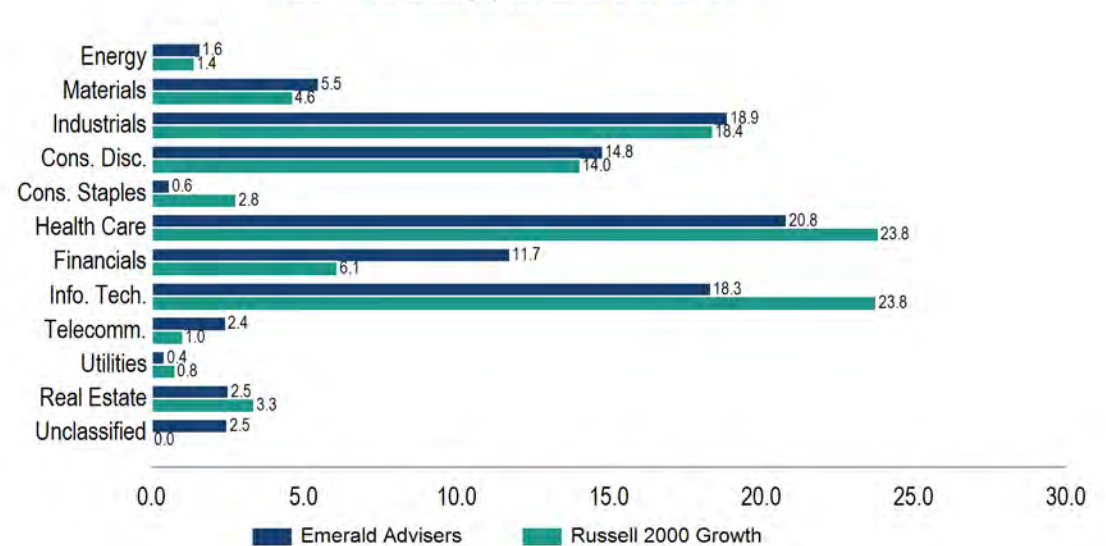
Period Ending: December 31, 2017

Domestic equity small cap growth portfolio of companies with significantly high growth rates. Primary personnel include Kenneth Mertz, Joseph Garner, and Stacey Sears.

Characteristics

	Portfolio	Russell 2000 Growth
Number of Holdings	116	1,175
Weighted Avg. Market Cap. (\$B)	2.74	2.62
Median Market Cap. (\$B)	2.06	0.98
Price To Earnings	23.85	20.23
Price To Book	6.95	5.61
Price To Sales	3.78	3.43
Return on Equity (%)	-5.60	7.27
Yield (%)	0.35	0.54
Beta	0.96	1.00

Sector Allocation (%) vs Russell 2000 Growth



Largest Holdings

	End Weight	Return
LENDINGTREE	3.56	39.27
EPAM SYSTEMS	1.90	22.18
SAREPTA THERAPEUTICS	1.86	22.66
VONAGE HOLDINGS	1.82	24.94
KENNAMETAL	1.76	20.55
KLX	1.75	28.94
GTT COMMUNICATIONS	1.75	48.34
CHEGG	1.74	9.97
FCB FINANCIAL HDG.CL.A	1.70	5.18
TREX	1.69	20.34

Top Contributors

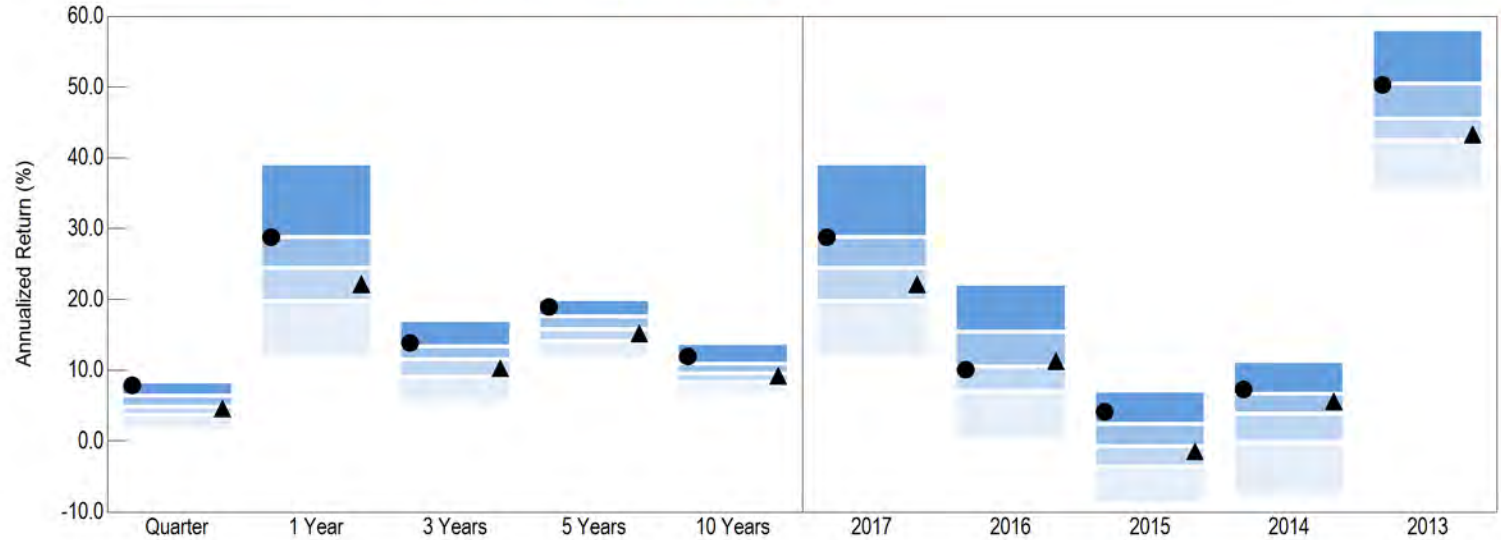
	Avg Wgt	Return	Contribution
LENDINGTREE	3.16	39.27	1.24
IGNYTA	0.93	116.19	1.08
GTT COMMUNICATIONS	1.45	48.34	0.70
ADAMAS PHARMACEUTICALS	0.73	60.08	0.44
KLX	1.46	28.94	0.42
VONAGE HOLDINGS	1.66	24.94	0.41
TREX	1.98	20.34	0.40
SAREPTA THERAPEUTICS	1.74	22.66	0.39
EPAM SYSTEMS	1.76	22.18	0.39
SAGE THERAPEUTICS	0.23	164.38	0.38

Bottom Contributors

	Avg Wgt	Return	Contribution
PUMA BIOTECHNOLOGY	1.73	-17.45	-0.30
KRATOS	1.13	-19.04	-0.22
DEF&SCTY.SLTN.	0.90	-17.48	-0.16
G1 THERAPEUTICS	0.77	-20.29	-0.16
OSI SYSTEMS	0.51	-29.54	-0.15
K2M GROUP HOLDINGS	0.99	-15.13	-0.15
ALARMCOM HOLDINGS	0.85	-16.45	-0.14
TUTOR PERINI	1.18	-10.74	-0.13
NEOGENOMICS	0.61	-20.40	-0.12
BIOHAVEN PHARMACEUTICAL HOLDING	0.43	-27.82	-0.12

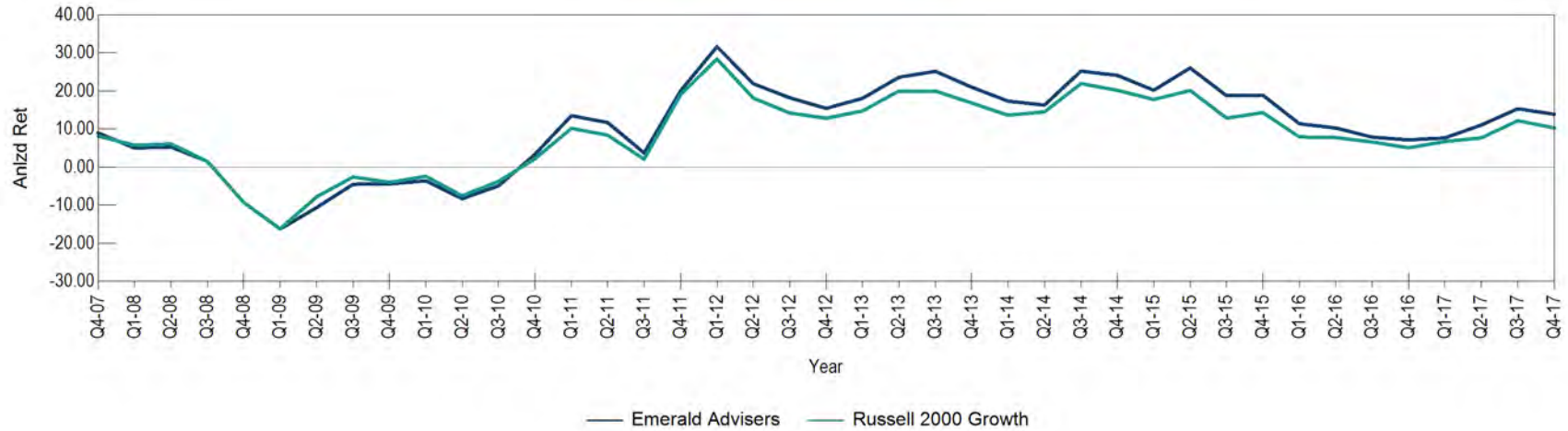
Unclassified sector allocation includes cash allocations.

Emerald Advisers vs. eV US Small Cap Growth Equity Gross Universe

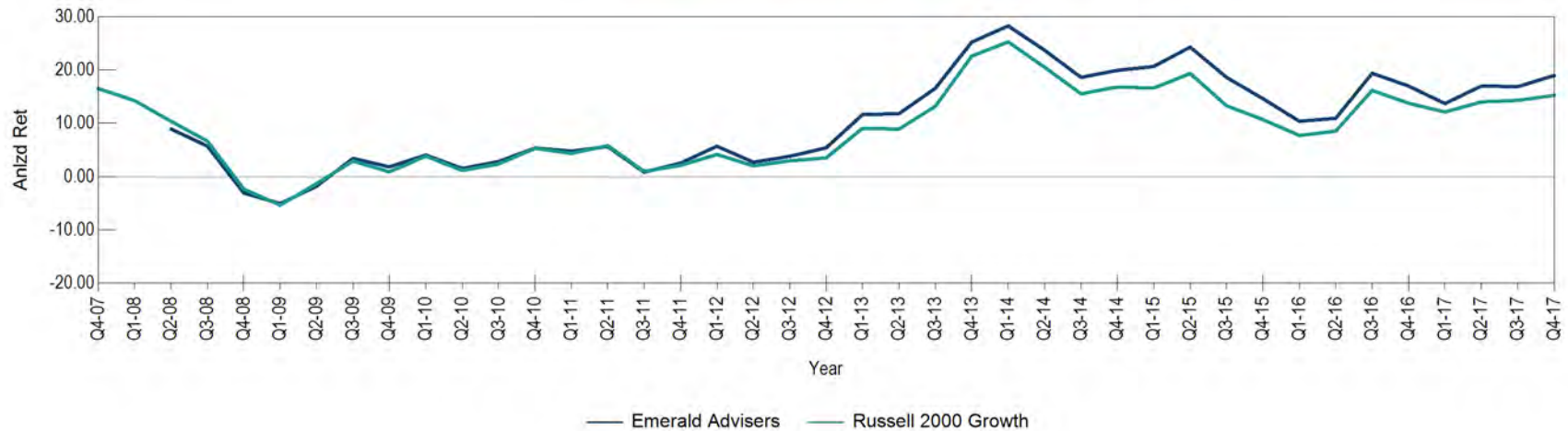


	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	8.3	39.2	17.0	20.0	13.7	39.2	22.2	7.1	11.3	58.2
25th Percentile	6.4	28.9	13.5	17.7	11.0	28.9	15.5	2.5	6.7	50.6
Median	4.9	24.6	11.6	15.8	9.6	24.6	10.6	-0.6	3.9	45.6
75th Percentile	3.7	19.8	9.2	14.1	8.4	19.8	7.1	-3.5	-0.1	42.6
95th Percentile	1.7	12.1	5.4	11.7	6.7	12.1	0.2	-8.7	-7.6	35.6
# of Portfolios	174	174	167	160	141	174	170	154	161	160
● Emerald Advisers	7.9 (11)	28.8 (26)	13.9 (19)	18.9 (14)	12.0 (14)	28.8 (26)	10.1 (54)	4.1 (19)	7.3 (21)	50.3 (27)
▲ Russell 2000 Growth	4.6 (59)	22.2 (62)	10.3 (64)	15.2 (62)	9.2 (60)	22.2 (62)	11.3 (49)	-1.4 (59)	5.6 (32)	43.3 (70)

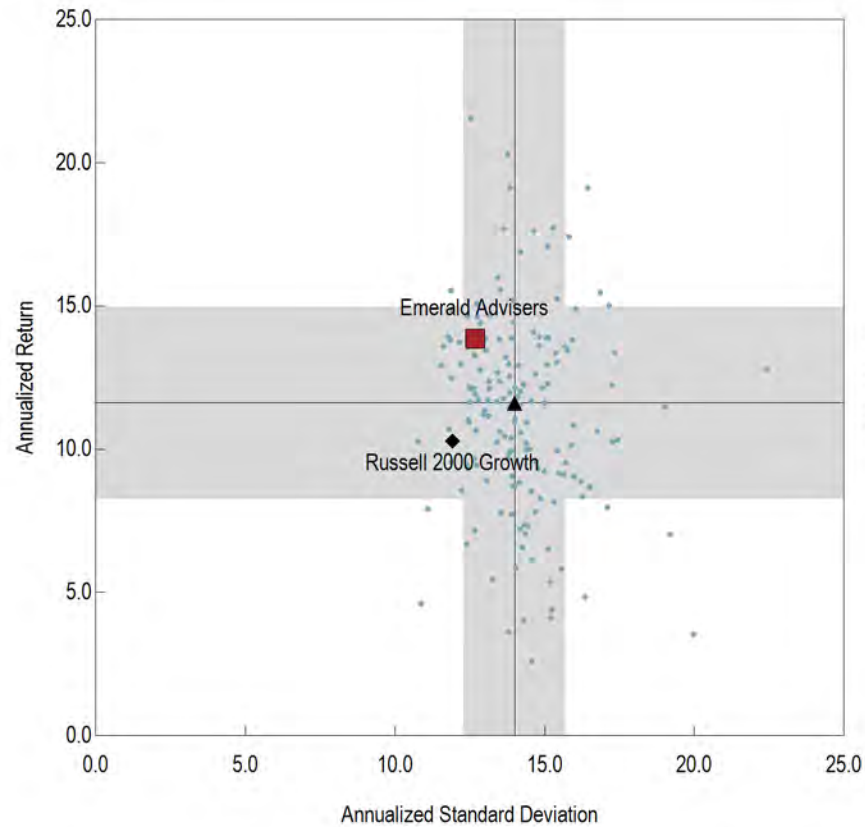
Rolling 3 Year Annualized Return (%)



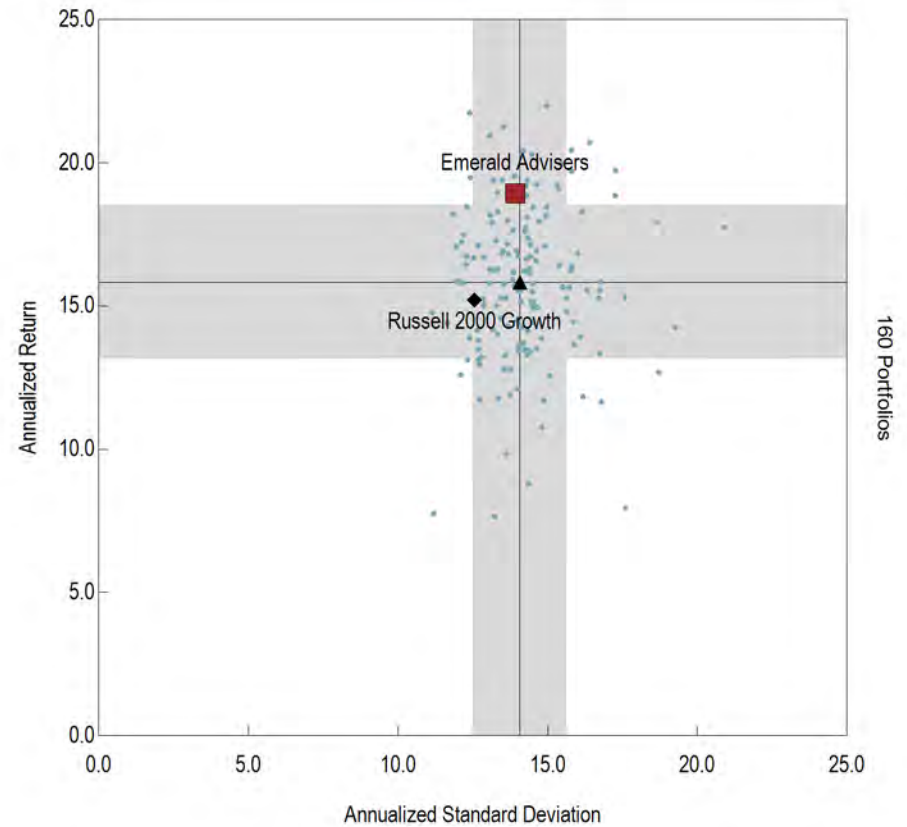
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	13.9%	12.7%	1.1
Russell 2000 Growth	10.3%	11.9%	0.8
eV US Small Cap Growth Equity Gross Median	11.6%	14.0%	0.8

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Emerald Advisers	18.9%	13.9%	1.3
Russell 2000 Growth	15.2%	12.6%	1.2
eV US Small Cap Growth Equity Gross Median	15.8%	14.1%	1.1

Ceredex Manager Portfolio Overview

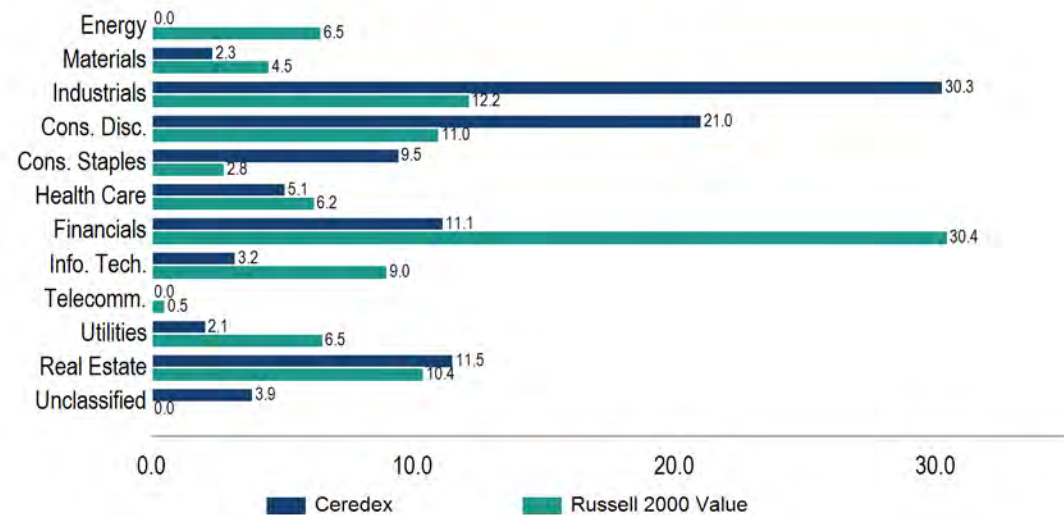
Period Ending: December 31, 2017

Domestic equity small cap value portfolio of companies with dividend yields and low valuations. Primary personnel include Brett Barner and David Maynard.

Characteristics

	Portfolio	Russell 2000 Value
Number of Holdings	84	1,387
Weighted Avg. Market Cap. (\$B)	2.28	2.06
Median Market Cap. (\$B)	1.97	0.72
Price To Earnings	22.20	17.61
Price To Book	3.48	1.83
Price To Sales	2.31	2.70
Return on Equity (%)	16.90	5.50
Yield (%)	2.39	1.60
Beta	0.58	1.00

Sector Allocation (%) vs Russell 2000 Value



Largest Holdings

	End Weight	Return
ENERGIZER HOLDINGS	4.13	4.85
HILL-ROM HOLDINGS	3.65	14.16
TANGER FAC.OUTLET CNTRS.	3.08	10.16
EVERCORE A	2.95	12.67
TETRA TECH	2.72	3.64
COVANTA HOLDING	2.69	15.51
B & G FOODS	2.69	11.81
HERMAN MILLER	2.61	12.12
BLOOMIN' BRANDS	2.35	21.82
LITHIA MOTORS 'A'	2.34	-5.36

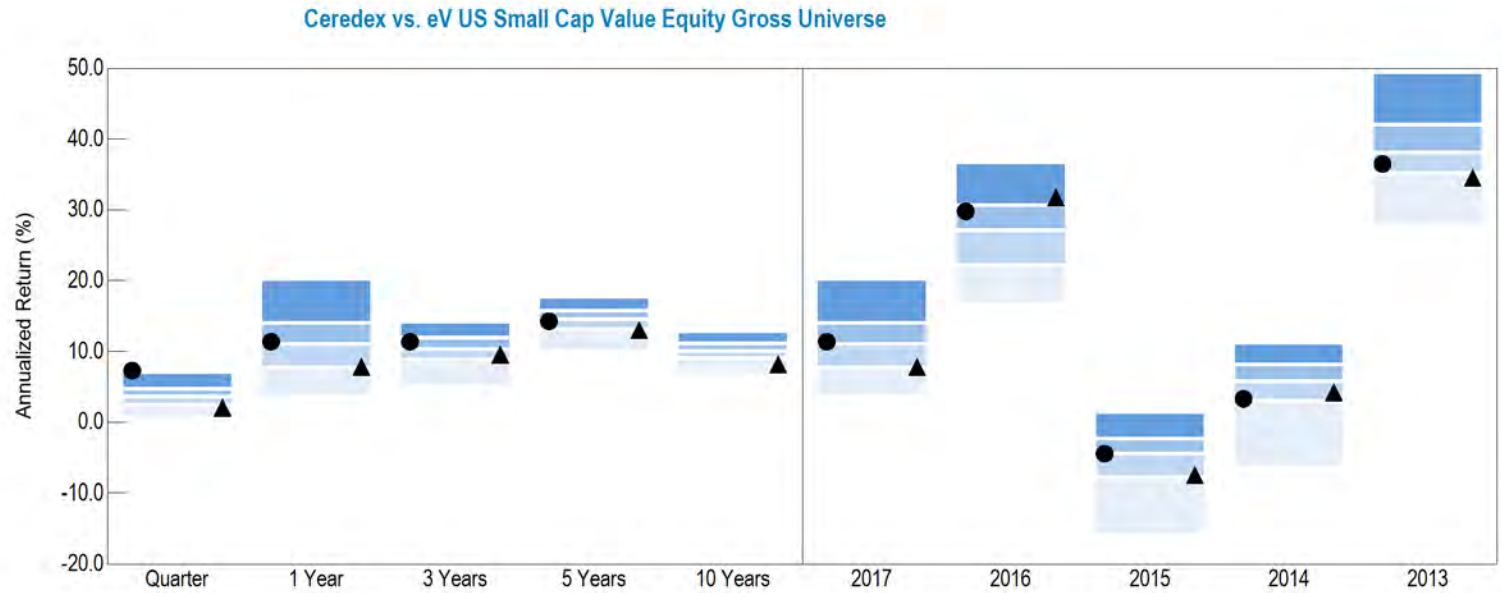
Top Contributors

	Avg Wgt	Return	Contribution
AMER.EAG.OUTFITTERS	1.87	33.62	0.63
REGAL ENTM.GP. 'A'	1.33	45.36	0.60
BLOOMIN' BRANDS	2.54	21.82	0.55
HILL-ROM HOLDINGS	3.56	14.16	0.50
COVANTA HOLDING	2.56	15.51	0.40
EVERCORE A	2.83	12.67	0.36
COHEN & STEERS	1.43	23.18	0.33
CUBIC	2.10	15.59	0.33
HERMAN MILLER	2.42	12.12	0.29
TANGER FAC.OUTLET CNTRS.	2.84	10.16	0.29

Bottom Contributors

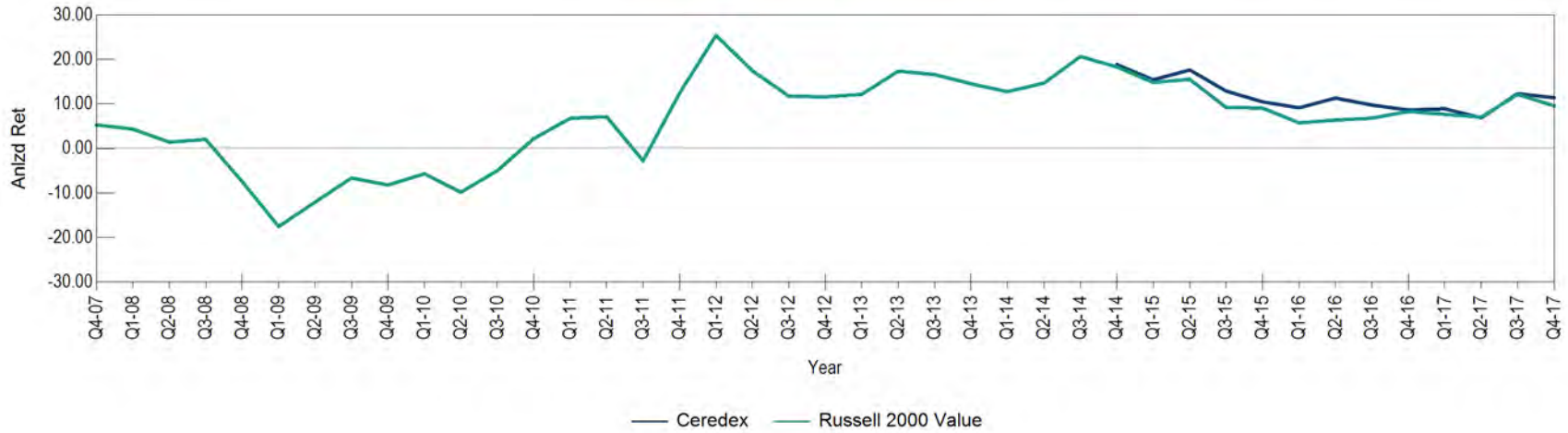
	Avg Wgt	Return	Contribution
HECLA MINING	1.26	-20.86	-0.26
PAPA JOHNS INTL.	0.97	-22.92	-0.22
SONIC AUTOMOTIVE 'A'	1.69	-9.33	-0.16
PHIBRO ANIMAL	1.64	-9.31	-0.15
HLTH.CL.A	1.64	-9.31	-0.15
LITHIA MOTORS 'A'	2.52	-5.36	-0.14
OUTFRONT MEDIA	1.93	-6.44	-0.12
VIAD	1.12	-8.87	-0.10
ALEXANDER & BALDWIN	1.29	-6.96	-0.09
DAKTRONICS	0.62	-12.95	-0.08
APOGEE ENTERPRISES	1.57	-4.96	-0.08

Unclassified sector allocation includes cash allocations.

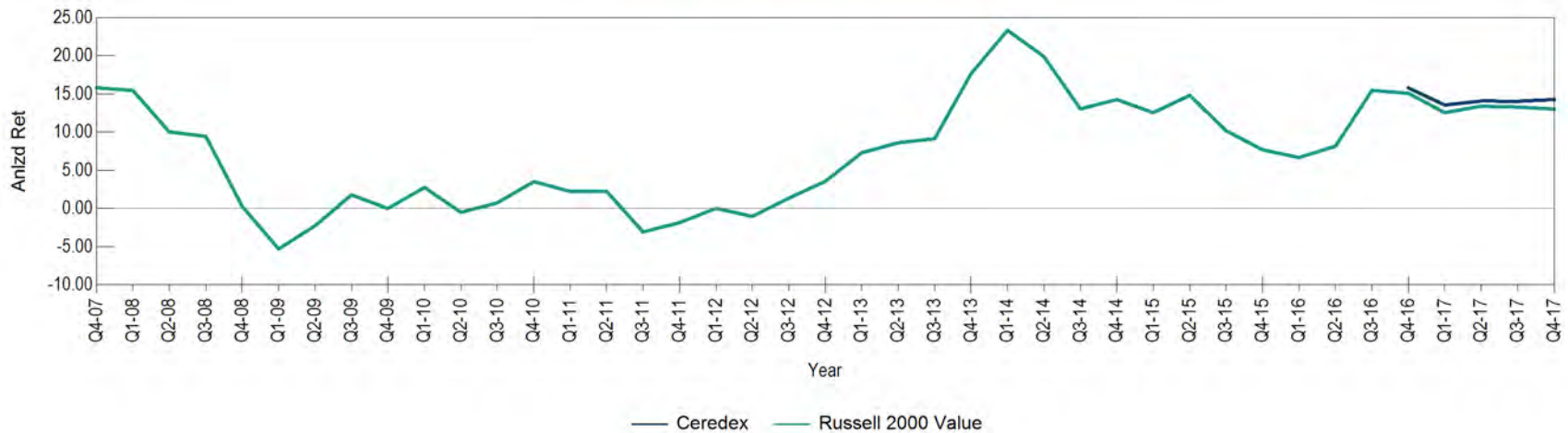


	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	7.0	20.2	14.2	17.7	12.8	20.2	36.7	1.5	11.2	49.4
25th Percentile	4.7	14.1	12.0	15.8	11.2	14.1	30.7	-2.2	8.2	42.1
Median	3.7	11.1	10.4	14.6	10.1	11.1	27.2	-4.3	5.8	38.1
75th Percentile	2.5	7.8	9.0	13.2	9.1	7.8	22.2	-7.7	3.1	35.2
95th Percentile	0.7	3.7	5.2	10.0	6.8	3.7	16.8	-15.8	-6.3	27.8
# of Portfolios	224	224	215	207	178	224	222	212	206	199
● Ceredex	7.3 (5)	11.4 (48)	11.4 (35)	14.3 (59)	-- (--)	11.4 (48)	29.8 (32)	-4.4 (52)	3.3 (74)	36.5 (66)
▲ Russell 2000 Value	2.0 (81)	7.8 (75)	9.5 (68)	13.0 (78)	8.2 (87)	7.8 (75)	31.7 (17)	-7.5 (74)	4.2 (68)	34.5 (78)

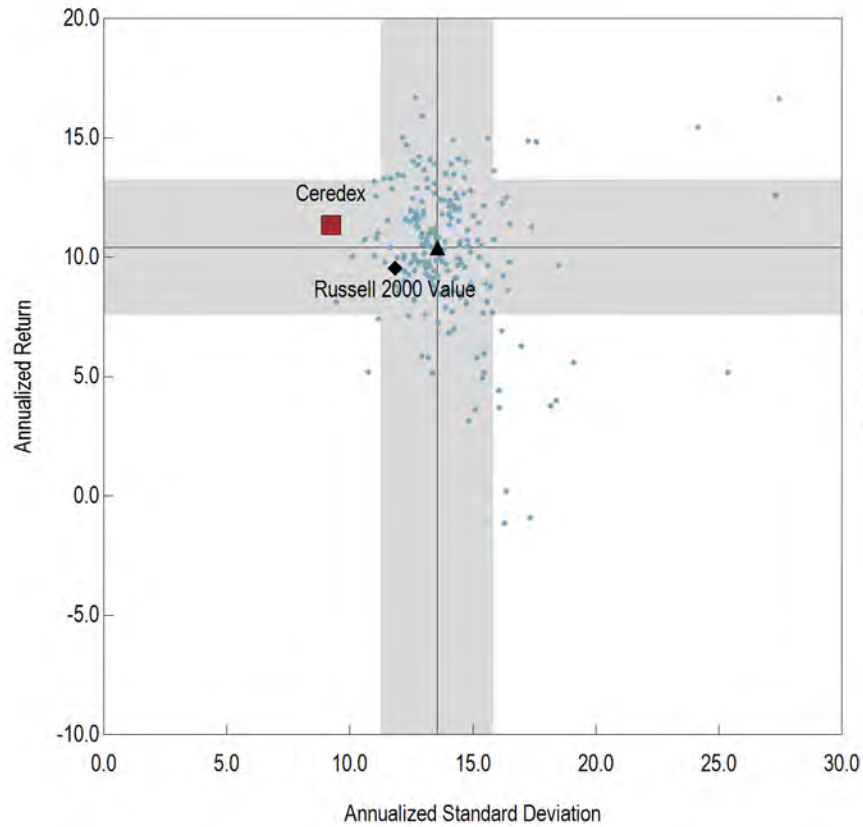
Rolling 3 Year Annualized Return (%)



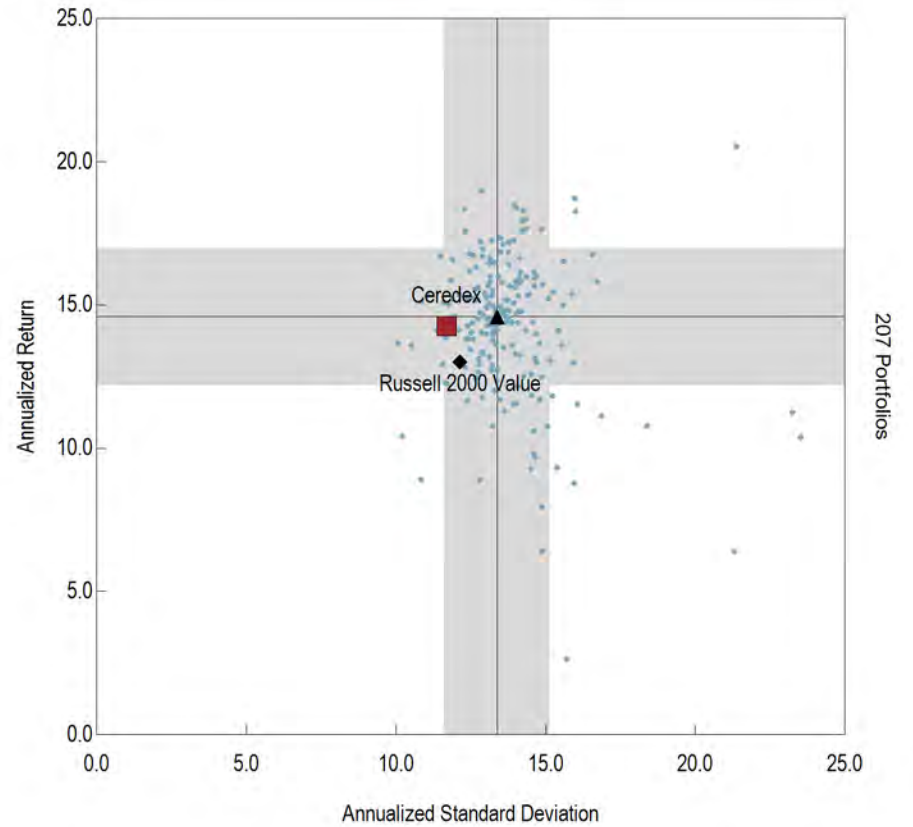
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	11.4%	9.2%	1.2
Russell 2000 Value	9.5%	11.8%	0.8
eV US Small Cap Value Equity Gross Median	10.4%	13.6%	0.7

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	14.3%	11.7%	1.2
Russell 2000 Value	13.0%	12.1%	1.1
eV US Small Cap Value Equity Gross Median	14.6%	13.4%	1.1

International Equity Managers

Pyrford Manager Portfolio Overview

Period Ending: December 31, 2017

International equity value portfolio of non-US companies with low valuations at the country and stock level. Primary personnel include Tony Cousins, Daniel McDonagh, and Paul Simons.

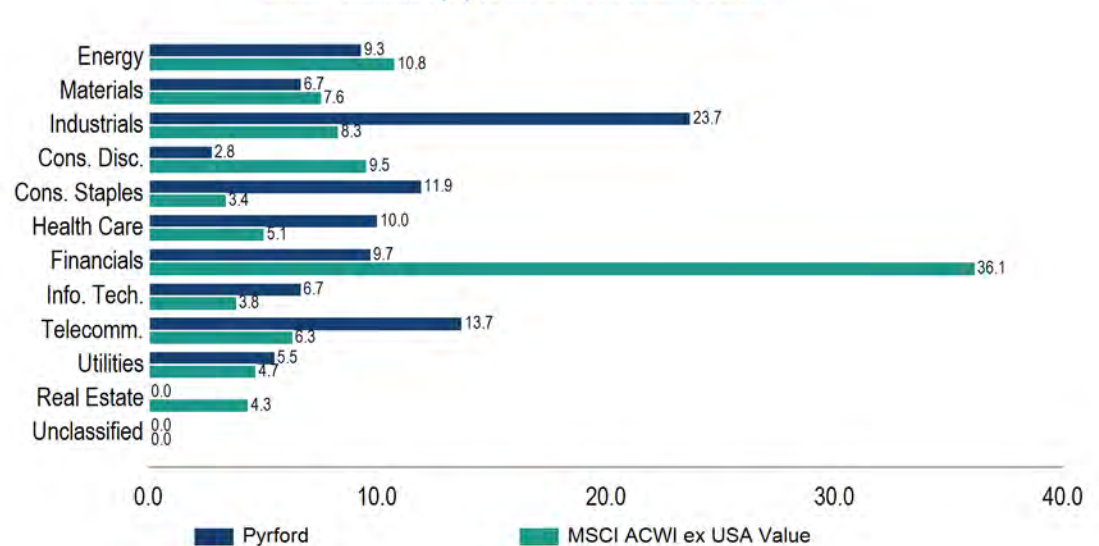
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Value
Number of Holdings	65	1,074
Weighted Avg. Market Cap. (\$B)	61.95	59.31
Median Market Cap. (\$B)	21.88	7.82
Price To Earnings	23.69	15.40
Price To Book	3.58	1.65
Price To Sales	2.31	1.60
Return on Equity (%)	17.75	11.48
Yield (%)	3.33	3.64
Beta	0.62	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	92.4%	75.3%
Emerging*	7.6%	24.7%
Top 10 Largest Countries		
Switzerland	15.3%	4.8%
Australia	12.8%	4.6%
Japan	11.9%	16.6%
France	9.0%	7.2%
Germany	7.5%	6.4%
United Kingdom	7.0%	13.9%
Netherlands	6.8%	1.4%
Hong Kong	5.3%	2.4%
Singapore	5.1%	0.9%
Sweden	4.7%	1.2%
Total-Top 10 Largest Countries	85.2%	59.5%

Sector Allocation (%) vs MSCI ACWI ex USA Value



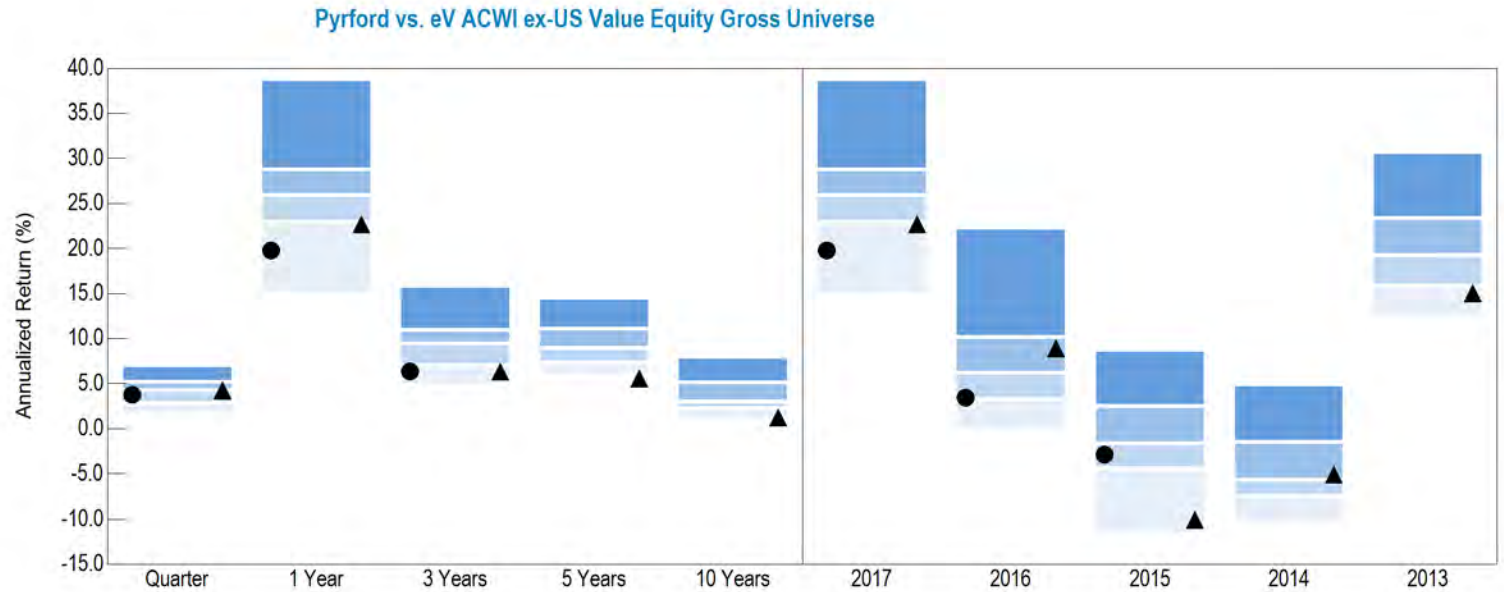
Top Contributors

	Avg Wgt	Return	Contribution
VODAFONE GROUP	1.83	15.65	0.29
BRAMBLES	2.01	11.53	0.23
WOODSIDE PETROLEUM	1.67	13.31	0.22
COMPUTERSHARE	1.78	12.29	0.22
BRENTAG	1.41	14.91	0.21
BRITISH AMERICAN TOBACCO	2.14	9.25	0.20
UNITED OVERSEAS BANK	1.36	14.37	0.19
TOYOTA TSUSHO	0.75	22.64	0.17
ROYAL DUTCH SHELL A	1.37	12.05	0.17
AXIATA GROUP	1.45	10.34	0.15

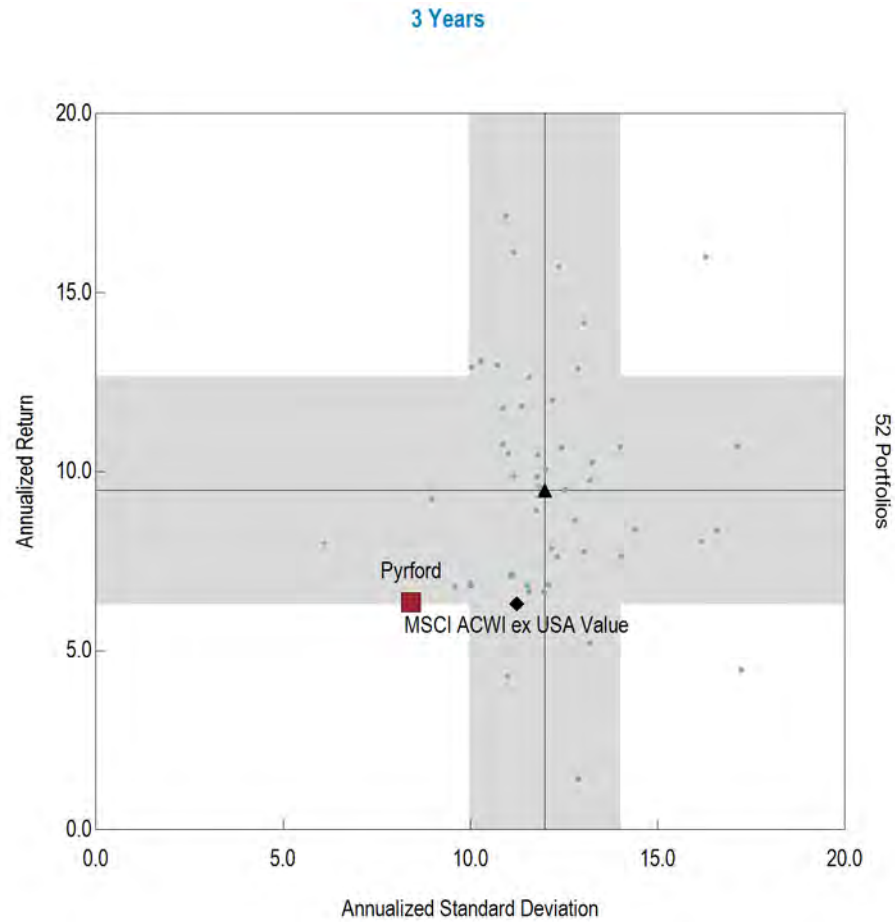
Bottom Contributors

	Avg Wgt	Return	Contribution
SANOFI	1.97	-13.13	-0.26
FUCHS PETROLUB PREF.	1.98	-9.03	-0.18
GLAXOSMITHKLINE	1.68	-9.15	-0.15
VTECH HOLDINGS	1.46	-9.00	-0.13
KDDI	1.55	-5.55	-0.09
ASSA ABLOY 'B'	0.95	-8.67	-0.08
UNILEVER DR	1.99	-3.99	-0.08
SSE	1.32	-4.73	-0.06
NATIONAL GRID	1.80	-2.87	-0.05
COMFORTDELGRO	1.48	-3.27	-0.05

Unclassified sector allocation includes cash allocations.



	Return (Rank)													
5th Percentile	7.0	38.8	15.9	14.5	7.9	38.8	22.3	8.7	4.9	30.7				
25th Percentile	5.3	28.8	11.0	11.1	5.1	28.8	10.2	2.5	-1.4	23.4				
Median	4.3	26.0	9.5	9.0	3.0	26.0	6.2	-1.6	-5.7	19.3				
75th Percentile	2.9	23.0	7.1	7.4	2.3	23.0	3.3	-4.3	-7.4	15.9				
95th Percentile	1.7	15.0	4.9	6.0	1.0	15.0	-0.1	-11.6	-10.4	12.4				
# of Portfolios	56	56	52	46	30	56	55	45	37	34				
● Pyrford	3.8 (63)	19.8 (84)	6.4 (93)	-- (--)	-- (--)	19.8 (84)	3.4 (74)	-2.9 (59)	-- (--)	-- (--)				
▲ MSCI ACWI ex USA Value	4.2 (53)	22.7 (77)	6.3 (93)	5.6 (97)	1.2 (92)	22.7 (77)	8.9 (35)	-10.1 (93)	-5.1 (49)	15.0 (83)				



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Pyrford	6.4%	8.4%	0.7
MSCI ACWI ex USA Value	6.3%	11.2%	0.5
eV ACWI ex-US Value Equity Gross Median	9.5%	12.0%	0.7

William Blair Manager Portfolio Overview

Period Ending: December 31, 2017

International equity growth portfolio of non-US companies with high growth rates constructed from the security level. Primary personnel include Simon Fennell and Jeffrey Urbina.

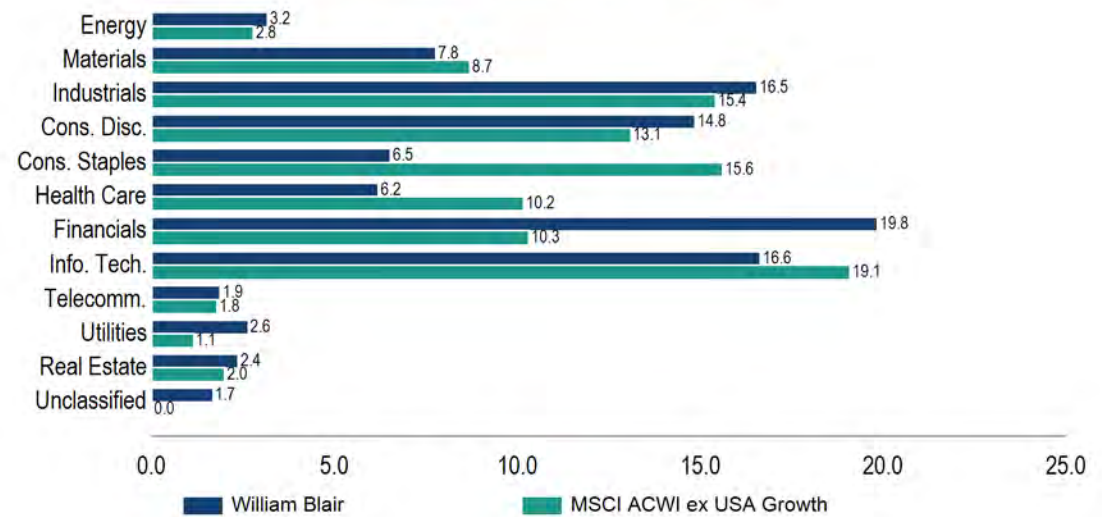
Characteristics

	MSCI ACWI Portfolio	MSCI ACWI ex USA Growth
Number of Holdings	215	1,006
Weighted Avg. Market Cap. (\$B)	54.02	73.17
Median Market Cap. (\$B)	9.33	9.31
Price To Earnings	24.00	26.32
Price To Book	5.15	4.33
Price To Sales	3.29	3.04
Return on Equity (%)	24.23	18.54
Yield (%)	1.85	1.77
Beta	0.93	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	78.8%	75.2%
Emerging*	19.3%	24.8%
Frontier**	0.2%	0.0%
Top 10 Largest Countries		
Japan	17.5%	16.5%
United Kingdom	13.7%	10.3%
France	11.5%	7.5%
Germany	6.2%	7.1%
Canada	5.8%	6.5%
Hong Kong	4.9%	2.5%
China*	4.7%	7.5%
India*	4.1%	2.2%
Denmark	3.6%	2.1%
Switzerland	3.3%	6.2%
Total-Top 10 Largest Countries	75.3%	68.3%

Sector Allocation (%) vs MSCI ACWI ex USA Growth



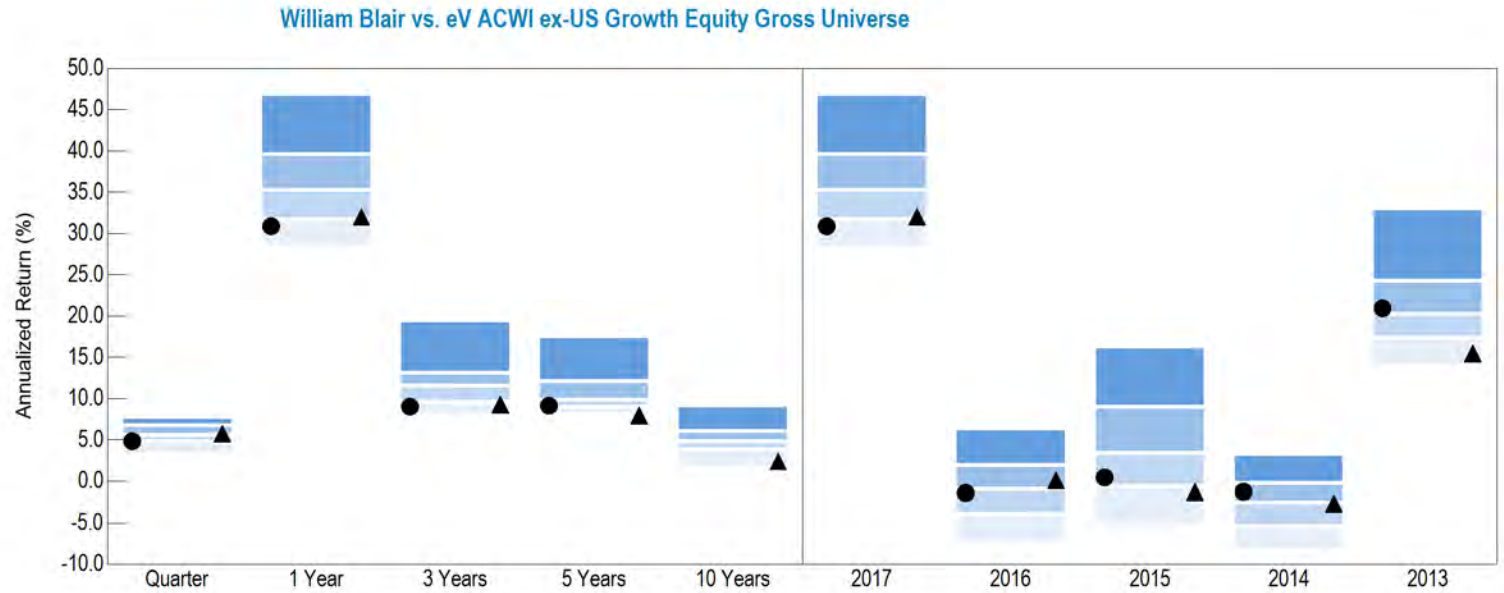
Top Contributors

	Avg Wgt	Return	Contribution
PING AN INSURANCE (GROUP) OF CHINA 'H'	1.75	35.58	0.62
GLENCORE	1.90	14.98	0.28
TENCENT HOLDINGS	1.37	20.66	0.28
ASAHI GROUP HOLDINGS	0.92	23.45	0.22
SONY	0.98	21.34	0.21
NOVO NORDISK 'B'	1.42	12.82	0.18
MITSUBISHI UFJ FINL.GP.	1.36	13.01	0.18
MARUTI SUZUKI INDIA	0.67	24.80	0.17
VONOVIA	0.98	16.46	0.16
FANUC	0.81	18.65	0.15

Bottom Contributors

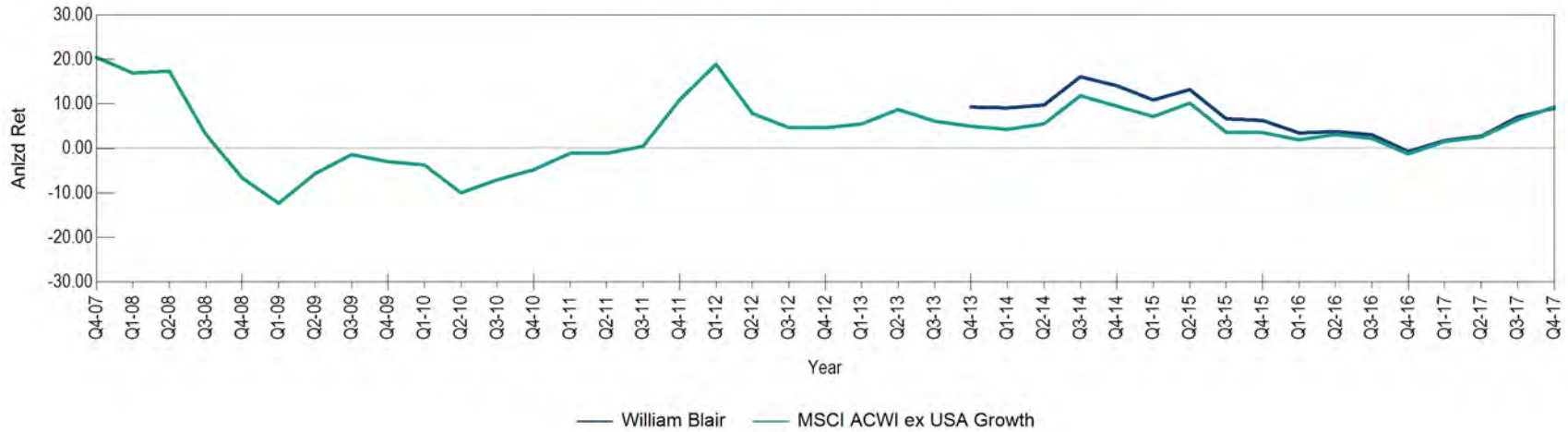
	Avg Wgt	Return	Contribution
SWEDBANK 'A'	1.34	-12.39	-0.17
GPO FINANCE BANORTE	0.76	-20.31	-0.15
BNP PARIBAS	1.73	-7.36	-0.13
SUNNY OPTICAL TECH.(GP.)	0.56	-19.63	-0.11
CHECK POINT SFTW.TECHS.	1.06	-9.12	-0.10
CTRIIP.COM INTL.ADR 8:1	0.56	-16.38	-0.09
CEMEX SPN.ADR 1:10	0.52	-17.40	-0.09
HOYA	1.11	-7.43	-0.08
ADIDAS	0.71	-11.21	-0.08
ITAU UNIBANCO HOLDING PN	1.09	-5.90	-0.06

Unclassified sector allocation includes cash allocations.

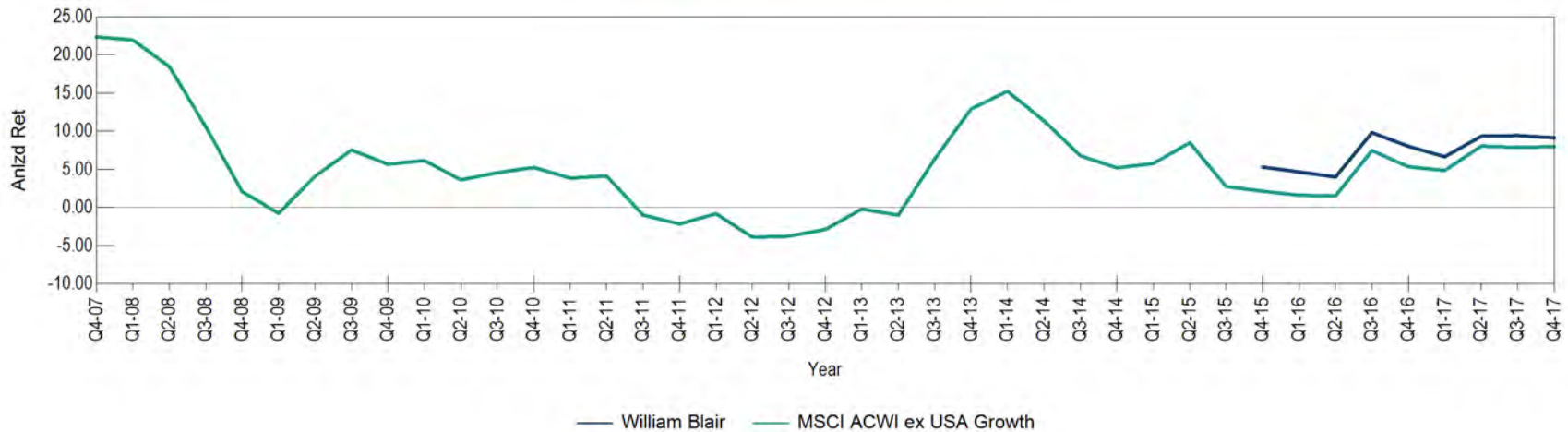


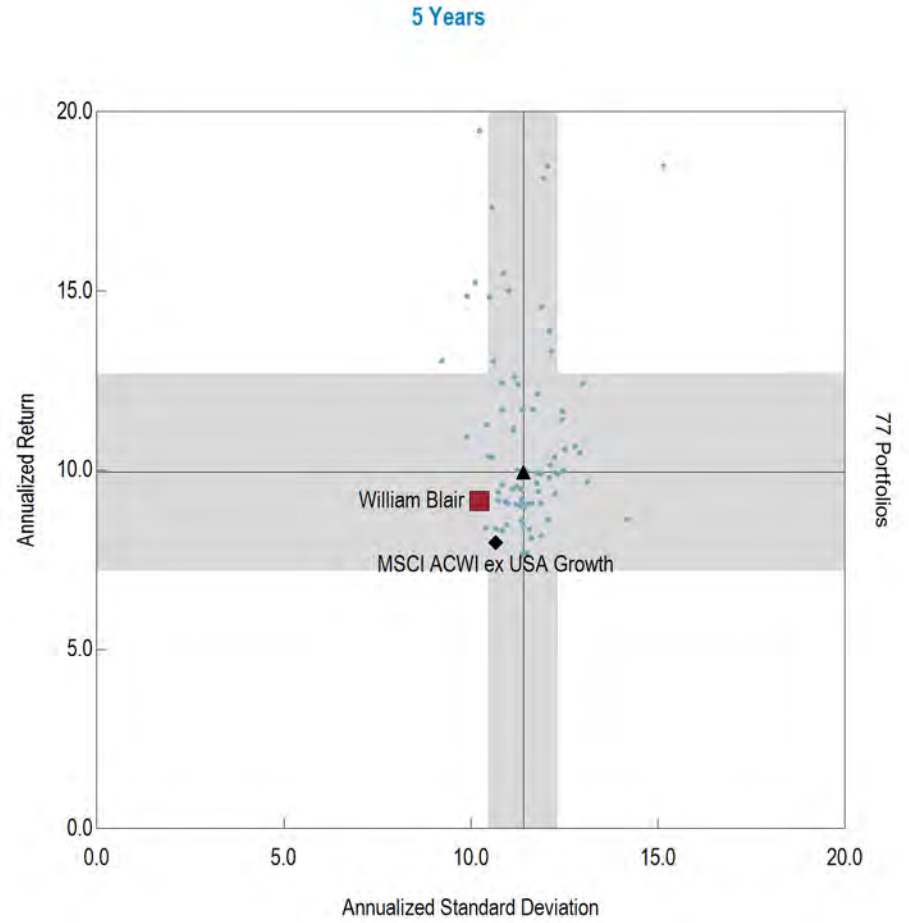
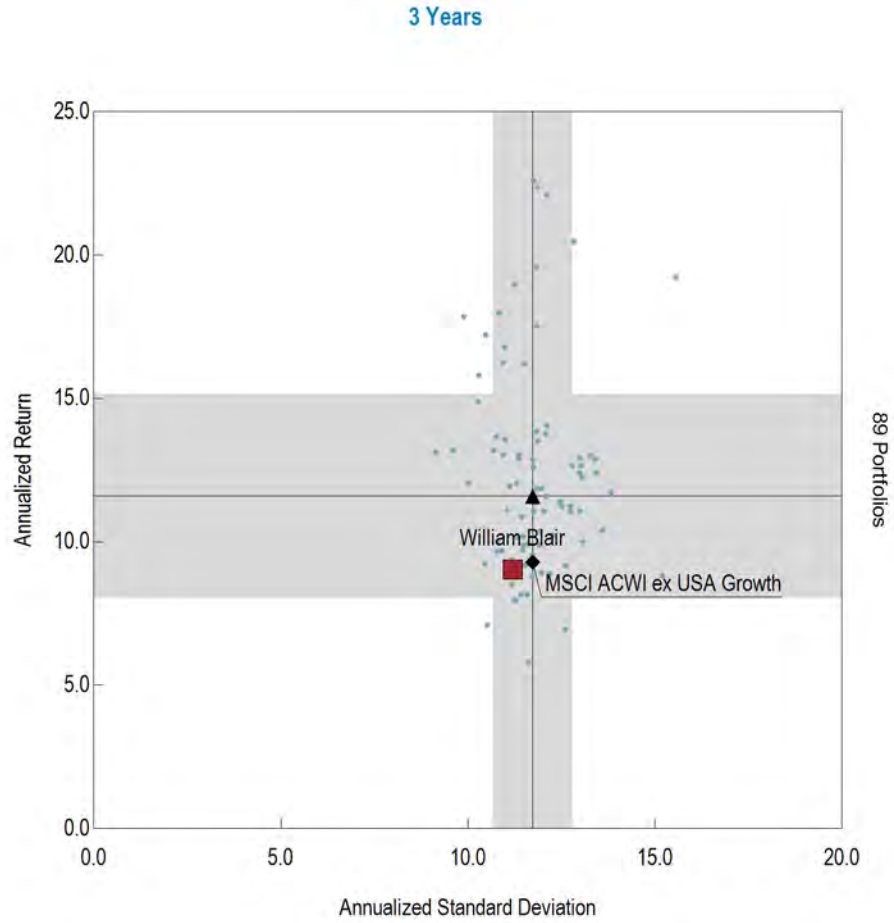
	Return (Rank)									
	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	7.7	46.8	19.5	17.5	9.1	46.8	6.3	16.3	3.2	33.0
25th Percentile	6.8	39.6	13.2	12.1	6.1	39.6	2.0	9.0	-0.1	24.3
Median	5.7	35.3	11.6	9.9	4.9	35.3	-0.9	3.5	-2.5	20.3
75th Percentile	4.9	31.8	9.7	9.1	3.9	31.8	-3.9	-0.5	-5.3	17.5
95th Percentile	3.2	28.3	8.0	8.2	1.8	28.3	-7.4	-5.4	-8.2	14.0
# of Portfolios	94	94	89	77	59	94	90	70	50	46
● William Blair	4.8 (76)	30.9 (81)	9.0 (86)	9.1 (72)	-- (--)	30.9 (81)	-1.4 (55)	0.5 (69)	-1.2 (37)	20.9 (44)
▲ MSCI ACWI ex USA Growth	5.8 (49)	32.0 (75)	9.3 (82)	8.0 (98)	2.4 (94)	32.0 (75)	0.1 (45)	-1.3 (83)	-2.6 (53)	15.5 (87)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)





	3 Years				5 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio		Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	9.0%	11.2%	0.8	William Blair	9.1%	10.2%	0.9
MSCI ACWI ex USA Growth	9.3%	11.7%	0.8	MSCI ACWI ex USA Growth	8.0%	10.7%	0.7
eV ACWI ex-US Growth Equity Gross Median	11.6%	11.7%	0.9	eV ACWI ex-US Growth Equity Gross Median	9.9%	11.4%	0.8

PIMCO RAE Emerging Markets Manager Portfolio Overview

Period Ending: December 31, 2017

The PIMCO RAE Emerging Markets seeks to invest 80% of its assets in investments that are economically tied to emerging market countries. The portfolio is sub-advised by Research Affiliates, LLC.

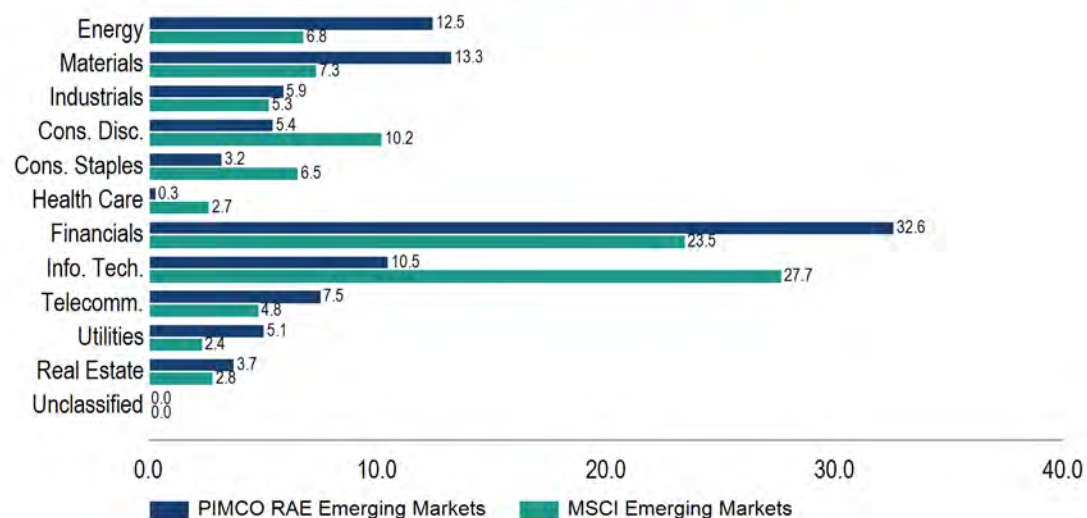
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	571	846
Weighted Avg. Market Cap. (\$B)	40.13	89.77
Median Market Cap. (\$B)	3.82	5.96
Price To Earnings	13.17	22.05
Price To Book	1.50	3.28
Price To Sales	1.04	2.74
Return on Equity (%)	10.54	18.13
Yield (%)	3.02	2.13
Beta		1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	9.9%	0.0%
Emerging*	90.1%	100.0%
Top 10 Largest Countries		
Korea*	19.6%	15.5%
China*	17.3%	29.8%
Brazil*	10.7%	6.9%
Hong Kong	9.3%	0.0%
Russia*	8.4%	3.3%
Taiwan*	8.0%	11.2%
India*	6.3%	8.7%
South Africa*	6.2%	7.1%
Turkey*	2.7%	1.1%
Thailand*	2.5%	2.3%
Total-Top 10 Largest Countries	90.9%	85.8%

Sector Allocation (%) vs MSCI Emerging Markets



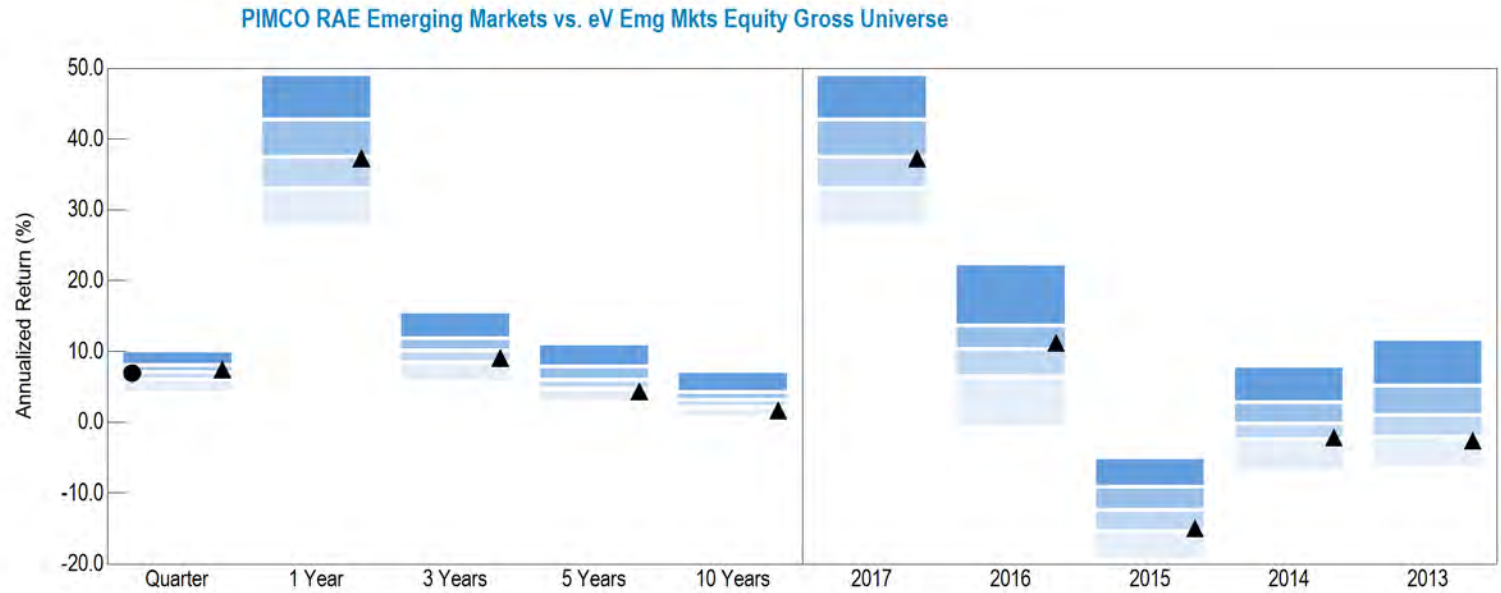
Top Contributors

	End Weight	Return	Contribution
KUMBA IRON ORE	0.60	87.61	0.52
CHINA CON.BANK 'H'	3.88	11.02	0.43
LG ELECTRONICS	1.01	37.63	0.38
VALE ON	1.74	21.73	0.38
RELIANCE COMMUNICATIONS	0.30	92.68	0.28
JINDAL STEEL & POWER	0.45	55.84	0.25
SAMSUNG ELECTRONICS	3.89	6.32	0.25
CHINA NATIONAL BUILDING MATERIAL 'H'	0.84	29.10	0.24
TURK HAVA YOLLARI	0.36	68.18	0.24
JAIPRAKASH ASSOCIATES	0.50	48.23	0.24

Bottom Contributors

	End Weight	Return	Contribution
BANCO DO BRASIL ON	1.03	-12.23	-0.13
CIA.ENGT.DE	0.42	-16.36	-0.07
MINASGR.ADR 1:1			
SURGUTNEFTEGAZ ADR.(LON) 1:10	0.93	-6.82	-0.06
HON HAI PRECN.IND.	0.62	-7.61	-0.05
INNOLUX	0.41	-10.70	-0.04
ITAU UNIBANCO BANCO HLDG.ADR 1:1	0.92	-4.66	-0.04
TURKIYE HALK BANKASI	0.23	-16.58	-0.04
WOORI BANK	0.67	-5.60	-0.04
KAISA GROUP HOLDINGS	0.15	-24.16	-0.04
BNC.BRADESCO PF.SPN.ADR 1:1	0.72	-5.04	-0.04

Unclassified sector allocation includes cash allocations.



	Return (Rank)																
5th Percentile	10.1	49.2	15.6	11.1	7.2	49.2	22.4	-5.0	8.0	11.7							
25th Percentile	8.1	42.8	11.9	7.9	4.3	42.8	13.7	-9.0	2.9	5.2							
Median	7.1	37.6	10.2	6.0	3.2	37.6	10.4	-12.2	-0.1	1.0							
75th Percentile	6.1	33.2	8.6	4.8	2.2	33.2	6.6	-15.3	-2.4	-2.0							
95th Percentile	4.2	27.8	5.7	2.8	0.9	27.8	-0.6	-19.2	-7.0	-6.3							
# of Portfolios	345	343	322	270	133	343	337	273	251	198							
● PIMCO RAE Emerging Markets	6.9 (58)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)							
▲ MSCI Emerging Markets	7.4 (41)	37.3 (53)	9.1 (70)	4.3 (83)	1.7 (86)	37.3 (53)	11.2 (45)	-14.9 (70)	-2.2 (74)	-2.6 (80)							

TT Emerging Markets Manager Portfolio Overview

Period Ending: December 31, 2017

The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded in the Emerging Markets.

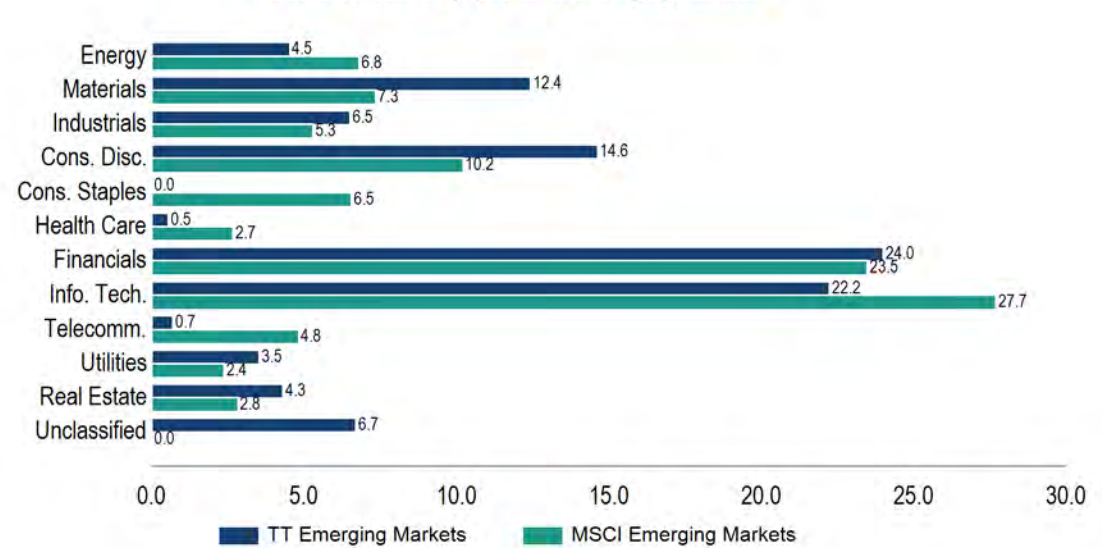
Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	61	846
Weighted Avg. Market Cap. (\$B)	68.72	89.77
Median Market Cap. (\$B)	5.12	5.96
Price To Earnings	19.42	22.05
Price To Book	3.67	3.28
Price To Sales	3.57	2.74
Return on Equity (%)	16.82	18.13
Yield (%)	1.95	2.13
Beta		1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	19.1%	0.0%
Emerging*	75.0%	100.0%
Frontier**	2.0%	0.0%
Top 10 Largest Countries		
Korea*	16.6%	15.5%
China*	16.3%	29.8%
Brazil*	9.2%	6.9%
South Africa*	8.7%	7.1%
Taiwan*	8.7%	11.2%
India*	8.3%	8.7%
United Kingdom	5.3%	0.0%
Hong Kong	4.0%	0.0%
United States	4.0%	0.0%
Cash	3.9%	0.0%
Total-Top 10 Largest Countries	85.0%	79.1%

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

	End Weight	Return	Contribution
NASPERS	6.83	28.90	1.97
SUMCO	1.27	63.94	0.81
NEDBANK GROUP	1.90	37.83	0.72
BAIC MOTOR 'H'	1.76	37.27	0.66
CHINA PACIFIC INSURANCE (GROUP) 'H'	4.62	11.50	0.53
ARVIND	1.98	24.59	0.49
XINYI GLASS HOLDINGS	1.52	31.75	0.48
CHINA CON.BANK 'H'	4.03	11.02	0.44
NETEASE ADR 1:25	1.31	31.09	0.41
CHOLAMANDALAM INV.& FIN.	1.41	21.76	0.31

Bottom Contributors

	End Weight	Return	Contribution
APPLIED OPTOELECTRONICS	0.73	-41.52	-0.30
ELITE MATERIAL	0.91	-28.17	-0.26
MEGAFON	0.69	-21.83	-0.15
CAMIL ALIMENTOS	0.88	-15.30	-0.13
BIOTOSCANA INVESTMENTS BDR	0.54	-18.83	-0.10
SINA	0.70	-12.51	-0.09
CHIN.COMMS.CNUT.GP. 'H'	0.92	-9.00	-0.08
BNC.DEL BAJIO IDBC. MTPL.	1.06	-5.27	-0.06
TONGDA GROUP HOLDINGS	0.87	-4.39	-0.04
MONDI	1.29	-2.89	-0.04

Unclassified sector allocation includes cash allocations.

Global Equity Managers

Artisan Partners Manager Portfolio Overview

Period Ending: December 31, 2017

Global equity portfolio of companies that is benchmark agnostic with accelerating profit cycles and a focus on capital allocation. Primary personnel include James Hamel, Craigh Cepukenas, and Matthew Kamm.

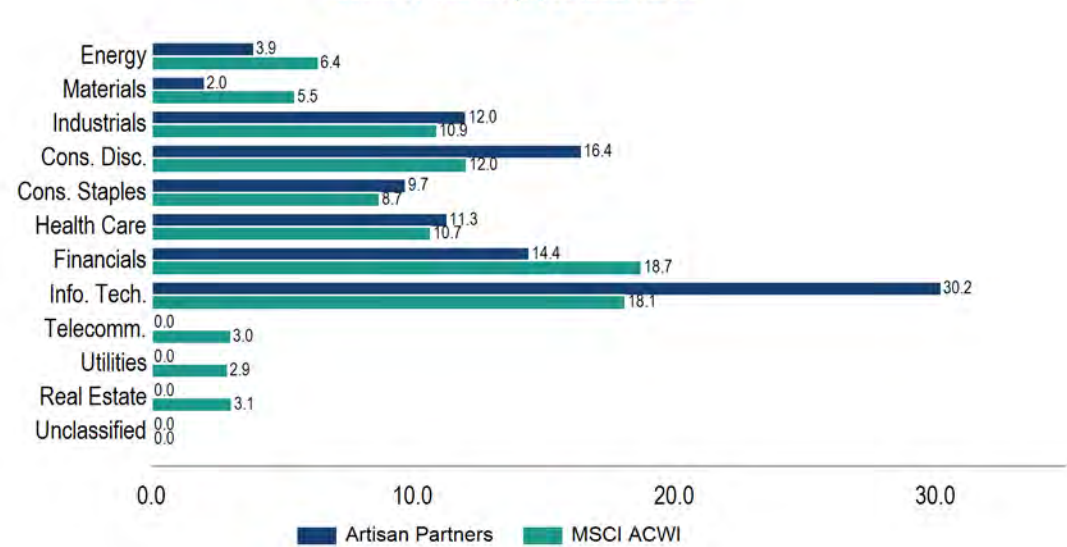
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	47	2,499
Weighted Avg. Market Cap. (\$B)	87.52	121.48
Median Market Cap. (\$B)	34.04	10.65
Price To Earnings	35.13	22.84
Price To Book	6.42	3.82
Price To Sales	6.15	2.95
Return on Equity (%)	18.36	16.68
Yield (%)	0.94	2.25
Beta	1.16	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	93.4%	88.2%
Emerging*	6.6%	11.8%
Top 10 Largest Countries		
United States	47.6%	52.4%
Japan	9.7%	7.9%
Hong Kong	6.8%	1.2%
Germany	5.3%	3.2%
Australia	5.0%	2.3%
Netherlands	4.9%	1.2%
United Kingdom	4.9%	5.8%
Denmark	2.7%	0.6%
Switzerland	2.6%	2.6%
France	2.6%	3.5%
Total-Top 10 Largest Countries	92.0%	80.6%

Sector Allocation (%) vs MSCI ACWI



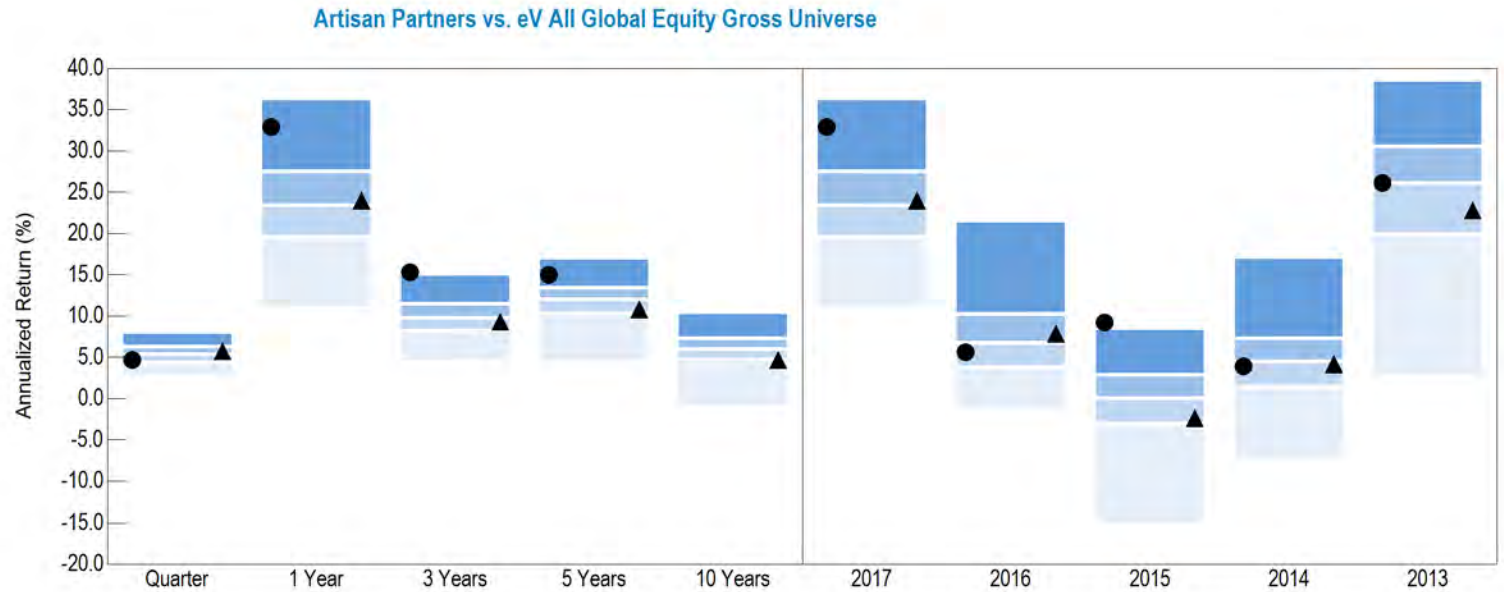
Top Contributors

	Avg Wgt	Return	Contribution
SHISEIDO	2.50	21.15	0.53
TREASURY WINE ESTATES	3.14	16.21	0.51
VISA 'A'	5.77	8.53	0.49
BANK OF AMERICA	2.87	16.99	0.49
JAMES HARDIE INDS.CDI.	1.68	28.01	0.47
TENCENT HOLDINGS	2.05	20.66	0.42
TEMENOS GROUP	1.53	25.62	0.39
LKQ	2.89	13.00	0.38
ANTHEM	1.89	18.87	0.36
PIONEER NTRL.RES.	1.96	17.15	0.34

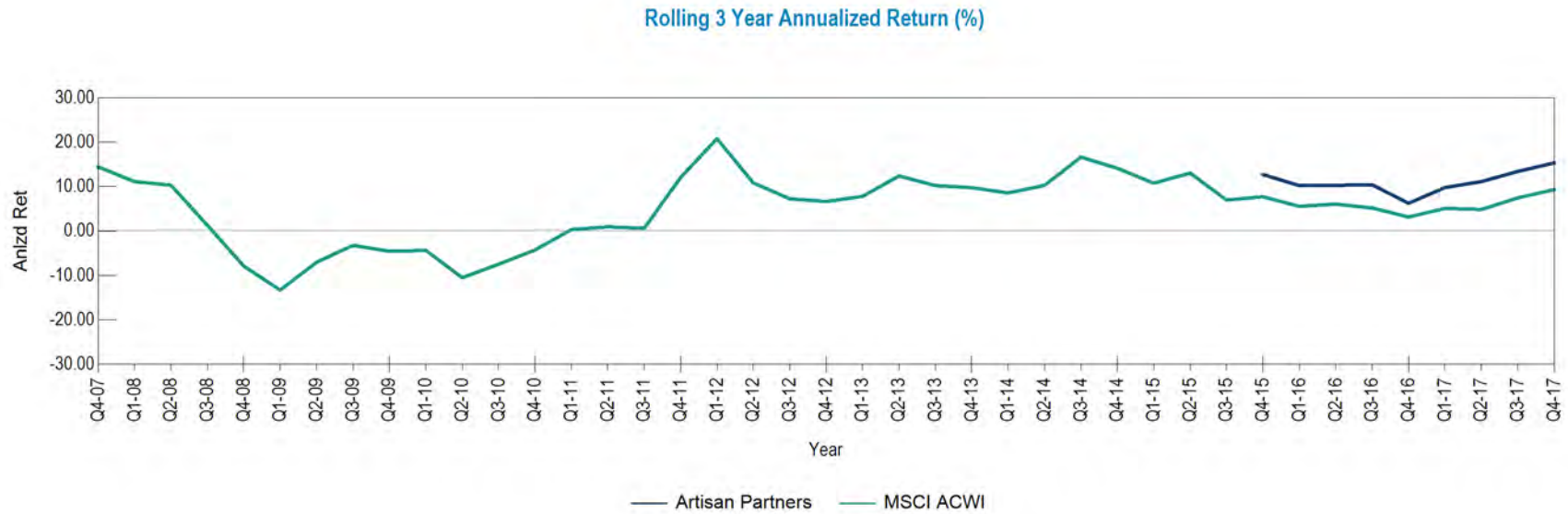
Bottom Contributors

	Avg Wgt	Return	Contribution
GENMAB	3.35	-24.84	-0.83
BOSTON SCIENTIFIC	4.02	-15.02	-0.60
REGENERON PHARMS.	2.47	-15.92	-0.39
ADIDAS	1.35	-11.21	-0.15
AUTO TRADER GROUP	1.41	-9.37	-0.13
PRICELINE GROUP	1.97	-5.08	-0.10
EUROFINS SCIENTIFIC	1.38	-3.56	-0.05
NINTENDO	2.46	-0.97	-0.02
SANDS CHINA	1.86	-0.82	-0.02
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	1.03	-0.93	-0.01

Unclassified sector allocation includes cash allocations.

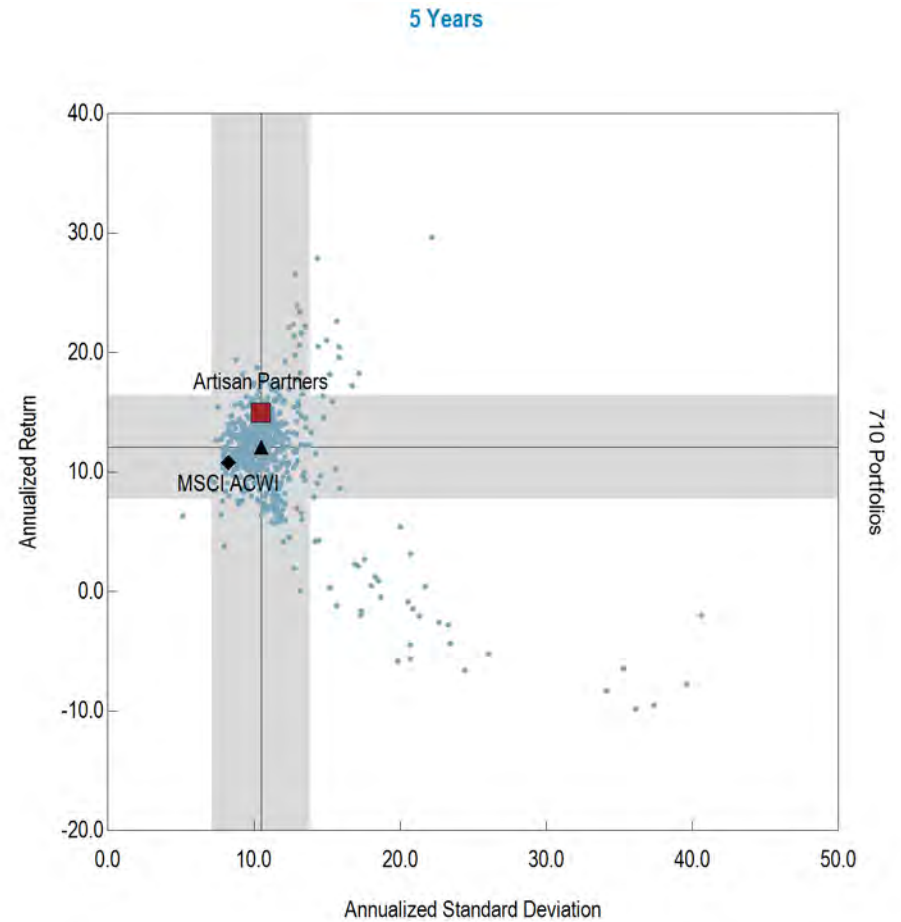
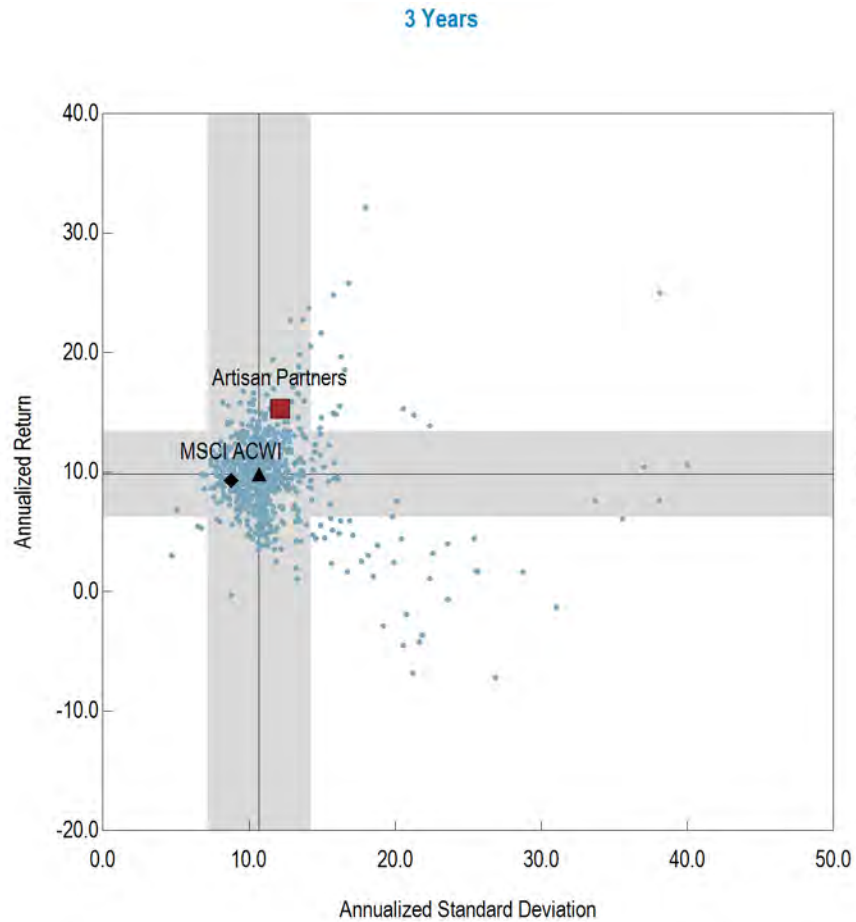


	Return (Rank)									
5th Percentile	8.0	36.3	15.1	17.0	10.5	36.3	21.5	8.5	17.1	38.6
25th Percentile	6.3	27.6	11.6	13.5	7.3	27.6	10.3	3.0	7.4	30.6
Median	5.4	23.5	9.8	12.1	6.0	23.5	6.8	0.1	4.6	26.2
75th Percentile	4.4	19.6	8.3	10.4	4.8	19.6	3.9	-2.9	1.5	20.0
95th Percentile	2.7	11.0	4.4	4.4	-1.0	11.0	-1.4	-15.1	-7.4	2.7
# of Portfolios	881	880	815	710	422	880	842	692	609	552
● Artisan Partners	4.7 (71)	32.9 (11)	15.3 (5)	15.0 (12)	-- (--)	32.9 (11)	5.6 (61)	9.2 (4)	3.9 (56)	26.1 (51)
▲ MSCI ACWI	5.7 (41)	24.0 (47)	9.3 (62)	10.8 (71)	-4.7 (78)	24.0 (47)	7.9 (42)	-2.4 (73)	4.2 (54)	22.8 (66)



Artisan Partners
Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: December 31, 2017



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	15.3%	12.1%	1.2
MSCI ACWI	9.3%	8.8%	1.0
eV All Global Equity Gross Median	9.8%	10.7%	0.9

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	15.0%	10.5%	1.4
MSCI ACWI	10.8%	8.2%	1.3
eV All Global Equity Gross Median	12.1%	10.5%	1.2

First Eagle Manager Portfolio Overview

Period Ending: December 31, 2017

Global equity portfolio that is benchmark agnostic comprised of companies with low valuations. Primary personnel include Matt McLennan and Kimball Brooker.

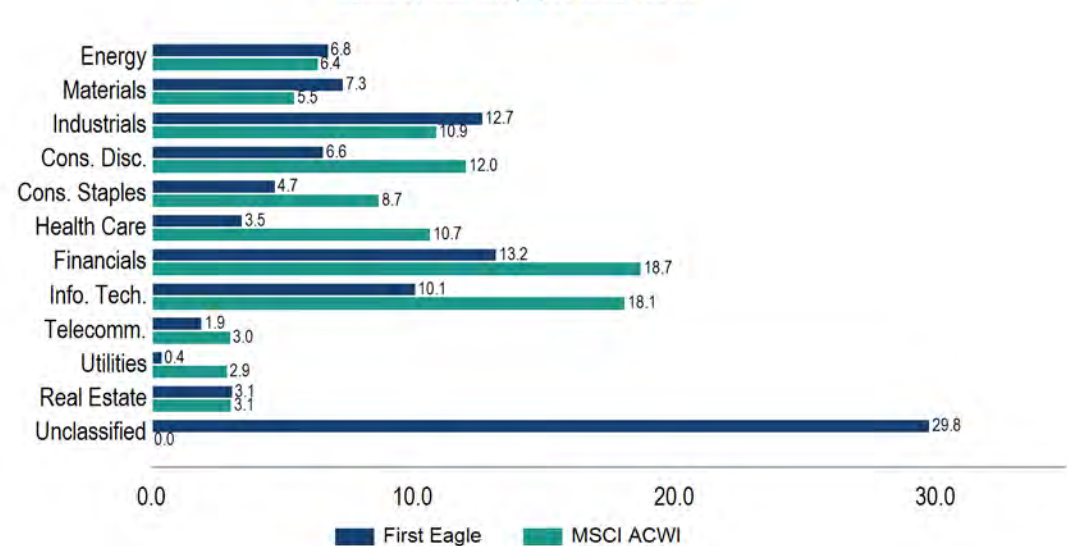
Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	169	2,499
Weighted Avg. Market Cap. (\$B)	79.14	121.48
Median Market Cap. (\$B)	19.27	10.65
Price To Earnings	27.61	22.84
Price To Book	3.70	3.82
Price To Sales	3.37	2.95
Return on Equity (%)	16.62	16.68
Yield (%)	2.02	2.25
Beta	0.68	1.00

Country Allocation

	Manager Ending Allocation (USD)	Index Ending Allocation (USD)
Totals		
Developed	78.0%	88.2%
Emerging*	3.4%	11.8%
Cash	18.7%	
Top 10 Largest Countries		
United States	45.7%	52.4%
Cash	18.7%	0.0%
Japan	11.6%	7.9%
France	5.7%	3.5%
Canada	3.9%	3.1%
United Kingdom	3.4%	5.8%
Germany	1.5%	3.2%
Korea*	1.5%	1.8%
Switzerland	1.4%	2.6%
Belgium	1.0%	0.4%
Total-Top 10 Largest Countries	94.4%	80.7%

Sector Allocation (%) vs MSCI ACWI



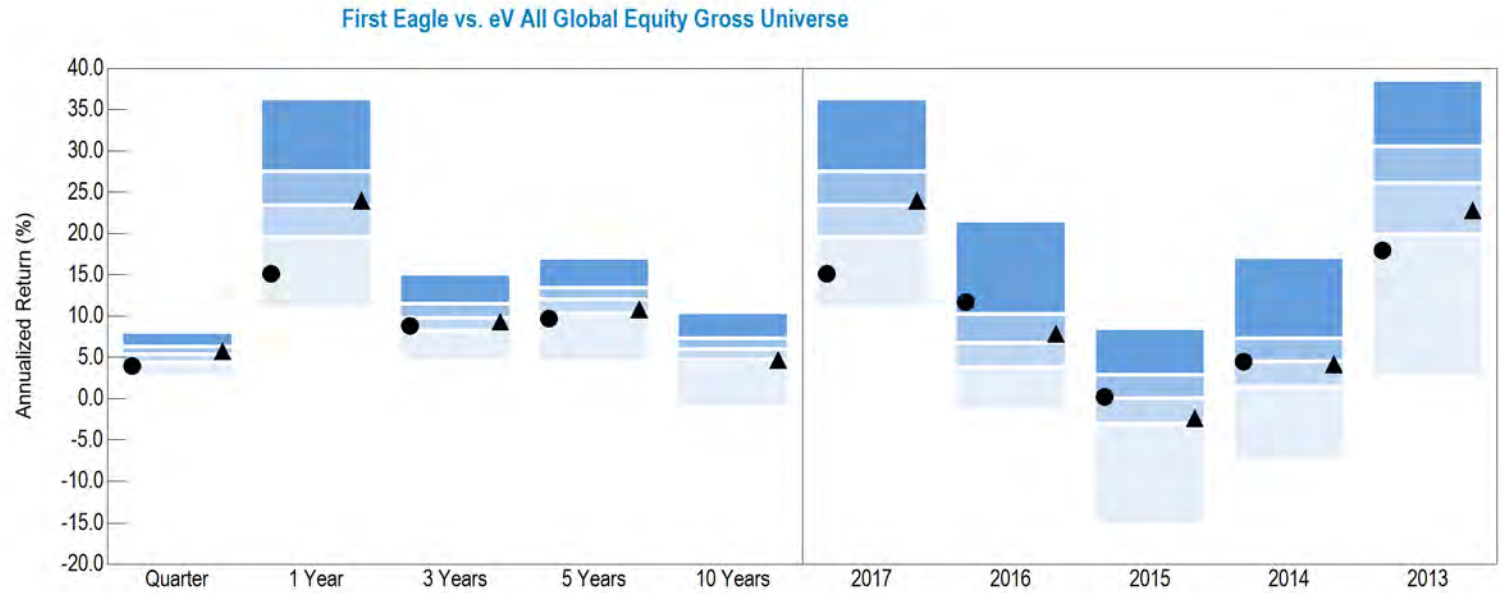
Top Contributors

	Avg Wgt	Return	Contribution
FANUC	1.86	18.65	0.35
MICROSOFT	2.15	15.42	0.33
DEERE	0.73	25.09	0.18
SYNCHRONY FINANCIAL	0.67	24.91	0.17
3M	1.20	12.70	0.15
AMERICAN EXPRESS	1.41	10.20	0.14
UNION PACIFIC	0.86	16.26	0.14
ANTHEM	0.72	18.87	0.14
SMC	0.73	16.77	0.12
KT & G	0.63	17.13	0.11

Bottom Contributors

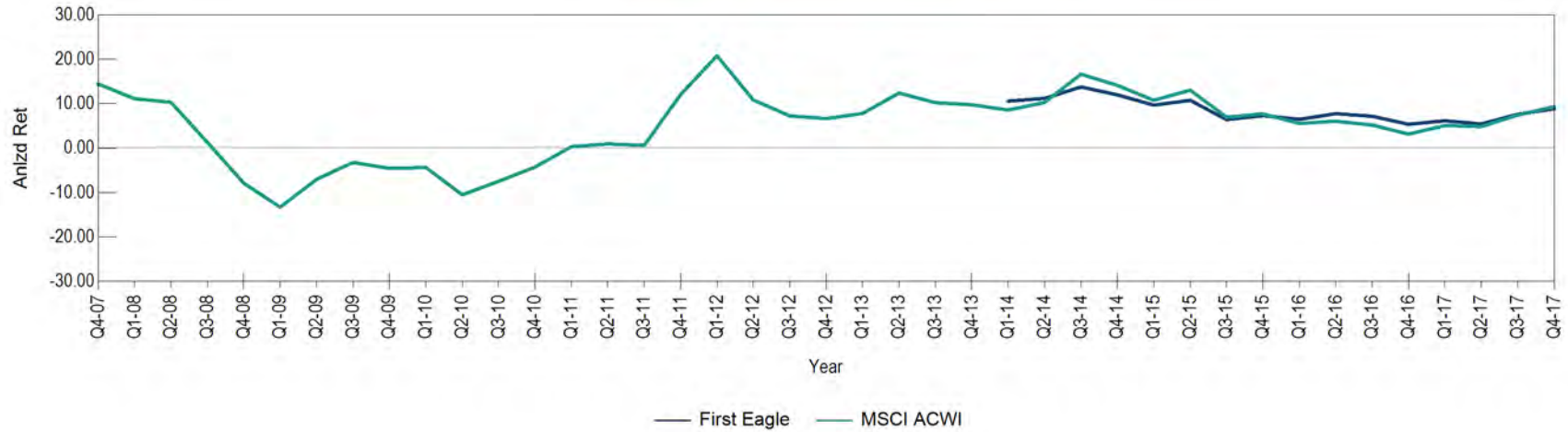
	Avg Wgt	Return	Contribution
GRUPO TELEVISIA SPN.ADR	0.45	-24.32	-0.11
1:5			
SANOFI	0.70	-13.13	-0.09
KDDI	1.52	-5.55	-0.08
HOYA	0.75	-7.43	-0.06
BARRICK GOLD (NYS)	0.54	-9.88	-0.05
SAINT GOBAIN	0.70	-7.37	-0.05
ORACLE	2.33	-1.83	-0.04
VISTA OUTDOOR	0.11	-36.49	-0.04
GLAXOSMITHKLINE	0.37	-9.15	-0.03
SCHLUMBERGER	1.27	-2.64	-0.03

Unclassified sector allocation includes cash allocations and Gold allocations (7% as of 12/31/2017).

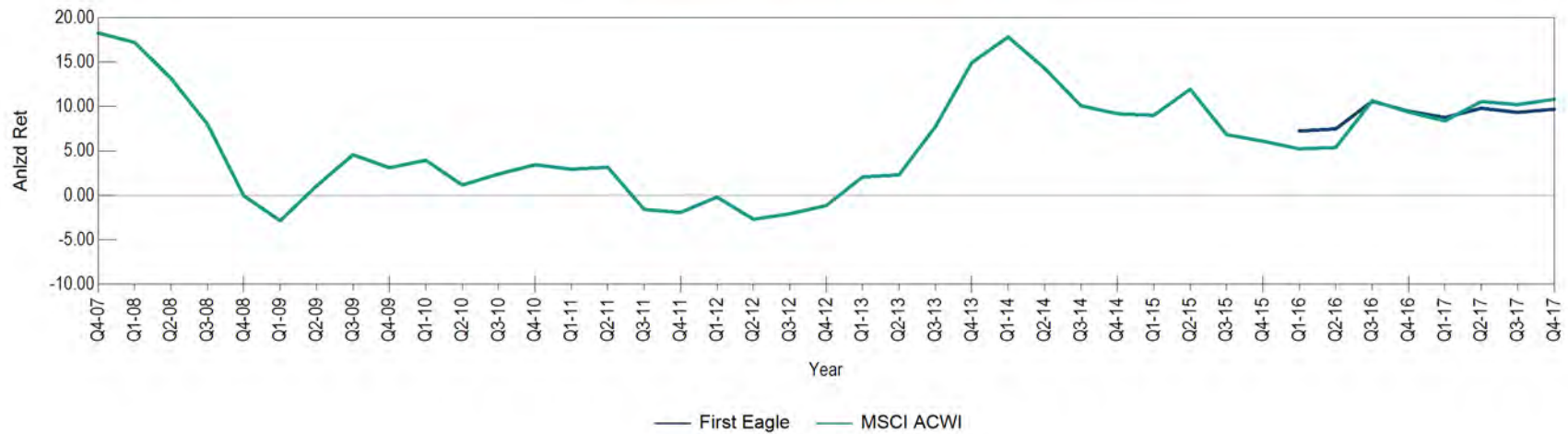


	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	8.0	36.3	15.1	17.0	10.5	36.3	21.5	8.5	17.1	38.6
25th Percentile	6.3	27.6	11.6	13.5	7.3	27.6	10.3	3.0	7.4	30.6
Median	5.4	23.5	9.8	12.1	6.0	23.5	6.8	0.1	4.6	26.2
75th Percentile	4.4	19.6	8.3	10.4	4.8	19.6	3.9	-2.9	1.5	20.0
95th Percentile	2.7	11.0	4.4	4.4	-1.0	11.0	-1.4	-15.1	-7.4	2.7
# of Portfolios	881	880	815	710	422	880	842	692	609	552
● First Eagle	4.0 (84)	15.1 (89)	8.8 (70)	9.7 (80)	-- (--)	15.1 (89)	11.7 (19)	0.2 (49)	4.5 (51)	17.9 (80)
▲ MSCI ACWI	5.7 (41)	24.0 (47)	9.3 (62)	10.8 (71)	4.7 (78)	24.0 (47)	7.9 (42)	-2.4 (73)	4.2 (54)	22.8 (66)

Rolling 3 Year Annualized Return (%)



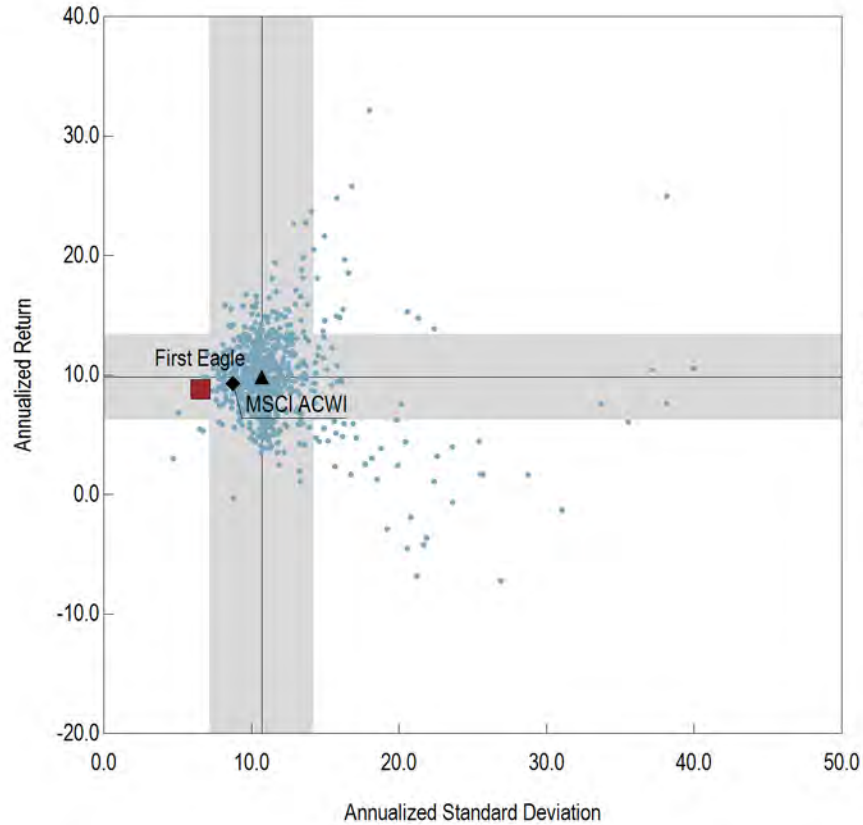
Rolling 5 Year Annualized Return (%)



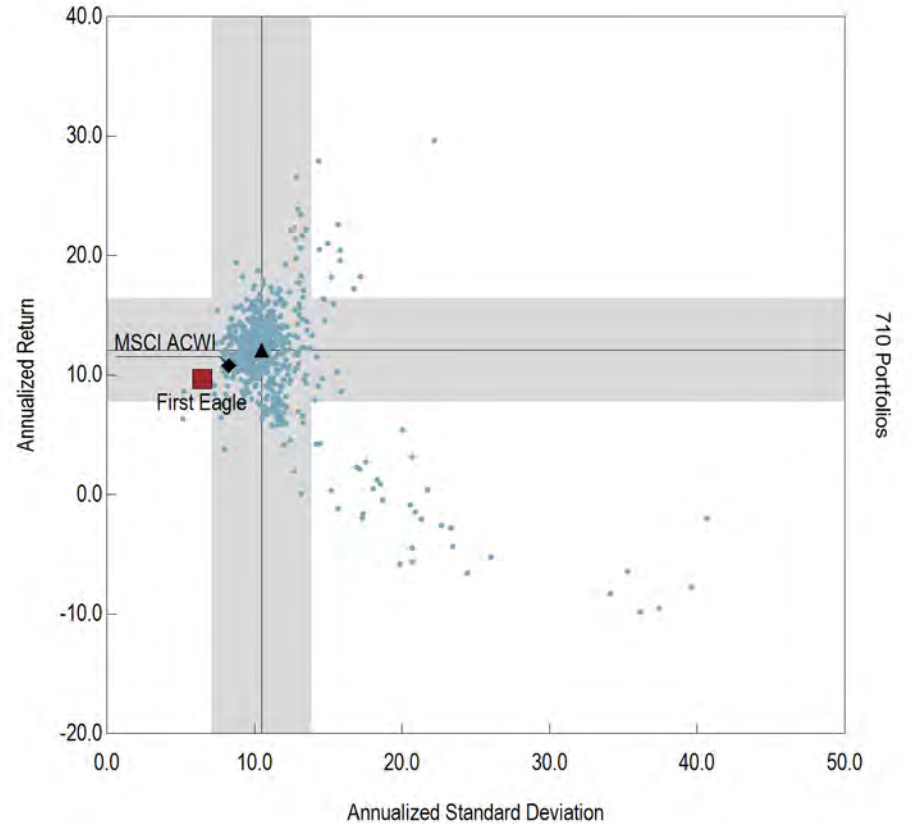
First Eagle
Risk vs. Return 3 & 5 Year (Gross of Fees)

Period Ending: December 31, 2017

3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	8.8%	6.5%	1.3
MSCI ACWI	9.3%	8.8%	1.0
eV All Global Equity Gross Median	9.8%	10.7%	0.9

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	9.7%	6.5%	1.5
MSCI ACWI	10.8%	8.2%	1.3
eV All Global Equity Gross Median	12.1%	10.5%	1.2

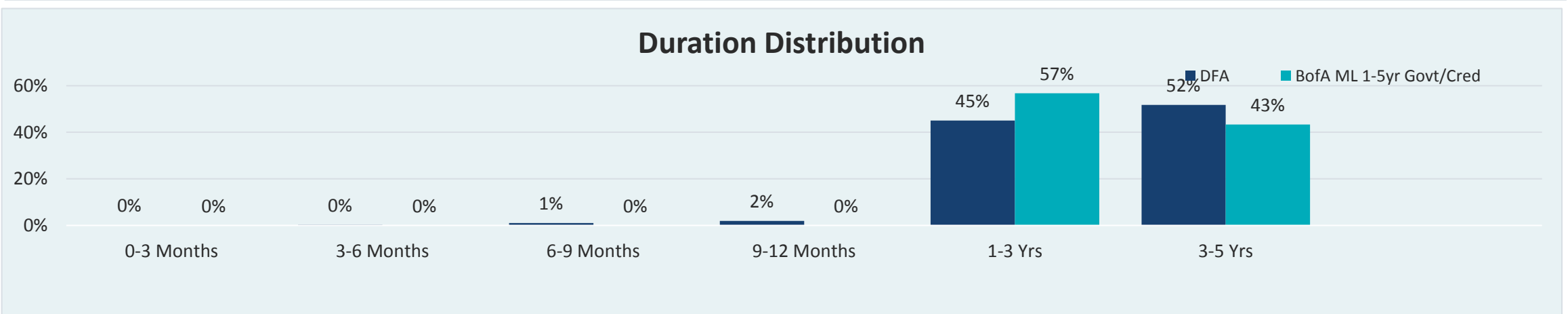
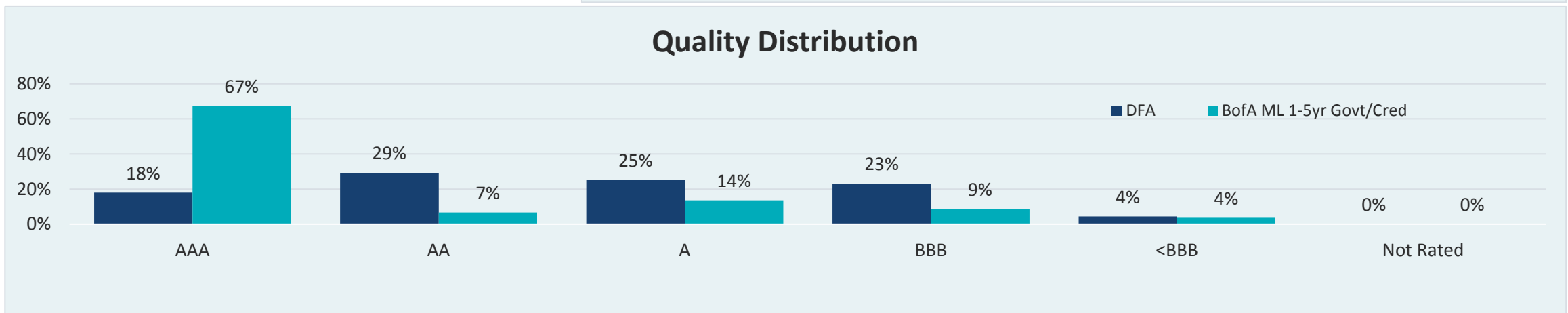
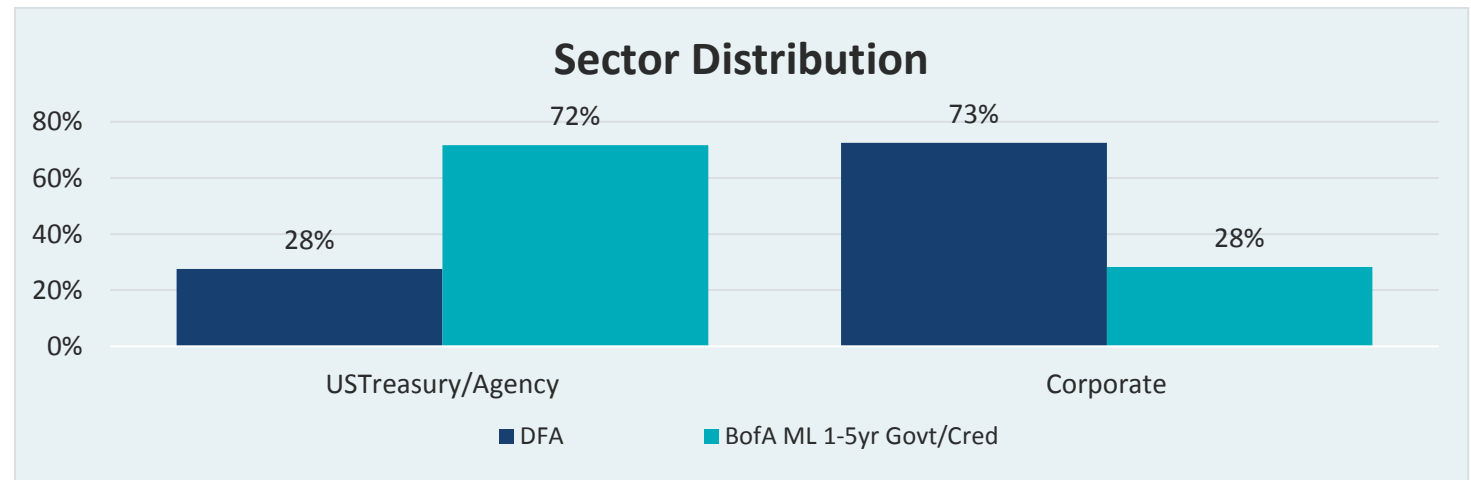
Domestic Fixed Income Managers

DFA Short Credit Manager Portfolio Overview

Period Ending: December 31, 2017

Domestic short term US credit fixed income portfolio that maximizes total return through income and capital appreciation. Primary personnel include Dave Plecha and Joseph Kolerich.

	DFA	BofA ML 1-5yr Gov/Credit
Effective Duration	2.81	2.66
Yield to Maturity	2.46	2.19
Average Quality	A+	Aa1
Average Coupon	2.77%	2.45%

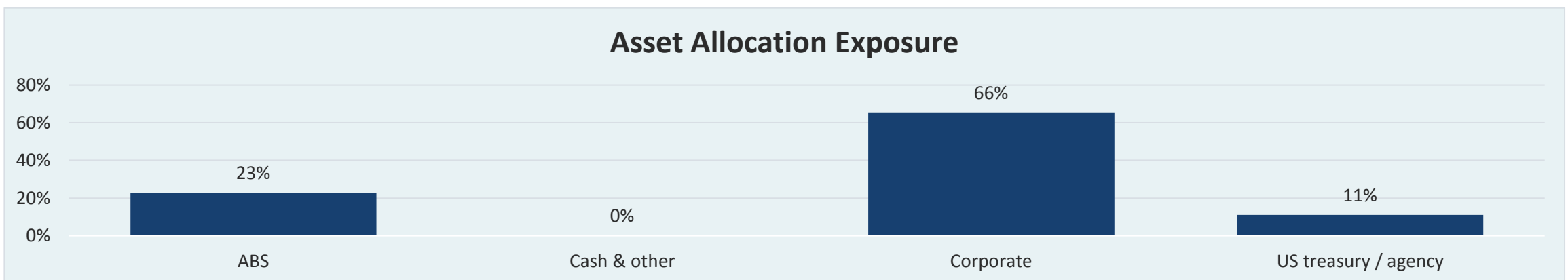
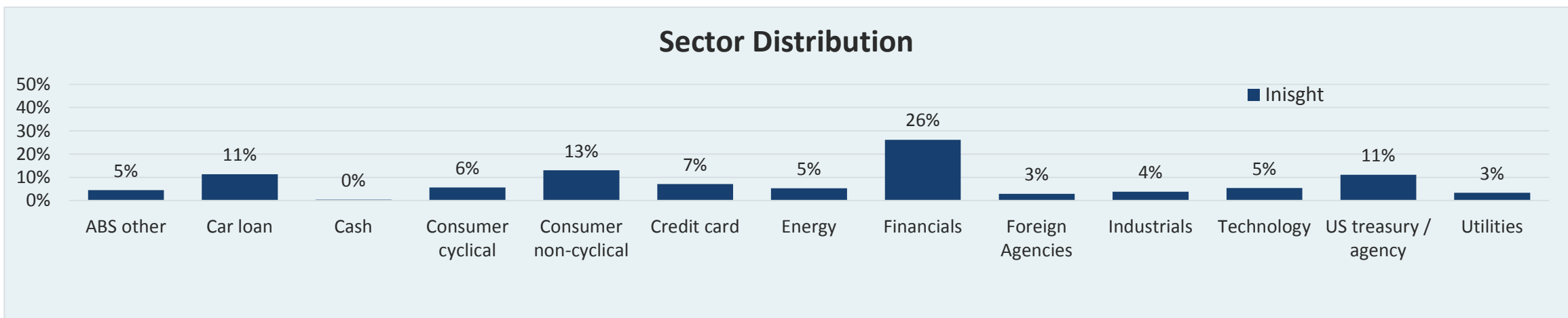
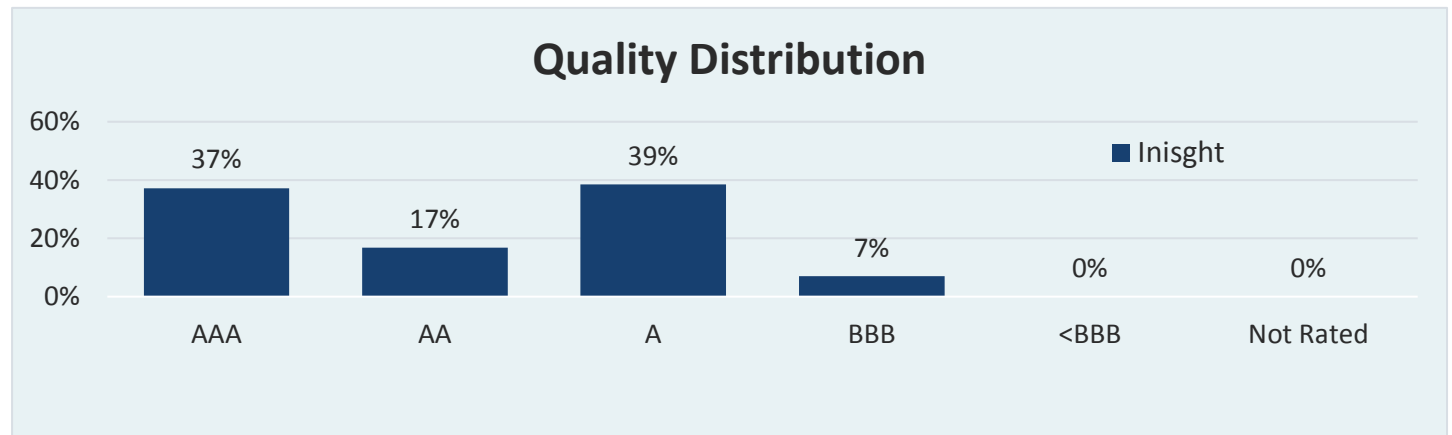


Insight Short Duration Manager Portfolio Overview

Period Ending: December 31, 2017

High quality, short duration multi-sector fixed income portfolio comprised of Treasuries, Agencies, investment grade corporates, and ABS designed specifically to meet CCCERA's liabilities. Key personnel include Gerard Berrigan and Jesse Fogarty.

	Inisight	BBgBarc 1-3yr Govt
Effective Duration	1.39	1.9
Yield to Maturity	2.11	1.9
Average Quality	AA-	AAA
Average Coupon	2.4%	1.3%

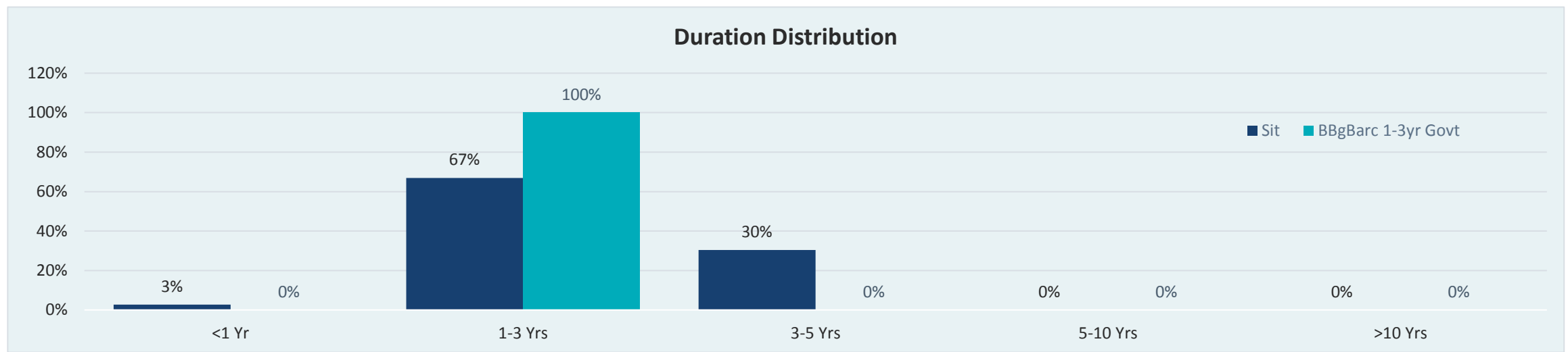
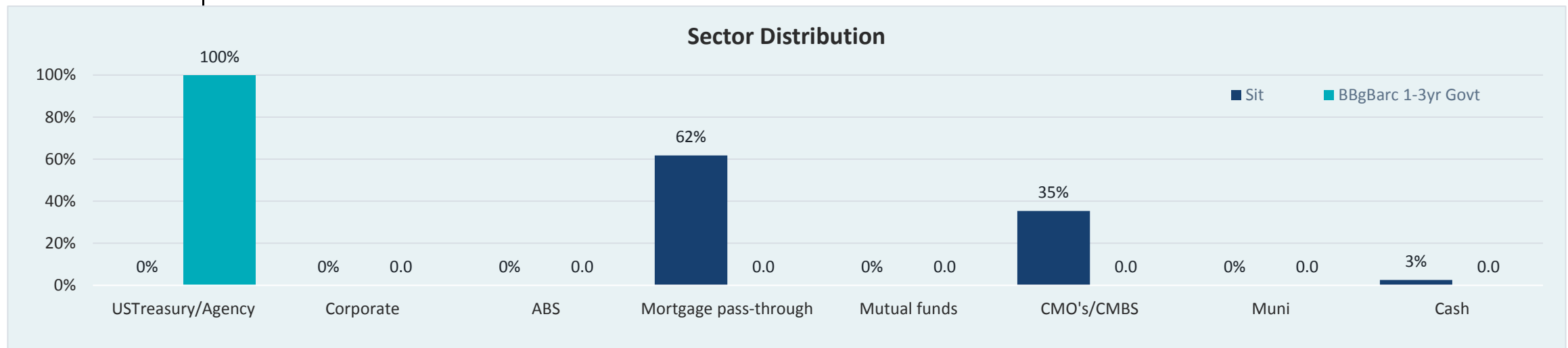
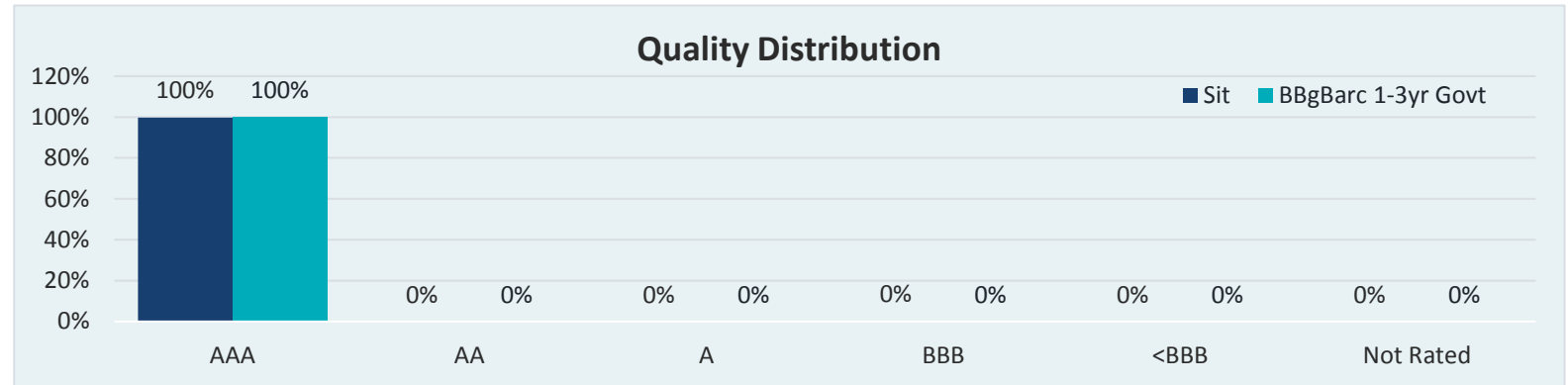


Sit Short Duration Manager Portfolio Overview

Period Ending: December 31, 2017

Short duration fixed income portfolio with a focus on earning high levels of interest income. Primary personnel include Bryce Doty, Paul Jungquist and Michael Brilley.

	Sit	BBgBarc 1-3yr Govt
Adjusted Duration	2.4	1.9
Yield to Maturity	5.34	1.9
Average Quality	AAA	AAA
Average Coupon	6.4%	1.7%



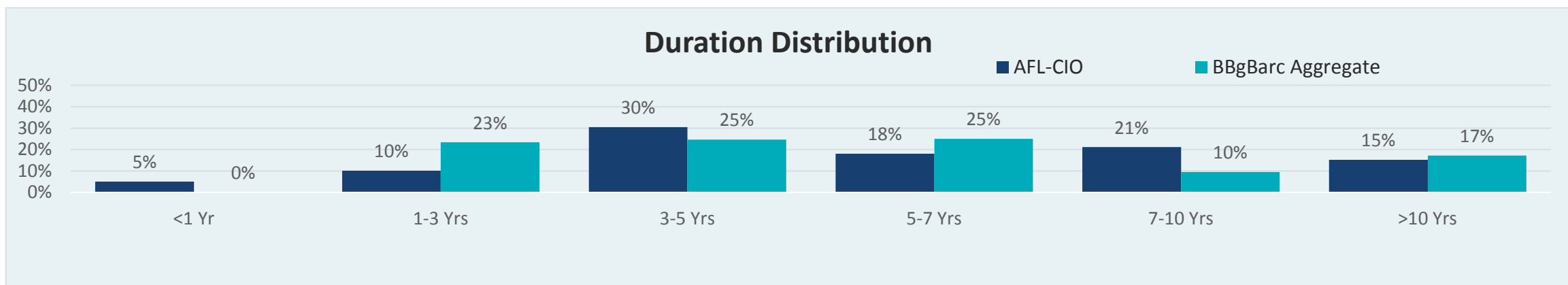
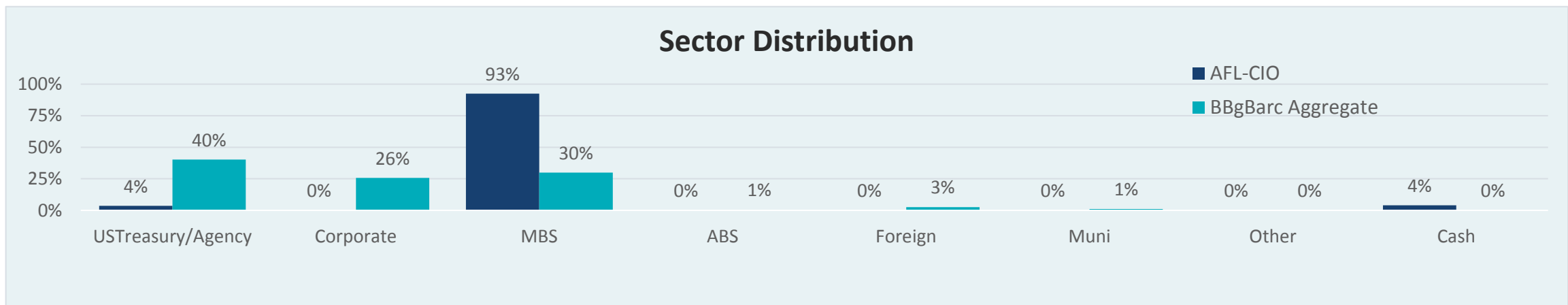
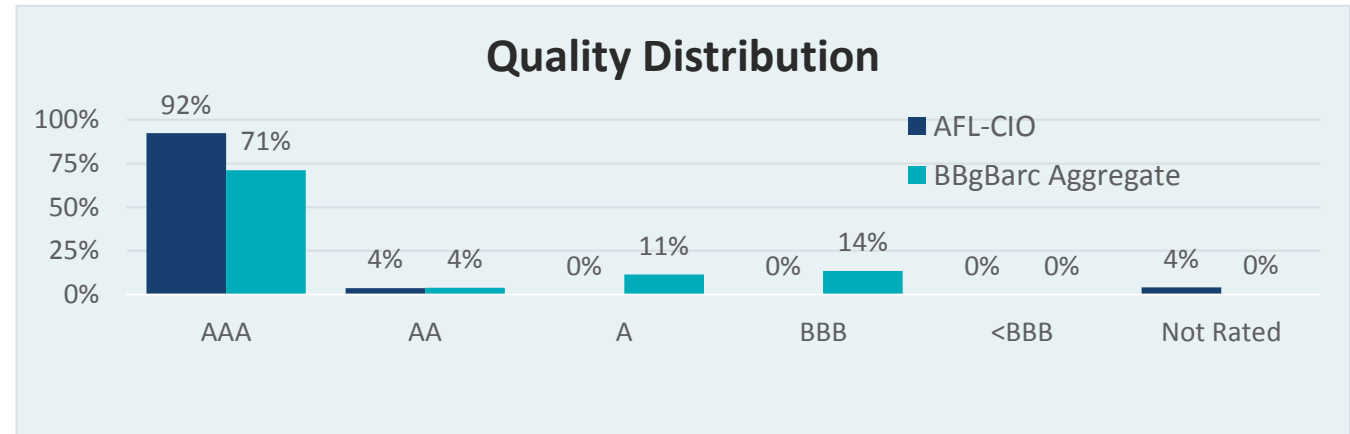
AFL-CIO

Manager Portfolio Overview

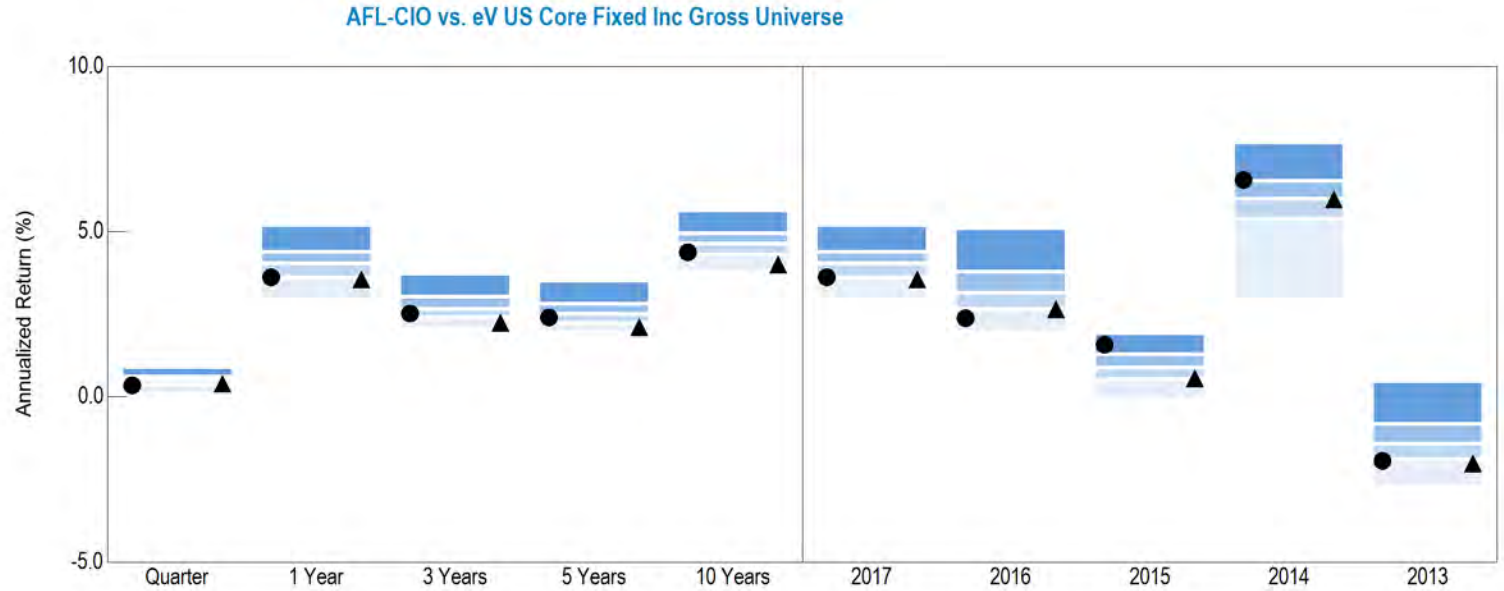
Period Ending: December 31, 2017

Domestic core fixed income portfolio with an exclusive focus on mortgage-related securities. Primary personnel include Stephen Coyle and Chang Su.

	AFL-CIO	BBgBarc Aggregate
Effective Duration	5.45	6.11
Yield to Maturity	3.20	2.68
Average Quality	AAA	AA
Average Coupon	3.13%	3.15%

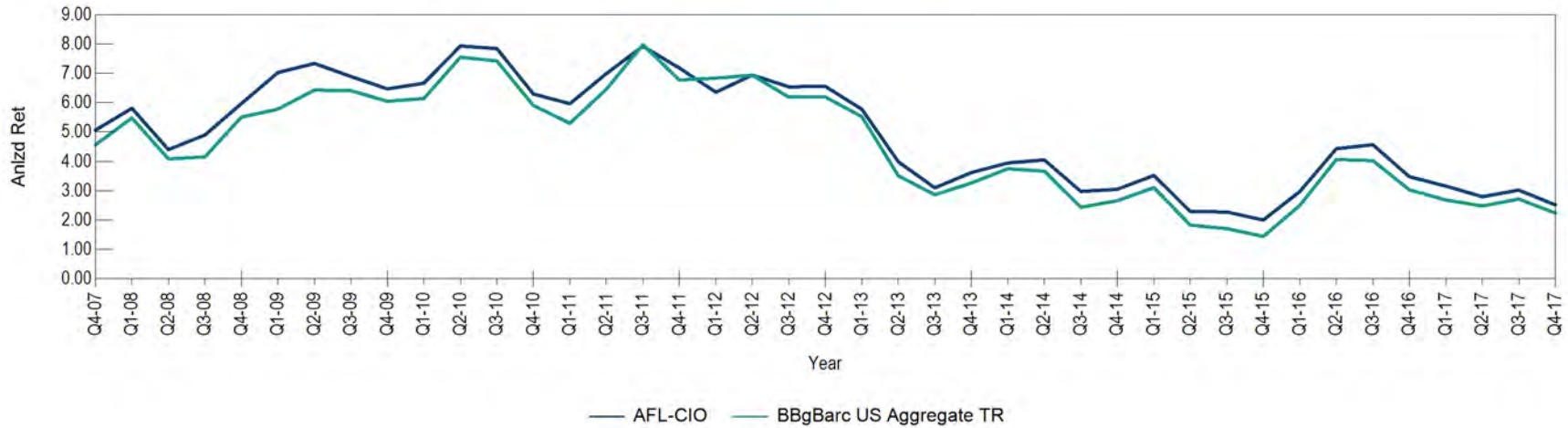


Duration and Quality distributions exclude cash.

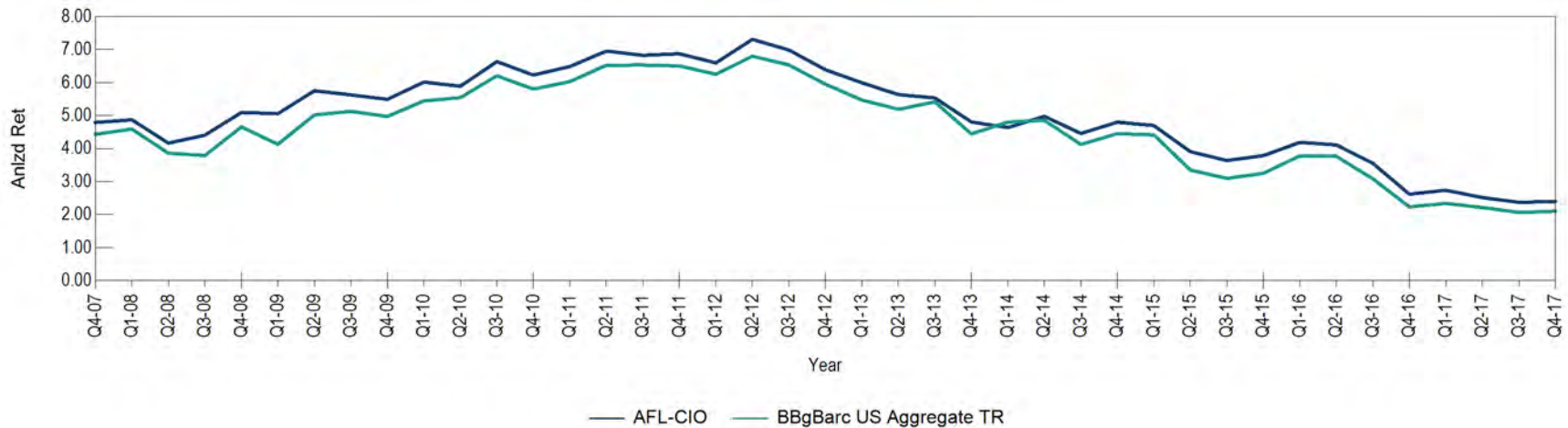


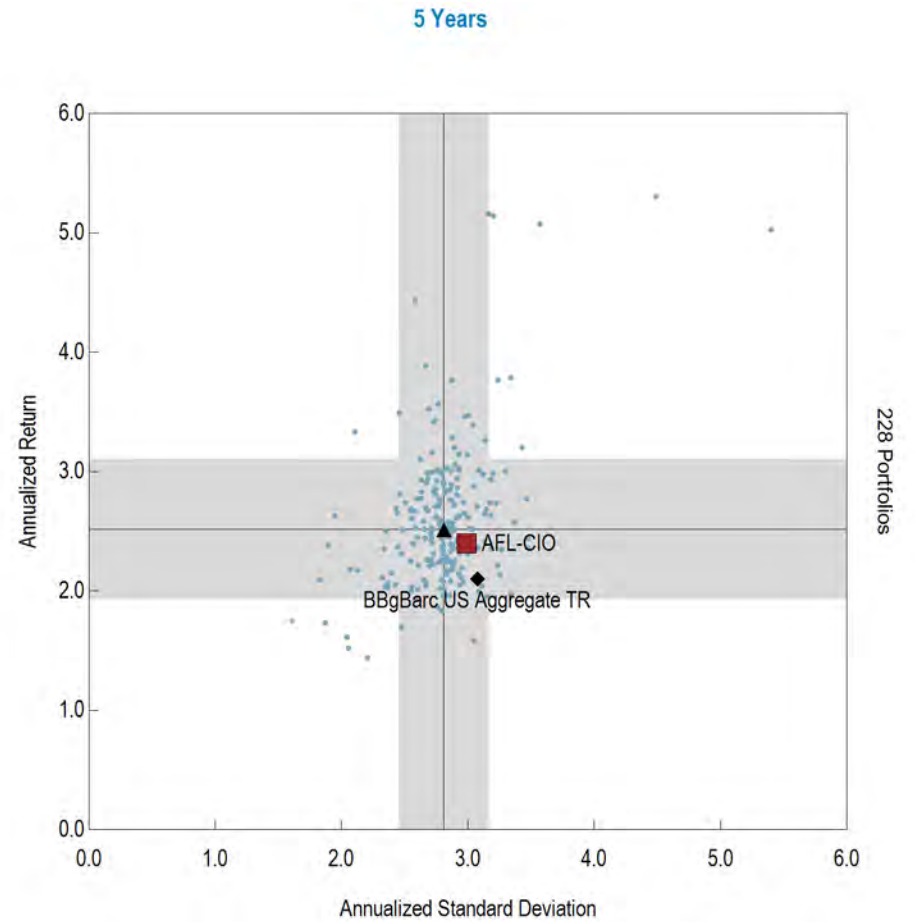
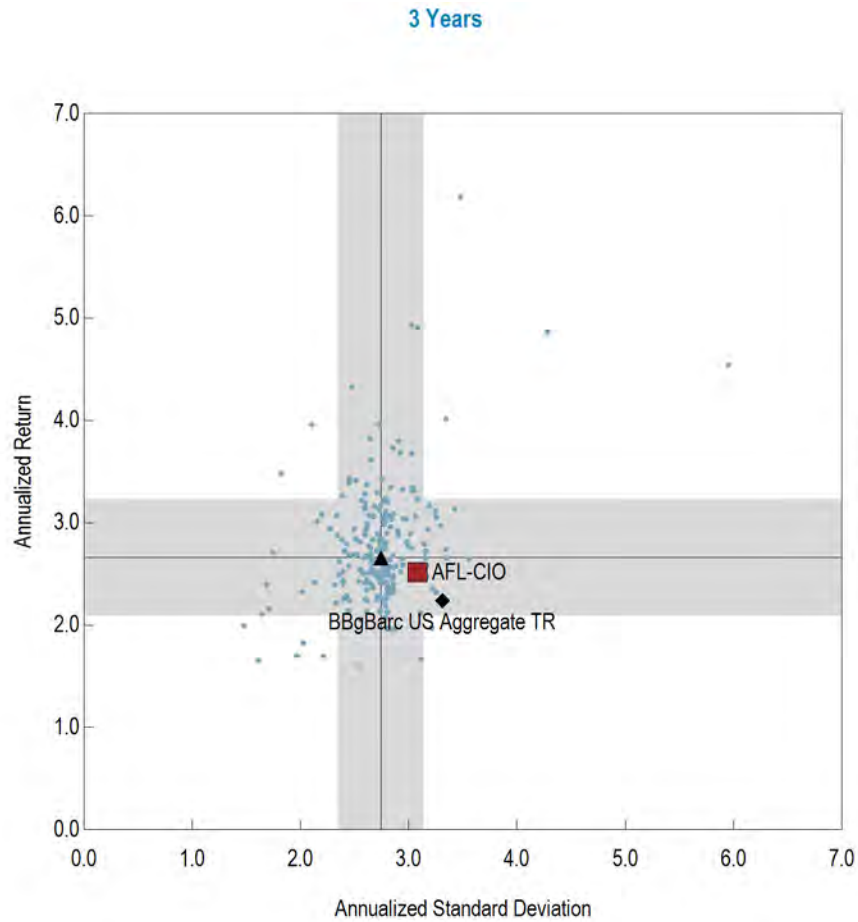
	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013
5th Percentile	0.9	5.2	3.7	3.5	5.6	5.2	5.1	1.9	7.7	0.5
25th Percentile	0.6	4.4	3.0	2.8	5.0	4.4	3.8	1.3	6.5	-0.8
Median	0.5	4.0	2.7	2.5	4.6	4.0	3.2	0.9	6.0	-1.4
75th Percentile	0.4	3.6	2.4	2.2	4.3	3.6	2.7	0.5	5.4	-1.9
95th Percentile	0.1	2.9	2.1	2.0	3.8	2.9	2.0	-0.1	2.9	-2.7
# of Portfolios	233	233	231	228	204	233	223	196	213	209
● AFL-CIO	0.3 (81)	3.6 (76)	2.5 (66)	2.4 (60)	4.4 (69)	3.6 (76)	2.4 (87)	1.6 (15)	6.6 (25)	-1.9 (78)
▲ BBgBarc US Aggregate TR	0.4 (76)	3.5 (79)	2.2 (90)	2.1 (85)	4.0 (92)	3.5 (79)	2.6 (77)	0.6 (75)	6.0 (52)	-2.0 (82)

Rolling 3 Year Annualized Return (%)



Rolling 5 Year Annualized Return (%)



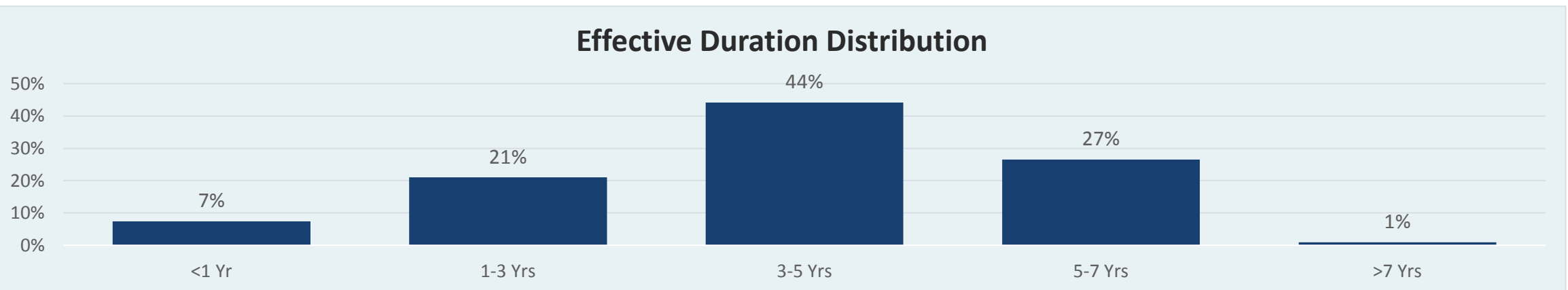
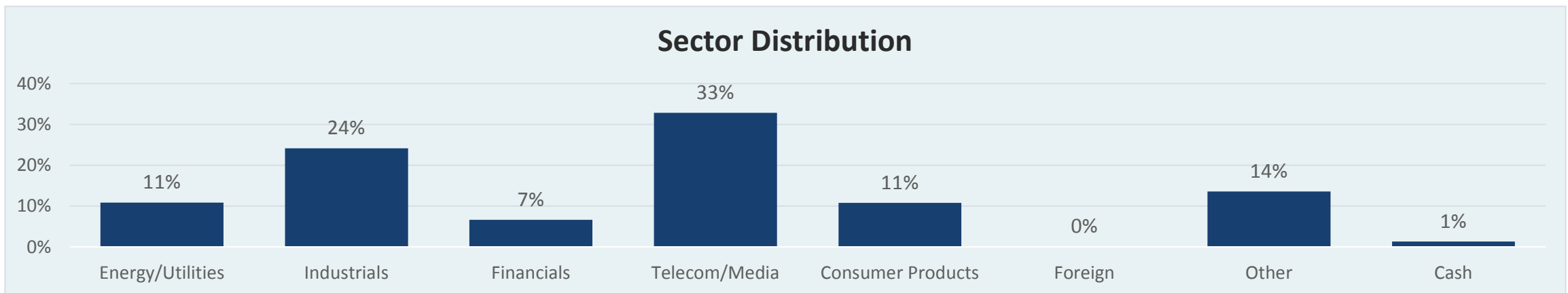
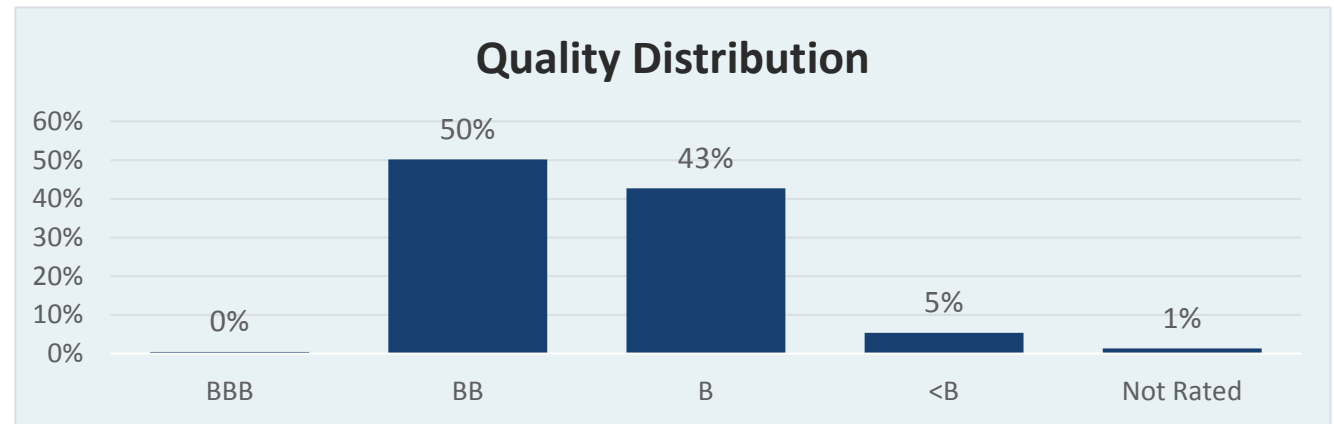


	3 Years			5 Years			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	
AFL-CIO	2.5%	3.1%	0.7	AFL-CIO	2.4%	3.0%	0.7
BBgBarc US Aggregate TR	2.2%	3.3%	0.5	BBgBarc US Aggregate TR	2.1%	3.1%	0.6
eV US Core Fixed Inc Gross Median	2.7%	2.7%	0.8	eV US Core Fixed Inc Gross Median	2.5%	2.8%	0.8

High Yield Managers

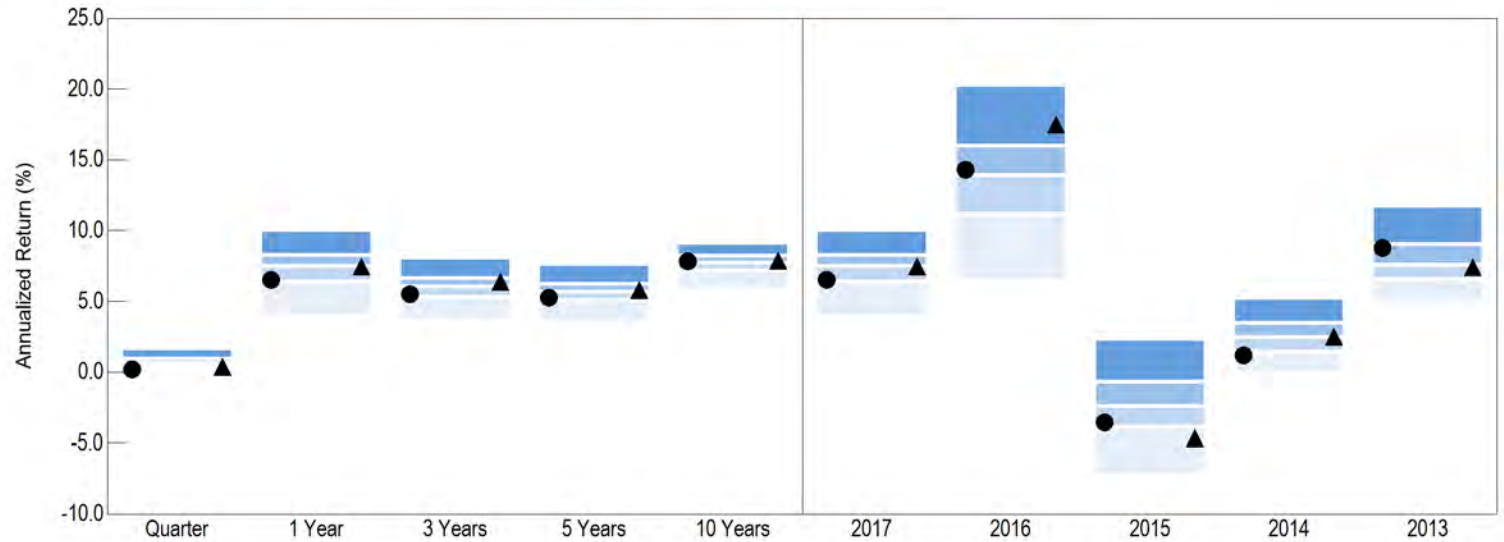
Domestic high yield fixed income portfolio with a focus on security selection. Primary personnel include Douglas Forsyth, Justin Kass, William Stickney, and Michael Yee.

	Allianz	BofA ML HY Master II
Effective Duration	3.9	4.0
Yield to Maturity	6.3	6.4
Average Quality	B1	B1
Average Coupon	6.4%	6.4%



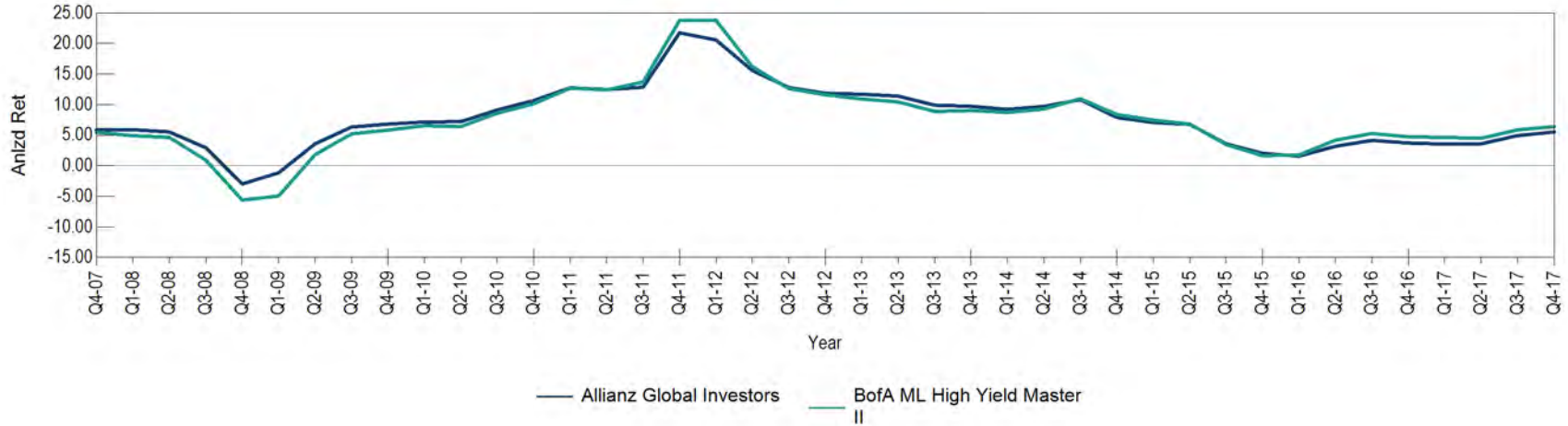
Quality distribution excludes cash.

Allianz Global Investors vs. eV US High Yield Fixed Inc Gross Universe

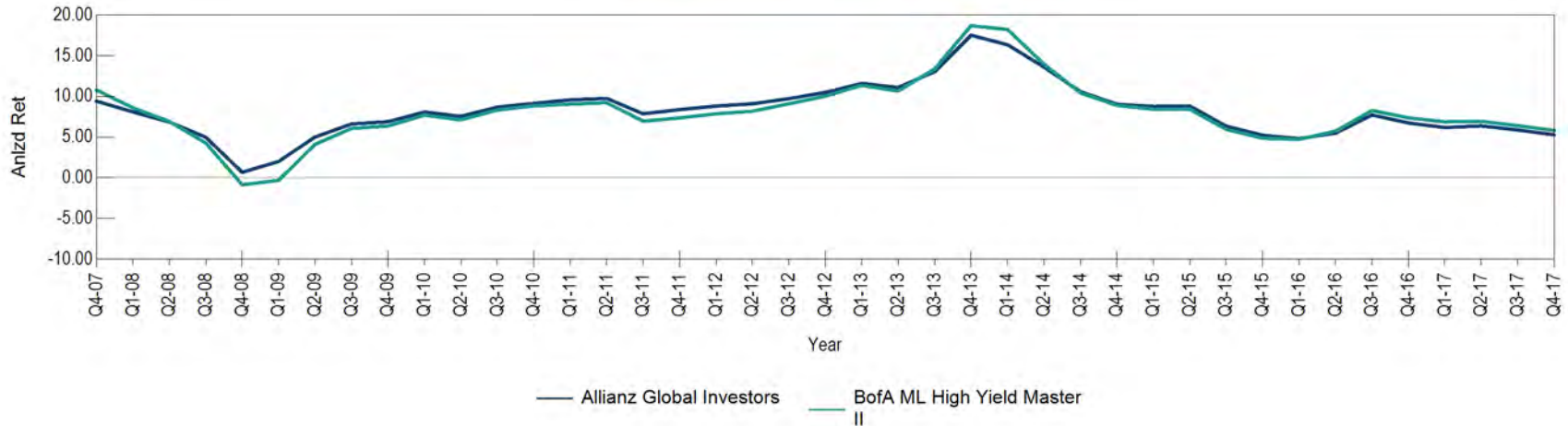


	Return (Rank)										
	Quarter	1 Year	3 Years	5 Years	10 Years	2017	2016	2015	2014	2013	
5th Percentile	1.7	10.0	8.1	7.6	9.1	10.0	20.3	2.3	5.2	11.7	
25th Percentile	1.0	8.3	6.7	6.3	8.2	8.3	16.0	-0.7	3.5	9.1	
Median	0.6	7.5	6.1	5.7	7.7	7.5	14.0	-2.4	2.5	7.6	
75th Percentile	0.4	6.5	5.4	5.2	7.2	6.5	11.3	-3.8	1.5	6.6	
95th Percentile	0.1	4.0	3.7	3.5	5.9	4.0	6.6	-7.2	0.0	5.0	
# of Portfolios	198	198	190	170	117	198	183	155	141	130	
● Allianz Global Investors	0.2 (90)	6.5 (74)	5.5 (73)	5.3 (73)	7.8 (47)	6.5 (74)	14.3 (47)	-3.5 (68)	1.2 (83)	8.8 (28)	
▲ BofA ML High Yield Master II	0.4 (75)	7.5 (53)	6.4 (35)	5.8 (47)	7.9 (44)	7.5 (53)	17.5 (14)	-4.6 (83)	2.5 (50)	7.4 (55)	

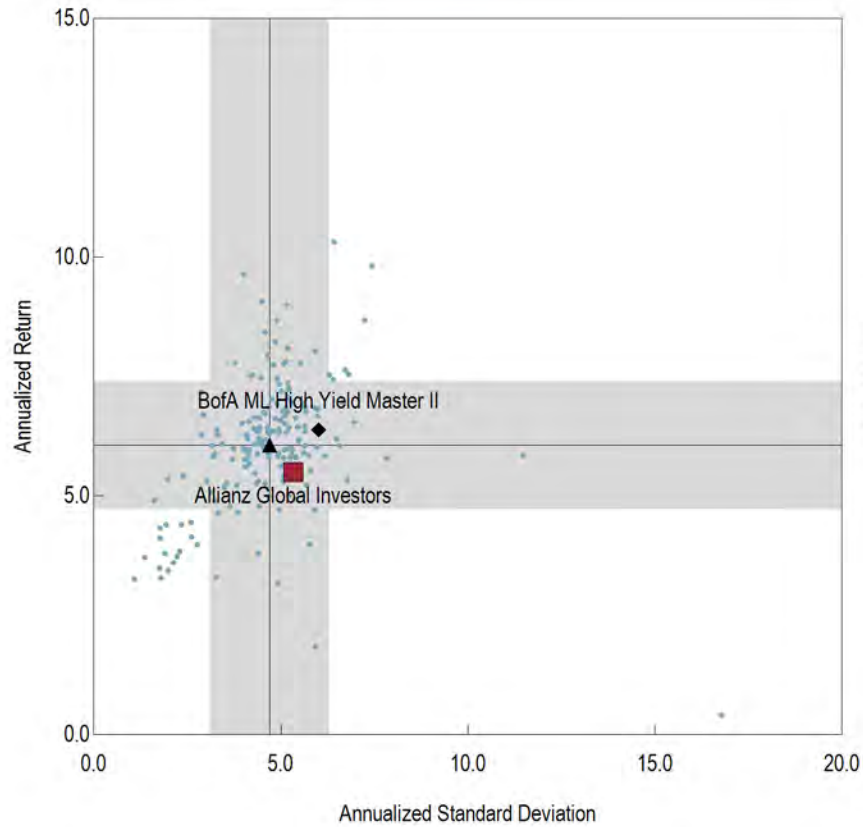
Rolling 3 Year Annualized Return (%)



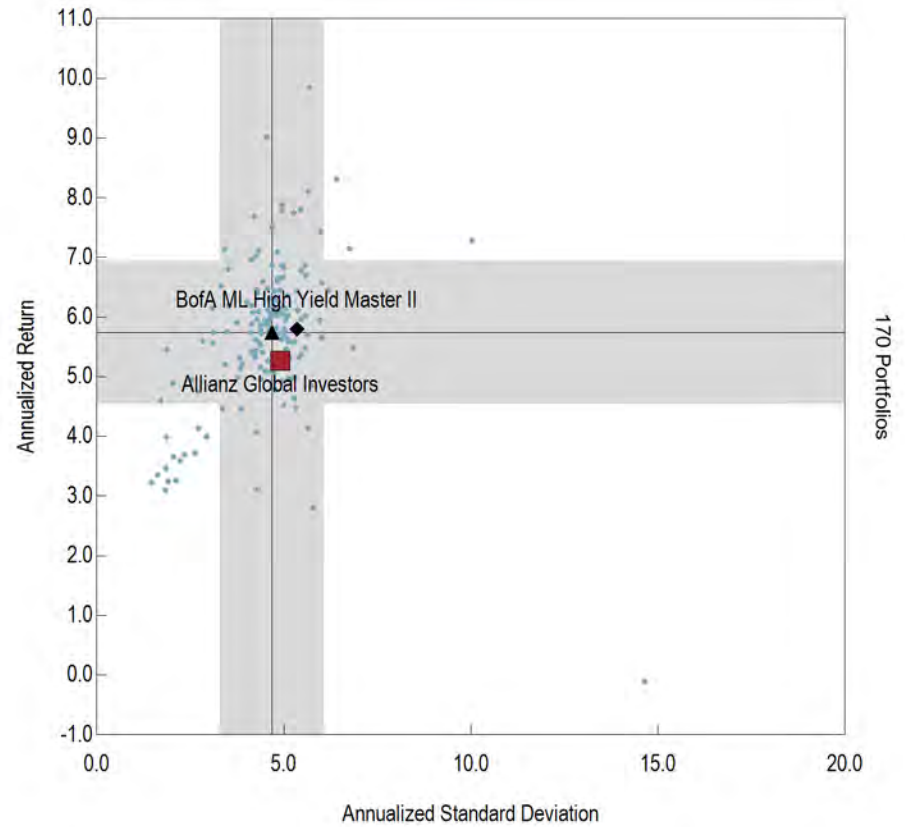
Rolling 5 Year Annualized Return (%)



3 Years



5 Years



3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	5.5%	5.3%	1.0
BofA ML High Yield Master II	6.4%	6.0%	1.0
eV US High Yield Fixed Inc Gross Median	6.1%	4.7%	1.3

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Allianz Global Investors	5.3%	4.9%	1.0
BofA ML High Yield Master II	5.8%	5.3%	1.0
eV US High Yield Fixed Inc Gross Median	5.7%	4.7%	1.2

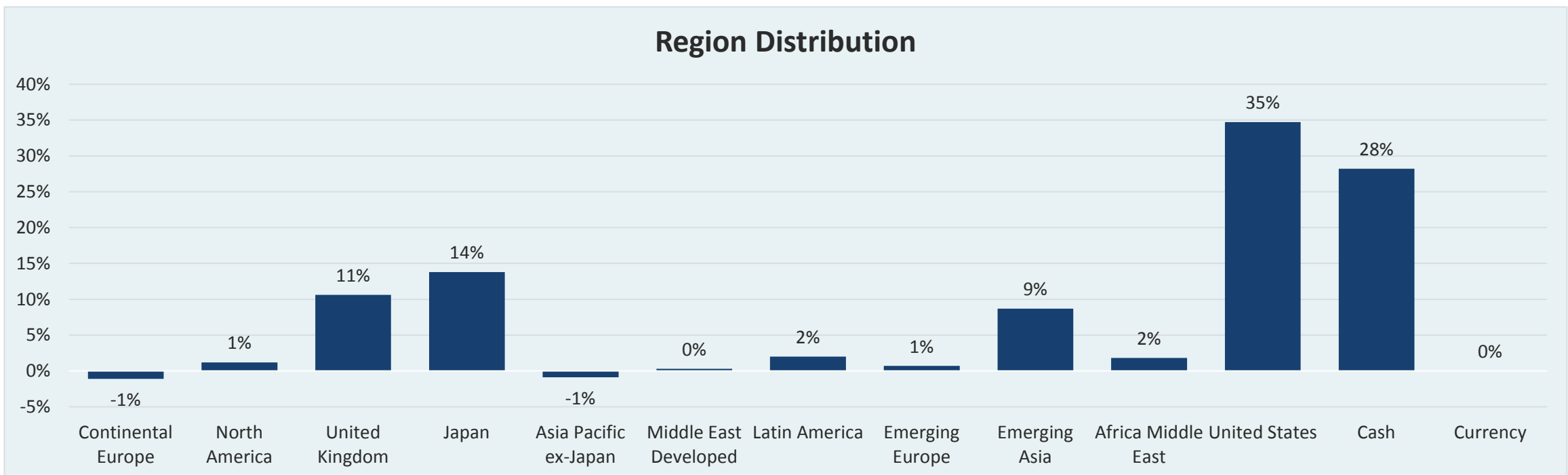
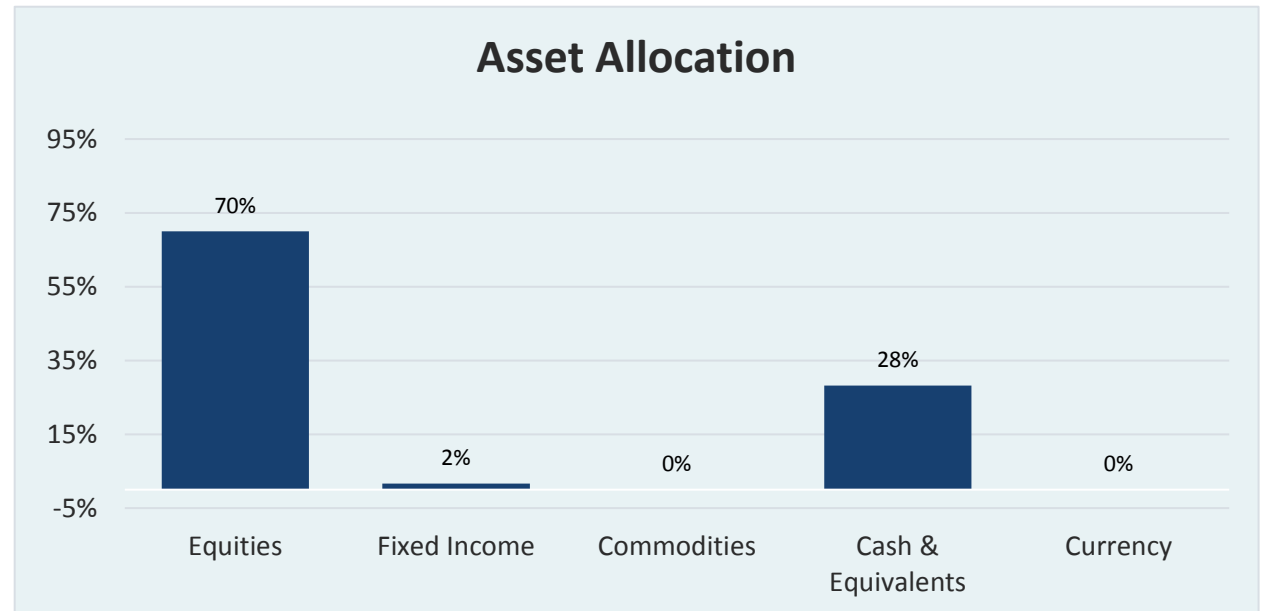
Inflation Hedge Managers

Wellington Total Return Manager Portfolio Overview

Period Ending: December 31, 2017

Tactical multi-asset class real return strategy with a focus on managing risk of active strategies used to gain exposure to attractive assets of markets.

	Wellington Total Return
Number of Equity Holdings	977
Number of Commodity Holdings	145
Effective Duration (Years)	6.10
Average Quality	D



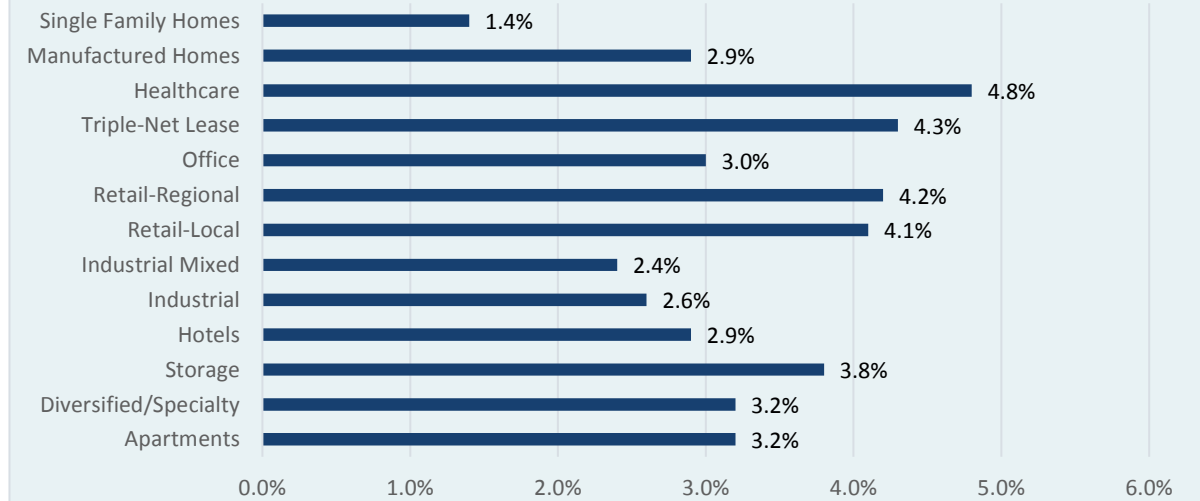
Real Estate Managers

Diversified portfolio of U.S. REITs with a focus on the underlying real estate assets

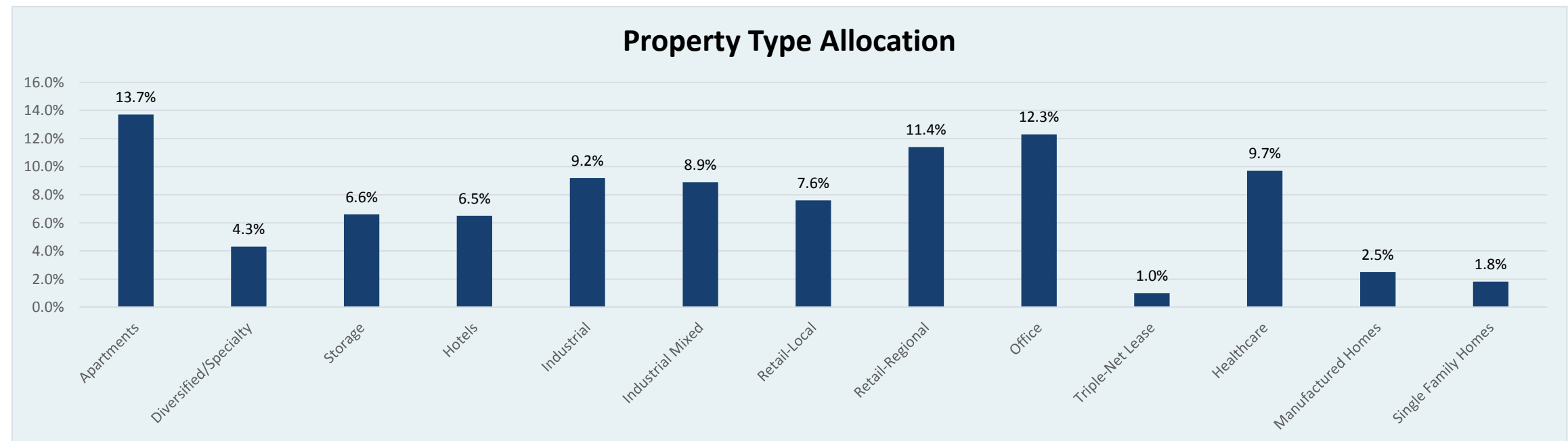
Top Five Holdings

Company	Property Type	Allocation
Simon Property Group	Retail-Regional	9.2%
Welltower Inc.	Healthcare	6.2%
Equity Residential	Apartments	5.6%
Regency Centers Corp.	Retail-Local	5.2%
ProLogis Inc.	Industrial	4.4%

Dividend Yield by Property Type



Property Type Allocation



4.3% is allocated to Cash and Cash Equivalents.

Performance Return Calculations

Performance is calculated using Modified Dietz and for time periods with large cash flow (generally greater than 10% of portfolio value), Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

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

Illiquid Alternatives

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

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
BlackRock Russell 1000 Index	4/20/2017	BlackRock	Long Wharf Fund IV	7/3/2013	Long Wharf
Jackson Square Partners	5/1/2005	State Street	Long Wharf Fund V	9/30/2016	Long Wharf
Robeco Boston Partners	6/1/1995	State Street	Invesco Real Estate I	2/1/2005	Invesco
Emerald Advisors	4/7/2003	State Street	Invesco Real Estate II	11/26/2007	Invesco
Ceredex	11/6/2011	State Street	Invesco Real Estate III	6/30/2013	Invesco
Pyrford	4/25/2014	State Street	Invesco Real Estate IV	6/30/2014	Invesco
William Blair	10/29/2010	William Blair	Oaktree REOF V	12/31/2011	Oaktree
Artisan Partners	10/1/2012	SEI Trust	Oaktree REOF VI	9/30/2013	Oaktree
First Eagle	1/18/2011	State Street	Oaktree REOF VII	4/1/2015	Oaktree
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF	1/25/2012	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Siguler Guff DREOF II	8/31/2013	Siguler Guff
AFL-CIO	6/30/1991	AFL-CIO	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
Sit Short Duration	11/2/2016	State Street	Paulson Real Estate Fund II	11/10/2013	State Street
DFA Short Credit	11/21/2016	State Street	Adams Street Partners	3/18/1996	Adams Street
Insight Short Duration	11/18/2016	State Street	Adams Street Partners II	1/16/2009	Adams Street
BlackRock	4/20/2017	BlackRock	Adams Street Partners Venture	4/28/2017	Adams Street
Torchlight II	9/30/2006	Torchlight	Adams Street Partners - BFP	1/18/1996	Adams Street
Torchlight III	12/31/2008	Torchlight	Adams Street Partners - Fund 5	9/21/2012	Adams Street
Torchlight IV	7/1/2012	Torchlight	Bay Area Equity Fund	6/14/2004	DBL Investors
Torchlight V	7/1/2012	Torchlight	Bay Area Equity Fund II	12/7/2009	DBL Investors
Allianz Global Investors	4/25/2000	State Street	Carpenter Bancfund	1/31/2008	Carpenter Bancfund
BlackRock Transition	11/1/2016	State Street	EIF US Power Fund I	11/26/2003	Ares Management
Wellington Real Total Return	2/26/2013	State Street	EIF US Power Fund II	8/16/2005	Ares Management
Aether Real Assets III	11/27/2013	Aether	EIF US Power Fund III	5/30/2007	Ares Management
Commonfund	6/28/2013	Commonfund	EIF US Power Fund IV	11/28/2011	Ares Management
Adelante	9/30/2001	State Street	EIF US Power Fund V	11/28/2016	Ares Management
Cash	-	State Street	Nogales	2/15/2004	Nogales
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Paladin III	11/30/2007	Paladin
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	Ocean Avenue
Angelo Gordon Energy Credit Opp	9/24/2015	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	Ocean Avenue
DLJ RECP II	9/24/1999	DLJ	Pathway	11/9/1998	Pathway
DLJ RECP III	6/23/2005	DLJ	Pathway 2008	12/26/2008	Pathway

DLJ RECP IV	2/11/2008	DLJ	Pathway 6	5/24/2011	Pathway
DLJ RECP V	7/1/2014	DLJ	Pathway 7	2/7/2013	Pathway
Wastewater Opp. Fund	12/8/2015	Wastewater	Siguler Guff CCCERA Opps	6/3/2014	Siguler Guff
LaSalle Income & Growth VI	7/16/2013	LaSalle	Siguler Guff Secondary Opps	11/30/2016	Siguler Guff
LaSalle Income & Growth VII	2/28/2017	LaSalle	Aether Real Assets IV	3/16/2016	Aether
Hearthstone II	6/17/1998	Hearthstone			
Parametric Overlay	3/29/2017	State Street			

Policy & Custom Index Composition

Policy Index (12/1/2016 - present)	22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.7% BofA High Yield Master II +2%, 5.1% BofA High Yield Master II, 22.4% BBgBarc 1-3 Yr Gov/Credit, 1.6% 90-day T-Bills, 3.2% BBgBarc US Aggregate.
Policy Index (4/1/2012-11/30/2016)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% BofA High Yield Master II, 4% BBgBarc Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Real Estate Benchmark (current)	11% Wilshire REIT, 18% NCREIF Property Index, 71% NCREIF ODCE Index.
Real Estate Benchmark (4/1/2012-11/30/2016)	40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-US.

Other Disclosures

All data prior to 12/31/2014 was provided by previous consultant.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

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

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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