

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: MARCH 31, 2018

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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PERSPECTIVES THAT DRIVE

ENTERPRISE SUCCESS

2ND QUARTER 2018 Investment Landscape

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1^{st} quarter summary

THE ECONOMIC CLIMATE

- The U.S. economy is expected to grow at around 2.2% in Q1. Economists expect a slightly quicker rate of growth throughout the year. We believe that this *middle-of-the-road* expansion characterized as not too fast and not too slow may allow the U.S. economy to continue expanding for longer than expected. *p. 8*
- The U.S. has enacted a 25% tariff on steel and a 10% tariff on aluminum, which went into effect on March 23rd. The U.S. also engaged with China over allegations of asymmetrical trade policies and intellectual property theft.
 p. 18, 19

PORTFOLIO IMPACTS

- Global economic growth has improved low inflation, strong employment, and accommodative foreign central bank policies have been supportive of equity prices. In the U.S., monetary tightening has yet to have a major impact on equities. *p. 17*
- Concerns over increasing trade protectionism weighed on financial markets. The tariffs placed on steel and aluminum are not likely to have a material impact on asset prices, but escalating tensions and retaliatory measures could have a negative impact on global growth. *p. 18, 19*

THE INVESTMENT CLIMATE

- Excitement and optimism over tax cuts helped lead equities higher to begin the year. However, markets stumbled in February – falling roughly 10%. Equities recovered much of the losses throughout the quarter, but then fell back to their lows at the end of March. *p. 29*
- 2018 is expected to be a banner year for U.S. corporate profits. Earnings for the calendar year are forecast to grow 17.3%, with 7.3% revenue growth. These 2018 expectations may already be priced in. *p. 29*
- February's market correction appeared isolated to the equity markets. "Risk-off" selling that often accompanies market drawdowns was not apparent – credit spreads, U.S. Treasuries, and gold, reacted minimally. *p. 28*

ASSET ALLOCATION ISSUES

- Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact. We believe a neutral or mild risk overweight is warranted in this environment. p. 32
- Equity volatility spiked in February, ending the period of extreme calm that investors experienced since the beginning of 2017. The VIX Index averaged 20.7 during the last two months of the quarter. *p. 35, 36*

Changing market dynamics suggest a neutral or mild risk overweight may be warranted



What drove the market in Q1?

"Record high increase in S&P 500 EPS estimates for Q1 2018"

CHANGE IN EPS ESTIMATE DURING THE QUARTER (NET)

Q4 16	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18
-2%	-4%	-2%	-4%	0%	+7%
Article Cours	a. FrankCat Mar	ab 20th 2010			

Article Source: FactSet, March 29th, 2018

"U.S. stocks sell off on concerns about trade"

U.S. TRADE DEFICIT BY COUNTRY (\$ BILLIONS)

China	Japan	Germany	Italy	S. Korea	India
-375	-69	-64	-32	-23	-23
Articla Source	NISL March	22rd 2010			

Article Source: WSJ, March 23rd, 2018

"Volatility index spikes by largest-ever [one day] amount"

VIX Index (Average)

Oct	Nov	Dec	Jan	Feb	Mar
10.1	10.5	10.2	11.1	22.5	19.0

Article Source: Bloomberg, February 5th, 2018

"U.S. Treasury yields rise to a new 4-year high as inflation concerns drag on"

U.S. 10-Year Treasury Yield

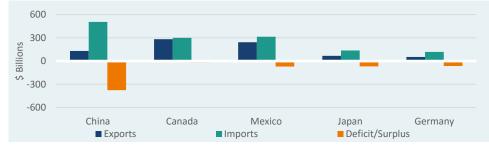
Oct	Nov	Dec	Jan	Feb	Mar
2.38%	2.41%	2.41%	2.71%	2.86%	2.74%
Article Source	e: USA Today, I	Eebruary 12 th , 2	2018		

S&P 500 PRICE INDEX AND Q1 EPS ESTIMATES (INDEXED TO 100)



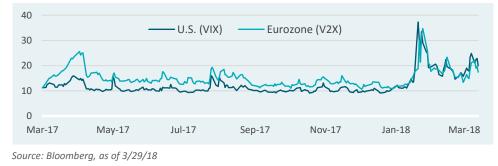
Source: Bloomberg, as of 3/29/18

U.S. TRADE DEFICIT BY COUNTRY



Source: U.S. Census Bureau, 2017

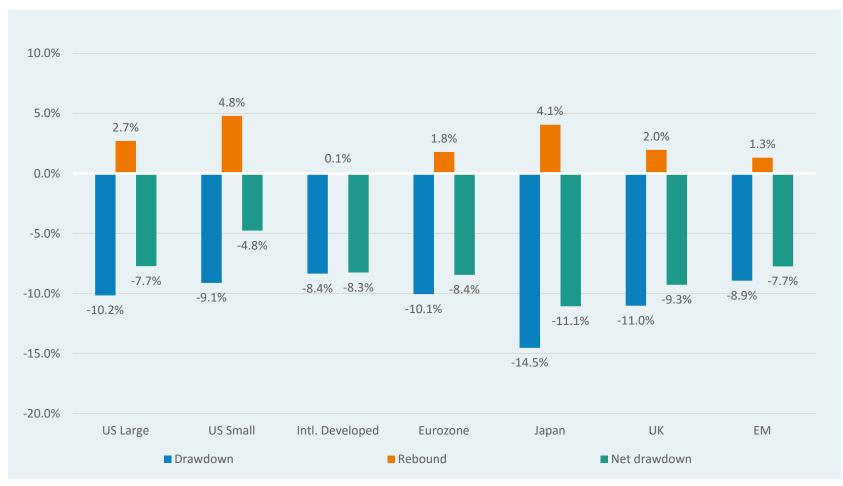
IMPLIED VOLATILITY





The return of volatility

PEAK TO TROUGH (LOCAL RETURNS)



Timeframe includes the February drawdown and subsequent "bottom" of each market, then recovery through 3/31/18

Verus⁷⁷⁷

Economic environment



U.S. economics summary

- Economic growth remained near expansion highs in the fourth quarter. U.S. real GDP growth was 2.6% from the previous year. Consumer spending and investment pushed the economy ahead, while falling exports were a drag on growth.
- The U.S. enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23rd. The U.S. has engaged with China over allegations of asymmetrical trade policies and intellectual property theft, creating concerns over the risks of a trade war.
- Additions to U.S. payrolls averaged 202,000 per month in the first quarter, above the expansion average.
- In recent years, the U.S. has seen discouraged and part-time workers drawn back to full-time employment. This effect can be

quantified by the shrinking difference between U-6 and U-3 unemployment figures. The difference between these two measures fell to 3.9%, matching expansion lows.

- Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.
- The Fed raised interest rates on March 21st to 1.50-1.75%.
 Comments made during the March meeting suggest the FOMC expects continued moderate economic activity, spending, and business investment. Unsurprisingly, the Committee stated that the U.S. inflation rate is expected to stabilize at the 2% target over the near-term.

	Most Recent	12 Months Prior
GDP (YoY)	2.6% 12/31/17	1.8% 12/31/16
Inflation (CPI YoY, Core)	2.1% 3/31/18	2.0% 3/31/17
Expected Inflation (5yr-5yr forward)	2.2% 3/31/18	2.2% 3/31/17
Fed Funds Target Range	1.50 – 1.75% _{3/31/18}	0.75 – 1.00% _{3/31/17}
10 Year Rate	2.8% 3/31/18	2.4% 3/31/17
U-3 Unemployment	4.1% 3/31/18	4.5% 3/31/17
U-6 Unemployment	8.0% 3/31/18	8.8% 3/31/17



GDP growth

Economic growth accelerated further in the fourth quarter of 2017. Real GDP increased 2.6% from the previous year (2.9% annualized quarterly rate), driven by consumer spending. The pace of growth was faster than the expansion average of 2.2%. Consumer spending contributed 2.8% to the quarterly growth rate, partly due to a strong holiday retail season. Corporate capex spending slowed in Q4, but was still the second largest contributor to the overall growth rate at 1.3%. As discussed last quarter, changes to the tax code could reinforce the current positive trend in fixed business investment.

The economy is expected to experience slower but still moderate growth in the first quarter – the consensus estimate is 2.2%, according to Bloomberg. First quarter growth has underwhelmed the past few years, which may occur again this year. However, expectations for 2018 calendar growth remain robust at 2.8%.

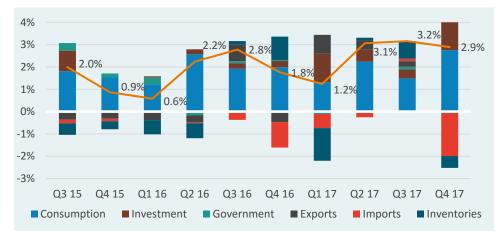
While we continue to see mild pressures building, such as firming inflation, rising interest rates, and tightening in the labor market, there do not appear to be clear signs of economic overheating.

The economy experienced above-trend growth in 2017

U.S. REAL GDP GROWTH (YOY)



U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 12/31/17

Source: Bloomberg, as of 12/31/17

Verus^{7*}

Inflation

Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.

Market inflation expectations have recovered a bit since the deflation scare in 2015 that coincided with an energy driven slump in inflation figures. The 10-year TIPS breakeven inflation rate moved marginally from 2.0% to 2.1%. Investors expect inflation to stay relatively muted over the longer-term – recent mild rises in inflation may not be indicative of a trend.

While inflation does not actually appear to be bubbling up in most global economies, it is interesting to note that investors are generally expecting higher inflation. Sentiment has transitioned from fear of deflation to fear of inflation, which has broad implications for the markets – central bank confidence in raising rates, and pricing across the fixed income markets, to name a few.

Fears of rising inflation emerged during the quarter

U.S. CPI (YOY)



U.S. TIPS BREAKEVEN RATES



INFLATION EXPECTATIONS



Source: FRED, as of 3/31/18

Source: Bloomberg, as of 3/31/18

Source: Bloomberg, as of 3/31/18

Labor market

Conditions in the U.S. labor market tightened slightly in Q1. Unemployment kept steady at 4.1%, while the unemployment rate that includes discouraged and part time workers fell to 8.0% from 8.2%. In Q1, 202,000 jobs were created per month - slightly stronger than the expansion average.

As we have discussed in recent years, continued labor market slack, not captured in the popular U-3 unemployment figure, has contributed to slower wage gains. Another key contributor to modest wage gains has been weak improvements in business productivity. The degree to which U.S. businesses are able to become more efficient has an impact on U.S. employee wages through time. Efficiency is also referred to as *productivity*. As businesses realize productivity gains they are able to pass on some of these gains to employees in the form of higher wages, since output per employee has increased. If businesses are not becoming more productive, this makes it difficult to sustainably raise employee pay. In the current economic expansion, businesses have realized minimal productivity growth, which is likely a contributor to tepid wage growth.

UNEMPLOYMENT RATE



6% 5% 2.5% 2.0% Dec-15 Jun-17 4% 2%

May-99

Mar-06

Jan-13

AVERAGE HOURLY EARNINGS (YOY)

U.S. PRODUCTIVITY GROWTH



Source: FRED, as of 3/31/18

Source: Bloomberg, as 2/28/18

Jul-92

Sep-85

Source: FRED, as of 12/31/17



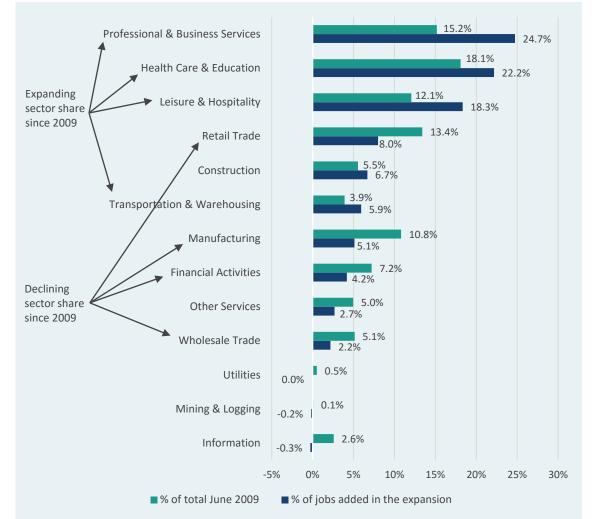
Job creation since the financial crisis

Since the end of the global financial crisis, the U.S. has added more than 17 million workers to the labor force and the unemployment rate has fallen from 9.9% to 4.1%. During this time the composition of the workforce has changed.

Three broad sectors have experienced outsized gains in employment compared to their sizes in June of 2009: Professional and Business Services, Health Care & Education, and Leisure & Hospitality.

Disproportionate gains in the last two sectors have led some to question the quality of jobs that are being added because they are typically low paid positions. On average, Leisure & Hospitality jobs receive \$15.74 per hour, compared to the national average of \$26.75. The changing sector composition is likely one of many structural factors (i.e. globalization and automation) limiting wage growth in the current cycle.

This exercise also created a useful lens to view recent employment trends in terms of the cyclicality of each sector. Manufacturing and construction have historically been the most cyclical sectors and are both growing above trend over the past year, indicating a recent pickup in hiring. This data confirms acceleration in manufacturing surveys, such as PMIs.



Source: FRED, as of 2/28/18

Verus⁷⁷

Wages

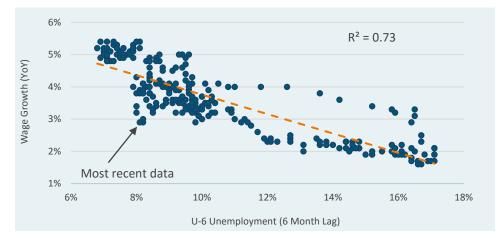
Muted wage growth has been heavily scrutinized during the expansion due to its historically strong relationship with the unemployment rate. Although wage growth has accelerated over the past few years, we have yet to experience a material rise in wages that would be consistent with a tight labor market. The broad unemployment rate (U-6, 8.0%) implies wage growth of around 4.5% versus actual wage growth of 3.3% based on a historical regression analysis. Much like our view on overall inflation, we believe cyclical forces may place modest upward pressures on wages, but at a gradual pace.

An interesting development during the quarter was a shift in the market narrative surrounding wage growth. In January, a positive surprise in average hourly earnings (mainly caused by a fall in aggregate hours worked during the month) sparked concerns that a faster rate of growth might result in quicker-than-expected monetary tightening. The surprise coincided with a material increase in Treasury yields, although many factors likely influenced these moves. Earlier in the expansion, many market participants voiced concerns that low wage growth was a potential indicator of economic weakness.



WAGE GROWTH (YOY)

RELATIONSHIP BETWEEN WAGES AND UNEMPLOYMENT



Source: Bloomberg, Atlanta Fed, Verus, as of 3/31/18

Verus⁷⁷⁷

Source: Bloomberg, Atlanta Fed, as of 3/31/18 (see appendix)

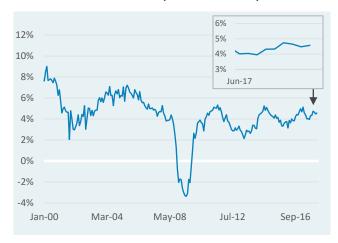
The consumer

The U.S. continues to be in a *middle-of-the-road* expansion – characterized as not too fast and not too slow. Moderate improvements in wages and employment, conservative spending and borrowing trends, and rising wealth, indicate a sustainable environment going forward for the American consumer.

Current U.S. spending trends appear in-line, or a bit more conservative, than previous economic expansions. Behavior may be partly explained by a more timid pace of employee wage growth, as well as not-too-distant memories of hardships experienced during the U.S. housing bubble.

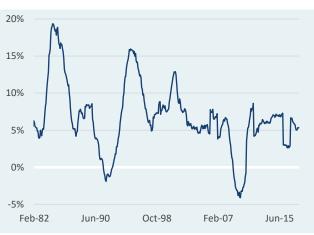
If interest rates continue to rise, this will likely act as a headwind to consumer spending as it becomes more expensive to borrow. Historically, spending patterns tend to ebb and flow through the economic cycle largely through the use of credit (i.e. credit cards, auto loans, home loans).

CONSUMER SPENDING (YOY GROWTH)



CONSUMER CREDIT GROWTH (YOY)

Source: FRED, as of 1/31/18



AUTO SALES



Source: Bloomberg, as of 2/28/18

Verus⁷⁷

Source: Bloomberg, as of 2/28/18

Sentiment

Consumer and business sentiment surveys further improved over the quarter and are now at or above levels of the latest 2001-2007 U.S. economic cycle. The University of Michigan Consumer Sentiment Index now sits at 101.4, which places it in the 91st percentile relative to its own history, since 1978. Consumers' perception of current economic conditions (employment and wage prospects) are at their highest level since the late 1990s. The Bloomberg Consumer Comfort Index has risen to levels last seen in 2001. The NFIB Small Business Optimism Index was 107.4 at the end of the quarter – near a record high, although there was a significant drop in businesses' expectations for the economy. The net number of firms that expect the economy to improve fell from 43% to 32% in March, but this figure was still near historical highs. Consumers and small businesses have a positive outlook on the U.S. economy

CONSUMER COMFORT INDEX

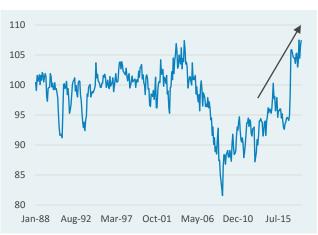


CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/18 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 2/28/18 (see Appendix)

Verus⁷⁷

Source: Bloomberg, as of 3/25/18 (see Appendix)

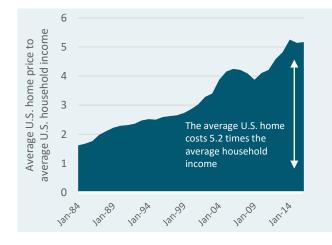
Housing

U.S. home prices rose 6.2% YoY, as of January, according to the Case-Shiller National Home Price Index.

Following the U.S. 2008 housing crisis, a combination of lower home prices and ultra-low interest rates made home ownership very affordable. These conditions eventually helped to bring back demand for homes and supported a rise in prices. Today, the price of an American home has returned to, and surpassed, pre-crisis levels. The average U.S. home costs more than 5 times the average household income, which has made purchasing a home increasingly difficult. This affordability problem could be compounded further if interest rates rise and push mortgage interest rates upward.

Rising home prices have lopsided effects on consumers. Higher prices add to the wealth of existing homeowners and land owners initially, but also lead to higher property taxes. For prospective homeowners, higher prices translate to a larger required down payment, greater mortgage payments, higher property taxes, and therefore a greater overall drag on standard of living.

HOME PRICE RELATIVE TO HOUSEHOLD INCOME

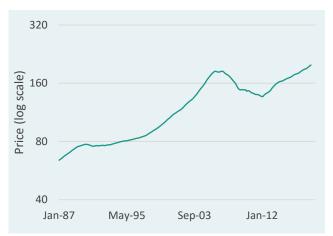


HOUSING AFFORDABILITY



Source: National Association of Realtors, as of 12/31/17

U.S. HOME PRICE INDEX



Source: Case-Shiller National Home Price Index, as of 2/28/18

Investment Landscape 2nd Quarter 2018

Verus⁷⁷

Source: FRED, 2016 census data

International economics summary

- International economic growth was strong across countries in the fourth quarter, but a combination of recent economic data coming in below expectations and trade concerns created risks to the synchronized global growth narrative.
- The U.S. implemented 25% and 10% tariffs on steel and aluminum imports, respectively. When the tariffs were initially announced the White House pushed for all countries to be subject to them. However, many countries, such as Canada and Mexico, were given exemptions to allow for ongoing negotiations.
- In April, concerns over trade shifted to escalating tensions between the U.S. and China.
- The Eurozone experienced abovetrend growth in the fourth quarter at 2.7% YoY, driven by contributions from household spending and fixed capital investment.

- Economic data out of the Eurozone consistently missed expectations in the first quarter. Industrial production was particularly disappointing – the year-over-year rate fell from 5.2% in December to 2.9% in February.
- Global PMIs remained above 50, indicating expansion in the manufacturing sector, although several countries experienced a decline. The Eurozone PMI fell from 60.8 to 56.6 during the quarter.
- The populist Five Star Movement performed better than expected in the Italian general election in March, winning the most seats of any party. However, no party won a majority in Parliament, resulting in the need to form a coalition government. Increasing support for populist governments (i.e. Hungary and Poland) across Europe remains a risk to investors.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.5%	2.4%	4.1%
	12/31/17	3/31/18	3/31/18
Western	2.5% 12/31/17	1.3%	7.4%
Europe		3/31/18	12/31/17
Japan	2.0% 12/31/17	1.5% 2/28/18	2.5% <i>2/28/18</i>
BRICS	6.2%	2.6%	5.6%
Nations	12/31/17	3/31/18	12/31/17
Brazil	2.1%	2.7%	12.4%
	12/31/17	3/31/18	3/31/18
Russia	0.9%	2.4%	5.0%
	12/31/17	3/31/18	2/28/18
India	7.2%	4.4%	8.8%
	12/31/17	2/28/18	12/31/17
China	6.8%	2.1%	3.9%
	12/31/17	3/31/18	12/31/17



International economics

International economic growth continued its upward trend, particularly in emerging countries, where a weaker dollar, higher commodity prices, and stronger external demand has been supportive. Additionally, inflation in emerging economies decelerated to 3.0% in 2017, allowing central banks to cut interest rates. Collectively, the BRICS countries grew by 6.2% in the fourth quarter, the fastest pace since 2012.

The narrative on international developed economies did not materially change during the quarter – growth accelerated,

inflation remained low, and central banks provided support, but contemplated exit strategies. While inflation is starting to show modest signs of life in the U.S., the Eurozone and Japan are still experiencing inflation well below 2%. In February, year-over-year core CPI growth was 1.0% in both economies.

The European Central Bank continues to express plans to end asset purchases in September and begin raising interest rates sometime next year. The pace of interest rate hikes will likely be heavily dependent on inflation and market reaction to tightening. Economic growth improved, especially in emerging markets

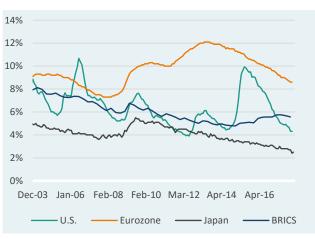
REAL GDP GROWTH (YOY)



INFLATION (CPI)



UNEMPLOYMENT



Source: Bloomberg, as of 12/31/17

Verus⁷⁷

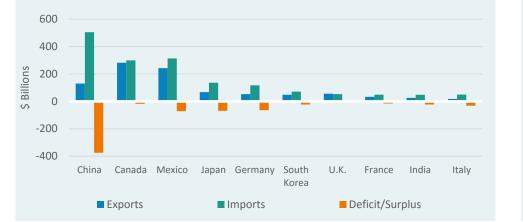
Source: Bloomberg, as of 2/28/18

Source: Bloomberg, as of 1/31/18 or most recent release

International trade

The U.S. has enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23rd, though many U.S. trade partners have been exempted. The U.S. is engaged with China over the significant U.S.-China trade deficit, allegations of China's asymmetrical trade barriers, and the long-term issue of theft of U.S. intellectual property by Chinese companies. The actions of the U.S. administration have stoked fears of a global trade war. While it is broadly agreed that tariffs have a net negative impact on global growth, many hold the view that the U.S. should address these long-running trade issues with China. The motivations and strategy behind the U.S. administration's actions are not yet fully known, but it should not be assumed that the outcome of this process will be negative for the U.S. or the global economy.

Steel and aluminum represent a small portion of total U.S. imports. On a standalone basis, the economic impact of these tariffs will likely be small. The risk of escalation seems to be the market's primary concern. China-U.S. trade amounts to approximately \$650 Billion annually.





U.S. TRADE - GOODS & SERVICES (ANNUALIZED)

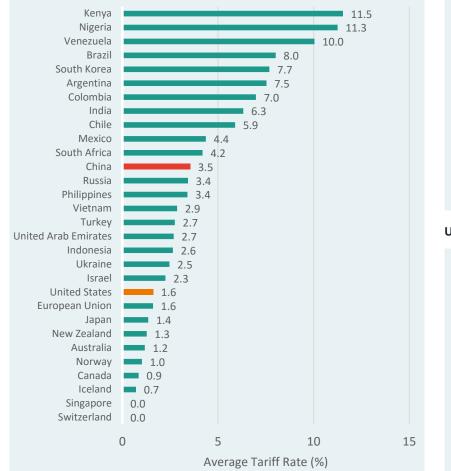
Source: U.S. Census Bureau, 2017

U.S. TRADE BALANCE

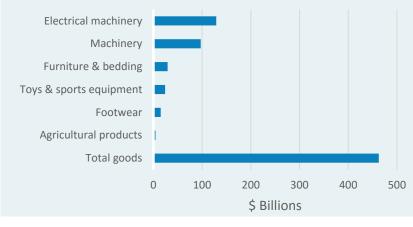
Source: FRED

International trade

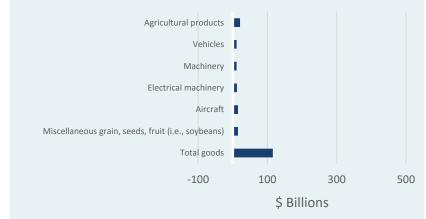
GLOBAL TARIFFS



CHINA EXPORTS TO U.S.



U.S. EXPORTS TO CHINA



Source: World Trade Organization, 2016

Verus⁷⁷

Investment Landscape 2nd Quarter 2018

Fixed income rates & credit



Interest rate environment

- The Fed raised interest rates by 25 bps to a target range of 1.50% -1.75% in March, as expected. In his first public comments since taking over as Fed chairman, Jerome Powell's views appeared to support a continuation of gradual monetary tightening.
- According to the Fed dot plot, officials are expecting two additional rate hikes this year, on par with market pricing.
- Long-term Treasury yields rose at the beginning of the year, likely influenced by increasing growth and inflation expectations. The 10year yield peaked at 2.95% in late February, up 55 bps from year-end. Yields failed to hold these levels, however, and finished the quarter at 2.74%.
- Short-term borrowing costs continued to rise during the quarter, especially in debt tied to Libor. The 3-month USD Libor rate

moved steadily higher from 1.7% to 2.3%. Much of this increase was likely mechanical due to record high Treasury bill issuance and repatriation of foreign profits.

- Sovereign yields in developed Europe also ticked up in January, coinciding with yield increases in U.S. Treasuries, but came back down in the last two months of the quarter. German 10-year yields peaked at a two year high of 0.77% in early February before finishing the quarter at 0.50%.
- Developed international central banks remain accommodative compared to the Fed, but they have increasingly hinted towards policy normalization. The ECB is likely next in line to begin monetary tightening by ending asset purchases and raising rates sometime next year. The BOJ has yet to provide any details on ending its stimulus program, but officials have noted internal discussions have begun.

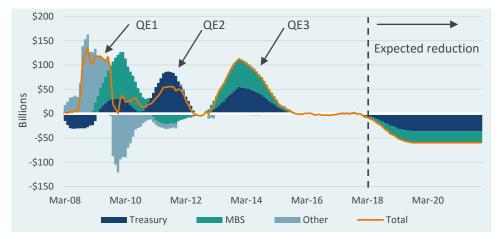
Area	Short Term (3M)	10 Year
United States	1.70%	2.74%
Germany	(0.75%)	0.50%
France	(0.58%)	0.72%
Spain	(0.50%)	1.16%
Italy	(0.43%)	1.79%
Greece	1.31%	4.32%
U.K.	0.49%	1.35%
Japan	(0.17%)	0.04%
Australia	2.03%	2.60%
China	3.12%	3.77%
Brazil	6.31%	9.50%
Russia	6.01%	7.16%

Source: Bloomberg, as of 3/31/18

Fed tightening

In Jerome Powell's first meeting as chairman, the Fed hiked interest rates by 25 bps to a target range of 1.50% - 1.75%, as expected. The Fed's forecast for future hikes shifted up slightly based on the dot plot, but Powell's messaging appeared to be similar to the precedent set by Yellen – slow and gradual rate increases coinciding with firming inflation that will eventually reach the 2% target. Markets priced in 25 bps of additional tightening for 2018 during the quarter, and pricing is now on par with Fed expectations of two more rate rises this year. The balance sheet reduction has gone as planned, but we are likely too early in the process to gain insight into its market impact. The Fed has intentionally tightened slowly, and markets have been able to digest the 150 bps of rate increases thus far. This is consistent with the beginning of past Fed tightening cycles where economic fundamentals were strong. As we move further down this path, additional increases in discount rates will have an increasing impact on the economy and risk assets. However, we believe the Fed will continue to be patient, barring a material change in the inflation environment. Fed tightening has gone as expected

FED BALANCE SHEET FLOW (12-MONTH CHANGE)



FED FUND EXPECTATIONS



Source: Bloomberg, Federal Reserve as of 3/31/18

Verus⁷⁷

Source: Federal Reserve, as of 3/31/18

The history of monetary tightening

The difficulty of assessing the potential effect of monetary tightening lies in the fact that there are relatively few historical observations to analyze. Since 1959, the Fed has only tightened policy nine times, including the current period which began in December of 2015. There are also unique circumstances in each period, such as the balance sheet reduction coinciding with interest rate increases in this cycle. We looked at three variables: GDP growth, equity earnings growth, and equity performance to get a better understanding of how Fed tightening has historically impacted the economy and financial markets. As one might expect, GDP growth has been stronger during Fed tightening than in the 12 months following. The same relationship has occurred with equity earnings. This is most likely because the Fed is reacting to underlying economic data rather than driving it. When the economy heats up, the Fed hikes interest rates to avoid overheating, and then stops when things turn over. Equity returns reveal a much more interesting, but muddier picture. On average, equity returns have been higher in the 12 months after tightening than during, although in three of the eight previous periods, equities have experienced a 10% correction.

REAL GDP GROWTH



S&P 500 EARNINGS GROWTH



S&P 500 PERFORMANCE

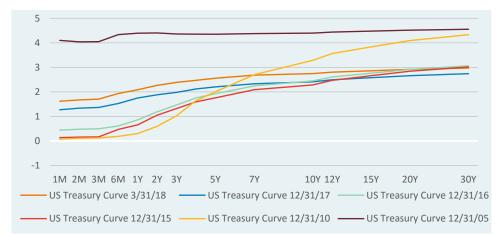


Source: Bloomberg, Verus, analysis started in 1959, all growth calculations are annualized using monthly (earnings/equity performance) or quarterly (GDP) data

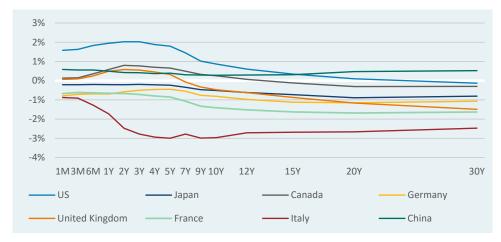


Yield environment

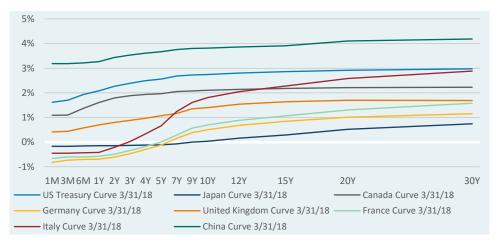
U.S. YIELD CURVE



YIELD CURVE CHANGES OVER LAST FIVE YEARS



GLOBAL GOVERNMENT YIELD CURVES



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/18

Investment Landscape 2nd Quarter 2018



Credit environment

Credit spreads in both leveraged loans and high yield have continued to be tight, sitting well below their historic averages. Leveraged loan prices were relatively immune to equity volatility in February. Loans have outperformed high yield year-to-date with an absolute return of 1.6%, driven by strong issuance and demand. LIBOR has steadily risen since 2016, surpassing the LIBOR floors that exist in senior loans, causing them to be fully floating-rate instruments.

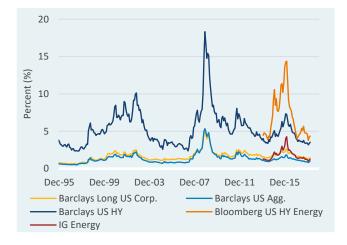
U.S. high yield option-adjusted spreads widened slightly in the

first quarter to 3.5%, with the asset class generating a -0.9% total return for the quarter. Tight credit spreads in both high yield and loans have been driven by strong corporate fundamentals, manageable debt maturities and general macroeconomic improvement. Credit spreads have historically been a good indicator of future performance relative to Treasuries.

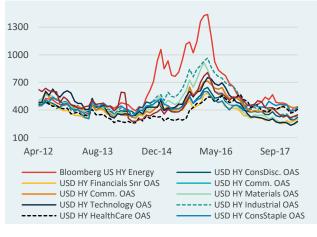
Credit spreads are tight across the capital structure

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

SPREADS



HIGH YIELD SECTOR SPREADS (BPS)



Market	Credit Spread (3/31/18)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	1.1%
US Aggregate	1.0%	1.1%
US High Yield	3.5%	3.8%
US Bank Loans	3.5%	3.8%

Source: Barclays, Bloomberg, as of 3/31/18

Verus⁷⁷

Source: Bloomberg, as of 3/31/18

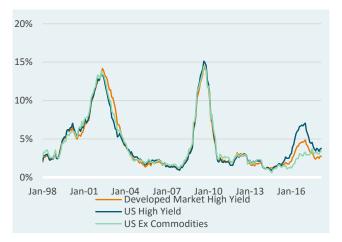
Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/18

Issuance and default

Default activity remains low and stable in the U.S. and international credit markets. The par-weighted U.S. default rate remains below its long-term average of 3.0-3.5% and is currently at 2.4%. In the first quarter, 27% of total defaults have been in the retail sector, followed by energy and broadcasting.

Senior loan and high yield markets are recovering from a wave of defaults that were generated from energy and metals/mining sectors in 2015-2016. Recovery rates for high yield bonds have vastly improved since year-end 2016.

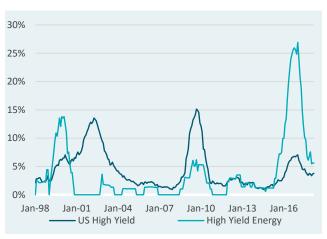
HY DEFAULT TRENDS (ROLLING 1 YEAR)



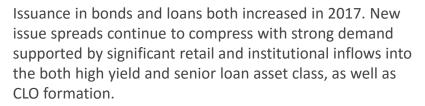
Source: BofA Merrill Lynch, as of 3/31/18

Verus⁷⁷

ENERGY DEFAULT TRENDS

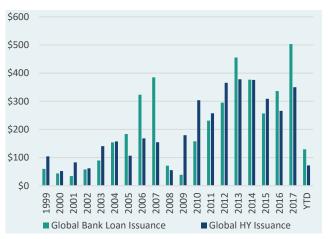


Source: BofA Merrill Lynch, as of 3/31/18



Default volume remains below long-term averages

GLOBAL ISSUANCE (BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/18





Equity environment

- We maintain an overweight position to equities primarily due to enthusiasm for emerging markets. Though the February market correction dampened investor excitement, it is helpful to remind ourselves that 10% equity drawdowns are fairly common.
- Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact.
- 2018 is expected to be a banner year for U.S. corporate profits.
 Earnings for the year are forecast to grow 17.3%, with revenue growth of 7.3% according to
 Factset - a rare and impressive year for U.S. businesses. A continuation of this trend would be supportive of equity performance.

- Equity valuations (price-toearnings multiples) fell to more attractive levels in Q1 due to the combination of lower equity prices and strong earnings growth.
- Equity volatility has remained extremely low since the beginning of 2017. However, the equity drawdown and volatility spike in February appears to have ended this period of calm. Investors might expect a more normal volatility environment going forward.
- Currency movement has contributed to volatility and great return disparity for investors with unhedged investments in international assets. A hedging program could allow investors to reduce or eliminate uncompensated currency risk.

	QTD TOTAL RETURN YTD TOTAL RETURN		1 YEAR TOTA QTD TOTAL RETURN YTD TOTAL RETURN RETURN			
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(2.0%)		(2.0%)		12.4%	
US Small Cap (Russell 2000)	(1.1%)		(1.1%)		10.5%	
US Large Value (Russell 1000 Value)	(4.0	(4.0%) (4.0%)		5.6%		
US Large Growth (Russell 1000 Growth)	(0.1	%)	(0.1%)		19.3%	
International Large (MSCI EAFE)	(1.6%)	(3.8%)	(1.6%)	(3.8%)	14.4%	7.1%
Eurozone (Euro Stoxx 50)	(0.5%)	(3.2%)	(0.5%)	(3.2%)	18.0%	0.3%
U.K. (FTSE 100)	(3.8%)	(6.9%)	(3.8%)	(6.9%)	11.9%	1.2%
Japan (NIKKEI 225)	0.6%	(5.3%)	0.6%	(5.3%)	20.9%	15.2%
Emerging Markets (MSCI Emerging Markets)	1.2%	0.4%	1.2%	0.4%	23.1%	20.4%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/18



Domestic equity

U.S. equities delivered a loss in Q1 (Russell 1000 -2.0%) - a change of pace from steady and strong gains in 2017. Equity indexes around the world fell between 8-12% in early February as the recent bull run was interrupted. Since the selloff, most markets have been rangebound but relatively flat overall. Volatility seems to have returned to the markets as sizable day-to-day swings have been the norm.

While large price movements tend to naturally cause

investor fear, it is not apparent that the attractive macro picture has changed – i.e. positive economic growth, very strong earnings gains, and healthy sentiment. Equity prices typically follow growth and corporate profit trends over the medium and long-term term, which likely provides some support against larger downside equity movement. Fundamentals appear unchanged despite falling prices

However, the February selloff has dampened recent positive upward price momentum. Momentum is now more neutral as market prices flatten out.

U.S. EQUITIES



EARNINGS GROWTH

Source: S&P 500, as of 3/31/18



S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 3/31/18

Verus⁷⁷

Source: Russell Investments, as of 3/31/18

Domestic equity size & style

Large cap equities (Russell 1000 -2.0%) lagged small cap equities (Russell 2000 -1.1%) during the quarter. Value stocks delivered exceptionally poor performance in Q1 (Russell 1000 Value -4.0% vs. Russell 1000 Growth -0.1%), dragged down by the energy and materials sectors, which are heavily tilted towards value. Despite a sell-off in mega-cap tech stocks in March due mainly to company-specific issues, such as a data breach at Facebook and President Trump targeting Amazon over its relationship with the U.S. Postal Service, tech was still the best performing sector in the first quarter. Traditional style factors – small cap and value in particular – have hit a rough patch since the 2008-2009 global financial crisis. It may be helpful to remember that these periods do occur. In fact, there are multiple points in history where the equity small-cap and value premiums delivered negative returns over more than a 10 year period.

In U.S. equities, value has continued to underperform in recent years, while momentum delivered outperformance alongside the bull market rally.

SMALL CAP VS LARGE CAP (YOY)



VALUE VS GROWTH (YOY)



BLOOMBERG FACTOR PERFORMANCE



Source: FTSE, as of 3/31/18

Source: FTSE, as of 3/31/18

Source: Bloomberg, as of 3/31/18



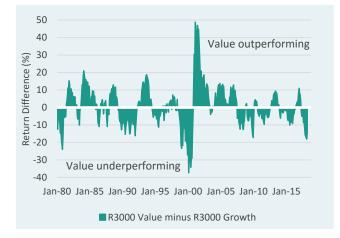
Hard times for value investing

Value equities have underperformed growth equities over the past 10 years. This has occurred only two other times since the 1920's - both periods were followed by a rapid bounce-back in value performance. Is a turning point is on the horizon?

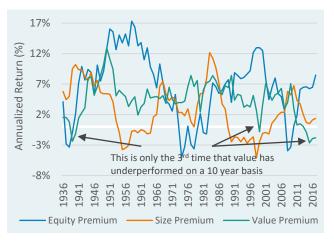
Value stocks are concentrated in the financial sector, and growth stocks are concentrated in the technology sector. The global financial crisis led to extreme underperformance of financial stocks, which hurt value. At the same time, technology stocks have fared exceptionally well. These two effects compounded value's underperformance. The current price difference between value and growth stocks is near the historical average, which is notably different from the most recent bout of value underperformance – the 2001 tech bubble. At that time, growth stocks were anomalously expensive relative to value stocks, which helped explain how value stocks roared back to life after the tech bubble burst.

We do not yet see a catalyst for a value comeback. Prices are fairly normal, and the economic environment is positive (growth often performs well during later stages of economic expansions). We recommend that value investors stay the course. Timing factors over the short term is and will always be difficult.

U.S. VALUE PERFORMANCE (1YR ROLLING)



U.S. VALUE PERFORMANCE (10YR ROLLING)



Source: Fama French Library, as of 2/28/18

VALUE VS GROWTH - P/E MULTIPLES



Source: FTSE Russell, Bloomberg, as of 3/31/18

Source: FTSE, as 3/31/18

International developed equity

Unhedged International equities were in line with U.S. equities during Q1, delivering slightly negative performance. The MSCI EAFE Index returned -1.5%. Positive currency returns masked underperformance of local developed market equities. On a hedged basis, the MSCI EAFE Index posted a -3.8% return. Looking forward, accelerating corporate earnings, and more attractive valuations following the February fall in equity prices, may be supportive for another positive year in 2018. Forward one year earnings growth is expected to be around 15%.

Along with the U.S., most developed markets also experienced an approximate 10% drawdown in February, but were not as quick to recover. Most regional benchmarks finished the guarter still 7-10% below recent peaks.

Trailing P/E ratios for the EAFE Index have moved to below average, providing a possible value opportunity. However, downside risks to these markets, including political issues and reliance on central bank support may be a justification for low valuations.

EQUITY PERFORMANCE (3-YEAR ROLLING)



EARNINGS GROWTH (YOY)



Source: MSCI, as of 3/31/18 – YoY growth in forward earnings

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: Bloomberg, as of 3/31/18

Investment Landscape 2nd Quarter 2018

Source: MSCI, as of 3/31/18



Emerging market equity

We maintain an overweight to emerging market equities. Emerging market equities have exhibited more modest valuations relative to developed markets such as the U.S., while these economies in aggregate continue to outpace developed economies by a wide margin. Furthermore, emerging market currencies remain depressed relative to history. Cheaper valuations, much stronger economic growth, and a currency tailwind may bode well for future performance.

Emerging economies have led the way over the past year in terms of economic growth, earnings, and equity performance. Emerging market equities have delivered positive performance year-to-date despite the February sell-off (MSCI Emerging Markets +1.2%) while developed markets were in negative territory to end the first quarter. Coordinated global growth has helped propel emerging market equities forward

EQUITY PERFORMANCE (3YR ROLLING)



ECONOMIC MOMENTUM



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BRIC VALUATIONS



Source: Bloomberg, as of 12/31/18

Source: MSCI, as of 3/31/18



Source: Standard & Poor's, MSCI, as of 3/31/18

Equity valuations

Equity valuations fell over the quarter due to both a decrease in price and an increase in earnings. International developed equities experienced the biggest contraction in valuations and the trailing P/E ratio (16.5) is now below the median multiple since 1995 (20.0). Price-to-earnings multiples also came down in the U.S., although they remain above average. The trailing 12-month P/E ratio for the S&P 500 Index was 21.3 at the end of March, compared to the 30-year median value of 18.3. After strong price gains over the past year, emerging market equity valuation metrics are near their long-term averages.

Although most equity markets experienced a 10% correction during the quarter, momentum in earnings growth remained strong. A continuation of this trend may result in further normalization of valuations without a significant drop in equity prices.

FORWARD P/E RATIOS

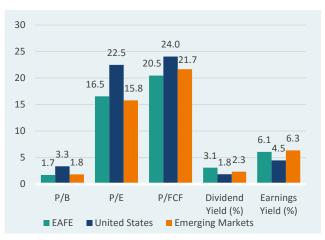


TRAILING P/E RATIOS

Source: Bloomberg, as of 3/31/18



VALUATION METRICS



Source: Bloomberg, as of 3/31/18 - trailing P/E



Source: MSCI, as of 3/31/2018

Equity volatility

Volatility in U.S. equities spiked in February and stayed elevated. The VIX Index of implied volatility on the S&P 500 Index registered its largest one-day increase on February 5th, jumping from 17.3 to 37.3. The well-documented period of low volatility that markets experienced in 2017 was broken rather suddenly. Volatility remained high with the VIX averaging 20.7 in the last two month of the quarter, compared to 11.0 during the previous 12 months. The increase in volatility was a U.S. focused event, rather than a global phenomenon – volatility was relatively benign in international developed and emerging markets. One of the likely drivers of the spike in volatility that occurred in February was the unwinding of the "short vol" trade. The low volatility environment that began in 2016 created an opportunity to profit from selling volatility in the futures market, which is similar to selling insurance. Speculators selling volatility receive a premium for taking on risk from those looking to hedge, and are able to capture this premium when volatility remains low. When volatility increases, however, losses can be catastrophic. An index tracking this strategy lost 96% of its value during one day of trading, which likely reinforced the increase in volatility. Equity volatility spiked in February and remained at heightened levels

U.S. IMPLIED VOLATILITY (VIX)



REALIZED 1-YEAR ROLLING VOLATILITY



S&P INVERSE VIX FUTURES INDEX



Source: CBOE, as of 3/31/18

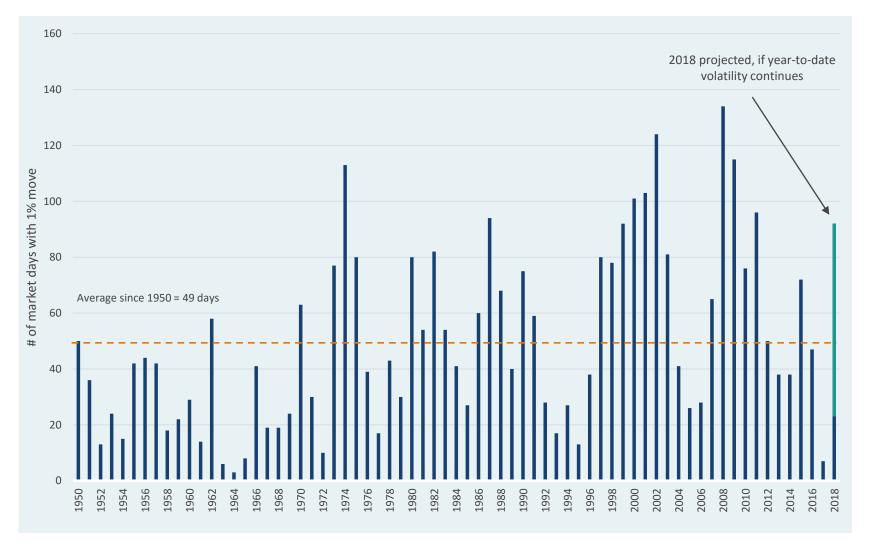
Source: Bloomberg, as of 3/31/18

Source: Bloomberg, as of 3/31/18

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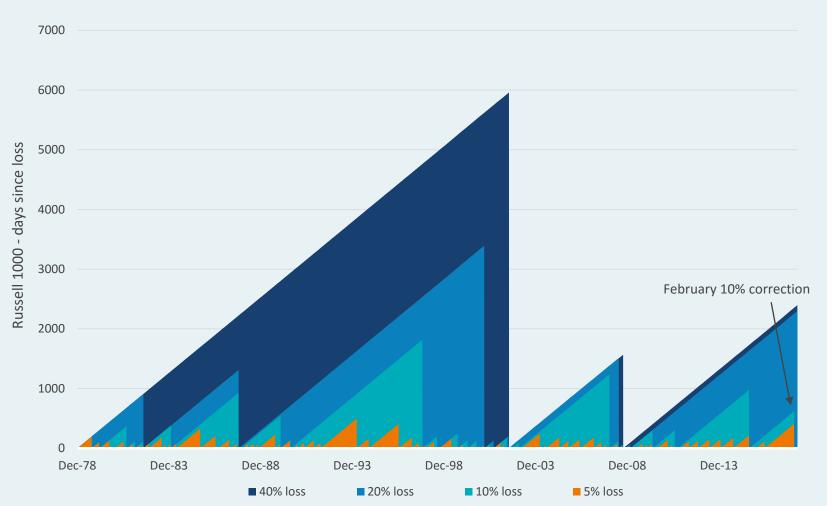
Equity volatility



Source: S&P 500, as of 3/31/18



Expect the unexpected

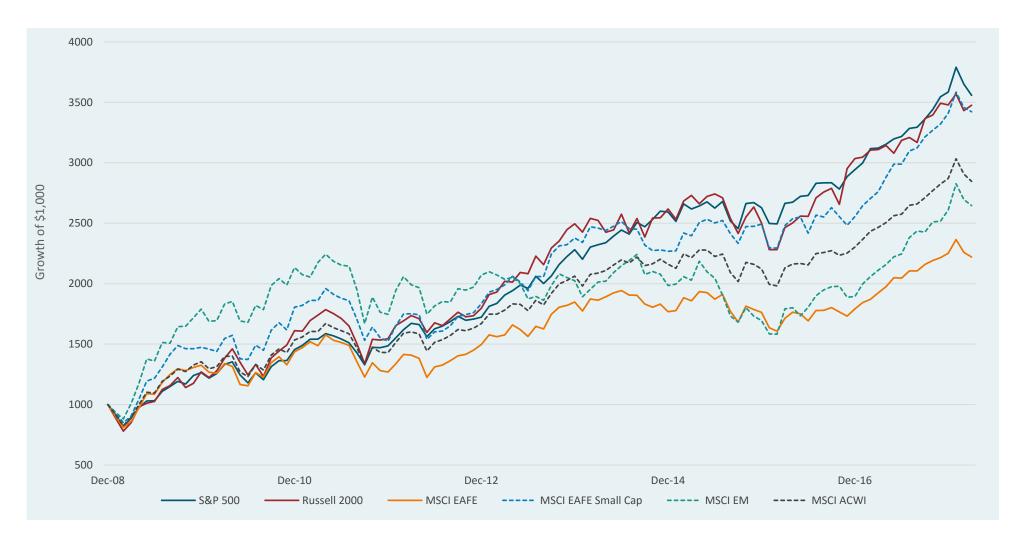


Equities experienced a 10% correction for the first time in more than two years

Source: FTSE Russell, Bloomberg, as of 4/11/18



Long-term equity performance



Source: MPI, as of 3/31/18







Opportunity in MLPs

MLP valuations look attractive across a number of historical metrics, including enterprise value-to-EBITDA and price-to-distributable cash flow. We believe there is opportunity to allocate to MLPs for a short to medium holding period (2-4 years).

MLP yields have steadily climbed since mid-2016 on the back of a sell-off in the sector and recovery in distributions following the energy price collapse. Balance sheets across the industry are in better shape today than before the oil crisis. Debt-to-cash flow levels have improved since peaking at 6.4x in 2015. Furthermore, the U.S. is expected to surpass Russia in 2018 to be the largest oil producer in the world, which is important because midstream companies grow through volume increases rather than commodity price appreciation.

A decision to invest in MLPs, however, is one that should be considered carefully, and after detailed analysis, as it remains a specialist asset class.



MLP SPREADS VS HIGH YIELD AND TREASURY RATES

Source: Bloomberg, as of 12/31/17

Verus⁷⁷

MLP YIELDS

Source: Bloomberg, as of 12/31/17

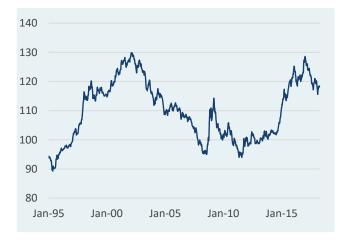
Currency

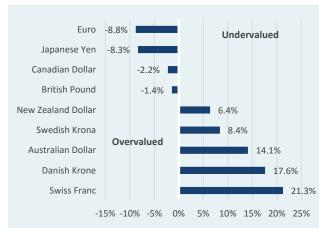
The U.S. dollar declined further to begin the quarter, but recovered slightly over the past two months. The broad U.S. trade weighted index fell 1.9% in the first quarter. This index was down 8.5% since peaking at the end of 2016.

Dollar depreciation has occurred despite widening shortterm interest rate differentials between the U.S. and the rest of the developed world. Typically, higher interest rate differentials result in currency appreciation as investors take advantage of the yield, at least in the short-term. Based on purchasing power parity (PPP), the dollar is overvalued against the currencies with the biggest weights in international equity benchmarks: the euro, yen, and pound.

Unhedged foreign currency exposure added to equity returns over the past year, especially in developed markets. Although currency exposure has been positive lately, it has historically tended to experience large swings that add volatility to portfolios.

U.S. DOLLAR TRADE WEIGHTED INDEX

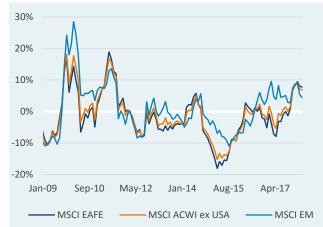




CURRENCY VALUATIONS VS USD (PPP)

Source: OECD, as of 3/31/2018 (see appendix)

EFFECT OF CURRENCY (1-YR ROLLING)



Source: MSCI, as of 3/31/18

Verus⁷⁷

Source: Federal Reserve, as of 3/28/18

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Periodic table of returns

Small Cap Value

BEST																								
▲	Small Cap Growth	1998	1999 66.4	2000 31.8	2001 14.0	2002 25.9	2003 56.3	2004 26.0	2005 34.5	2006 32.6	2007 39.8	2008 5.2	2009 79.0	2010	2011 14.3	2012 18.6	2013	2014 13.5	2015 13.3	2016	2017	YTD	5-Year 15.5	10-Year 11.3
	Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.0	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	2.3	15.5	11.3
	Emerging Markets Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.4	13.2	11.0
	Large Cap Growth	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	1.4	12.9	9.8
	Hedge Funds of Funds	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	0.9	11.5	9.6
	Cash	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	0.4	10.8	8.6
	60/40 Global Portfolio	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	0.0	10.2	7.8
	Real Estate	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	0.0	10.0	6.1
	Small Cap Equity	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	-0.1	6.5	4.7
	Commodities	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	-0.4	6.2	3.6
	Large Cap Equity	-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	-0.7	5.0	3.0
	US Bonds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	5.1	-1.5	3.5	2.7
	International Equity	-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	-1.5	1.8	1.6
	Small Cap Value	-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	-2.6	0.3	0.3
V	Large Cap Value	-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	-2.8	-8.3	-7.7
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WORST				12	rgo Car	Fauity			1	Sm	all Can	Growth				Con	nmodit	ios						
>					ige eur	ge Cap Equity Small					uncup	GIOWEI				01	innount							
				La	rge Cap	Value				International Equity						Rea	lEstate	5						
				La	rge Cap	Growt	h			Emerging Markets Equity				Hedge Funds of Funds										
				Sn	nall Cap	o Equity			US Bonds					60% MSCI ACWI/40% BBgBarc Global Bond										

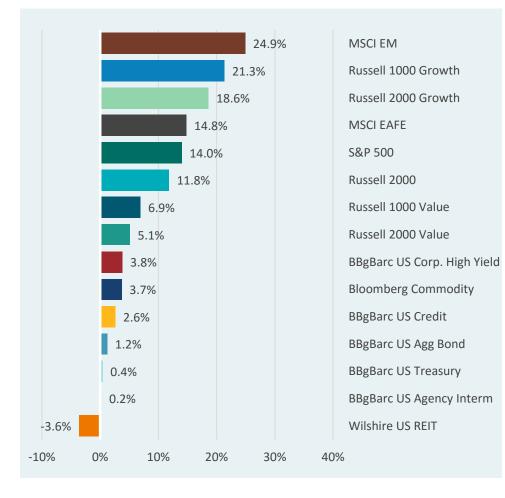
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/17.

Cash

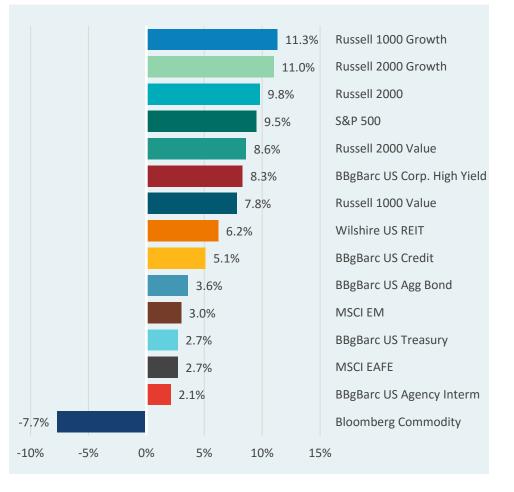


Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH

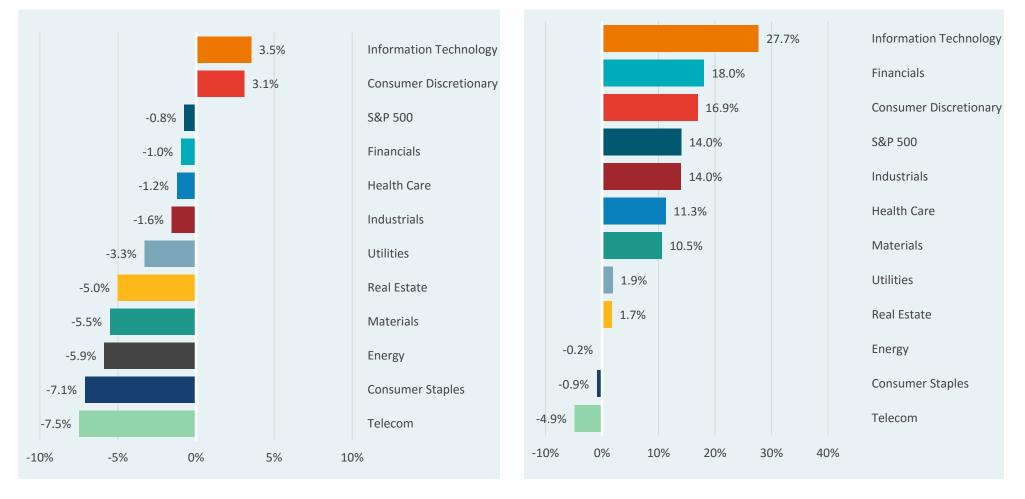


Source: Morningstar, as of 3/31/18

Source: Morningstar, as of 3/31/18

S&P 500 sector returns

1ST QUARTER



Source: Morningstar, as of 3/31/18

Source: Morningstar, as of 3/31/18

ONE YEAR ENDING MARCH



Investment Landscape 2nd Quarter 2018

Detailed index returns

DOMESTIC EQUITY								FIXED INCOME
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year	
Core Index								Broad Index
S&P 500	(2.5)	(0.8)	(0.8)	14.0	10.8	13.3	9.5	BBgBarc US TIPS
S&P 500 Equal Weighted	(0.9)	(1.0)	(1.0)	11.7	9.1	12.9	11.0	BBgBarc US Treasu
DJ Industrial Average	(3.6)	(2.0)	(2.0)	19.4	13.5	13.3	9.9	BBgBarc US Agg Bo
Russell Top 200	(3.2)	(0.8)	(0.8)	14.7	11.4	13.6	9.4	Duration
Russell 1000	(2.3)	(0.7)	(0.7)	14.0	10.4	13.2	9.6	BBgBarc US Treasu
Russell 2000	1.3	(0.1)	(0.1)	11.8	8.4	11.5	9.8	BBgBarc US Treasu
Russell 3000	(2.0)	(0.6)	(0.6)	13.8	10.2	13.0	9.6	BBgBarc US Treasu
Russell Mid Cap	0.1	(0.5)	(0.5)	12.2	8.0	12.1	10.2	Issuer
Style Index								BBgBarc US MBS
Russell 1000 Growth	(2.7)	1.4	1.4	21.3	12.9	15.5	11.3	BBgBarc US Corp.
Russell 1000 Value	(1.8)	(2.8)	(2.8)	6.9	7.9	10.8	7.8	BBgBarc US Agence
Russell 2000 Growth	1.3	2.3	2.3	18.6	8.8	12.9	11.0	BBgBarc US Credit
Russell 2000 Value	1.2	(2.6)	(2.6)	5.1	7.9	10.0	8.6	
INTERNATIONAL EQUITY								OTHER
Broad Index								Index
MSCI ACWI	(2.1)	(1.0)	(1.0)	14.8	8.1	9.2	5.6	Bloomberg Comm
MSCI ACWI ex US	(1.8)	(1.2)	(1.2)	16.5	6.2	5.9	2.7	Wilshire US REIT
MSCI EAFE	(1.8)	(1.5)	(1.5)	14.8	5.6	6.5	2.7	CS Leveraged Loar
MSCI EM	(1.9)	1.4	1.4	24.9	8.8	5.0	3.0	Regional Index
MSCI EAFE Small Cap	(1.1)	0.2	0.2	23.5	12.3	11.1	6.5	JPM EMBI Global I
Style Index								JPM GBI-EM Globa
MSCI EAFE Growth	(1.2)	(1.0)	(1.0)	17.5	6.7	7.1	3.4	Hedge Funds
MSCI EAFE Value	(2.4)	(2.0)	(2.0)	12.2	4.3	5.8	2.0	HFRI Composite
Regional Index								HFRI FOF Compos
MSCI UK	(0.3)	(3.9)	(3.9)	11.9	3.1	3.9	2.3	Currency (Spot)
MSCI Japan	(2.1)	0.8	0.8	19.6	8.4	8.9	4.1	Euro
MSCI Euro	(1.2)	(0.4)	(0.4)	16.1	5.7	8.1	0.7	Pound
MSCI EM Asia	(1.4)	0.8	0.8	27.0	9.4	8.4	5.2	Yen

8.0

8.0

19.3

10.1

(1.9)

(0.8)

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.1	(0.8)	(0.8)	0.9	1.3	0.0	2.9
BBgBarc US Treasury Bills	0.1	0.3	0.3	1.0	0.5	0.3	0.4
BBgBarc US Agg Bond	0.6	(1.5)	(1.5)	1.2	1.2	1.8	3.6
Duration							
BBgBarc US Treasury 1-3 Yr	0.2	(0.2)	(0.2)	(0.0)	0.4	0.5	1.1
BBgBarc US Treasury Long	3.0	(3.3)	(3.3)	3.5	0.4	3.3	5.8
BBgBarc US Treasury	0.9	(1.2)	(1.2)	0.4	0.4	1.1	2.7
Issuer							
BBgBarc US MBS	0.6	(1.2)	(1.2)	0.8	1.1	1.8	3.5
BBgBarc US Corp. High Yield	(0.6)	(0.9)	(0.9)	3.8	5.2	5.0	8.3
BBgBarc US Agency Interm	0.3	(0.4)	(0.4)	0.2	0.7	0.9	2.1
BBgBarc US Credit	0.3	(2.1)	(2.1)	2.6	2.2	2.8	5.1

OTHER

UTHER							
Index							
Bloomberg Commodity	(0.6)	(0.4)	(0.4)	3.7	(3.2)	(8.3)	(7.7)
Wilshire US REIT	4.1	(7.5)	(7.5)	(3.6)	1.0	6.1	6.2
CS Leveraged Loans	0.3	1.6	1.6	4.6	4.3	4.2	5.4
Regional Index							
JPM EMBI Global Div	0.3	(1.7)	(1.7)	4.3	5.8	4.7	7.0
JPM GBI-EM Global Div	1.0	4.4	4.4	13.0	5.4	(0.7)	3.8
Hedge Funds							
HFRI Composite	(0.7)	0.1	0.1	4.6	2.0	3.9	3.6
HFRI FOF Composite	(0.0)	0.9	0.9	6.2	2.1	3.5	1.6
Currency (Spot)							
Euro	0.8	2.4	2.4	15.0	4.6	(0.9)	(2.5)
Pound	1.8	3.7	3.7	12.2	(1.9)	(1.6)	(3.4)
Yen	0.3	5.9	5.9	4.8	4.1	(2.4)	(0.7)

Source: Morningstar, as of 3/31/18

(1.0)



MSCI EM Latin American

Definitions

Atlanta Fed Wage Tracker – a measure of the nominal wage growth of individuals. It is constructed using microdata from the Current Population Survey (CPS), and is the median percent change in the hourly wage of individuals observed 12 months apart. (www.frbatlanta.org)

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

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

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

OECD Purchasing Power Parity – the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between countries. In their simplest form, PPPs show the ratio of prices in national currencies of the same good or service in different countries. (<u>www.OECD.org</u>)

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Contra Costa County Employees' Retirement Association

Investment Performance Review Period Ending: March 31, 2018



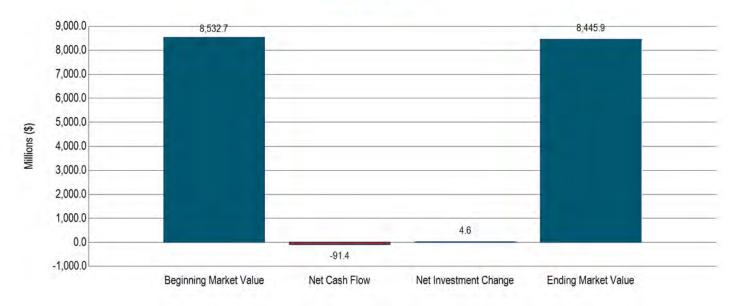
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Portfolio Reconciliation

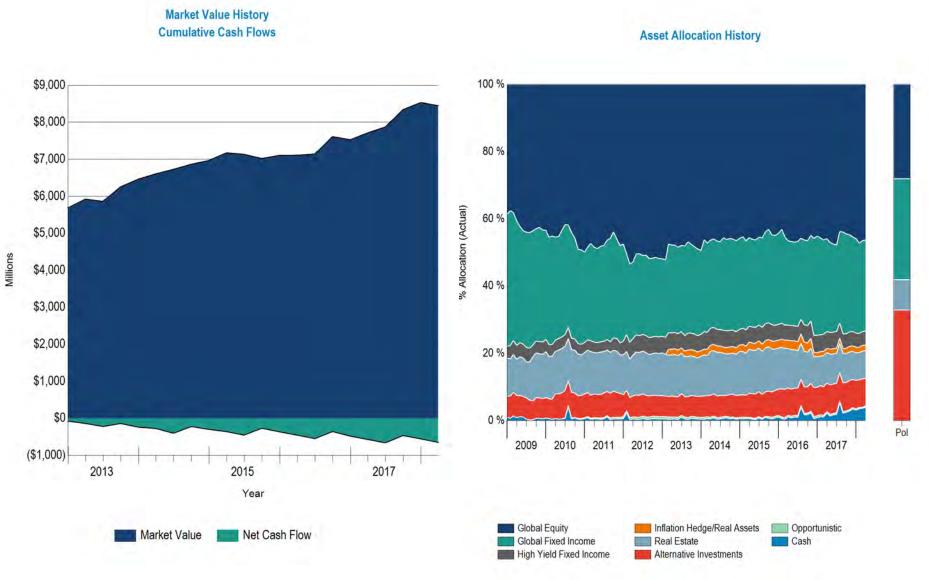
	Last Three Months	Year-To-Date
Beginning Market Value	\$8,532,697,023	\$8,532,697,023
Net Cash Flow	-\$91,377,174	-\$91,377,174
Net Investment Change	\$4,583,240	\$4,583,240
Ending Market Value	\$8,445,903,088	\$8,445,903,088

Change in Market Value Last Three Months

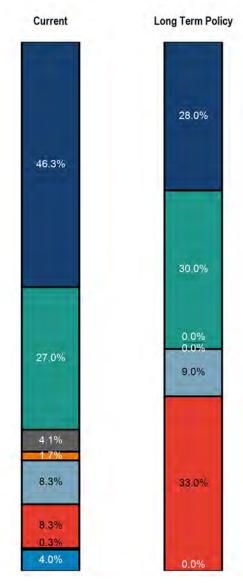


Contributions and withdrawals may include intra-account transfers between managers/funds.





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



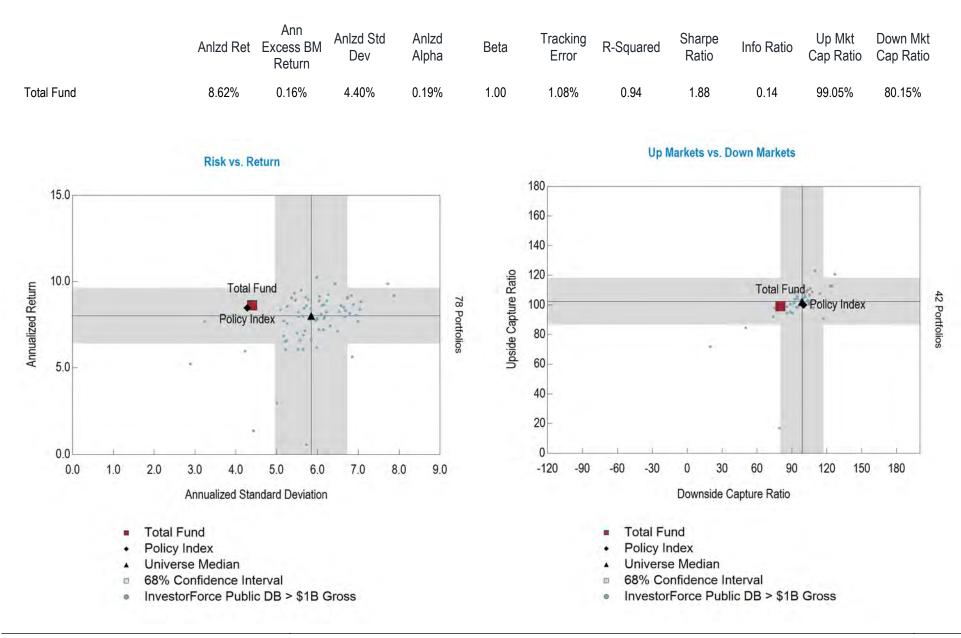
	Allocation vs. Long Term Target											
	Current Balance	Current Allocation	Long Term Target	Difference								
Global Equity	\$3,910,830,786	46.3%	28.0%	\$1,545,977,921								
Global Fixed Income	\$2,280,651,804	27.0%	30.0%	-\$253,119,123								
High Yield Fixed Income	\$349,782,801	4.1%	0.0%	\$349,782,801								
Inflation Hedge/Real Assets	\$141,109,267	1.7%	0.0%	\$141,109,267								
Real Estate	\$698,521,761	8.3%	9.0%	-\$61,609,517								
Alternative Investments	\$700,082,029	8.3%	33.0%	-\$2,087,065,990								
Opportunistic	\$26,035,088	0.3%	0.0%	\$26,035,088								
Cash	\$338,889,553	4.0%	0.0%	\$338,889,553								
Total	\$8,445,903,088	100.0%	100.0%									

Allocation vs. Current Targets

	Current Balance	Current Allocation	Current Target	Difference
Global Equity	\$3,910,830,786	46.3%	44.4%	\$160,849,814
Global Fixed Income	\$2,280,651,804	27.0%	27.4%	-\$33,525,642
High Yield Fixed Income	\$349,782,801	4.1%	5.0%	-\$72,512,353
Inflation Hedge/Real Assets	\$141,109,267	1.7%	3.9%	-\$188,280,953
Real Estate	\$698,521,761	8.3%	9.2%	-\$78,501,323
Alternative Investments	\$700,082,029	8.3%	8.2%	\$7,517,976
Opportunistic	\$26,035,088	0.3%	0.5%	-\$16,194,428
Cash	\$338,889,553	4.0%	1.4%	\$220,646,910
Total	\$8,445,903,088	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 Risk Analysis - 5 Years (Gross of Fees)



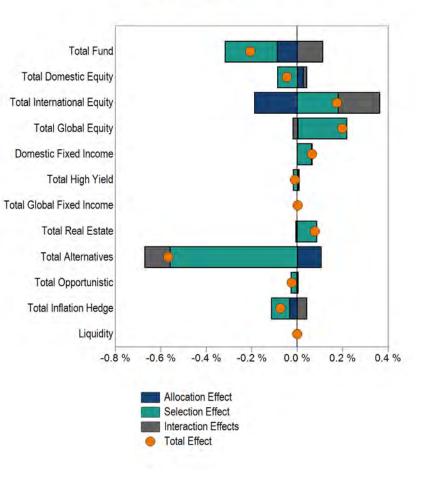
Verus⁷⁷

Total Fund Executive Summary (Gross of Fees)

	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	
Total Fund	100.0	0.1	10.3	6.7	8.6	7.2	
Policy Index		0.3	9.9	6.8	8.5		
InvestorForce Public DB > \$1B Gross Rank		54	71	70	26	11	
Total Fund ex Overlay & Cash	96.0	0.1	10.3	6.7	8.6	7.2	
Policy Index		0.3	9.9	6.8	8.5		
InvestorForce		49	71	70	26	11	
Growth	69.1	0.3	13.9				
Total Domestic Equity	17.3	-1.0	16.3	10.2	13.6	10.5	
Russell 3000		-0.6	13.8	10.2	13.0	9.6	
InvestorForce Public DB US Eq Gross Rank		86	13	42	12	8	
Total International Equity	20.1	0.5	18.5	6.6	7.7	2.6	
MSCI ACWI ex USA Gross		-1.1	17.0	6.7	6.4	3.2	
MSCI EAFE Gross		-1.4	15.3	6.0	7.0	3.2	
InvestorForce Public DB ex-US Eq Gross Rank		14	50	77	32	79	
International Equity	11.3	-0.7	16.1	6.1	7.4	2.4	
MSCI ACWI ex USA Gross		-1.1	17.0	6.7	6.4	3.2	
InvestorForce Public DB ex- US Eq Gross Rank		73	83	90	45	85	
Emerging Markets Equity	8.8	2.2	20.3				
MSCI Emerging Markets		1.4	24.9				
InvestorForce Public DB Emg Mkt Eq Gross Rank		35	71				

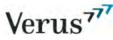
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Attribution Effects 3 Months Ending March 31, 2018



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% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML 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.

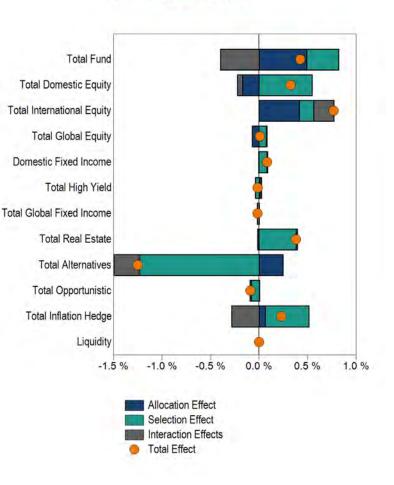
Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500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



Total Fund Executive Summary (Gross of Fees)

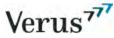
	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	
Total Global Equity	8.9	1.0	15.6	10.0	10.9		
MSCI ACWI		-1.0	14.8	8.1	9.2		
InvestorForce Public DB Glbl Eq Gross Rank		2	54	1	41		
Domestic Fixed Income	1.8	3.0	8.5	4.2	4.6		
ICE BofAML High Yield Master II +2%		-0.4	5.8	7.3	7.1		
Total High Yield	4.1	-1.3	3.0	4.2	4.3	7.9	
ICE BofAML High Yield Master II		-0.9	3.7	5.2	5.0	8.1	
eV US High Yield Fixed Inc Gross Rank		82	85	78	80	54	
Total Real Estate	8.3	2.0	10.7	8.1	11.5	6.2	
Real Estate Benchmark		1.0	6.6	6.3	8.7	6.9	
NCREIF-ODCE		2.2	8.1	10.0	11.4	5.1	
NCREIF Property Index		1.7	7.1	8.7	10.0	6.1	
Total Alternatives	8.3	0.3	9.6	8.2	12.7	9.6	
S&P 500 Index +4% (Lagged)		7.7	26.6	15.8	20.4	12.8	
Total Opportunistic	0.3	1.7	5.2	2.6	6.0		
CPI + 4%		2.2	6.4	5.9	5.5		
Diversifying	7.7	-0.6	4.5				
Diversifying Fixed Income	6.0	-0.8	1.2	1.5	2.2	4.0	
eV US Core Fixed Inc Gross Rank		7	79	56	54	72	
Total Inflation Hedge	1.7	0.0	18.1	9.1	5.1		
CPI + 4%		2.2	6.4	5.9	5.5		

Attribution Effects 1 Year Ending March 31, 2018



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% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML 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% ICE BofAML 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.

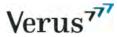


Total Fund Executive Summary (Gross of Fees)

	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Liquidity	19.2	-0.2	0.8			
BBgBarc US Govt/Credit 1-3 Yr. TR		-0.2	0.2			
eV US Short Duration Fixed Inc Gross Rank		60	48			
Total Cash	3.4	0.3	1.0	0.7	0.6	
91 Day T-Bills		0.4	1.2	0.5	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% ICE BofAML High Yield Master II +2%, 5.1% ICE

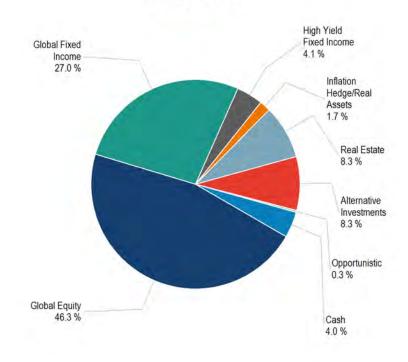
BofAML High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF ODCE Index, 3.6% CPI +4%, 8.1% S&P 500 +4%, 1.6% 90-day T-Bills. Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% ICE BofAML 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.



Total Fund Executive Summary (Net of Fees)

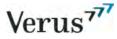
	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	100.0	0.0	10.0	6.3	8.1	6.6
Policy Index		0.3	9.9	6.8	8.5	
Total Fund ex Overlay & Cash	96.0	0.0	9.9	6.3	8.1	6.6
Policy Index		0.3	9.9	6.8	8.5	
Growth	69.1	0.2	13.5			
Total Domestic Equity	17.3	-1.1	15.8	9.7	13.1	10.0
Russell 3000		-0.6	13.8	10.2	13.0	9.6
Total International Equity	20.1	0.4	18.0	6.1	7.3	2.1
MSCI ACWI ex USA Gross		-1.1	17.0	6.7	6.4	3.2
MSCI EAFE Gross		-1.4	15.3	6.0	7.0	3.2
International Equity	11.3	-0.8	15.7	5.6	7.0	2.0
MSCI ACWI ex USA Gross		-1.1	17.0	6.7	6.4	3.2
Emerging Markets Equity	8.8	2.1	19.7			
MSCI Emerging Markets		1.4	24.9			
Total Global Equity	8.9	0.8	14.8	9.2	10.2	
MSCI ACWI		-1.0	14.8	8.1	9.2	
Domestic Fixed Income	1.8	3.0	8.5	4.0	4.3	
ICE BofAML High Yield Master II+2		-0.4	5.8	7.3	7.1	
Total High Yield	4.1	-1.3	2.6	3.8	3.9	7.6
ICE BofAML High Yield Master II		-0.9	3.7	5.2	5.0	8.1
Total Real Estate	8.3	2.0	10.7	7.6	10.5	5.2
Real Estate Benchmark		1.0	6.6	6.3	8.7	6.9
NCREIF-ODCE		2.2	8.1	10.0	11.4	5.1
NCREIF Property Index		1.7	7.1	8.7	10.0	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% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML 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% ICE BofAML 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.

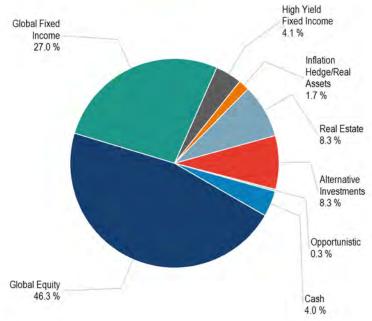


Total Fund Executive Summary (Net of Fees)

Period	Ending:	March	31.	2018
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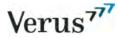
	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Alternatives	8.3	0.3	9.6	7.8	11.5	7.5
S&P 500 Index +4% (Lagged)		7.7	26.6	15.8	20.4	12.8
Total Opportunistic	0.3	1.7	5.2	2.4	5.8	
CPI + 4%		2.2	6.4	5.9	5.5	
Diversifying	7.7	-0.7	4.3			
Diversifying Fixed Income	6.0	-0.9	1.0	1.2	1.8	3.6
Total Inflation Hedge	1.7	0.0	18.1	8.5	4.3	
CPI + 4%		2.2	6.4	5.9	5.5	
Liquidity	19.2	-0.3	0.7			
BBgBarc US Govt/Credit 1-3 Yr. TR		-0.2	0.2			
Total Cash	3.4	0.3	1.0	0.7	0.6	
91 Day T-Bills		0.4	1.2	0.5	0.3	



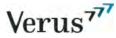


Policy Index (12/1/2016 -present): 22.9% Russell 3000, 11% MSCI ACWI ex-US (Gross), 10.9% MSCI ACWI (Net), 22.4% BBgBarc 1-3 Yr Gov/Credit, 3.2% BBgBarc US Aggregate, 1.7% ICE BofAML High Yield Master II +2%, 5.1% ICE BofAML High Yield Master II, 1% Wilshire REIT, 1.7% NCREIF Property Index, 6.8% NCREIF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

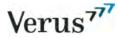
Policy Index (4/1/2012-11/30/16): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% BBgBarc U.S. Aggregate, 5% ICE BofAML High Yield Master II, 4% BBgBarc Global Aggregate, 5.4% Wilshire REIT, 6.75% NCREIF Property Index, 1.35% FTSE/EPRA NAREIT Developed exUS, 6.8% S&P 500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



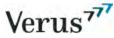
	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	8,445,903,088	100.0	0.1	10.3	6.7	8.6	7.2	14.2	7.4	2.7	8.4	16.4
Policy Index			0.3	9.9	6.8	8.5		13.8	8.8	0.6	9.0	15.6
InvestorForce Public DB > \$1B Gross Rank			54	71	70	26	11	83	74	5	6	33
Total Fund ex Overlay & Cash	8,107,013,535	96.0	0.1	10.3	6.7	8.6	7.2	14.1	7.4	2.7	8.4	16.4
Policy Index			0.3	9.9	6.8	8.5		13.8	8.8	0.6	9.0	15.6
InvestorForce Public DB > \$1B Gross Rank			49	71	70	26	11	84	74	5	6	33
Growth	5,837,485,248	69.1	0.3	13.9								
Total Domestic Equity	1,460,913,006	17.3	-1.0	16.3	10.2	13.6	10.5	23.9	11.5	1.1	11.4	36.2
Russell 3000			-0.6	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6
InvestorForce Public DB US Eq Gross Rank			86	13	42	12	8	6	77	21	50	19
BlackRock Russell 1000 Index	119,150,367	1.4	-0.7									
Russell 1000			-0.7									
eV US Large Cap Equity Gross Rank			50									
Jackson Square Partners	407,118,868	4.8	1.6	22.1	8.9	13.2	10.8	29.3	-4.4	6.1	13.9	35.4
Russell 1000 Growth			1.4	21.3	12.9	15.5	11.3	30.2	7.1	5.7	13.0	33.5
eV US Large Cap Growth Equity Gross Rank			60	44	91	80	56	47	98	37	31	40
Robeco Boston Partners	397,295,187	4.7	-1.5	13.6	9.3	12.6	10.5	20.1	15.1	-3.9	12.0	37.4
Russell 1000 Value			-2.8	6.9	7.9	10.8	7.8	13.7	17.3	-3.8	13.5	32.5
eV US Large Cap Value Equity Gross Rank			31	15	37	29	12	23	50	65	55	24
Emerald Advisers	283,871,667	3.4	-1.6	20.8	9.7	15.5	13.5	28.8	10.1	4.1	7.3	50.3
Russell 2000 Growth			2.3	18.6	8.8	12.9	11.0	22.2	11.3	-1.4	5.6	43.3
eV US Small Cap Growth Equity Gross Rank			93	51	57	20	22	26	54	19	21	27
Ceredex	253,419,337	3.0	-3.6	5.6	9.1	10.9		11.4	29.8	-4.4	3.3	36.5
Russell 2000 Value			-2.6	5.1	7.9	10.0		7.8	31.7	-7.5	4.2	34.5
eV US Small Cap Value Equity Gross Rank			82	71	41	65		48	32	52	74	66
Total International Equity	1,695,614,906	20.1	0.5	18.5	6.6	7.7	2.6	25.5	1.2	-1.2	0.3	17.8
MSCI ACWI ex USA Gross			-1.1	17.0	6.7	6.4	3.2	27.8	5.0	-5.3	-3.4	15.8
MSCI EAFE Gross			-1.4	15.3	6.0	7.0	3.2	25.6	1.5	-0.4	-4.5	23.3
InvestorForce Public DB ex-US Eq Gross Rank			14	50	77	32	79	90	89	28	5	50
International Equity	950,723,333	11.3	-0.7	16.1	6.1	7.4	2.4	25.3	1.2	-1.2	0.3	17.8
MSCI ACWI ex USA Gross			-1.1	17.0	6.7	6.4	3.2	27.8	5.0	-5.3	-3.4	15.8
InvestorForce Public DB ex-US Eq Gross Rank			73	83	90	45	85	93	89	28	5	50



	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Pyrford	453,344,092	5.4	-2.0	9.9	4.5			19.8	3.4	-2.9		
MSCI ACWI ex USA Value			-1.5	13.3	5.0			22.7	8.9	-10.1		
eV ACWI ex-US Value Equity Gross Rank			80	84	89			84	74	59		
William Blair	497,379,241	5.9	0.4	22.4	7.4	8.1		30.9	-1.4	0.5	-1.2	20.9
MSCI ACWI ex USA Growth			-0.9	19.9	7.3	6.8		32.0	0.1	-1.3	-2.6	15.5
eV ACWI ex-US Growth Equity Gross Rank			67	70	89	88		81	55	69	37	44
Emerging Markets Equity	744,891,573	8.8	2.2	20.3								
MSCI Emerging Markets			1.4	24.9								
InvestorForce Public DB Emg Mkt Eq Gross Rank			35	71								
PIMCO RAE Emerging Markets	382,799,181	4.5	3.3	19.9								
MSCI Emerging Markets			1.4	24.9								
eV Emg Mkts Equity Gross Rank			14	79								
TT Emerging Markets	362,092,392	4.3	1.0									
MSCI Emerging Markets			1.4									
eV Emg Mkts Equity Gross Rank			67									
Total Global Equity	754,302,873	8.9	1.0	15.6	10.0	10.9		23.7	7.6	2.2	5.2	23.7
MSCI ACWI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8
InvestorForce Public DB Glbl Eq Gross Rank			2	54	1	41		79	40	16	41	64
Artisan Partners	392,301,901	4.6	3.2	24.0	14.5	14.3		32.9	5.6	9.2	3.9	26.1
MSCI ACWI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8
eV All Global Equity Gross Rank			7	10	5	8		11	61	4	56	51
First Eagle	361,749,312	4.3	-1.3	7.6	7.5	8.1		15.1	11.7	0.2	4.5	17.9
MSCI ACWI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8
eV All Global Equity Gross Rank			59	89	68	79		89	19	49	51	80
Domestic Fixed Income	152,200,887	1.8	3.0	8.5	4.2	4.6		7.5	2.6	1.7	7.4	2.0
ICE BofAML High Yield Master II +2%			-0.4	5.8	7.3	7.1		9.6	19.8	-2.7	4.5	9.6
Total High Yield	349,782,801	4.1	-1.3	3.0	4.2	4.3	7.9	6.5	14.3	-3.5	1.2	8.8
ICE BofAML High Yield Master II			-0.9	3.7	5.2	5.0	8.1	7.5	17.5	-4.6	2.5	7.4
eV US High Yield Fixed Inc Gross Rank			82	85	78	80	54	74	47	68	83	28

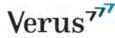


	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Allianz Global Investors	349,782,801	4.1	-1.3	3.0	4.2	4.3	7.9	6.5	14.3	-3.5	1.2	8.8
ICE BofAML High Yield Master II			-0.9	3.7	5.2	5.0	8.1	7.5	17.5	-4.6	2.5	7.4
eV US High Yield Fixed Inc Gross Rank			82	85	78	80	54	74	47	68	83	28
Total Real Estate	698,521,761	8.3	2.0	10.7	8.1	11.5	6.2	11.1	5.5	13.5	20.6	10.5
Real Estate Benchmark			1.0	6.6	6.3	8.7	6.9	7.1	6.7	8.3	18.8	7.1
NCREIF-ODCE			2.2	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.7	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
Adelante	63,257,765	0.7	-6.5	0.0	1.3	7.6	6.1	7.8	4.1	5.1	33.4	3.6
Wilshire REIT			-7.5	-3.6	1.0	6.1	6.2	4.2	7.2	4.2	31.8	1.9
Total Alternatives	700,082,029	8.3	0.3	9.6	8.2	12.7	9.6	10.9	9.0	13.3	17.3	15.0
S&P 500 Index +4% (Lagged)			7.7	26.6	15.8	20.4	12.8	23.3	20.0	3.4	24.5	24.0
Total Opportunistic	26,035,088	0.3	1.7	5.2	2.6	6.0		11.6	10.1	-12.2	8.7	16.8
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	5.6
Diversifying	651,079,191	7.7	-0.6	4.5								
Diversifying Fixed Income	509,969,924	6.0	-0.8	1.2	1.5	2.2	4.0	2.8	2.8	1.6	6.6	-1.9
eV US Core Fixed Inc Gross Rank			7	79	56	54	72	96	72	15	25	78
AFL-CIO	320,733,542	3.8	-1.2	1.5	1.5	2.2	4.1	3.6	2.4	1.6	6.6	-1.9
BBgBarc US Aggregate TR			-1.5	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
eV US Core Fixed Inc Gross Rank			25	64	57	54	69	76	87	15	25	78
Wellington Real Total Return	189,236,383	2.2	-0.1	1.2	-2.6	-1.5		1.9	-0.1	-4.9	-2.5	
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	
Total Inflation Hedge	141,109,267	1.7	0.0	18.1	9.1	5.1		19.6	14.9	-5.3	-0.6	1.3
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	5.6
Liquidity	1,618,449,096	19.2	-0.2	0.8				1.5				
BBgBarc US Govt/Credit 1-3 Yr. TR			-0.2	0.2				0.8				
eV US Short Duration Fixed Inc Gross Rank			60	48				50				



Period Ending: March 31, 2018

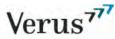
Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
366,956,381	4.3	-0.7	0.4				1.9				
		-0.5	0.2				1.3				
		99	84				26				
765,466,226	9.1	-0.2	0.8				1.5				
		-0.2	0.2				0.8				
		41	43				50				
486,026,489	5.8	0.0	1.0				1.3				
		-0.1	0.0				0.4				
		16	31				68				
286,129,622	3.4	0.3	1.0	0.7	0.6		0.9	0.9	0.1	-3.0	8.8
		0.4	1.2	0.5	0.3		0.9	0.3	0.0	0.0	0.0
286,129,622	3.4	0.3	1.0	0.7	1.4	3.2	0.9	0.9	0.1	1.4	4.5
	366,956,381 765,466,226 486,026,489 286,129,622	Market Value Portfolio 366,956,381 4.3 765,466,226 9.1 486,026,489 5.8 286,129,622 3.4	Market Value Portfolio 3 Mo 366,956,381 4.3 -0.7 -0.5 99 765,466,226 9.1 -0.2 -0.2 -0.1 16 286,129,622 3.4	Market Value Portfolio 3 Mo I Yr 366,956,381 4.3 -0.7 0.4 -0.5 0.2 99 84 765,466,226 9.1 -0.2 0.2 41 43 -0.1 0.0 16 31 -0.1 0.0 16 31 0.4 1.2	Market Value Portfolio 3 Mo I Yr 3 Yrs 366,956,381 4.3 -0.7 0.4 -0.5 0.2 99 84 99 84 -0.2 0.8 -0.2 0.2 41 43 486,026,489 5.8 0.0 1.0 -0.1 0.0 286,129,622 3.4 0.3 1.0 0.7 0.5	Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs 366,956,381 4.3 -0.7 0.4 -0.5 0.2 99 84 765,466,226 9.1 -0.2 0.8 -0.2 0.2 41 43 486,026,489 5.8 0.0 1.0 -0.1 0.0 16 31 16 31 286,129,622 3.4 0.3 1.0 0.7 0.6	Market Value Portfolio 3 MO 1 Yr 3 Yrs 5 Yrs 10 Yrs 366,956,381 4.3 -0.7 0.4 -0.5 0.2 <t< td=""><td>Market Value Portfolio 3 MO 1 Yr 3 Yrs 5 Yrs 10 Yrs 2017 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 1.5 -0.2 0.2 1.5 0.8 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.3 -0.1 0.0 1.3 0.4 16 31 68 286,129,622 3.4 0.3 1.0 0.7 0.6 0.9 0.4 1.2<</td><td>Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs 10 Yrs 2017 2016 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.1 0.0 0.8 486,026,489 5.8 0.0 1.0 0.4 -16 31 68 286,129,622 3.4<td>Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 </td><td>Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 2014 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.4 43 1.3 486,026,489 5.8 0.0 1.0 </td></td></t<>	Market Value Portfolio 3 MO 1 Yr 3 Yrs 5 Yrs 10 Yrs 2017 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 1.5 -0.2 0.2 1.5 0.8 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.5 -0.2 0.2 0.8 1.3 -0.1 0.0 1.3 0.4 16 31 68 286,129,622 3.4 0.3 1.0 0.7 0.6 0.9 0.4 1.2<	Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs 10 Yrs 2017 2016 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.1 0.0 0.8 486,026,489 5.8 0.0 1.0 0.4 -16 31 68 286,129,622 3.4 <td>Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 </td> <td>Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 2014 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.4 43 1.3 486,026,489 5.8 0.0 1.0 </td>	Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8	Market Value Portfolio 3 Mo I Yr 3 Yrs 5 Yrs I0 Yrs 2017 2016 2015 2014 366,956,381 4.3 -0.7 0.4 1.9 -0.5 0.2 1.3 99 84 26 765,466,226 9.1 -0.2 0.8 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.2 0.2 0.8 -0.4 43 1.3 486,026,489 5.8 0.0 1.0



Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	8,445,903,088	100.0	0.0	10.0	6.3	8.1	6.6	13.9	6.9	2.1	7.7	15.6
Policy Index			0.3	9.9	6.8	8.5		13.8	8.8	0.6	9.0	15.6
Total Fund ex Overlay & Cash	8,107,013,535	96.0	0.0	9.9	6.3	8.1	6.6	13.8	6.9	2.1	7.7	15.6
Policy Index			0.3	9.9	6.8	8.5		13.8	8.8	0.6	9.0	15.6
Growth	5,837,485,248	69.1	0.2	13.5								
Total Domestic Equity	1,460,913,006	17.3	-1.1	15.8	9.7	13.1	10.0	23.5	11.1	0.6	11.0	35.7
Russell 3000			-0.6	13.8	10.2	13.0	9.6	21.1	12.7	0.5	12.6	33.6
BlackRock Russell 1000 Index	119,150,367	1.4	-0.7									
Russell 1000			-0.7									
Jackson Square Partners	407,118,868	4.8	1.5	21.6	8.4	12.8	10.3	28.7	-4.8	5.6	13.4	35.0
Russell 1000 Growth			1.4	21.3	12.9	15.5	11.3	30.2	7.1	5.7	13.0	33.5
Robeco Boston Partners	397,295,187	4.7	-1.6	13.2	8.9	12.2	10.1	19.7	14.7	-4.2	11.6	37.0
Russell 1000 Value			-2.8	6.9	7.9	10.8	7.8	13.7	17.3	-3.8	13.5	32.5
Emerald Advisers	283,871,667	3.4	-1.7	20.1	9.1	14.8	12.8	28.0	9.4	3.5	6.6	49.4
Russell 2000 Growth			2.3	18.6	8.8	12.9	11.0	22.2	11.3	-1.4	5.6	43.3
Ceredex	253,419,337	3.0	-3.8	5.0	8.4	10.2		10.7	29.1	-5.0	2.7	35.8
Russell 2000 Value			-2.6	5.1	7.9	10.0		7.8	31.7	-7.5	4.2	34.5
Total International Equity	1,695,614,906	20.1	0.4	18.0	6.1	7.3	2.1	25.0	0.8	-1.6	0.0	17.4
MSCI ACWI ex USA Gross			-1.1	17.0	6.7	6.4	3.2	27.8	5.0	-5.3	-3.4	15.8
MSCI EAFE Gross			-1.4	15.3	6.0	7.0	3.2	25.6	1.5	-0.4	-4.5	23.3
International Equity	950,723,333	11.3	-0.8	15.7	5.6	7.0	2.0	24.8	0.8	-1.6	0.0	17.4
MSCI ACWI ex USA Gross			-1.1	17.0	6.7	6.4	3.2	27.8	5.0	-5.3	-3.4	15.8
Pyrford	453,344,092	5.4	-2.1	9.5	4.1			19.3	3.0	-3.3		
MSCI ACWI ex USA Value			-1.5	13.3	5.0			22.7	8.9	-10.1		
William Blair	497,379,241	5.9	0.3	22.0	7.0	7.7		30.4	-1.8	0.0	-1.7	20.4
MSCI ACWI ex USA Growth			-0.9	19.9	7.3	6.8		32.0	0.1	-1.3	-2.6	15.5
Emerging Markets Equity	744,891,573	8.8	2.1	19.7								
MSCI Emerging Markets			1.4	24.9								
PIMCO RAE Emerging Markets	382,799,181	4.5	3.3	19.4								
MSCI Emerging Markets			1.4	24.9								
TT Emerging Markets	362,092,392	4.3	0.9									
MSCI Emerging Markets			1.4									
Total Global Equity	754,302,873	8.9	0.8	14.8	9.2	10.2		22.8	6.9	1.6	4.5	22.9
MSCI ACWI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8

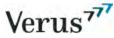
Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$17,079 of residual cash. JPM Global has \$225,965 of residual cash. Lazard has \$31,896 of residual cash. 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 -\$1,255 of residual cash. Intech Global Low Vol has \$25,695 of residual cash. PIMCO Stock Plus has \$58,835 of residual cash.



Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Artisan Partners	392,301,901	4.6	3.0	23.0	13.7	13.4		31.9	4.8	8.4	3.1	25.2
MSCI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8
First Eagle	361,749,312	4.3	-1.5	6.8	6.7	7.3		14.3	10.9	-0.6	3.7	17.1
MSCI ACWI			-1.0	14.8	8.1	9.2		24.0	7.9	-2.4	4.2	22.8
Domestic Fixed Income	152,200,887	1.8	3.0	8.5	4.0	4.3		7.5	2.1	1.4	6.9	1.6
ICE BofAML High Yield Master II +2%			-0.4	5.8	7.3	7.1		9.6	19.8	-2.7	4.5	9.6
Total High Yield	349,782,801	4.1	-1.3	2.6	3.8	3.9	7.6	6.1	13.9	-3.9	0.8	8.4
ICE BofAML High Yield Master II			-0.9	3.7	5.2	5.0	8.1	7.5	17.5	-4.6	2.5	7.4
Allianz Global Investors	349,782,801	4.1	-1.3	2.6	3.8	3.9	7.4	6.1	13.9	-3.9	0.8	8.4
ICE BofAML High Yield Master II			-0.9	3.7	5.2	5.0	8.1	7.5	17.5	-4.6	2.5	7.4
Total Real Estate	698,521,761	8.3	2.0	10.7	7.6	10.5	5.2	11.0	4.8	12.4	19.1	8.9
Real Estate Benchmark			1.0	6.6	6.3	8.7	6.9	7.1	6.7	8.3	18.8	7.1
NCREIF-ODCE			2.2	8.1	10.0	11.4	5.1	7.6	8.8	15.0	12.5	13.9
NCREIF Property Index			1.7	7.1	8.7	10.0	6.1	7.0	8.0	13.3	11.8	11.0
Adelante	63,257,765	0.7	-6.6	-0.5	0.8	7.1	5.5	7.2	3.6	4.6	32.7	3.0
Wilshire REIT			-7.5	-3.6	1.0	6.1	6.2	4.2	7.2	4.2	31.8	1.9
Total Alternatives	700,082,029	8.3	0.3	9.6	7.8	11.5	7.5	10.9	8.6	11.7	15.2	12.7
S&P 500 Index +4% (Lagged)			7.7	26.6	15.8	20.4	12.8	23.3	20.0	3.4	24.5	24.0
Total Opportunistic	26,035,088	0.3	1.7	5.2	2.4	5.8		11.6	9.5	-12.3	8.7	16.8
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	5.6
Diversifying	651,079,191	7.7	-0.7	4.3								
Diversifying Fixed Income	509,969,924	6.0	-0.9	1.0	1.2	1.8	3.6	2.6	2.3	1.1	6.1	-2.4
AFL-CIO	320,733,542	3.8	-1.3	1.0	1.1	1.7	3.6	3.2	1.9	1.1	6.1	-2.4
BBgBarc US Aggregate TR			-1.5	1.2	1.2	1.8	3.6	3.5	2.6	0.6	6.0	-2.0
Wellington Real Total Return	189,236,383	2.2	-0.1	1.2	-3.0	-1.9		1.9	-0.6	-5.4	-3.1	
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	
Total Inflation Hedge	141,109,267	1.7	0.0	18.1	8.5	4.3		19.6	13.7	-6.7	-1.5	0.3
CPI + 4%			2.2	6.4	5.9	5.5		6.2	6.2	4.8	4.8	5.6
Liquidity	1,618,449,096	19.2	-0.3	0.7				1.4				
BBgBarc US Govt/Credit 1-3 Yr. TR			-0.2	0.2				0.8				
DFA Short Credit	366,956,381	4.3	-0.8	0.3				1.8				
ICE BofAML 1-5 Yrs US Corp & Govt TR			-0.5	0.2				1.3				

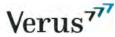
Individual closed end funds are not shown in performance summary table. PIMCO RAE EM funded 2/28/2017. JPM Global liquidated 2/28/2017. BlackRock Russell 1000 funded 4/20/2017. Goldman Sachs has \$17,079 of residual cash. JPM Global has \$225,965 of residual cash. Lazard has \$31,896 of residual cash. 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 -\$1,255 of residual cash. Intech Global Low Vol has \$25,695 of residual cash. PIMCO Stock Plus has \$58,835 of residual cash.



Period Ending: March 31, 2018

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Insight Short Duration	765,466,226	9.1	-0.2	0.8				1.5				
BBgBarc US Govt/Credit 1-3 Yr. TR			-0.2	0.2				0.8				
Sit Short Duration	486,026,489	5.8	0.0	0.8				1.1				
BBgBarc US Govt 1-3 Yr TR			-0.1	0.0				0.4				
Total Cash	286,129,622	3.4	0.3	1.0	0.7	0.6		0.9	0.9	0.1	-3.0	8.8
91 Day T-Bills			0.4	1.2	0.5	0.3		0.9	0.3	0.0	0.0	0.0
Cash	286,129,622	3.4	0.3	1.0	0.7	1.4	2.8	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 \$17,079 of residual cash. JPM Global has \$225,965 of residual cash. Lazard has \$31,896 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 -\$1,255 of residual cash. Intech Global Low Vol has \$25,695 of residual cash. PIMCO Stock Plus has \$58,835 of residual cash.



			Verus Internal Analysis									
Inception Date		Estimated Market Value as of 3/31/18 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 Incom	le	and the second second	- and the second	an anna an	and the second second		and the second party of					lle anteres
7/1/2006	Torchlight II	\$42,050,435	\$128,000,000	100%	\$128,000,000	\$0	\$0	\$162,016,952	\$0	1.27	1.59	3/31/2018
12/12/2008	Torchlight III	\$2,349,629	\$75,000,000	100%	\$75,000,000	\$0	\$3,530,048	\$109,160,219	\$0	1.46	1.49	3/31/2018
8/1/2012	Torchlight IV	\$42,691,274	\$60,000,000	100%	\$60,000,000	\$0	\$5,979,463	\$66,801,807	\$0	1.11	1.82	3/31/2018
3/12/2015	Torchlight V	\$49,428,363	\$75,000,000	60%	\$44,999,912	\$0	\$0	\$1,809,848	\$30,000,088	0.04	1.14	12/31/2017
2/2/2018	Stepstone CC Opportunities Fund	\$15,657,141	\$200,000,000	8%	\$15,657,141	\$15,657,141	\$0	\$0	\$184,342,859	0.00	1.00	N/A
	Total Fixed Income	\$152,176,842										
	% of Portfolio (Market Value)	1.8%										
Inflation Hee	lge							Louis -				4
11/27/2013	Aether Real Assets III	\$23,265,552	\$25,000,000	77%	\$19,135,133	\$449,538	\$123,651	\$940,554	\$6,671,958	0.05	1.27	9/30/2017
11/27/2013	Aether Real Assets III Surplus	\$58,799,252	\$50,000,000	89%	\$44,438,658	\$945,290	\$177,841	\$789,814	\$6,124,823	0.02	1.34	9/30/2017
3/16/2016	Aether Real Assets IV	\$16,774,950	\$50,000,000	39%	\$19,453,951	\$780,115	\$3,844,060	\$3,993,014	\$30,397,095	0.21	1.07	9/30/2017
6/28/2013	Commonfund	\$42,269,513	\$50,000,000	78%	\$39,000,000	\$1,250,000	\$1,098,325	\$0	\$11,000,000	0.00	1.08	9/30/2017
	Total Inflation Hedge	\$141,109,267										
	% of Portfolio (Market Value)	1.7%										
Opportunist	ic											P
	Oaktree PIF 2009	\$9,461,507	\$40,000,000	87%	\$34,800,000	\$0	\$3,760,000	\$38,398,579	\$6,308,960	1.10	1.38	3/31/2018
2/18/2010												10/01/00/7
2/18/2010 9/24/2015	Angelo Gordon Energy Credit Opp.	\$9,805,472	\$28,125,000	67%	\$18,750,000	\$0	\$1,155,000	\$14,250,816	\$9,375,000	0.76	1.28	12/31/2017
	Angelo Gordon Energy Credit Opp. Wastewater Opportunity Fund	\$9,805,472 \$6,768,109	\$28,125,000 \$25,000,000	67% 25%	\$18,750,000 \$6,167,751	\$0 \$2,112,421	\$1,155,000 \$0	\$14,250,816 \$0	\$9,375,000 \$18,832,249	0.76 0.00	1.28 1.10	12/31/2017 12/31/2017
9/24/2015	-					the second se						

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

Verus⁷⁷

			Verus Internal Analysis									
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 3/31/18 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								. It was a set of	- Andrew Street and Street			1
1/23/2012	Angelo Gordon Realty Fund VIII	\$39,895,542	\$80,000,000	94%	\$75,401,855	\$0	\$3,800,000	\$78,152,397	\$12,334,302	1.04	1.57	12/31/2017
12/8/2014	Angelo Gordon Realty Fund IX	\$45,002,926	\$65,000,000	61%	\$39,487,500	\$3,575,000	\$4,225,000	\$5,200,000	\$25,844,000	0.13	1.27	12/31/2017
6/23/2005	DLJ RECP III	\$23,268,146	\$75,000,000	95%	\$70,968,662	\$0	\$0	\$72,565,242	\$4,031,338	1.02	1.35	12/31/2017
2/11/2008	DLJ RECP IV	\$95,587,343	\$100,000,000	92%	\$92,307,371	\$2,020,388	\$3,835,032	\$62,980,698	\$7,692,629	0.68	1.72	12/31/2017
7/1/2014	DLJ RECP V	\$34,730,853	\$75,000,000	71%	\$53,538,538	\$0	\$0	\$39,992,931	\$40,791,875	0.75	1.40	12/31/2017
6/17/1998	Hearthstone II ⁴	-\$14,920	\$25,000,000	80%	\$19,932,386	\$0	\$0	\$19,952,734	\$2,520,348	1.00	1.00	12/31/2017
11/26/2007	Invesco Real Estate II	\$446,612	\$85,000,000	92%	\$78,202,813	\$0	\$0	\$100,620,489	\$6,797,187	1.29	1.29	3/31/2017
6/30/2013	Invesco Real Estate III	\$13,079,388	\$35,000,000	93%	\$32,386,423	\$0	\$0	\$32,987,218	\$2,613,577	1.02	1.42	3/31/2017
6/30/2014	Invesco Real Estate IV	\$21,280,482	\$35,000,000	70%	\$24,520,622	\$0	\$0	\$7,578,475	\$10,479,378	0.31	1.18	3/31/2017
7/16/2013	LaSalle Income & Growth VI	\$34,667,850	\$75,000,000	95%	\$71,428,571	\$0	\$5,002,810	\$70,239,356	\$3,571,429	0.98	1.47	12/31/2017
2/28/2017	LaSalle Income & Growth VII	\$52,280,012	\$75,000,000	62%	\$46,589,379	\$0	\$0	\$0	\$28,410,621	0.00	1.12	12/31/2017
7/3/2013	Long Wharf Fund IV	\$14,784,203	\$25,000,000	100%	\$25,000,000	\$0	\$3,994,871	\$20,033,537	\$0	0.80	1.39	3/31/2017
9/30/2016	Long Wharf Fund V	\$33,763,881	\$50,000,000	65%	\$32,360,334	\$6,900,491	\$0	\$1,028,219	\$17,639,666	0.03	1.08	3/31/2017
12/31/2011	Oaktree REOF V	\$7,978,993	\$50,000,000	100%	\$50,000,000	\$0	\$2,133,211	\$77,756,587	\$25,750,000	1.56	1.71	3/31/2017
9/30/2013	Oaktree REOF VI5	\$50,992,134	\$80,000,000	100%	\$80,000,000	\$0	\$9,513,578	\$59,588,388	\$18,400,000	0.74	1.38	3/31/2017
4/1/2015	Oaktree REOF VII	\$12,541,185	\$65,000,000	20%	\$13,000,000	\$3,250,000	\$0	\$4,615,000	\$56,615,000	0.36	1.32	3/31/2017
11/10/2013	Paulson Real Estate Fund II	\$24,891,170	\$20,000,000	97%	\$19,345,623	\$0	\$0	\$4,594,996	\$654,377	0.24	1.52	12/31/2017
1/25/2012	Siguler Guff DREOF	\$53,783,718	\$75,000,000	93%	\$69,375,000	\$0	\$1,379,600	\$65,665,303	\$5,625,000	0.95	1.72	12/31/2017
8/31/2013	Siguler Guff DREOF II	\$55,330,841	\$70,000,000	80%	\$55,720,000	\$0	\$3,026,623	\$13,340,811	\$14,280,000	0.24	1.23	9/30/2017
1/27/2016	Siguler Guff DREOF II Co-Inv	\$20,973,638	\$25,000,000	79%	\$19,850,362	\$2,750,000	\$0	\$0	\$5,149,638	0.00	1.06	9/30/2017
	Total Closed End Real Estate	\$635,263,996	\$1,185,000,000	82%	\$969,415,439	\$18,495,879	\$36,910,724	\$736,892,382	\$289,200,365	0.30	0.95	
	% of Portfolio (Market Value)	7.5%										

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

⁴No further capital to be called

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

⁶Total distributions may include recallable distributions

Verus⁷⁷

Total Fund Closed End Funds - Investment Summary

			Verus Internal Analysis										
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 3/31/18 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 Equi	ty & Venture Capital					a luvar						E.	
3/18/1996	Adams Street Partners	\$138,942,201	\$210,000,000	83%	\$173,767,618	\$2,425,000	\$4,509,376	\$114,023,429	\$36,232,382	0.66	1.46	12/31/2017	
1/16/2009	Adams Street Partners II	\$11,258,400	\$30,000,000	95%	\$28,365,000	\$0	\$0	\$35,718,244	\$1,635,000	1.26	1.66	12/31/2017	
9/21/2012	Adams Street Partners - Fund 5	\$24,524,106	\$40,000,000	77%	\$30,611,900	\$0	\$906,392	\$10,613,177	\$9,388,100	0.35	1.15	12/31/2017	
1/18/1996	Adams Street Partners - BPF	\$2,773,988	\$59,565,614	97%	\$57,517,409	\$0	\$578,218	\$101,648,107	\$2,048,205	1.77	1.82	12/31/2017	
4/28/2017	Adams Street Venture Innovation	\$6,195,074	\$75,000,000	10%	\$7,162,500	\$0	\$0	\$0	\$67,837,500	0.00	0.86	12/31/2017	
6/14/2004	Bay Area Equity Fund	\$2,900,756	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$36,331,243	\$0	3.63	3.92	12/31/2017	
12/7/2009	Bay Area Equity Fund II	\$10,795,460	\$10,000,000	100%	\$10,000,000	\$0	\$0	\$2,026,313	\$0	0.20	1.28	12/31/2017	
11/26/2003	EIF US Power Fund I	\$56,407	\$30,000,000	100%	\$30,000,000	\$0	\$0	\$64,404,030	\$0	2.15	2.15	12/31/2017	
8/16/2005	EIF US Power Fund II ⁵	\$28,218,419	\$50,000,000	100%	\$50,000,000	\$0	\$2,610,824	\$51,164,099	50	1.02	1.59	12/31/2017	
5/30/2007	EIF US Power Fund III ⁶	\$34,513,591	\$65,000,000	100%	\$65,000,000	\$0	\$3,972,222	\$59,082,424	\$0	0.91	1.44	12/31/2017	
11/28/2011	EIF US Power Fund IV ⁴	\$47,366,503	\$50,000,000	113%	\$56,555,731	\$379,578	\$740,697	\$19,150,781	\$6,308,439	0.34	1.18	12/31/2017	
11/28/2016	EIF US Power Fund V	\$6,465,893	\$50,000,000	22%	\$11,078,680	\$0	\$0	\$4,254,292	\$38,921,320	0.38	0.97	12/31/2017	
5/24/2011	Pathway 6	\$37,264,746	\$40,000,000	86%	\$34,293,286	\$1,074,001	\$1,296,870	\$10,953,093	\$5,706,714	0.32	1.41	12/31/2017	
2/7/2013	Pathway 7	\$57,207,027	\$70,000,000	76%	\$53,506,882	\$157,500	\$861,609	\$6,746,475	\$16,493,118	0.13	1.20	12/31/2017	
11/23/2015	Pathway 8	\$25,212,905	\$50,000,000	46%	\$23,161,211	\$1,681,181	\$1,224,806	\$2,252,118	\$26,838,789	0.10	1.19	12/31/2017	
11/9/1998	Pathway	\$24,866,929	\$125,000,000	98%	\$122,393,914	\$0	\$2,751,379	\$161,163,526	\$2,606,086	1.32	1.52	12/31/2017	
12/26/2008	Pathway 2008	\$24,124,620	\$30,000,000	94%	\$28,118,528	\$462,761	\$897,578	\$18,889,751	\$1,881,472	0.67	1.53	12/31/2017	
1/31/2008	Carpenter Bancfund	\$5,950,479	\$30,000,000	97%	\$29,239,890	\$0	\$0	\$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	\$0	\$12,326,577	\$111,251	0.83	0.83	3/31/2017	
11/30/2007	Paladin III	\$20,393,337	\$25,000,000	101%	\$25,326,455	\$0	\$7,651,886	\$23,414,348	\$983,203	0.92	1.73	12/31/2017	
6/11/2014	Ocean Avenue Fund II	\$24,719,642	\$30,000,000	73%	\$21,900,000	\$900,000	\$0	\$3,589,938	\$8,100,000	0.16	1.29	12/31/2017	
4/15/2016	Ocean Avenue Fund III	\$18,795,427	\$50,000,000	37%	\$18,500,000	\$0	\$0	\$1,000,000	\$31,500,000	0.05	1.07	12/31/2017	
6/3/2014	Siguler Guff CCCERA Opportunities	\$132,632,172	\$200,000,000	64%	\$128,552,500	\$5,900,000	\$14,856,909	\$22,222,898	\$71,447,500	0.17	1.20	9/30/2017	
11/30/2016	Siguler Guff Secondary Opportunities	\$14,869,762	\$50,000,000	49%	\$24,616,556	\$0	\$3,148,534	\$16,323,604	\$25,383,444	0.66	1.27	9/30/2017	
т	otal Private Equity and Venture Capital	\$700,082,029	\$1,394,565,614	74%	\$1,029,856,607	\$12,980,021	\$46,007,300	\$821,275,359	\$354,401,598	0.80	1.48		

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

Verus⁷⁷

Total Fund Closed End Funds - IRR Summary

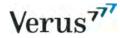
Fixed Income	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date	
TorchlightII	07/01/2006				-1.4%	12/31/2017 03/31/2018 03/31/2018 12/31/2017 -	
Torchlight III	12/12/2008	18.3%	16.4%	13.7%	13.8%		
TorchlightIV	08/01/2012	13.6%	14.0%	10.5%	11.2%		
Torchlight V	03/12/2015	22.9%	22.7%	13.3%	13.2%		
Stepstone CC Opportunities Fund ¹	02/02/2018	(d)		-			
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		4	16.9%	-	09/30/2017	
Aether Real Assets IV ¹	01/01/2016	C-10			-		
CommonFund ⁴	06/28/2013		11.4%		8.4%	09/30/2017	
Wastewater Opportunity Fund	12/08/2015	-2.0%		-21.9%		12/31/2017	
Opportunistic	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA(N)	IRR Date	
Oaktree PIF 2009	02/18/2010	7.3%	-	7.1%	-	03/31/2018	
Angelo Gordon Energy Cred Opp.	09/24/2015		-	17.3%	15.0%	12/31/2017	
RealEstate	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date	
Angelo Gordon VIII	01/23/2012			14.6%	16.2%	12/31/2017	
Angelo Gordon IX	12/08/2014	(13.2%	12.6%	12/31/2017	
DLJ RECP III	06/23/2005	1.0%	1.0%	-1.0%	-1.0%	12/31/2017	
DLJ RECP IV	02/11/2008	7.0%	7.0%	5.0%	5.0%	12/31/2017	
DLJ RECP V	07/01/2014	31.0%	31.0%	17.0%	17.0%	12/31/2017	
Hearthstone II	06/17/1998	1.1.1	30.1%		30.1%	12/31/2017	
Invesco Fund III	06/30/2013	21.0%	-	15.2%		12/31/2017	
Invesco Fund IV	06/30/2014	20.3%		14.1%		12/31/2017	
LaSalle Income & Growth VI	07/16/2013	16.7%	-	13.8%	-	12/31/2017	
LaSalle Income & Growth VII ¹	02/28/2017		-		4	1000	
Long Wharf IV	07/03/2013	18.0%	18.2%	12.9%	12.9%	03/31/2018	
Long Wharf V	09/30/2016	14.3%	18.1%	7.4%	9.2%	03/31/2018	
Oaktree REOF V	12/31/2011	17.4%		12.9%	-	03/31/2018	
Oaktree REOF VI	09/30/2013	15.2%		10.2%		03/31/2018	
Oaktree REOF VII ¹	04/01/2015	140.4%		66.2%	4	03/31/2018	
Paulson ¹	11/10/2013		-	-	÷.		
Siguler Guff I	01/25/2012	16.9%	18.0%	15.2%	14.8%	12/31/2017	
Siguler Guff II	08/31/2013	14.7%	14.2%	13.2%	11.7%	12/31/2017	
Siguler Guff DREOF II Co-Inv	01/27/2016	17.42	17.1%	16.4	13.7%	12/31/2017	

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.



Private Equity & Venture Capital	Inception	Fund Level (G)	CCCERA (G)	Fund Level (N)	CCCERA (N)	IRR Date
Adams Street Partners	3/18/1996	11.4%	12.3%		9.7%	12/31/2017
Adams Street Partners II	1/16/2009	17.2%	17.4%		14.9%	12/31/2017
Adams Street Partners - Fund 5	9/21/2012	9.1%	9.1%		6.4%	12/31/2017
Adams Street Partners Venture ¹	4/28/2017	-18.1%	-18.1%	÷.	-28.4%	12/31/2017
Adams Street Partners - BPF	1/18/1996	14.3%	14.3%	-	11.6%	12/31/2017
Bay Area Equity Fund I	6/14/2004	25.9%		23.3%	-	12/31/2017
Bay Area Equity Fund II	12/7/2009	6.1%		5.0%		12/31/2017
Energy Investor Fund	11/26/2003	33.5%	34.7%	28.5%	28.3%	12/31/2017
Energy Investor Fund II	8/16/2005	6.6%	6.1%	3.9%	3.4%	12/31/2017
Energy Investor Fund III	5/30/2007	8.3%	8.3%	5.8%	5.8%	12/31/2017
Energy Investor Fund IV	11/28/2011	11.3%	11.2%	6.6%	6.0%	12/31/2017
Energy Investor Fund V ¹	11/26/2016		-	-	1.4	1.114.111
Pathway 6	5/24/2011	15.8%	15.8%	12.7%	12.7%	12/31/2017
Pathway 7	2/7/2013	13.6%	13.6%	10.0%	10.0%	12/31/2017
Pathway 8 ¹	11/6/2015				1.5	
Pathway Private Equity Fund	11/9/1998	10.3%	10.3%	8.5%	8.4%	12/31/2017
Pathway Private Equity Fund 2008	12/26/2008	15.0%	15.0%	12.1%	12.1%	12/31/2017
Carpenter Bancfund	1/31/2008		1.6		10.5%	12/31/2017
Nogales	2/15/2004		-4.5%	-8.6%	-8.8%	3/31/2017
Paladin III	11/30/2007	15.5%	÷	7.5%		12/31/2017
Ocean Avenue II	6/11/2014		-	11.1%		12/31/2017
Ocean Avenue III	4/15/2016		-	10.6%	1.1.1	12/31/2017
Siguler Guff CCCERA Opportunities	6/3/2014	16.0%	16.5%	15.3%	13.4%	12/31/2017
Siguler Guff Secondary Opportunities ⁴	11/30/2016	-	-		25+%	12/31/2017

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.

⁴Net IRR is shown as "25% +" because the discount to net asset value typically associated with the purchase of secondary investments produces an unrepresentative high IRR in the early months after an investment is acquired, which will dissipate over time absent appreciation in net asset value, and which may not be meaningful early in a fund's life. Additional information regarding SOF's IRR is available upon request.

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

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
Jackson Square Partners	8.43%	-4.47%	11.67%	-6.95%	1.19	6.57%	0.70	0.68	-0.68	71.99%	136.22%
Robeco Boston Partners	8.95%	1.07%	9.14%	0.85%	1.03	3.06%	0.89	0.92	0.35	108.03%	94.76%
Emerald Advisers	9.08%	0.32%	12.27%	0.93%	0.93	5.79%	0.78	0.70	0.06	98.82%	93.68%
Ceredex	8.45%	0.58%	9.94%	3.60%	0.62	8.01%	0.57	0.79	0.07	86.44%	62.71%
Pyrford	4.09%	-0.95%	8.58%	0.94%	0.63	6.41%	0.69	0.41	-0.15	58.36%	49.06%
William Blair	6.98%	-0.30%	11.10%	0.33%	0.91	2.91%	0.94	0.58	-0.10	92.76%	92.25%
Artisan Partners	13.69%	5.57%	12.05%	4.65%	1.11	6.84%	0.68	1.09	0.81	136.39%	55.31%
First Eagle	6.66%	-1.46%	6.82%	1.02%	0.70	3.88%	0.84	0.90	-0.38	78.43%	78.88%
Allianz Global Investors	3.80%	-1.36%	5.48%	-0.70%	0.87	1.36%	0.96	0.59	-1.00	79.38%	94.42%
Adelante	0.78%	-0.19%	9.08%	-0.06%	0.87	2.07%	0.97	0.03	-0.09	92.03%	95.03%
AFL-CIO	1.10%	-0.10%	3.16%	0.00%	0.91	0.51%	0.98	0.17	-0.21	91.48%	92.39%
Wellington Real Total Return	-2.97%	-8.90%	6.49%	-10.61%	1.29	6.29%	0.06	-0.54	-1.41	-45.84%	

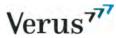
Performance Analysis excludes closed end funds and those funds without 3 years of performance.



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

				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
Jackson Square Partners	12.77%	-2.76%	10.65%	-6.51%	1.24	5.38%	0.77	1.17	-0.51	82.28%	136.22%
Robeco Boston Partners	12.22%	1.44%	8.36%	1.33%	1.01	2.93%	0.88	1.42	0.49	109.71%	85.22%
Emerald Advisers	14.77%	1.88%	13.41%	1.51%	1.03	5.82%	0.81	1.08	0.32	110.04%	90.70%
Ceredex	10.25%	0.29%	11.37%	2.08%	0.82	6.41%	0.72	0.87	0.05	94.59%	84.69%
William Blair	7.69%	0.85%	10.16%	1.40%	0.92	2.72%	0.94	0.72	0.31	97.85%	84.78%
Artisan Partners	13.42%	4.22%	10.36%	3.65%	1.06	5.66%	0.70	1.26	0.75	127.03%	44.92%
First Eagle	7.34%	-1.87%	6.41%	0.70%	0.72	3.38%	0.85	1.09	-0.55	78.63%	91.67%
Allianz Global Investors	3.90%	-1.10%	4.92%	-0.56%	0.89	1.14%	0.96	0.72	-0.96	82.61%	98.07%
Adelante	7.12%	1.00%	10.99%	1.48%	0.92	1.92%	0.98	0.62	0.52	98.30%	84.15%
AFL-CIO	1.72%	-0.11%	3.08%	-0.03%	0.96	0.48%	0.98	0.45	-0.22	93.28%	93.76%

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



Total Fund Investment Fund Fee Analysis

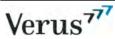
Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
BlackRock Russell 1000 Index	Global Equity	0.03% of Assets	\$119,150,367	\$35,745	0.03%
Jackson Square Partners	Global Equity	0.50% of First 100.0 Mil, 0.40% of Next 150.0 Mil, 0.35% Thereafter	\$407,118,868	\$1,649,916	0.41%
Robeco Boston Partners	Global Equity	0.50% of First 25.0 Mil, 0.30% Thereafter	\$397,295,187	\$1,241,886	0.31%
Emerald Advisers	Global Equity	0.75% of First 10.0 Mil, 0.60% Thereafter	\$283,871,667	\$1,718,230	0.61%
Ceredex	Global Equity	0.85% of First 10.0 Mil, 0.68% of Next 40.0 Mil, 0.51% Thereafter	\$253,419,337	\$1,394,439	0.55%
Pyrford	Global Equity	0.70% of First 50.0 Mil, 0.50% of Next 50.0 Mil, 0.35% Thereafter	\$453,344,092	\$1,836,704	0.41%
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	\$497,379,241	\$1,907,138	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	\$382,799,181	\$2,035,096	0.53%
TT Emerging Markets	Global Equity	0.70% of First 100.0 Mil, 0.65% of Next 100.0 Mil, 0.60% Thereafter	\$362,092,392	\$2,322,554	0.64%
Artisan Partners	Global Equity	0.75% of Assets	\$392,301,901	\$2,942,264	0.75%
First Eagle	Global Equity	0.75% of Assets	\$361,749,312	\$2,713,120	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	\$349,782,801	\$1,324,240	0.38%
AFL-CIO	Global Fixed Income	0.43% of Assets	\$320,733,542	\$1,379,154	0.43%

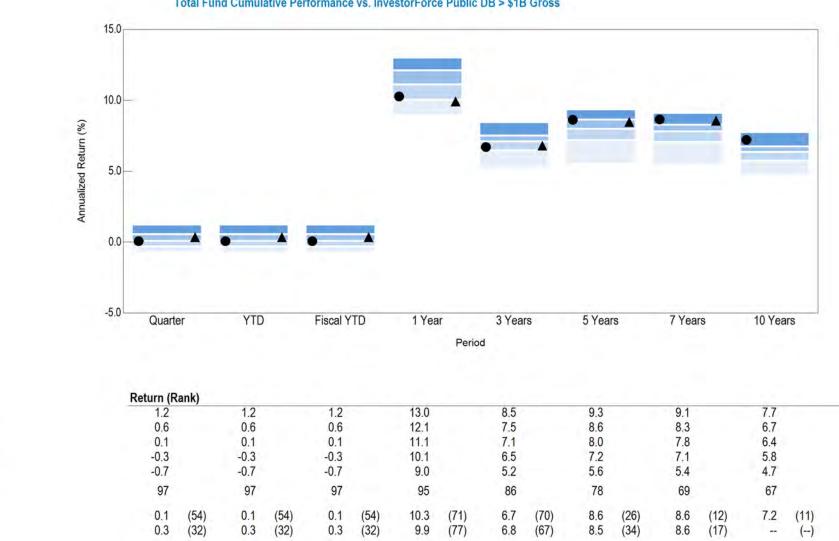
Mutual fund fees shown are sourced from Morningstar and are as of the most current prospectus.

Total Fund Investment Fund Fee Analysis

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Wellington Real Total Return	Global Fixed Income	0.55% of Assets	\$189,236,383	\$1,040,800	0.55%
DFA Short Credit	Global Fixed Income	0.20% of First 25.0 Mil, 0.10% Thereafter	\$366,956,381	\$391,956	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	\$765,466,226	\$432,733	0.06%
Sit Short Duration	Global Fixed Income	0.15% of Assets	\$486,026,489	\$729,040	0.15%

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





Total Fund Cumulative Performance vs. InvestorForce Public DB > \$1B Gross

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.



5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

Total Fund

Policy Index

Median

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

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.



5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

Total Fund

Policy Index

Median

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



5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

Total Fund

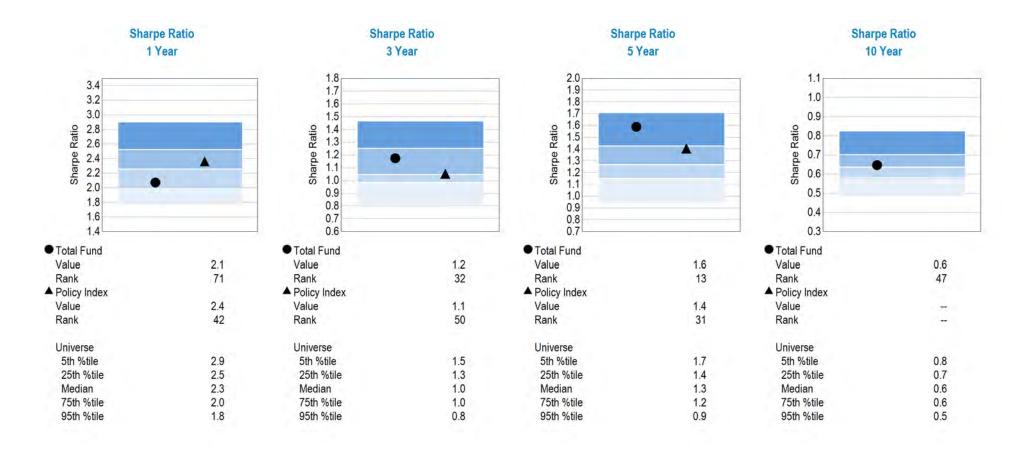
Policy Index

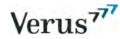
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Median

Total Fund Sharpe Ratio Ranking (Gross of Fees)





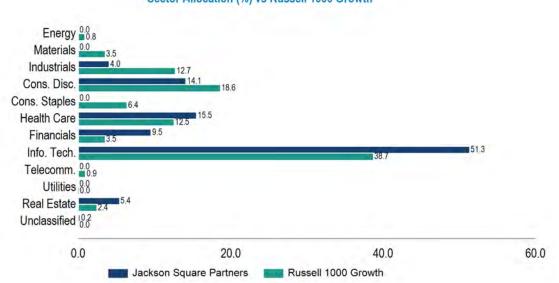
Domestic Equity Managers

Jackson Square Partners Manager Portfolio Overview

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 Prislin.

Characteristics

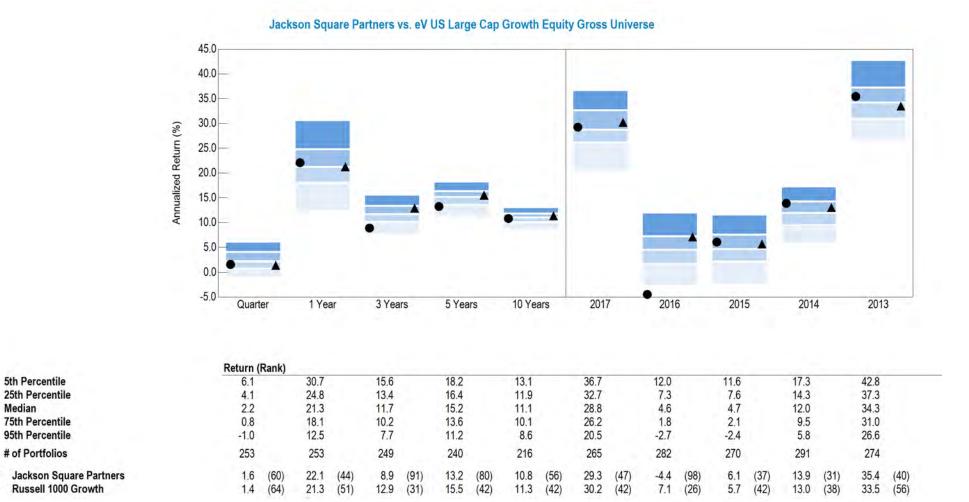
	Portfolio	Russell 1000 Growth
Number of Holdings	32	553
Weighted Avg. Market Cap. (\$B)	133.79	212.03
Median Market Cap. (\$B)	42.13	11.59
Price To Earnings	35.69	27.97
Price To Book	5.47	7.32
Price To Sales	6.68	5.23
Return on Equity (%)	20.73	29.91
Yield (%)	0.78	1.37
Beta	1.19	1.00



	Largest Holdings			Top Contributo	rs		Botte	om Contribu	tors	
	End Weight	Return		Avg Wgt	Return	Contribution	ı	Avg Wgt	Return	Contribution
MICROSOFT	8.15	7.19	MASTERCARD	5.17	15.91	0.82	DENTSPLY SIRONA	2.75	-23.44	-0.65
PAYPAL HOLDINGS	6.91	3.06	MICROSOFT	6.88	7.19	0.50	BIOGEN	3.72	-14.05	-0.52
VISA 'A'	6.14	5.09	ELECTRONIC ARTS	2.61	15.40	0.40	TAKE TWO INTACT.SFTW.	3.21	-10.93	-0.35
MASTERCARD	5.63	15.91	TRIPADVISOR 'A'	2.01	18.66	0.37	LIBERTY GLOBAL SR.C	3.02	-10.08	-0.30
FEDEX	4.01	-3.58	DOMINO'S PIZZA	1.54	23.90	0.37	FACEBOOK CLASS A	2.65	-9.45	-0.25
ALPHABET A	3.78	-1.54	VISA 'A'	6.03	5.09	0.31	CELGENE	1.19	-14.52	-0.17
EBAY	3.66	6.62	ASML HLDG.ADR 1:1	1.99	14.23	0.28	SYMANTEC	2.11	-7.62	-0.16
INTERCONTINENTAL E	X. 3.60	3.11	CME GROUP	2.27	11.20	0.25	FEDEX	3.69	-3.58	-0.13
IQVIA HOLDINGS	3.57	0.21	EBAY	3.59	6.62	0.24	EQUINIX	1.82	-7.21	-0.13
CROWN CASTLE INTL.	3.56	-0.32	APPLIED MATS.	2.63	8.98	0.24	LIBERTY GLOBAL CL.A	0.73	-12.64	-0.09

Sector Allocation (%) vs Russell 1000 Growth

Unclassified sector allocation includes cash allocations.



Verus⁷⁷

Median

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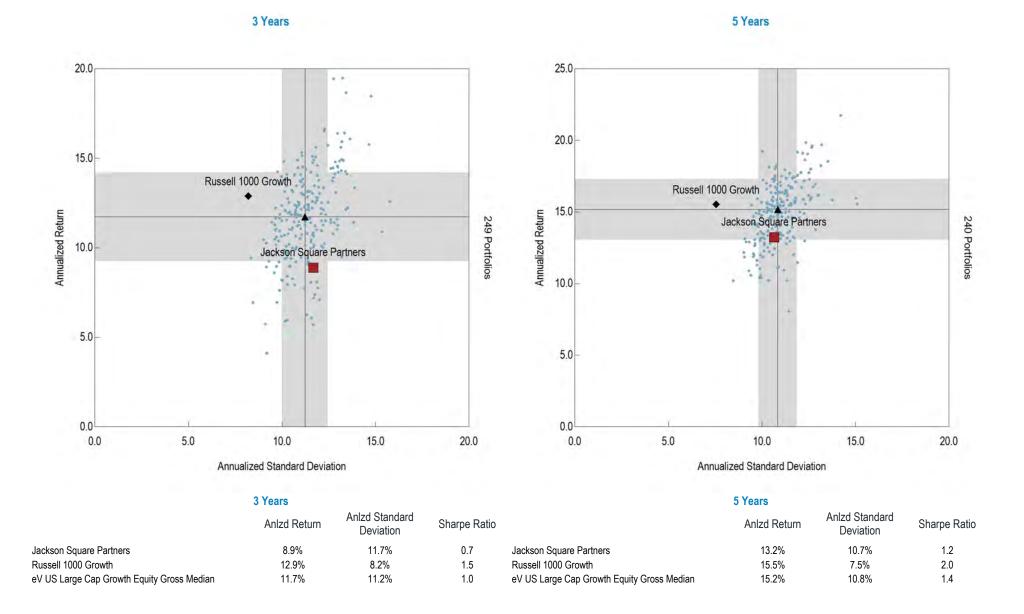
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Rolling 3 Year Annualized Return (%)



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

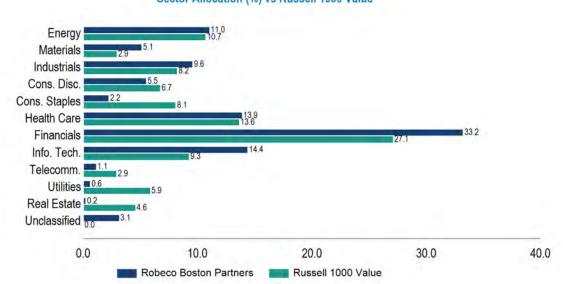


Robeco Boston Partners Manager Portfolio Overview

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

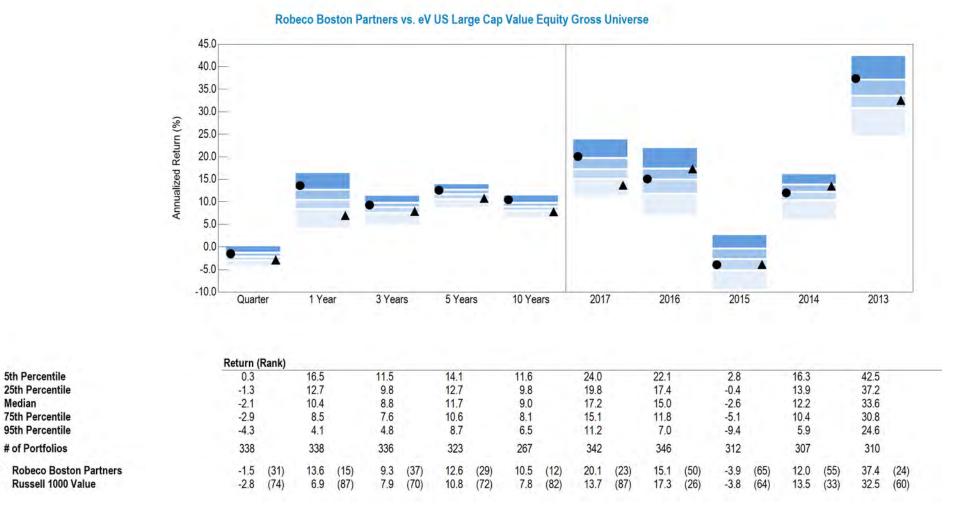
	Portfolio	Russell 1000 Value
Number of Holdings	81	711
Weighted Avg. Market Cap. (\$B)	133.98	113.40
Median Market Cap. (\$B)	35.12	9.02
Price To Earnings	19.81	20.40
Price To Book	2.81	2.52
Price To Sales	2.50	2.95
Return on Equity (%)	17.22	11.45
Yield (%)	2.06	2.45
Beta	1.03	1.00



Largest Holdings **Top Contributors Bottom Contributors** End Weight Avg Wgt Return Contribution Avg Wgt Return Contribution Return 4.58 0.70 BANK OF AMERICA 1.98 **XL GROUP** 57.79 0.40 WELLS FARGO & CO 2.79 -13.10 -0.37 4.25 **CISCO SYSTEMS** 0.39 CITIGROUP BERKSHIRE HATHAWAY 'B' 0.64 3.06 12.82 3.75 -8.91 -0.33 JP MORGAN CHASE & CO. 4.06 3.36 JP MORGAN CHASE & **JOHNSON & JOHNSON** 2.99 -7.70 -0.23 4.89 3.36 0.16 CO. **JOHNSON & JOHNSON** 3.92 -7.70 **CHEVRON** 2.71 -8.00 -0.22 11.58 0.13 MARATHON PETROLEUM 1.13 CITIGROUP 3.65 -8.91 COMCAST 'A' 1.44 -14.35 -0.21 TE CONNECTIVITY 2.14 5.53 0.12 CIGNA 3.28 12.82 CISCO SYSTEMS 1.07 -17.39 -0.19 CONOCOPHILLIPS 1.30 8.61 0.11 **CHEVRON** 2.66 -8.00 CVS HEALTH 1.29 -13.66 -0.18 0.65 EVEREST RE GP. 16.66 0.11 ANDEAVOR WELLS FARGO & CO 2.66 -13.10 1.43 -11.50 -0.16 **BOOKING HOLDINGS** 0.50 19.72 0.10 PFIZER 2.53 -1.11 ALLSTATE 1.12 -9.01 -0.10 BANK OF AMERICA 4.92 1.98 0.10 **VFRIZON ROYAL DUTCH SHELL A ADR 1:2** 2.05 -2.96 1.17 -8.62 -0.10 NETAPP 0.82 11.90 COMMUNICATIONS 0.10

Unclassified sector allocation includes cash allocations.

Sector Allocation (%) vs Russell 1000 Value



Verus⁷⁷

Median

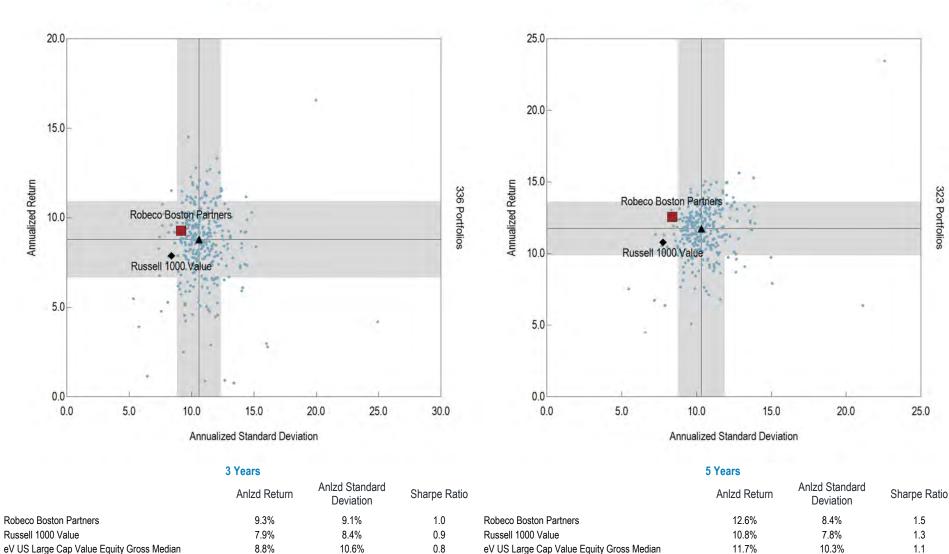
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Rolling 3 Year Annualized Return (%)



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



3 Years

5 Years

Verus⁷⁷

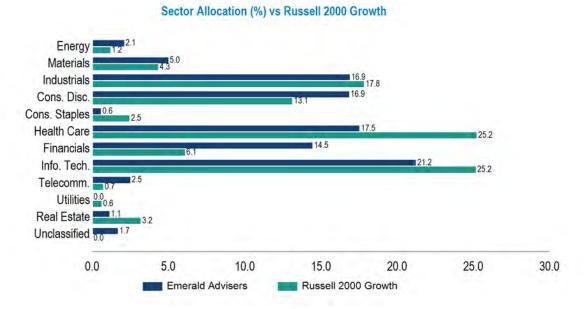
Emerald Advisers Manager Portfolio Overview

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	121	1,188
Weighted Avg. Market Cap. (\$B)	2.78	2.95
Median Market Cap. (\$B)	1.89	1.01
Price To Earnings	10.97	18.45
Price To Book	5.47	5.18
Price To Sales	4.27	3.70
Return on Equity (%)	-2.35	7.95
Yield (%)	0.42	0.54
Beta	0.93	1.00

Largest Holdings

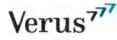


Top Contributors

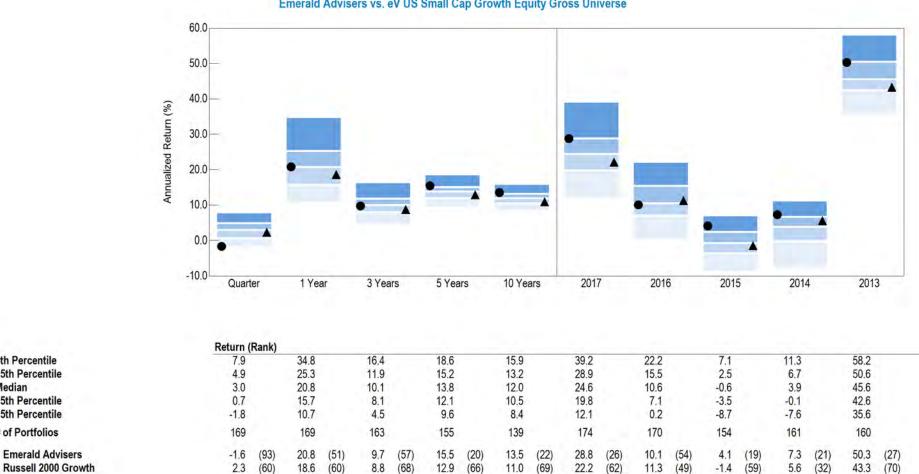
Bottom Contributors

	End Weight	Return		Avg Wgt	Return	Contributio	n	Avg Wgt	Return	Contribution
LENDINGTREE	2.78	-3.61	G1 THERAPEUTICS	0.70	86.74	0.61	NUTRISYSTEM	1.28	-48.37	-0.62
CHEGG	2.23	26.59	SAREPTA	1.64	33.16	0.54	US CONCRETE	1.38	-27.79	-0.38
GTT COMMUNICATIONS	1.96	20.77	THERAPEUTICS	1.04	55.10	0.04	DERMIRA	0.51	-71.27	-0.36
VONAGE HOLDINGS	1.92	4.72	CHEGG	1.88	26.59	0.50	PUMA BIOTECHNOLOGY	1.15	-31.16	-0.36
PROOFPOINT	1.90	27.97	PROOFPOINT	1.62	27.97	0.45	PORTOLA	1.03	-32.91	-0.34
EPAM SYSTEMS	1.87	6.60	GRUBHUB	0.95	41.32	0.39	PHARMACEUTICALS	1.05	-32.91	-0.34
KLX	1.84	4.12	GTT COMMUNICATIONS	1.74	20.77	0.36	INSTALLED BUILDING	1.35	-20.93	-0.28
TREX	1.72	0.35	VARONIS SYSTEMS	1.45	24.61	0.36	PRDS.			
VARONIS SYSTEMS	1.71	24.61	BOFI HOLDING	0.98	35.55	0.35	KENNAMETAL	1.69	-16.65	-0.28
FCB FINANCIAL HDG.CL.A	1.70	0.59	MICROSEMI	0.85	25.30	0.22	REV GROUP	0.73	-36.08	-0.26
	1.10	0.00	TABULA RASA HEALTHCARE	0.52	38.32	0.20	ADAMAS PHARMACEUTICALS	0.84	-29.48	-0.25
							INSMED	0.89	-27.77	-0.25

Unclassified sector allocation includes cash allocations.



Emerald Advisers Manager Performance Comparisons (Gross of Fees)







5th Percentile

25th Percentile

75th Percentile

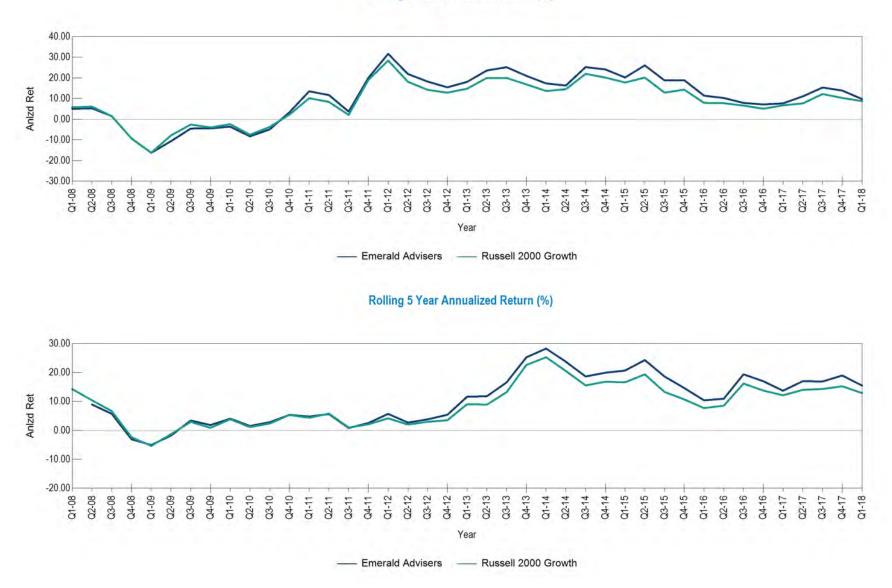
95th Percentile

of Portfolios

Median

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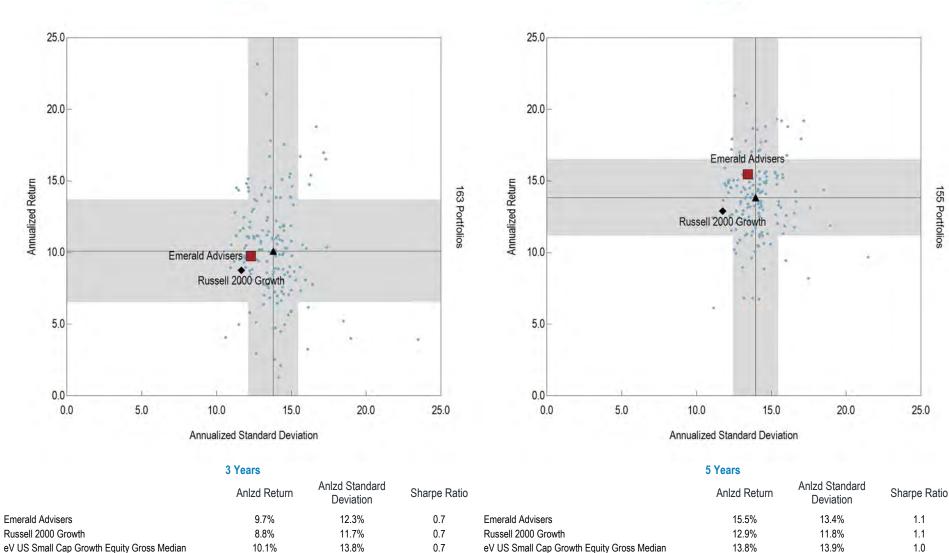


Rolling 3 Year Annualized Return (%)



Emerald Advisers Risk vs. Return 3 & 5 Year (Gross of Fees)

Verus⁷⁷



5 Years

Contra Costa County Employees' Retirement Association

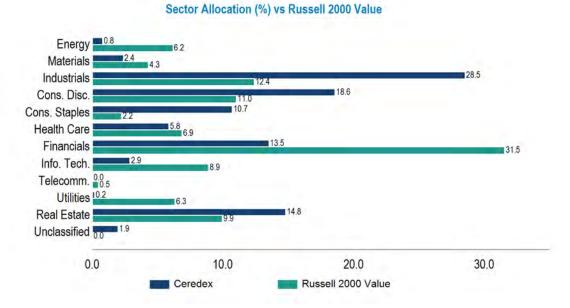
43

Ceredex Manager Portfolio Overview

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	81	1,398
Weighted Avg. Market Cap. (\$B)	2.32	2.02
Median Market Cap. (\$B)	1.74	0.72
Price To Earnings	20.64	16.01
Price To Book	2.94	1.75
Price To Sales	2.30	2.66
Return on Equity (%)	16.47	6.23
Yield (%)	2.72	1.68
Beta	0.62	1.00

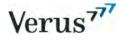


Top Contributors

Bottom Contributors

Largest	Holdings		То	p Contributo	rs		Botte	om Contribu	tors	
	End Weight	Return		Avg Wgt	Return	Contribution	ı	Avg Wgt	Return	Contribution
ENERGIZER HOLDINGS	4.96	24.85	ENERGIZER HOLDINGS	4.28	24.85	1.06	B & G FOODS	3.01	-31.28	-0.94
MEREDITH	4.59	-17.78	PLANTRONICS	1.87	20.15	0.38	HERMAN MILLER	2.60	-19.83	-0.52
HILL-ROM HOLDINGS	3.92	3.46	BLOOMIN' BRANDS	2.45	14.21	0.35	TANGER FAC.OUTLET	2.90	-15.86	-0.46
B & G FOODS	3.30	-31.28	KORN FERRY	1.28	24.93	0.32	CNTRS.	2.50	-10.00	-0.40
TETRA TECH	2.96	1.88	INTERNATIONAL	1.20	24.95	0.52	MEREDITH	2.12	-17.78	-0.38
PHYSICIANS REALTY TST.	2.92	-12.33	GUESS	1.32	22.87	0.30	OUTFRONT MEDIA	1.95	-17.70	-0.34
EVERCORE A	2.84	-2.70	PHIBRO ANIMAL	1.60	18.81	0.30	COVANTA HOLDING	2.61	-12.71	-0.33
TANGER FAC.OUTLET CNTRS.	2.72	-15.86	HLTH.CL.A				ENTRAVISION COMMS.'A'	0.97	-33.63	-0.33
KEMPER	2.61	-16.93	CUBIC	2.23	8.13	0.18	LITHIA MOTORS 'A'	2.45	-11.28	-0.28
EDUCATION REAL.TST.	2.61	-5.09	HANOVER INSURANCE	1.64	9.59	0.16	KNOLL	1.61	-11.77	-0.19
			GROUP			• • • •	ALEXANDER & BALDWIN	1.06	-16.62	-0.18
			AMER.EAG.OUTFITTERS	2.32	6.01	0.14				
			KELLY SERVICES 'A'	2.05	6.76	0.14				

Unclassified sector allocation includes cash allocations.



Ceredex Manager Performance Comparisons (Gross of Fees)

-3.6

-2.6

(82)

(64)

5.6

5.1

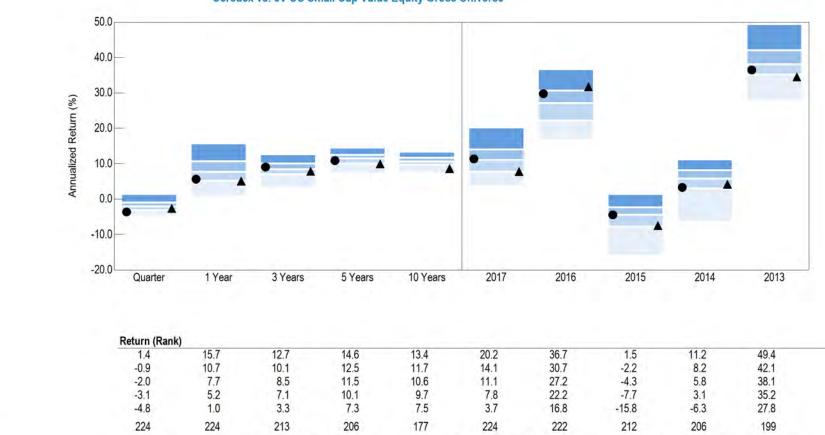
(71)

(76)

9.1 (41)

7.9

(65)



(65)

(77)

10.9

10.0

(48)

(75)

11.4

7.8

(--)

8.6 (89)

29.8

31.7

(32)

(17)

Ceredex vs. eV US Small Cap Value Equity Gross Universe

•	Cere	dex	
	-		1111

5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

Median

Russell 2000 Value

Verus⁷⁷

-4.4

-7.5 (74)

(52)

3.3

4.2 (68)

(74)

36.5

34.5

(66)

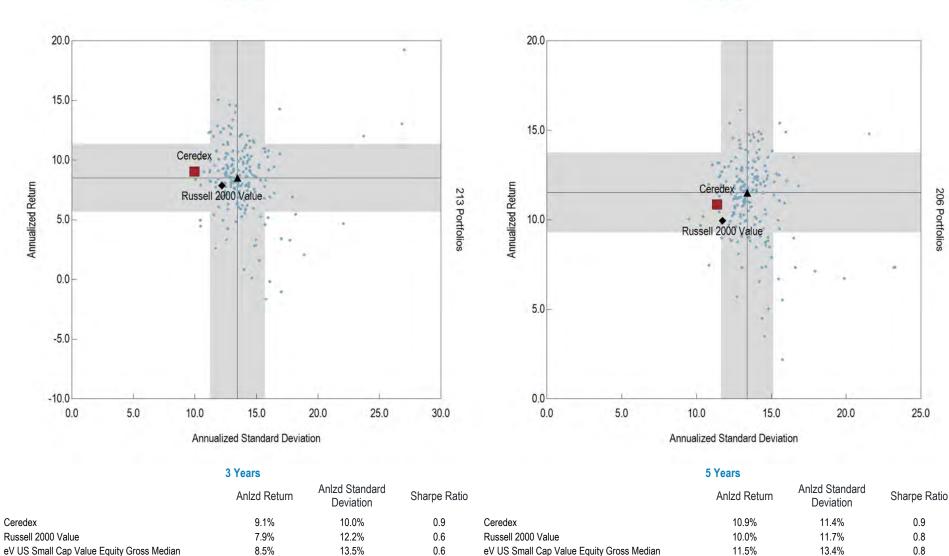
(78)



Rolling 3 Year Annualized Return (%)



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



3 Years

5 Years

International Equity Managers

Pyrford Manager Portfolio Overview

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.

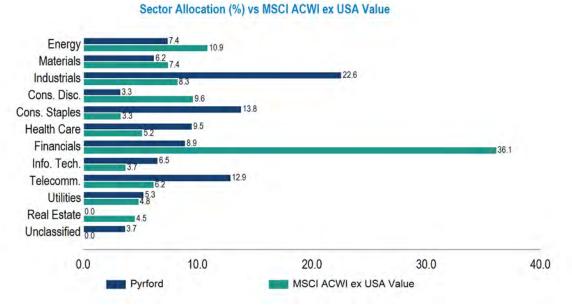
Characteristics

	Portfolio	MSCI ACWI ex USA Value
Number of Holdings	67	1,075
Weighted Avg. Market Cap. (\$B)	58.47	57.00
Median Market Cap. (\$B)	21.02	7.53
Price To Earnings	20.64	13.82
Price To Book	3.38	1.53
Price To Sales	2.38	1.63
Return on Equity (%)	18.95	11.99
Yield (%)	3.56	3.99
Beta	0.63	1.00

Beta		0.63	1.00
C	ountry Allocation		
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)	
Totals			
Developed	88.7%	74.4%	
Emerging*	7.7%	25.6%	
Cash	3.7%		NIHON KOH
Top 10 Largest Countries			MALAYAN E
Switzerland	14.3%	4.8%	VOPAK
Japan	12.3%	16.7%	TAIWAN SE
Australia	11.2%	4.3%	ABC-MART
France	8.8%	7.3%	-
Germany	7.1%	6.2%	SINGAPOR TECHS.ENC
United Kingdom	6.9%	13.7%	
Netherlands	6.5%	1.4%	CHUNGHW
Sweden	5.4%	1.1%	ZURICH INS GROUP
Singapore	5.2%	0.9%	
Taiwan*	4.4%	3.0%	TELENOR

82.1%

59.4%



Ton Contributors

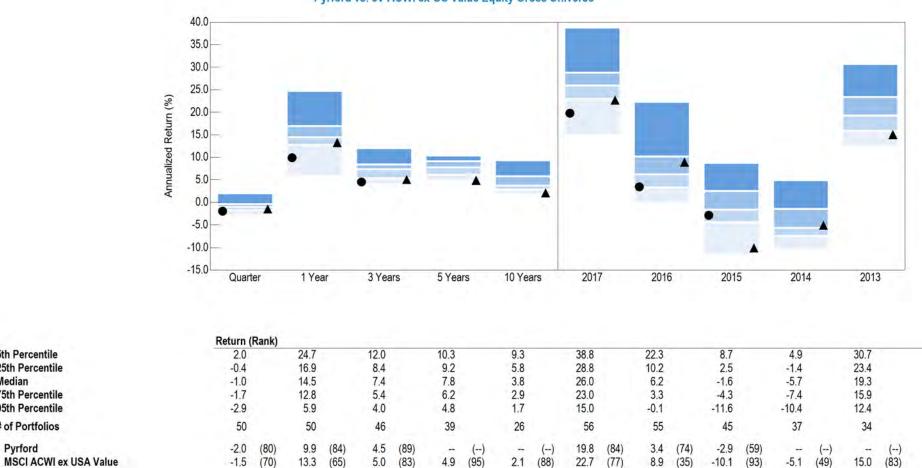
То	p Contributo	rs		Bo	ottom Contribut	ors	
	Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
NIHON KOHDEN	1.48	20.67	0.31	NESTLE 'R'	3.57	-8.17	-0.29
MALAYAN BANKING	1.63	13.17	0.21	VODAFONE GROUP	1.96	-14.30	-0.28
VOPAK	1.46	11.61	0.17	BEZEQ THE ISRAELI	1.64	-16.24	-0.27
TAIWAN SEMICON.MNFG.	1.59	9.40	0.15	TELECM CORP.LTD.	1.04	10.24	0.21
ABC-MART	0.91	15.77	0.14	ROCHE HOLDING	3.71	-6.15	-0.23
SINGAPORE	4.45	40.00	0.44	JAPAN TOBACCO	2.06	-10.56	-0.22
TECHS.ENGR.	1.15	12.23	0.14	WOODSIDE PETROLEUM	1 2.07	-10.23	-0.21
CHUNGHWA TELECOM	1.44	8.80	0.13	PANALPINA	0.95	-18.78	-0.18
ZURICH INSURANCE	4 50	7 50	0.40	WELTTRANSPORT	0.95	-10.70	-0.10
GROUP	1.58	7.53	0.12	QBE INSURANCE GROUP	P 1.56	-11.21	-0.18
TELENOR	2.33	4.83	0.11	TOYOTA TSUSHO	1.15	-14.73	-0.17
COMPUTERSHARE	1.91	5.25	0.10	NEWCREST MINING	1.04	-15.52	-0.16

Unclassified sector allocation includes cash allocations.



Total-Top 10 Largest Countries

Pyrford Manager Performance Comparisons (Gross of Fees)



Pyrford vs. eV ACWI ex-US Value Equity Gross Universe



5th Percentile

25th Percentile

75th Percentile

95th Percentile

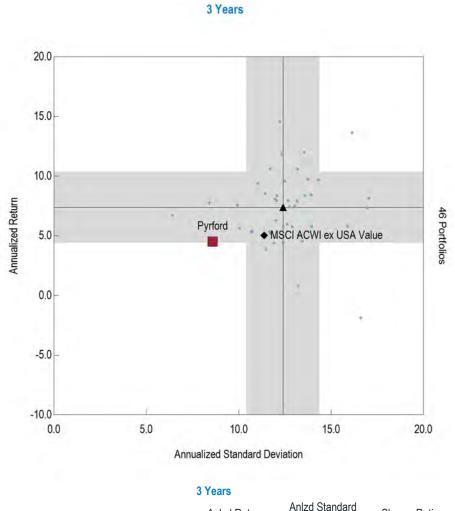
of Portfolios

Pyrford

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Median



	Anlzd Return	Deviation	Sharpe Ratio
Pyrford	4.5%	8.6%	0.5
MSCI ACWI ex USA Value	5.0%	11.4%	0.4
eV ACWI ex-US Value Equity Gross Median	7.4%	12.4%	0.5



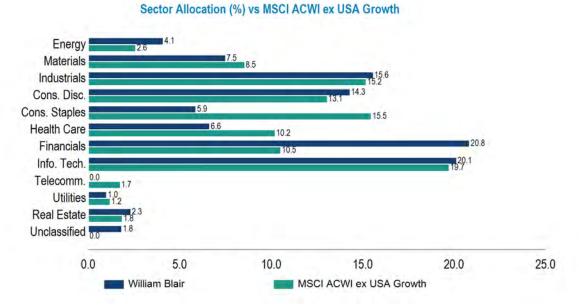
William Blair Manager Portfolio Overview

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

	Portfolio	MSCI ACWI ex USA Growth
Number of Holdings	206	1,003
Weighted Avg. Market Cap. (\$B)	57.55	72.82
Median Market Cap. (\$B)	9.60	9.43
Price To Earnings	25.08	23.31
Price To Book	5.00	3.89
Price To Sales	4.04	3.12
Return on Equity (%)	24.10	19.42
Yield (%)	1.88	1.94
Beta	0.91	1.00

Country Allocation				
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)		
Totals				
Developed	77.8%	74.7%		
Emerging*	20.2%	25.3%		
Frontier**	0.2%	0.0%		
Top 10 Largest Countries				
Japan	18.8%	16.8%		
France	11.9%	7.7%		
United Kingdom	10.7%	10.1%		
Hong Kong	6.8%	2.5%		
Germany	5.5%	7.0%		
China*	5.4%	7.7%		
Canada	4.0%	6.1%		
India*	3.9%	2.1%		
Denmark	3.6%	2.1%		
Sweden	3.1%	2.5%		
Total-Top 10 Largest Countries	73.7%	64.5%		



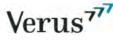
Top Contributors

	op oontinbutt	13	
	Avg Wgt	Return	Contribution
ITAU UNIBANCO HOLDING PN	1.22	25.69	0.31
NINTENDO	1.09	21.51	0.24
GALAXY ENTERTAINMENT GP.	1.11	13.85	0.15
ADIDAS	0.75	20.26	0.15
TAIWAN SEMICON.SPN.ADR 1:5	1.19	10.37	0.12
NIHON M&A CENTER	0.26	44.73	0.12
NITORI HOLDINGS	0.47	24.31	0.12
ORSTED	0.54	21.17	0.11
KOSE	0.31	34.50	0.11
CSPC PHARMACEUTICAL GP.	0.32	31.61	0.10

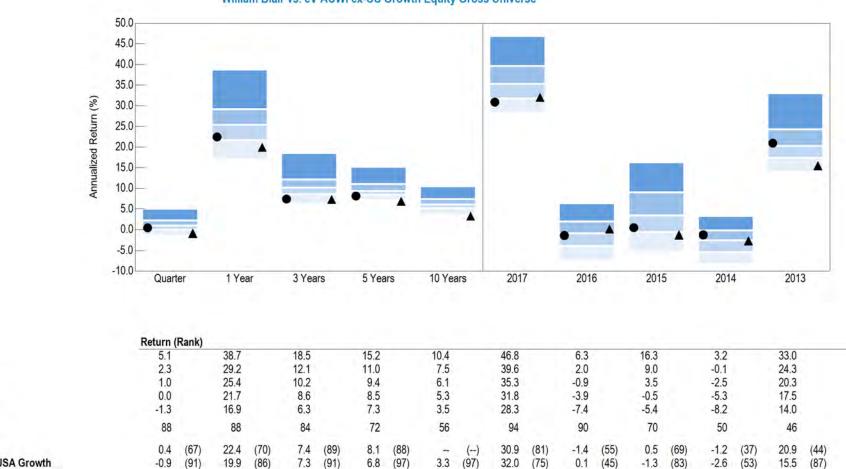
Bottom Contributors

tion		Avg Wgt	Return	Contribution
	MICRO FOCUS INTL.	0.30	-58.97	-0.18
	MITSUBISHI UFJ FINL.GP.	1.82	-9.52	-0.17
	LONZA GROUP	1.24	-12.96	-0.16
	CANADIAN NATIONAL RY.	1.35	-11.29	-0.15
	VODAFONE GROUP	1.00	-14.30	-0.14
	NOVO NORDISK 'B'	1.82	-7.52	-0.14
	KROTON EDUCACIONAL ON	0.41	-25.74	-0.11
	VALEO	0.87	-11.77	-0.10
	GLENCORE	1.57	-5.93	-0.09
	ROGERS COMMS.'B'	0.73	-11.98	-0.09

Unclassified sector allocation includes cash allocations.



William Blair Manager Performance Comparisons (Gross of Fees)



William Blair vs. eV ACWI ex-US Growth Equity Gross Universe

William Blair MSCI ACWI ex USA Growth ۸

5th Percentile

25th Percentile

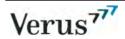
75th Percentile

95th Percentile

of Portfolios

Median

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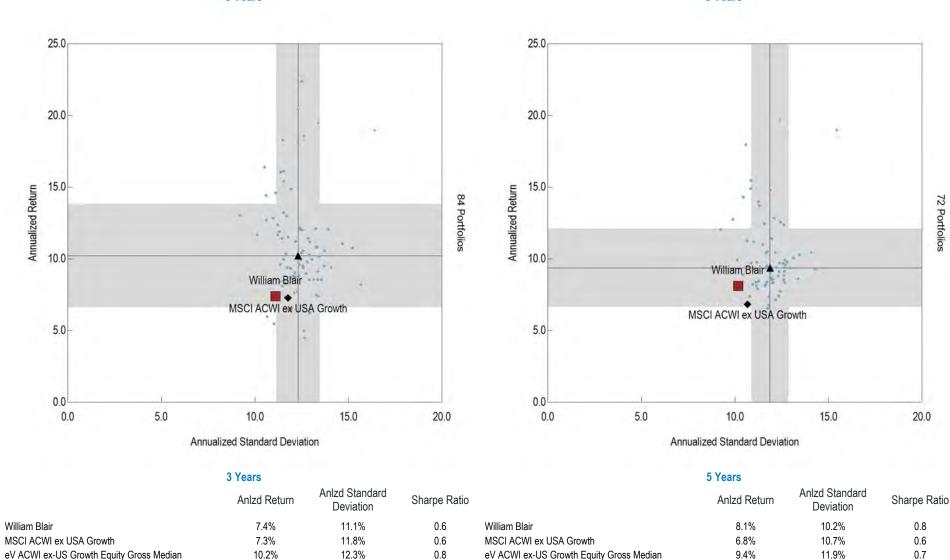




Rolling 3 Year Annualized Return (%)



William Blair Risk vs. Return 3 & 5 Year (Gross of Fees)



5 Years

Verus⁷⁷

PIMCO RAE Emerging Markets Manager Portfolio Overview

32.7

40.0

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.

Energy

Materials

Industrials Cons. Disc.

Cons. Staples

Characteristics

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ADR

(LON)

	Portfolio	MSCI Emerging Markets
Number of Holdings	605	847
Weighted Avg. Market Cap. (\$B)	41.53	91.91
Median Market Cap. (\$B)	3.96	5.87
Price To Earnings	12.55	20.27
Price To Book	1.41	2.65
Price To Sales	1.19	2.46
Return on Equity (%)	12.44	19.03
Yield (%)	3.31	2.30
Beta		1.00



7.2

6.0

59

64

Sector Allocation (%) vs MSCI Emerging Markets

32

Developed 10.6% Emerging* 88.9% 100.0% **Top 10 Largest Countries** Korea* 19.5% 15.0% China* 18.5% 30.0% Hong Kong 10.1% 0.0% 9.3% 3.6% Russia* 8.8% 11.8% Taiwan* Brazil* 8.3% 7.4% South Africa* 5.4% 6.8% India* 4.7% 8.1% Thailand* 2.8% 2.5% Turkey* 2.7% 1.0% Total-Top 10 Largest Countries 90.0% 86.1%

Country Allocation

Manager

(USD)

End Weight 4.16 CHINA CON.BANK 'H' PJSC LUKOIL SPON (LON) 1.68 PETROLEO BRASILEIRO 0.87 ADR 1:2 PJSC GAZPROM ADR 2.79 BANCO DO BRASIL ON 0.94 AGRICULTURAL BK.OF 1.01 CHIN. 'H' CHINA NATIONAL 0.98 **BUILDING MATERIAL 'H'** BANK OF CHINA 'H' 2.13 0.55 PTT FB

Bottom Contributors

30.0

Return	Contribution		End Weight	Return	Contribution
11.50	0.48	SAMSUNG ELECTRONICS	3.40	-2.99	-0.10
20.41	0.34	KT ADR 2:1	0.78	-12.24	-0.10
37.41	0.33	JAIPRAKASH ASSOCIATES	0.33	-28.86	-0.10
57.41	0.55	TATA STEEL	0.46	-19.91	-0.09
10.34	0.29	HYUNDAI MOTOR	1.18	-7.61	-0.09
29.69	0.28	RELIANCE COMMUNICATIONS	0.20	-41.12	-0.08
22.04	0.22	CHINA MOBILE	0.86	-9.57	-0.08
21.41	0.21	KOREA ELECTRIC POWER	0.57	-13.52	-0.08
9.46	0.20	SK TELECOM SPN.ADR 9:1	0.50	-13.40	-0.07
34.68	0.19	KUMBA IRON ORE	0.35	-18.40	-0.06

Unclassified sector allocation includes cash allocations.

Totals

3.3

1.4

(14)

(58)

19.9

24.9

(79)

(49)



--(--)

3.0 (89) (--) (53)

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11.2 (45)

(-)

37.3

PIMCO RAE Emerging Markets vs. eV Emg Mkts Equity Gross Universe

(--) (69)

-(--)

5.0 (75)

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8.8

•	PIMCO	RAE	Emerging	Markets
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MSCI Emerging Markets ۸

5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

Median

Verus⁷⁷

(--)

(70)

-14.9

-- (--) -2.2 (74)

(--) (80)

-2.6

TT Emerging Markets Manager Portfolio Overview

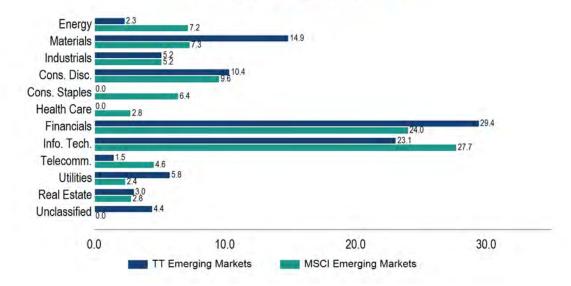
The Emerging Markets Unconstrained strategy aims to outperform its benchmark, MSCI Emerging Markets Index by 5% per annum over a three-year rolling period. It targets high returns and long term capital growth by investing in a focused portfolio of primarily equity and equity-related securities traded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

Characteristics

	Portfolio	MSCI Emerging Markets
Number of Holdings	58	847
Weighted Avg. Market Cap. (\$B)	80.74	91.91
Median Market Cap. (\$B)	6.41	5.87
Price To Earnings	20.37	20.27
Price To Book	3.40	2.65
Price To Sales	3.16	2.46
Return on Equity (%)	17.92	19.03
Yield (%)	2.19	2.30
Beta		1.00

Countr	y Allocation		
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)	
Totals			
Developed	19.0%	0.0%	
Emerging*	74.1%	100.0%	
Frontier**	3.8%	0.0%	
Top 10 Largest Countries			
China*	17.4%	30.0%	
Korea*	14.6%	15.0%	
India*	10.4%	8.1%	
Taiwan*	8.5%	11.8%	
South Africa*	7.9%	6.8%	
Hong Kong	6.3%	0.0%	
United Kingdom	6.0%	0.0%	
Brazil*	5.8%	7.4%	
Argentina**	3.8%	0.0%	
Russia*	3.6%	3.6%	
Total-Top 10 Largest Countries	84.3%	82.6%	

Sector Allocation (%) vs MSCI Emerging Markets



Top Contributors

	End Weight	Return	Contributio		
CHINA CON.BANK 'H'	4.89	11.50	0.56		
BANCO DO BRASIL ON	1.88	29.69	0.56		
CIA ENERGETICA DE MINAS GERAIS PN	1.49	24.36	0.36		
LONGFOR PROPERTIES	1.27	22.09	0.28		
TAIWAN SEMICON.MNFG.	2.91	9.40	0.27		
ALIBABA GROUP HLDG.SPN. ADR 1:1	4.03	6.44	0.26		
NEDBANK GROUP	1.54	16.49	0.25		
ADVANCED SEMICON.ENGR. SUSP - SUSP.17/04/18	1.98	12.23	0.24		
PAO NOVATEK GDR	1.66	13.98	0.23		
TELKOM SA SOC	1.50	14.95	0.22		

Bottom Contributors

ntribution		End Weight	Return	Contribution
0.56	NASPERS	4.81	-12.45	-0.60
0.56	EDELWEISS FNSR.	1.96	-21.20	-0.42
0.36	TATA STEEL	1.88	-19.91	-0.37
0.28	CHINA PACIFIC INSURANCE (GROUP) 'H'	4.77	-6.76	-0.32
0.27	ARVIND	1.73	-16.87	-0.29
0.26	HANA FINANCIAL GROUP	3.06	-7.73	-0.24
0.25	PAMPA ENERGIA ADR 1:25	1.84	-11.41	-0.21
0.24 NETEA	GODREJ INDUSTRIES	1.79	-11.26	-0.20
	NETEASE ADR 1:25	1.03	-18.64	-0.19
	DALMIA BHARAT	1.28	-12.32	-0.16

Unclassified sector allocation includes cash allocations.

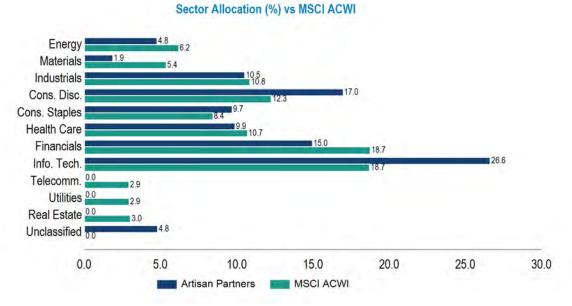
Global Equity Managers

Artisan Partners Manager Portfolio Overview

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
47	2,495
78.33	121.31
32.92	10.49
38.89	21.44
6.05	3.49
6.32	3.08
18.15	17.43
1.19	2.41
1.11	1.00
	47 78.33 32.92 38.89 6.05 6.32 18.15 1.19



Top Contributors

Bottom Contributors

	Avg Wgt	Return	Contribution	n	Avg Wgt	Return	Contribution
SHISEIDO	2.85	32.51	0.93	FACEBOOK CLASS A	3.57	-9.45	-0.34
GENMAB	2.73	29.04	0.79	LKQ	3.07	-6.69	-0.21
NINTENDO	2.29	21.51	0.49	BID CORPORATION	2.14	-9.56	-0.20
IHS MARKIT	6.33	6.84	0.43	ING GROEP	2.34	-8.44	-0.20
S&P GLOBAL	3.17	13.08	0.41	TECHTRONIC INDS.	1.68	-10.56	-0.18
ASML HLDG.ADR 1:1	2.60	14.23	0.37	INTERTEK GROUP	2.54	-6.89	-0.17
FEVERTREE DRINKS	1.77	19.87	0.35	EUROFINS SCIENTIFIC	1.26	-13.44	-0.17
VISA 'A'	5.89	5.09	0.30	REGENERON PHARMS.	1.96	-8.41	-0.16
BOSTON SCIENTIFIC	2.51	10.21	0.26	SAP	1.90	-6.83	-0.13
BOOKING HOLDINGS	1.26	19.72	0.25	TEMENOS GROUP	1.81	-6.87	-0.12

Country Allocation

	Manager	Index
	Ending Allocation (USD)	Ending Allocation (USD)
Totals		
Developed	89.1%	87.8%
Emerging*	6.1%	12.2%
Top 10 Largest Countries		
United States	44.4%	52.0%
Japan	8.7%	8.0%
Hong Kong	7.0%	1.2%
United Kingdom	5.3%	5.7%
Netherlands	5.0%	1.2%
Cash	4.8%	0.0%
Australia	4.7%	2.2%
Denmark	3.5%	0.6%
Germany	3.4%	3.2%
Switzerland	3.1%	2.6%
Total-Top 10 Largest Countries	89.9%	76.6%

Unclassified sector allocation includes cash allocations.

Artisan Partners Manager Performance Comparisons (Gross of Fees)

(52)

-1.0

(50)

14.8

8.1 (58)

9.2 (69)



5.6 (76)

(47)

24.0

7.9 (42)

Artisan Partners vs. eV All Global Equity Gross Universe

of Portfolios
 Artisan Partners
 MSCI ACWI

5th Percentile

25th Percentile

75th Percentile

95th Percentile

Median



(73)

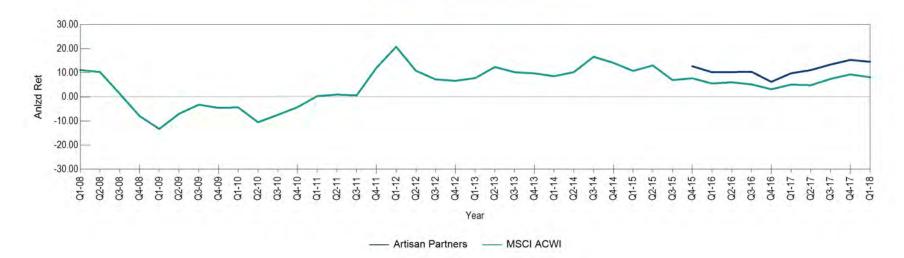
-2.4

4.2 (54)

22.8

(66)

Artisan Partners Manager Performance - Rolling 3 Year (Gross of Fees)



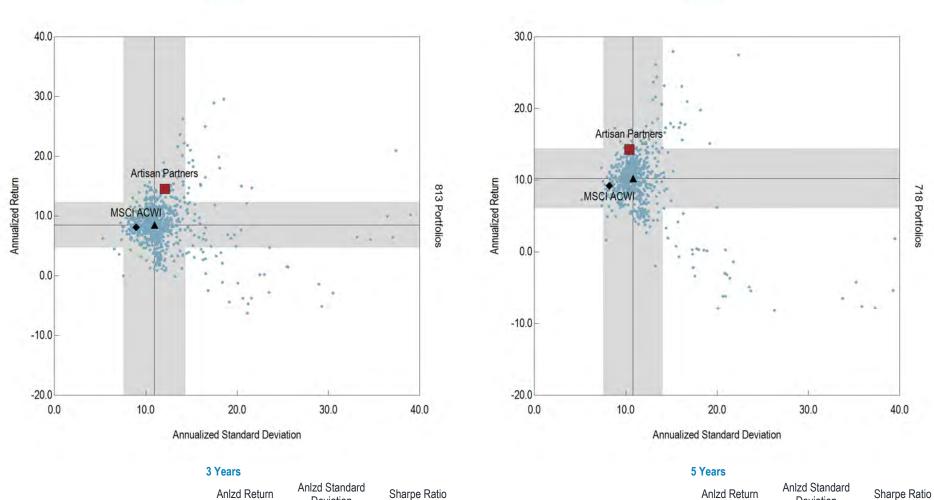
Rolling 3 Year Annualized Return (%)



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

3 Years

5 Years



	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio		Anlzd Return	Anlzd Standard Deviation
Artisan Partners	14.5%	12.1%	1.2	Artisan Partners	14.3%	10.4%
MSCI ACWI	8.1%	9.0%	0.8	MSCI ACWI	9.2%	8.2%
eV All Global Equity Gross Median	8.5%	11.0%	0.7	eV All Global Equity Gross Median	10.2%	10.8%

Verus⁷⁷

1.3

1.1

0.9

First Eagle Manager Portfolio Overview

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	172	2,495
Weighted Avg. Market Cap. (\$B)	71.79	121.31
Median Market Cap. (\$B)	18.42	10.49
Price To Earnings	22.33	21.44
Price To Book	3.24	3.49
Price To Sales	3.37	3.08
Return on Equity (%)	15.42	17.43
Yield (%)	2.19	2.41
Beta	0.70	1.00

Energy Materials 12.0 Industrials 6.1 Cons. Disc. 12.3 4.7 Cons. Staples Health Care 10.7 12.9 Financials 18.7 9.2 Info. Tech. 18.7 2.1 Telecomm. Utilities 0.4 2.9 Real Estate 3.0 Unclassified 0.0 31.9 0.0 10.0 20.0 30.0 First Eagle MSCI ACWI

Ending Allocation Ending Allocation (USD) (USD) Totals Developed 77.4% 87.8% Emerging* 3.4% 12.2% Cash 19.2% **Top 10 Largest Countries** United States 46.6% 52.0% Cash 19.2% 0.0% 11.7% 8.0% Japan France 5.4% 3.6% 3.3% 5.7% United Kingdom Canada 3.0% 2.9% Korea* 1.5% 1.8% Switzerland 1.4% 2.6% Germany 1.3% 3.2% Belgium 1.1% 0.4% Total-Top 10 Largest Countries 94.4% 80.2%

Country Allocation

Manager

Index

	Top Contributor	S			Bottom Contributo	rs	
	Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
MICROSOFT	2.02	7.19	0.15	COMCAST 'A'	1.46	-14.35	-0.21
KEYENCE	1.00	10.91	0.11	EXXON MOBIL	1.20	-9.89	-0.12
FANUC	1.86	5.53	0.10	NEWCREST MINING	0.67	-15.52	-0.10
ASTELLAS PHARMA	0.36	20.32	0.07	HEIDELBERGCEMENT	1.06	-9.78	-0.10
VARIAN MEDICAL SYSTEMS	0.64	10.35	0.07	SODEXO	0.43	-23.11	-0.10
NTT DOCOMO INC	0.61	10.15	0.06	SYNCHRONY FINANCIAL	0.72	-12.82	-0.09
SOMPO HOLDINGS	1.16	5.30	0.06	KT & G	0.63	-13.04	-0.08
CONOCOPHILLIPS	0.70	8.61	0.06	AMERICAN EXPRESS	1.43	-5.75	-0.08
GBL NEW	1.06	5.62	0.06	BRITISH AMERICAN	0.53	-13.56	-0.07
KDDI	1.35	4.33	0.06	TOBACCO	0.00	-10.00	-0.07
				3M	1.14	-6.19	-0.07

Sector Allocation (%) vs MSCI ACWI

Unclassified sector allocation includes cash allocations and Gold allocations (7.2% as of 3/31/2018).

Verus⁷⁷

First Eagle Manager Performance Comparisons (Gross of Fees)

(52)

-1.0

(50)

14.8



5.6

9.2

(47)

24.0

7.9

First Eagle vs. eV All Global Equity Gross Universe



5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

First Eagle

MSCI ACWI

Median

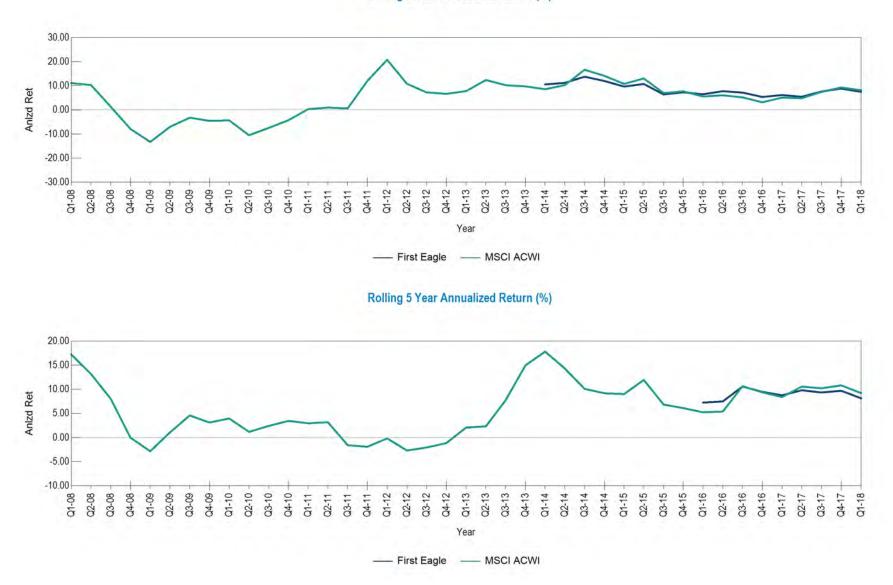
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-2.4

4.2 (54) 22.8

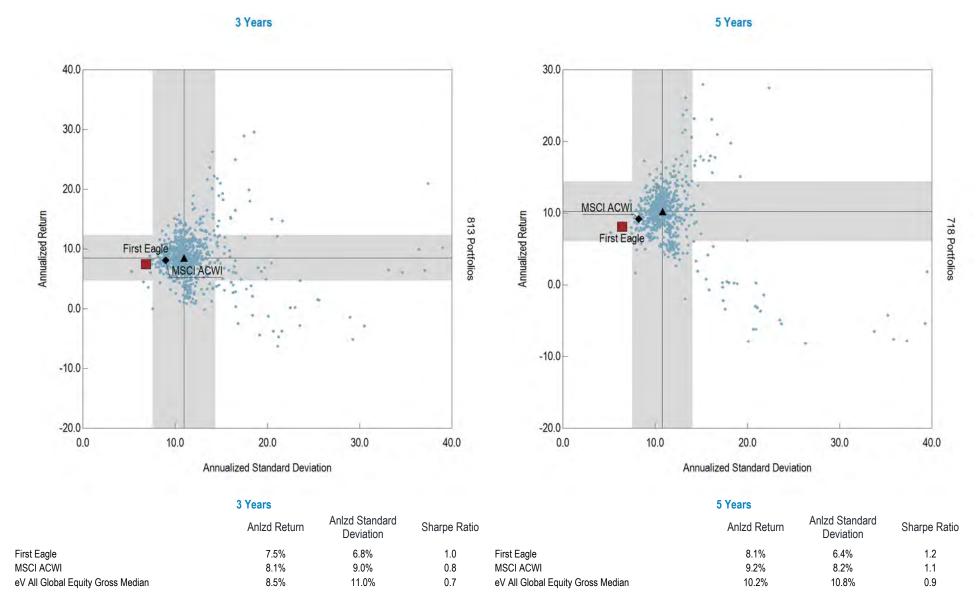
(66)



Rolling 3 Year Annualized Return (%)



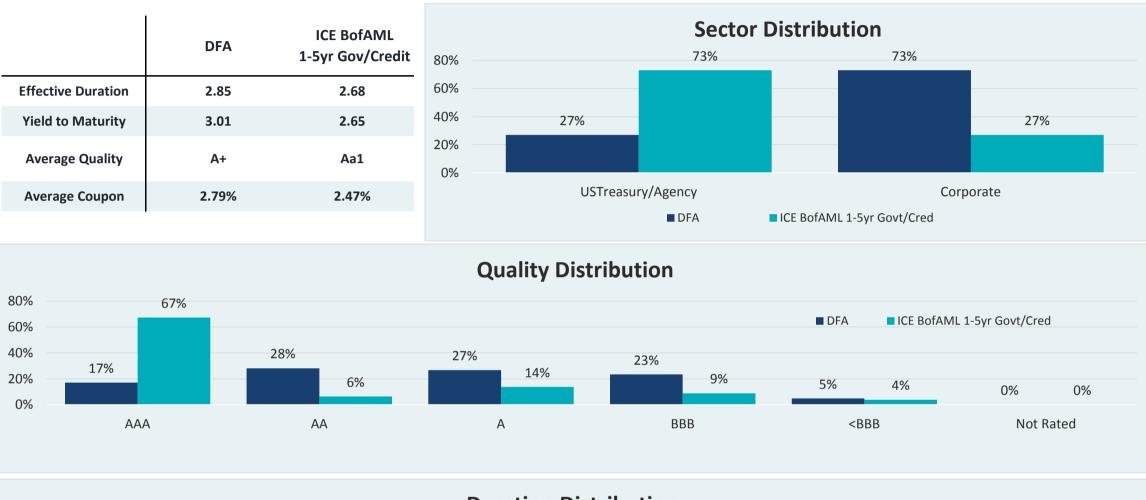
First Eagle Risk vs. Return 3 & 5 Year (Gross of Fees)





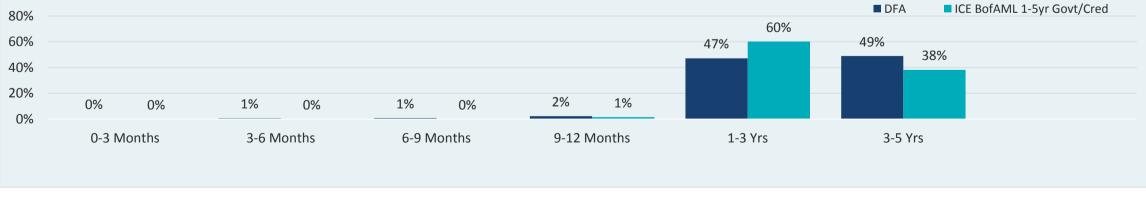
Domestic Fixed Income Managers

DFA Short Credit Manager Portfolio Overview



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.

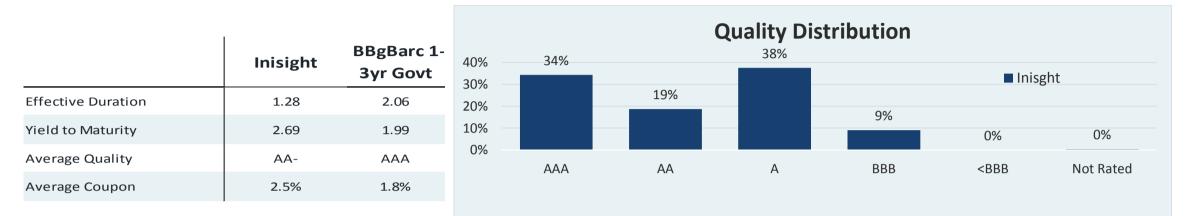
Duration Distribution

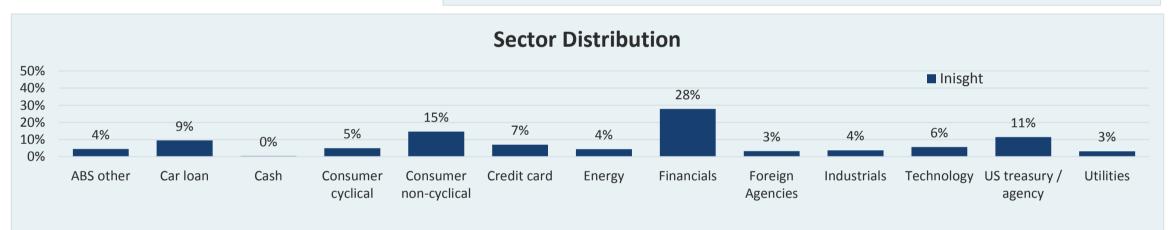


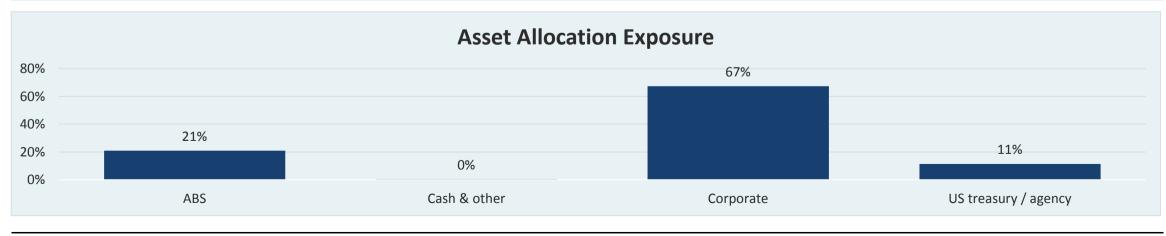


Insight Short Duration Manager Portfolio Overview

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.





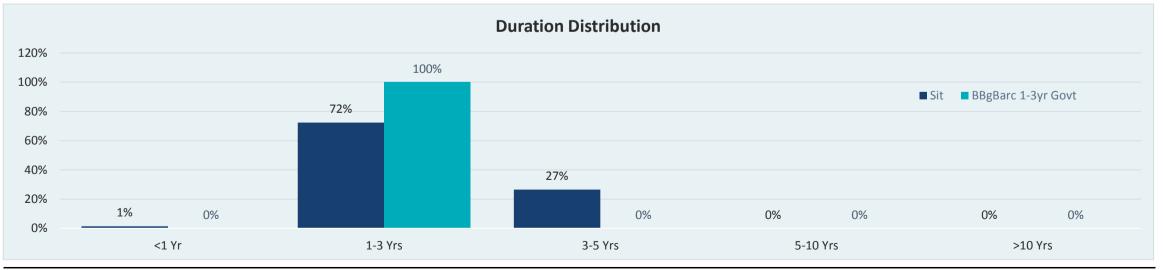




Sit Short Duration Manager Portfolio Overview



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.



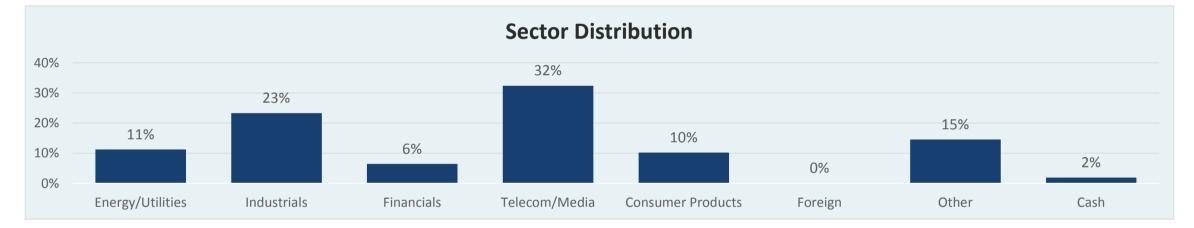
High Yield Managers

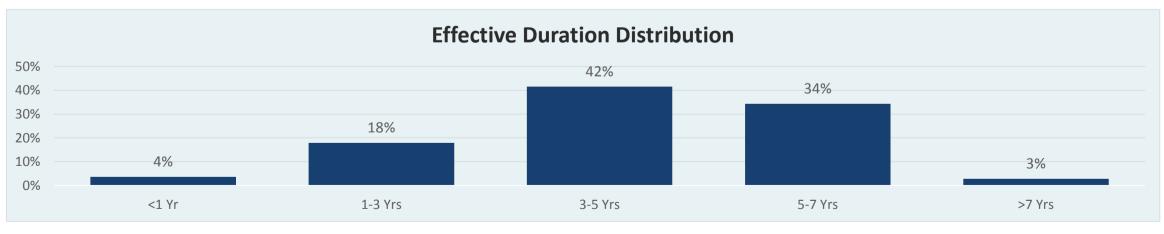
Allianz Global Investors Manager Portfolio Overview

	Allianz	ICE BofAML HY Master II
Effective Duration	4.30	4.20
Yield to Maturity	6.30	6.60
Average Quality	B1	B1
Average Coupon	6.3%	6.3%



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

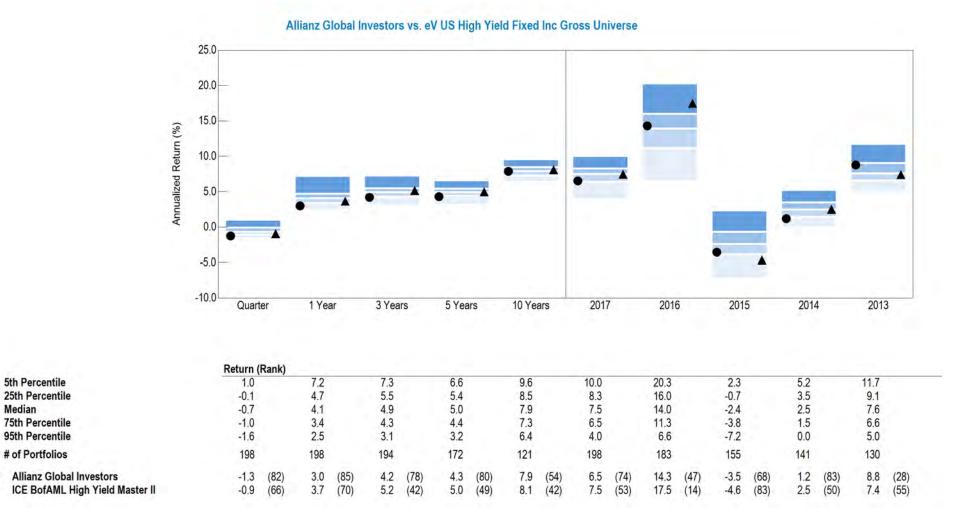


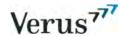


Quality distribution excludes cash.



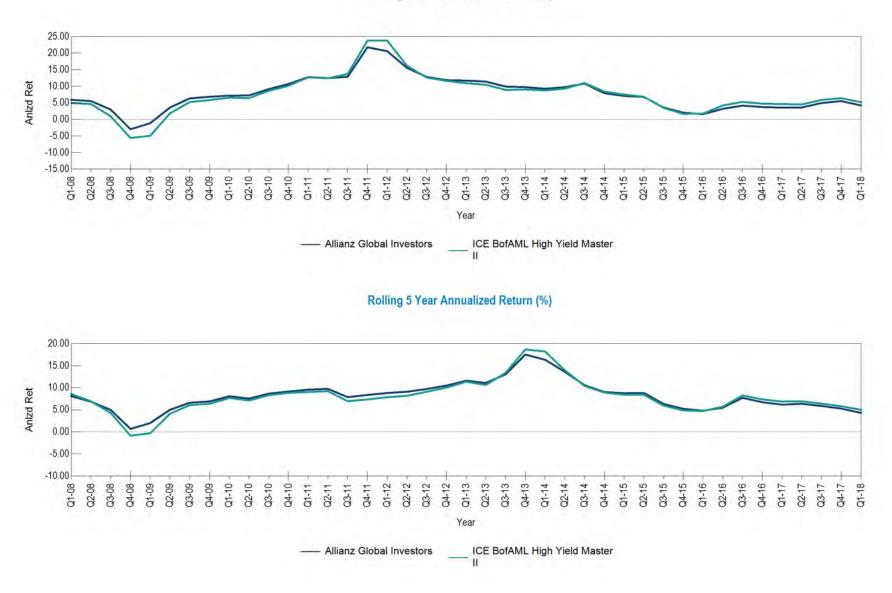
Allianz Global Investors Manager Performance Comparisons (Gross of Fees)





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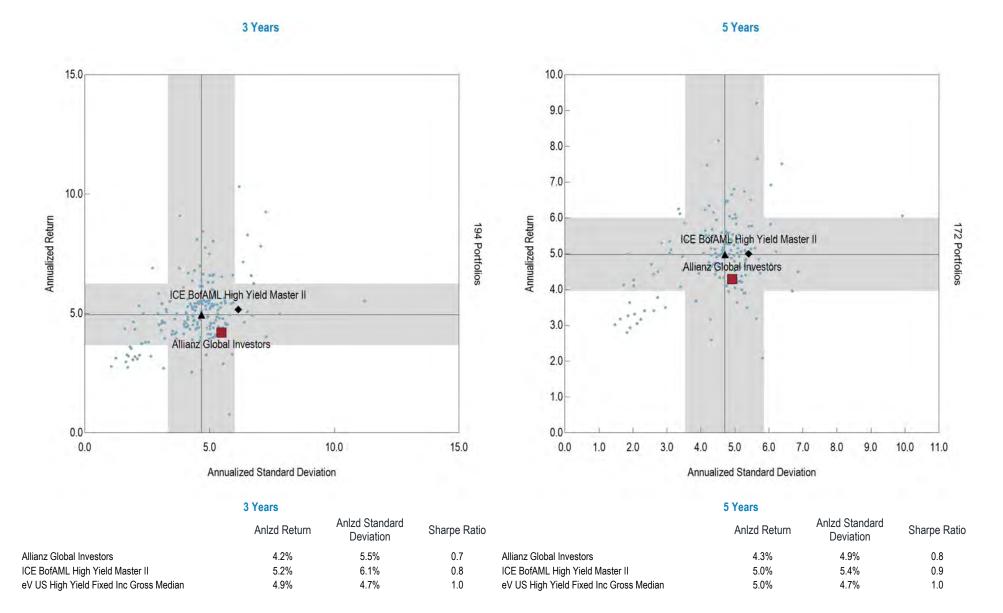
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Rolling 3 Year Annualized Return (%)



Allianz Global Investors Risk vs. Return 3 & 5 Year (Gross of Fees)



Verus⁷⁷

Diversifying Fixed Income Managers

AFL-CIO Manager Portfolio Overview

1%

Not Rated

0%

BBgBarc Quality Distribution AFL-CIO Aggregate 95% 100% AFL-CIO 72% **Effective Duration** 5.45 5.98 75% BBgBarc Aggregate 50% 3.05 Yield to Maturity 3.30 13% 11% 25% 4% 4% 0% 0% 0% 0% Average Quality AAA AA 0% AAA AA А BBB <BBB Average Coupon 3.2% 3.3%

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

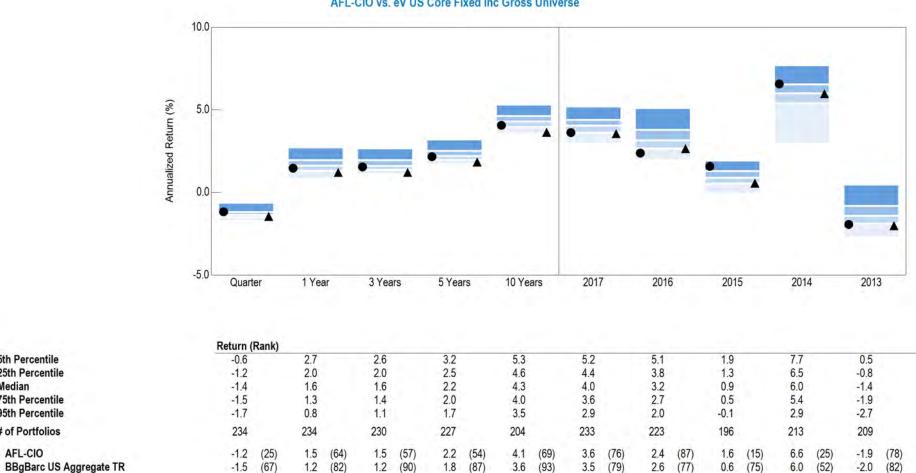




Duration and Quality distributions exclude cash.



AFL-CIO Manager Performance Comparisons (Gross of Fees)



AFL-CIO vs. eV US Core Fixed Inc Gross Universe



5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

AFL-CIO

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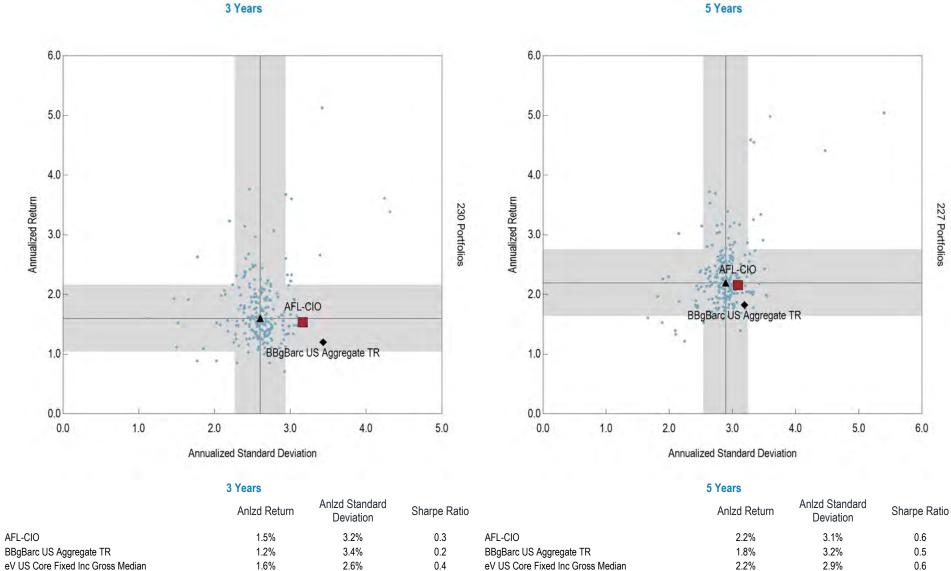
Median



Rolling 3 Year Annualized Return (%)



AFL-CIO Risk vs. Return 3 & 5 Year (Gross of Fees)



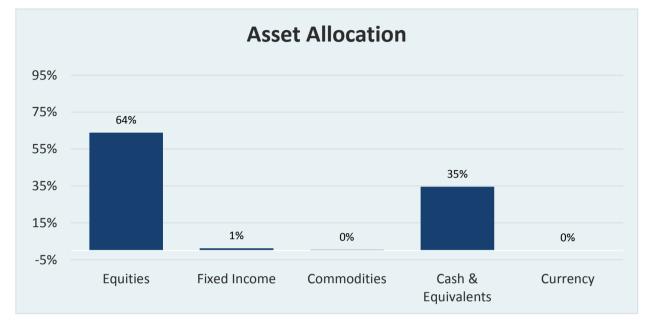
5 Years

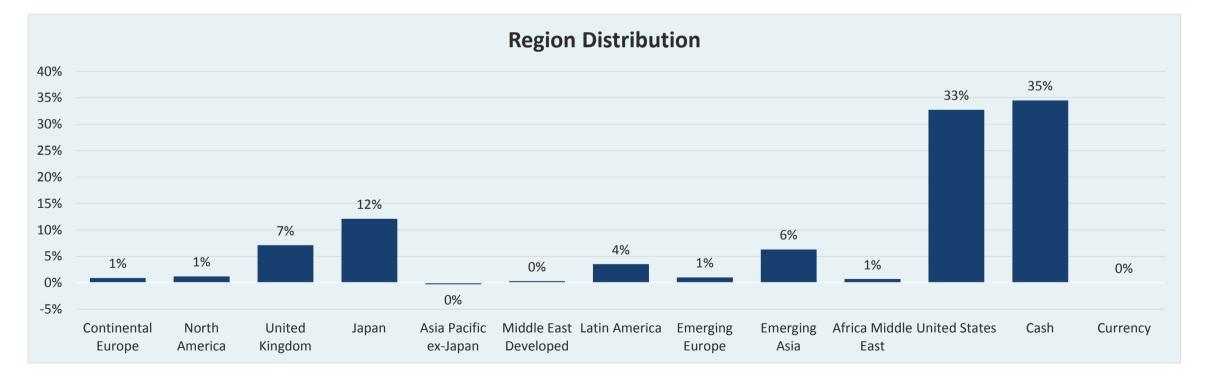


Wellington Total Return Manager Portfolio Overview

	Wellington Total Return
Number of Equity Holdings	973
Number of Commodity Holdings	177
Effective Duration (Years)	2.30
Average Quality	D

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.





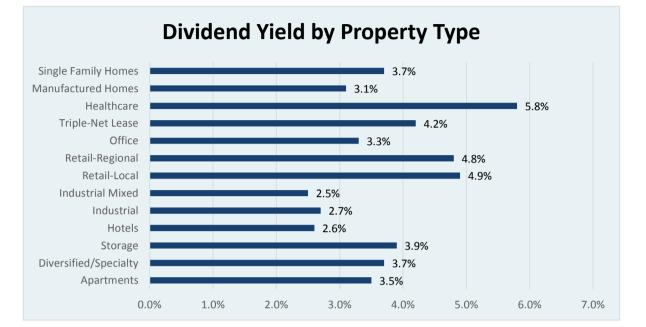
Verus⁷⁷

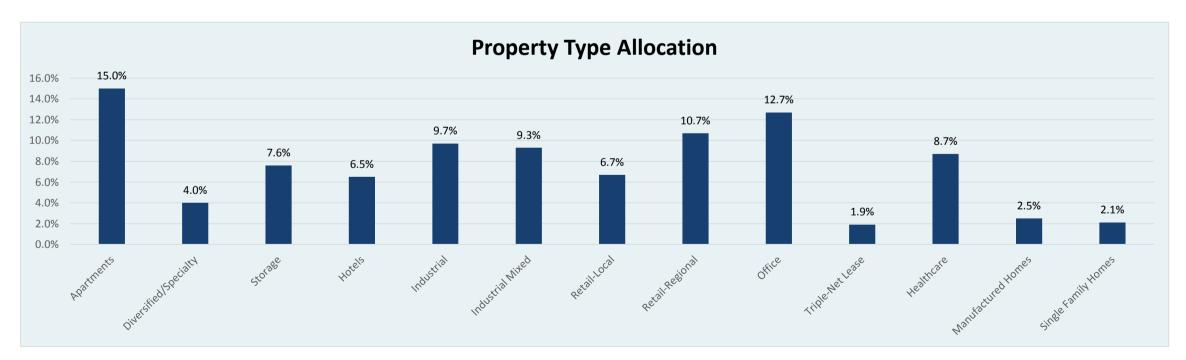
Real Estate Managers

Adelante Manager Portfolio Overview

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	8.6%					
Welltower Inc.	Healthcare	6.0%					
Equity Residential	Apartments	5.8%					
Equinix Inc	Industrial Mixed	5.6%					
ProLogis Inc.	Industrial	4.6%					





2.6% 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.

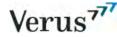
Data Source

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

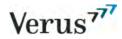
Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for 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	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 II	11/26/2007	Invesco
Emerald Advisors	4/7/2003	State Street	Invesco Real Estate III	6/30/2013	Invesco
Ceredex	11/6/2011	State Street	Invesco Real Estate IV	6/30/2014	Invesco
Pyrford	4/25/2014	State Street	Oaktree REOF V	12/31/2011	Oaktree
Villiam Blair	10/29/2010	William Blair	Oaktree REOF VI	9/30/2013	Oaktree
Artisan Partners	10/1/2012	SEI Trust	Oaktree REOF VII	4/1/2015	Oaktree
First Eagle	1/18/2011	State Street	Siguler Guff DREOF	1/25/2012	Siguler Guff
PIMCO RAE Emerging Markets	2/28/2017	State Street	Siguler Guff DREOF II	8/31/2013	Siguler Guff
TT Emerging Markets	7/27/2017	TT	Siguler Guff DREOF II Co-Inv	1/27/2016	Siguler Guff
AFL-CIO	6/30/1991	AFL-CIO	Paulson Real Estate Fund II	11/10/2013	State Street
Sit Short Duration	11/2/2016	State Street	Adams Street Partners	3/18/1996	Adams Street
DFA Short Credit	11/21/2016	State Street	Adams Street Partners II	1/16/2009	Adams Street
nsight Short Duration	11/18/2016	State Street	Adams Street Partners Venture	4/28/2017	Adams Street
BlackRock	4/20/2017	BlackRock	Adams Street Partners - BFP	1/18/1996	Adams Street
Forchlight II	9/30/2006	Torchlight	Adams Street Partners - Fund 5	9/21/2012	Adams Street
Forchlight III	12/31/2008	Torchlight	Bay Area Equity Fund	6/14/2004	DBL Investors
Forchlight IV	7/1/2012	Torchlight	Bay Area Equity Fund II	12/7/2009	DBL Investors
Forchlight V	7/1/2012	Torchlight	Carpenter Bancfund	1/31/2008	Carpenter Bancfur
Allianz Global Investors	4/25/2000	State Street	EIF US Power Fund I	11/26/2003	Ares Managemen
BlackRock Transition	11/1/2016	State Street	EIF US Power Fund II	8/16/2005	Ares Managemer
Vellington Real Total Return	2/26/2013	State Street	EIF US Power Fund III	5/30/2007	Ares Managemer
Aether Real Assets III	11/27/2013	Aether	EIF US Power Fund IV	11/28/2011	Ares Managemen
Commonfund	6/28/2013	Commonfund	EIF US Power Fund V	11/28/2016	Ares Managemer
Adelante	9/30/2001	State Street	Nogales	2/15/2004	Nogales
Cash		State Street	Paladin III	11/30/2007	Paladin
Angelo Gordon Realty Fund VIII	1/23/2012	Angelo Gordon	Ocean Avenue Fund II	6/11/2014	Ocean Avenue
Angelo Gordon Realty Fund IX	12/8/2014	Angelo Gordon	Ocean Avenue Fund III	4/15/2016	Ocean Avenue
Angelo Gordon Energy Credit Opp	9/24/2015	Angelo Gordon	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 Wastewater Opp. Fund LaSalle Income & Growth VI LaSalle Income & Growth VII Hearthstone II Parametric Overlay	7/1/2014 12/8/2015 7/16/2013 2/28/2017 6/17/1998 3/29/2017	DLJ Wastewater LaSalle LaSalle Hearthstone State Street	Pathway 7 Siguler Guff CCCERA Opps Siguler Guff Secondary Opps Aether Real Assets IV StepStone CC Opportunities Fund	2/7/2013 6/3/2014 11/30/2016 3/16/2016 2/1/2018	Pathway Siguler Guff Siguler Guff Aether Stepstone
Policy & Custom Index Composition	on				
Policy Index (12/1/2016 - present)	6.8% NCREIF ODCE	Index, 3.6% CPI +4%,	S (Gross), 10.9% MSCI ACWI (Net), 1% W 8.1% S&P 500 +4%, 1.7% ICE BofAML H 8arc 1-3 Yr Gov/Credit, 1.6% 90-day T-Bills	igh Yield Master II +2	%, 5.1% ICE BofAML
Policy Index (4/1/2012-11/30/2016)			ex-US (Gross), 12.3% MSCI ACWI (Net), 1 Iobal Aggregate, 13.5% Real Estate Bencl 91-Day T-Bills.		
Real Estate Benchmark (current)		11% Wilshire REI	r, 18% NCREIF Property Index, 71% NCR	EIF ODCE Index.	
Real Estate Benchmark (4/1/2012-11/30/2016)	40%	Wilshire REIT, 50% N	CREIF Property Index, 10% FTSE/EPRA N	AREIT Developed ex	x-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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - 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: Portfolio Excess Return / Portfolio Standard Deviation.

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

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

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

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

Verus⁷⁷

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Verus receives universe data from InvestorForce, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

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