

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: DECEMBER 31, 2015

Investment Performance Review for

Contra Costa County Employees' Retirement Association

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

1st QUARTER 2016 Investment Landscape

An update on Verus

$2016 \text{ marks our } 30^{\text{th}} \text{ anniversary}$

Since 1986, Verus has provided high quality services to institutional investors, growing our depth of investment team and expertise as the capital markets have become exponentially more complex. Some highlights of our recent achievements:

- In 2011, we brought in an investment team headed by Jeffrey Scott, CFA, former Chief Investment Officer of the Alaska Permanent Fund Corporation, to lead our expansion into full discretionary investment services ("OCIO"). Today, this team manages over \$19 billion in institutional assets.
- In April 2015, in recognition of our evolution and continued investment into capital markets research, risk analytics and portfolio management capabilities, we rebranded from Wurts & Associates to Verus.
- In December 2015, we closed our merger with Strategic Investment Solutions, growing our total staff to more than 100 professionals. We now have offices in Seattle, Los Angeles and San Francisco, and serve clients across the US, in Canada and in South America.
- In January 2016 we expanded our ownership base from 11 to 22 employee-owners.
- Throughout all of these years, we are pleased to have continued to be rated highly for overall quality of service. We have ranked in the top quartile of the Greenwich Associates annual institutional investor survey 10 of the past 11 years.
- Today our suite of offerings includes non-discretionary consulting, risk advisory, private markets consulting, discretionary management, and outsourced CIO services.





^{*}Estimated discretionary and non-discretionary regulatory assets under management as of 1/1/2016; chart reflects client breakdown by number of relationships





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1st quarter summary

THE ECONOMIC CLIMATE

- Global growth has benefited from improvements in Europe and Japan, but headwinds persist in emerging market economies. U.S. real GDP growth fell slightly quarter-over-quarter to 2.0%. *p.7*, 15
- There is continuing global disinflationary pressure from falling commodity prices and excess manufacturing capacity. Despite this, inflation in the U.S. and other developed markets rose slightly in Q4.
 p.12, 15
- Some emerging market economies are experiencing economic depression. China continues to moderate with real GDP growth falling to 6.9%. *p.13, 14*

MARKET PORTFOLIO IMPACTS

- The U.S. dollar rose in Q4 to a level not seen since 2003. Appreciation hit investors with unhedged equity exposure, commodity markets, and earnings of international businesses. *p.26, 41*
- Risk assets have broadly suffered, with particular recent weakness in equity markets and credit fixed income, especially high yield energy. *p.22, 26, 43*

THE INVESTMENT CLIMATE

- Sentiment across risk markets seems to be shifting in increasingly a more bearish direction. *p.28, 43* concerned ov
- Developed countries may have limited ability to stimulate growth and inflation with lower interest rates. *p.16*
- The Federal Reserve implemented a 25 bps rate hike in December. Underlying weakness in the domestic economy may lead to policy shifts. *p.6*

ASSET ALLOCATION ISSUES

- High yield spreads widened in Q4, with energy leading the way. There is a potential for market concerns to begin to affect higher quality credit.
 p.22, 43
- Market sentiment towards risk assets in general suggests careful consideration of risk exposures in all asset classes is warranted. *p.28*
- U.S. dollar strength may be at a secular high, which could have implications for currency hedging decisions. *p.41*

We are

increasingly concerned over the behavior of risk assets and are watching economic and market developments carefully for signs of more sustained weakness



Economic environment



U.S. economics summary

- U.S. real GDP growth moved slightly downward to 2.0% quarter-over-quarter. The Atlanta Fed GDPNow model forecasts continued weaker growth of 1.2% real for Q4, as of December 31st. This figure is much lower than economist forecasts.
- Realized headline inflation ticked up during the quarter to 0.5%, while inflation expectations were relatively unchanged.
- The Federal Reserve implemented a 25 bps rate hike in December. This move was generally expected and priced in. Initial Fed expectations of further rises may be tempered by market conditions.
- The job market continued to tighten, as unemployment rates declined. Broader measures of unemployment (U-6) have improved alongside stricter measures of unemployment (U-3).
- Household borrowing has been muted since the crisis, but credit growth is beginning to pick up.
 Households seem to be healing and disposable income is rising with the help of lower gas prices.

	Most Recent	12 Months Prior
GDP (annual YoY)	2.1% 9/30/15	2.9% 9/30/14
Inflation (CPI)	0.5% 11/30/15	1.3% 11/30/14
Expected Inflation (5yr-5yr forward)	1.8% 12/31/15	2.1% 12/31/14
Fed Funds Rate	0.2% 12/31/15	0.06% 12/31/14
10 Year Rate	2.3% 12/31/15	2.2% 12/31/14
U-3 Unemployment	5.0% 12/31/15	5.6% 12/31/14
U-6 Unemployment	9.9% 12/31/15	11.2% <i>12/31/14</i>

Weakening GDP but stronger than many developed markets

Slight inflation uptick in Q4 as initial oil effects dissipate but still lower year on year



U.S. economics – GDP growth

Real GDP came in at 2% in the third quarter, and 2.1% on a year-over-year basis. Growth was hindered by a contraction in inventory builds and continued weakness in exports. GDP forward expectations have come down materially over the past year. Furthermore, the Atlanta Fed GDPNow model forecasts continued weaker growth of 1.2% real for Q4, as of December 31st, though this figure is much lower than economist forecasts.

The U.S. economy has faced headwinds, particularly in

the manufacturing sector, following a stronger dollar and slow global growth. The service sector has shown greater signs of health.

The domestic economy is relatively self-sufficient and highly concentrated in services rather than manufacturing, which suggests the U.S. consumer will likely dictate the direction of growth. Domestic growth remains more robust than in most developed countries.

U.S. remains a relative economic bright spot

Recent weakness in forward expectations

LONG-TERM U.S. GDP GROWTH



MEDIUM-TERM U.S. GDP GROWTH



GDP COMPONENTS



Source: FRED, as of 9/30/15

Verus⁷⁷

Source: FRED, as of 9/30/15

Source: FRED

U.S. economics – unemployment

The U.S. labor market continued to strengthen. U-6 unemployment (broader definition) and U-3 unemployment (stricter definition) moved downward to 9.9% and 5.0% in December, respectively. The participation rate improved in Q4.

Finishing off a strong year for employment, December's nonfarm payrolls beat expectations coming in at 292,000 vs 200,000 expected. Wages for the month were flat, resulting in an annualized growth figure of 2.5% - a disappointment relative to expectations.

In previous quarters we discussed a secular decline in the aggregate U.S. labor participation rate. This movement appears a negative indicator - possibly a sign of underlying economic weakness and structural slack in the labor force. However, if we focus in on the specific demographic of full time workers ages 25 to 54, we see a less extreme picture. Continued job market improvement

Demographic changes may be primary driver of declining participation

UNEMPLOYMENT SINCE 1948



MORE RECENT UNEMPLOYMENT & U6



LABOR FORCE PARTICIPATION RATE



Source: Bloomberg, as of 11/30/15

Source: FRED, as of 11/1/15

Source: FRED, as of 12/1/15



U.S. economics - the consumer

Although household borrowing has been relatively muted in the recent recovery, credit growth is beginning to pick up. Households are healing from the deleveraging process of recent years and disposable income is rising as employment strengthens.

Consumer spending has been bolstered by the oil price decline. Drivers saved around \$540 on average in 2015 due to the drop in gas prices. J.P. Morgan estimates consumers have spent approximately 80% of that savings. The personal savings rate ticked up slightly in Q4 to 5.5%, but remains in a normal range.

Real disposable income growth remains at a normal level as of November, at 2.7%.

Consumer behavior appears conservative, but stronger spending and credit growth could soon be realized as the labor market tightens. Higher student loan debt remains a drag on spending for younger consumers. Credit growth has begun to pick up, and has room for expansion

CREDIT GROWTH



AUTO SALES



GROWTH OF DISPOSABLE INCOME



Source: FRED, as of 11/1/15

Source: FRED, as of 11/30/15

Source: FRED, as of 11/1/15

U.S. economics – sentiment

Consumer and market sentiment surveys were mixed in Q4, but remain in a normal range.

The Bloomberg consumer comfort index had been significantly below average since December 2007. This index now sits at the bottom end of a normal range. The University of Michigan Consumer Sentiment Survey rose in December to the highest level since July. The average in 2015 was the highest annual average in 11 years. The Citi Economic Surprise index recently dropped to levels not seen since 2012, but continues to recover to normal levels.

The U.S. consumer appears to have been on a steady recovery since the great recession. While business borrowing has since picked up significantly, the consumer remains hesitant to accumulate debt. We continue to believe sentiment may be vulnerable to a stream of bad news.

Sentiment and comfort indices mixed in Q4

CONSUMER COMFORT INDEX



CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/15 (see Appendix)

ECONOMIC SURPRISE



Source: Bloomberg, as of 12/31/15 (see Appendix)

Verus⁷⁷

Source: Bloomberg, as of 12/1/15 (see Appendix)

U.S. economics – housing

The U.S. housing market has normalized in terms of pricing, rate of new home construction, and rate of home sales. New home construction climbed 10.5% in November from a month earlier. Construction of single family homes, which reflect two thirds of the market, reached an eight-year high in November.

Despite continued pent up demand for housing, the construction of multi-family homes continues to outpace single-family homes, further providing

evidence that Americans remain constrained in their ability to borrow. The recent policy change from the Fed may push lending rates higher and reduce demand for mortgages. A slower than expected rate-rise process may provide ongoing support.

Home prices have risen faster than wages, which is a hurdle to homeownership. High student loan levels may be continuing to act as a drag on first-time purchasers.

HOME AFFORDABILITY



Source: National Association of Realtors, as of 11/30/15

HOMEOWNERSHIP RATE

Source: FRED, as of 7/1/15



NEW & EXISTING HOME SALES



Source: Bloomberg, as of 11/30/15

Investment Landscape 1st Quarter 2016

U.S. economics – inflation

Inflation expectations remained stable in the 4th quarter, as measured by the U.S. TIPS 10yr Breakeven Rate and the U. of Michigan Inflation Expectations Survey. Headline inflation ticked up to 0.5% in November, while Core CPI remains around 2%. Inflation drag from the initial oil price decline is coming off the year-over-year inflation calculation, which could result in upward pressure to CPI.

The continuing oil price decline, ongoing global industrial overcapacity, especially in China, and dollar

strength pose further challenges for inflation. There is some positive pressure on inflation from an increasingly tight labor market, and a lower commodity price base. Further appreciation of the dollar is currently an inflation headwind but may fuel inflation if this trend reverses.

Domestic inflation is an input to Federal Reserve policy, and further spillover of global disinflation trends to the US could be expected to influence rate hike decisions. Effects of initial oil price decline falling off CPI print

Global downward pressures

LONG-TERM U.S. CPI



MEDIUM-TERM U.S. CPI

Source: FRED, as of 11/1/15



MARKET EXPECTATIONS OF INFLATION



Source: Bloomberg, University of Michigan, as of 12/31/15



Source: FRED, as of 11/1/15

International economics – current

- Global GDP growth remains mild, while Japan and the Eurozone saw marginal improvement. Slowing external demand may prove a challenge.
- China economic growth continues to cause concern. Real GDP growth is reported at 6.9%, though the accuracy of this figure is debated. Government stimulus may have helped mitigate the slowdown, but quickly rising debt-to-GDP might lead to problems.
- Japan did not enter a technical recession in Q3 as previously thought. Q3 Real GDP was revised up from -0.8% to +1% QoQ.
- Japan achieved positive year-over-year base wage growth of 0.3% in 2015, which is the first positive growth seen in 10 years.

- Total wages remain flat. The country continues its struggle to generate inflation.
- Global unemployment continues to decrease, while the BRIC nations remain an exception.
- Commodity markets remain challenging, which has affected emerging market equity and currency markets.
- Eurozone growth slowed in Q3 as exports weakened.
 Germany, a major
 contributor to export
 growth in the area, led the way.
- Puerto Rico defaulted on approximately \$174 million of debt payments on January 4th, as widely expected.

	Area	GDP (Real, YoY)	Inflation (CPI)	Unemployment
	United States	2.1% 9/30/15	0.5% 11/30/15	5.0% 11/30/15
	Western Europe	1.8% 9/30/15	0.2% 12/31/15	8.9% 9/30/15
	Japan	1.6% 9/30/15	0.3% 11/30/15	3.4% 9/30/15
	BRIC Nations	4.7% 9/30/15	4.2% 9/30/15	5.1% 9/30/15
,	Brazil	(4.5%) 9/30/15	10.5% 11/30/15	7.6% 9/30/15
	Russia	(4.1%) 9/30/15	15.0% 11/30/15	5.3% 9/30/15
	India	7.4% 9/30/15	4.6% 9/30/15	8.6% 12/31/14
	China	6.9% 9/30/15	1.5% 11/30/15	4.0% 9/30/15

In developed markets mild positive progress continues

Concern over further China weakness

Emerging market challenges continue



Global growth environment

REAL GDP GROWTH BY CONTRIBUTION



China is the second largest contributor to world GDP, but is the largest contributor to GDP growth

Developed economies not necessarily contributing the most to growth

Source: World Bank, as of 12/31/15



International economics

Global growth has benefited from improvements in Europe and Japan. Developed economies produced slowing to flat growth, improving employment, and subdued inflation. Many economies experienced a slight inflation uptick in Q4. Further improvement may be realized as the initial oil price decline falls out of annual CPI calculations. Consumer confidence in the Eurozone continues to improve from the lows of the financial crisis. growth. These economies have struggled, with the exception of India. Commodity production has been a key driver of growth for many countries, along with high government spending. Global excess manufacturing capacity is negatively affecting inventory builds and has had a dampening effect on demand.

Emerging market economic health is increasingly important to the global economy, as emerging markets drive approximately 60% of global growth and compose approximately 60% of global commodity consumption.

Emerging market economies exhibited disparate

INTERNATIONAL INFLATION (CPI)



REAL GDP GROWTH



CONSUMER CONFIDENCE



Source: Bloomberg, as of 11/30/15

Source: Bloomberg, as of 9/30/15

Source: Bloomberg, as of 11/30/15

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Limitations of monetary policy

- Central banks have the ability to stimulate investment by lowering interest rates through open market operations. In the U.S., policymakers target the federal funds rate to either encourage or discourage borrowing.
- Given the recent regime shift of global policy rates to all time lows, many near zero or even negative, policymakers may find it difficult to make further rate cuts.
- In the case of another global financial crisis, central banks may have limited power to respond with simulative monetary policy as rates can only go so low. In extreme cases, central banks are paying to lend money to investors.
- If central banks are unable to lower rates and reduce financial stability, global markets may suffer.



Central bank policy rates reaching all time lows, creating challenges for central banks

Source: Bloomberg, as of 12/31/15

Verus⁷⁷



Fixed income rates & credit



Interest rate environment

- The Federal Reserve implemented a long anticipated rate hike in December. Policy in Europe and Japan remains accommodative.
- Interest rates decreased broadly across developed markets in Q4, with the exception of the U.S and Germany.
- U.S. interest rates remain high relative to other developed markets
- The ECB lowered the deposit facility rate to a level of -0.30% in December, despite earlier comments by Mario Draghi that rates would not go any lower. Markets were disappointed by this policy decision and yields climbed

on the news. The ECB continues to suggest looser policy may be available if needed.

- While initial expectations were for further U.S. rate rises, more recent news suggests these may be delayed. A move towards slower rate rises, or even the reintroduction of looser monetary policy, could lead to a market reassessment of relative currency values, and a weaker dollar.
- Many central banks have few policy tools available to them in the event of further economic weakness

Area	Short Term (3M)	10 Year
United States	Inited States 0.17% 2.27%	
Germany	(0.55%)	0.63%
France	(0.46%)	0.99%
Spain	(0.18%)	1.77%
Italy	(0.12%)	1.59%
Greece	2.10%	8.07%
UK	0.51%	1.96%
Japan	(0.04%)	0.27%
Australia	2.11%	2.88%
China	2.14%	2.83%
Brazil	15.03%	16.51%
Russia*	11.79%	10.39%

Interest rates fell in Q4

Diverging monetary policies could be detrimental to countries with high debt burdens

*Shortest term rate for Russia is 1Y

Source: Bloomberg, as of 12/31/15



Monetary divergence

- During Q4, the Fed raised interest rates for the first time since 2006. The decision was in contrast to the policy decisions of other central banks including Europe, Japan and China in 2015.
- Two weeks prior to the Fed's decision, the ECB made announcements of plans to further expand European stimulus in the form of a rate cut, and extension of the QE program to March 2017. In the final weeks of the year the Bank of Japan decided to leave the monetary base unchanged, but added several other accommodative measures.
- If markets allow a continuation of this divergence, it could support dollar strength. However, continued weakness in markets or economic data could reverse this trend.
- The U.K. remains somewhere in the middle, echoing the desire to tighten alongside the Fed but not seeing convincing signs from domestic and global data.
- The key concern is whether deflationary pressure, continuing commodity down-cycle effects, and overcapacity will cause continued loosening in monetary policy globally. This change in direction could require substantive changes in market behaviors.



Source: Bloomberg, as of 12/31/15

Verus⁷⁷

Investment Landscape 1st Quarter 2016

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Global yield curve

U.S. YIELD CURVE



U.S. Treasury curve shifted up in anticipation of the Fed's decision

Foreign developed interest rates broadly decreased in Q4

GLOBAL GOVERNMENT YIELD CURVES



Source: Bloomberg, as of 12/31/15



Global yield curve changes

INTERNATIONAL YIELD CURVE CHANGES OVER LAST FIVE YEARS



Forward curves imply flat or modestly higher rates in most countries, with the exception of the U.S.

EXPECTED INTEREST RATE CHANGES ONE YEAR FORWARD IMPLIED BY MARKET PRICING



Source: Bloomberg, as of 12/31/15



Credit environment

While consumer credit appeared to pick up in Q4, business borrowing slowed. Recent widening of spreads, high M&A activity, increasing leverage, and relatively less restrictive covenants, increase concern over credit markets.

Domestic credit spreads widened further during the quarter, led by the energy sector. However most spreads remain in a broadly normal range. Higher credit spreads make further corporate leveraging difficult leading to higher financing costs for equity buybacks and M&A activity, which may be a headwind to equity prices. Emerging market economies have experienced great pain, reflected in wider CDS spreads following the drop in the price of oil.

In the past, a broad sell-off in the high yield market might have created risks of broader contagion as banks were primary holders of credit; however, banks have largely divested from this asset class. Nonetheless the possibility of broader impact on the credit market from high yield weakness remains worrying.

SPREADS

Broad concerns across credit spectrum, particularly in energy high yield

CREDIT SPREADS

Verus⁷⁷



EMERGING MARKET SPREADS



Market	Credit Spread (12/31/2015)	Credit Spread (1 Year Ago)
Long US Corporate	2.1%	1.7%
US Aggregate	1.1%	1.0%
US High Yield	7.1%	5.3%
US High Yield Energy	13.6%	9.3%
US Bank Loans	3.9%	3.9%

Source: Barclays Capital Indices, Bloomberg, as of 12/31/15

Source: Bloomberg, as of 12/31/15

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/15

Issuance and default

Investment grade issuance increased in 2015, while issuance of bank loans and high yield continued to contract.

Defaults are rising in the high yield market, driven by the energy sector. Hedges put in place by energyrelated companies are largely rolling off, revealing the true financial effects of lower commodity prices. Bankruptcies may have knock-on effects on lenders.

Energy-related high yield issuers make up about 15% of

IG & HIGH YIELD ISSUANCE



BANK LOAN & GLOBAL HY ISSUANCE



Source: BofA Merrill Lynch Global Research, as of 12/31/15

the high yield market. Though small, this portion of the market could be negatively affected if energy market turbulence persists. Aggregate defaults remain in a normal range year-over-year.

With continued issues in the credit market, investors should take care to understand and control the degree of credit exposure in portfolios, particularly in the high yield space. Defaults rising but for now remain near average

HY DEFAULT TRENDS (ROLLING 1 YEAR)



Source: Credit Suisse, BofA, as of 12/31/15

Verus⁷⁷

Source: Bloomberg, as of 12/31/15

Investment Landscape 1st Quarter 2016

Continued role of fixed income

- Investors have lately questioned the role of fixed income. An environment of lower yields, the prospect of rising yields, and higher duration, arguably lessen the attractiveness of this asset class.
- Investors typically hold fixed income instruments for five primary reasons: equity risk protection, capital
 preservation, income, credit premium, and tenor premium. Although at current levels of risk premia and pricing
 some of these benefits may be less effective than in the past, broadly they remain intact.
- Although rising rates imposes a downward pressure on bond prices, investors have the opportunity to reinvest capital on instruments offering higher interest.
- Tenor risk and credit risk, although potentially paired with increased defaults, will continue to offer higher returns.

EQUITY RISK PROTECTION



CREDIT PREMIA



TENOR PREMIA



Source: Bloomberg, as of 10/31/15



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Fixed income instruments have provided a safe haven during equity down markets





Equity environment

- The current low inflation, low interest rate environment remains accommodative for risk assets, but economic and market concerns persist.
- S&P 500 earnings fell 4.3% in Q3 while sales fell 3.8%. Earnings beat estimates by 4.9% while sales missed by -0.1%.
- The technology sector has been a major contributor to U.S. business margin expansion since 2009.
 Apple generated an estimated 22% of S&P 500 margin growth.
- While energy and mining sectors weighed on the broader indices, measuring returns on an ex-energy basis may be inappropriate as this excludes firms

- negatively impacted and includes the firms feeling positive effects.
- Size and value factors underperformed in Q4.
- Emerging market equity continued to experience volatility and losses. The effects of a lower price of oil has translated to broad currency depreciation.
- Japan on both a hedged and unhedged basis performed exceptionally well. While there remain doubts around the pace of reform, our ongoing view that structural change will drive benefits to investors remains intact.

	QTD Total Return (unhedged)	QTD Total Return (hedged)	YTD Total Return (unhedged)	YTD Total Return (hedged)	1 Year Total Return (unhedged)	1 Year Total Return (hedged)
US Large Cap (Russell 1000)	6.5%		0.9%		0.9%	
US Small Cap (Russell 2000)	3.6	%	(4.4	%)	(4.4	%)
US Large Value (Russell 1000 Value)	5.6%		(3.8	%)	(3.8	8%)
US Large Growth (Russell 1000 Growth)	7.3	%	5.7	%	5.7	7%
International Large (MSCI EAFE)	4.7%	6.4%	0.8%	5.0%	0.8%	5.0%
Eurozone (Euro Stoxx 50)	3.6%	5.5%	(0.1%)	6.2%	(0.1%)	6.2%
UK (FTSE 100)	1.1%	0.8%	(6.4%)	(9.6%)	(6.4%)	(9.6%)
Japan (NIKKEI 225)	8.7%	9.6%	9.9%	10.7%	9.9%	10.7%
Emerging Markets (MSCI Emerging Markets)	0.7%	0.9%	(14.9%)	(8.2%)	(14.9%)	(8.2%)

Negative sentiment and economic challenges may cause ongoing concerns

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/15



Domestic equity historical return

The U.S. equity market has performed exceptionally well since the global financial crisis, but equities were range-bound in 2015.

Equities provide exposure to economic growth, and should be held over the long-term. Short-term attempts to time the market, done poorly, can detract from long-term returns. A systematic rebalancing policy can be very helpful to long-term performance by avoiding emotional buying or selling which can damage performance. Domestic equity fundamentals have shown some weakening as of late. Other developed equity markets may provide better opportunities for investing new money, although concerns are warranted for risk assets as a whole.

Equity exposure remains an integral part of the portfolio and is the primary means for investors to access long term productive capacity of the economy.

LONG-TERM PERFORMANCE





DOWNSIDE EVENTS



Source: FRED, as of 1/21/16

Source: FRED, as of 1/21/16

Source: FRED, as of 1/21/16

Domestic equity recent

Domestic equities rallied in Q4, but retraced gains early in the new year. Worries over slowing growth in the U.S. and a hard landing in China continued to weigh on risk assets. The timing of rate hikes in 2016 may add additional uncertainty. Nearly seven years in length, the current bull market has extended longer than most. It is important to remember that bull markets do not die of old age, but rather due to a shifting environment. There are concerns we may be in the process of such a shift today. S&P 500 earnings fell 4.3% in Q3 while sales fell 3.8%. Earnings beat estimates by 4.9% while sales missed by -0.1%.

Domestic growth and weakening corporate earnings may cause uncertainty in the short term. Market technical factors also provide some grounds for concern, with all major domestic equity indices showing poor technical market signals. Signs of weakness are evident in domestic equity markets

SHORT TERM PERFORMANCE (3YR)



SMALL/LARGE & GROWTH/VALUE



FORWARD P/E



Source: Russell Investments, as of 1/21/16

Source: Russell Investments, as of 12/31/15

Source: Standard & Poor's, Russell Investments, as of 1/21/16

Relative valuations

RUSSELL 3000 P/E DIVIDED BY FOREIGN INDEX P/E



On a P/E basis foreign equity markets appear relatively cheap compared to the U.S.

This has, however, often been the case and may not be indicative of future performance

Source: Russell Investments, MSCI, Nikkei, as of 12/31/15. Note negative earnings for Japan for certain periods cause a gap in the Japan series



Equity volatility

After significantly spiking in August, the VIX remained relatively range-bound through the remainder of the quarter. Closing 2015 near the high end of the range, an increase in volatility levels in early January may be sustained in the coming months. Disparate views on the impact and magnitude of a China slowdown, uncertainty surrounding the path of Fed rate hikes, and broad pain caused by a low commodity base have

fueled greater price uncertainty.

Volatility in domestic indices is marginally lower than international indices with emerging markets remaining the most volatile. Geopolitical tensions and volatile commodities prices are likely to impact emerging market volatility in the coming months.

Volatility levels typically exhibit muted behavior during bull markets and spike during market downturns, which makes it important to monitor volatility. Equity volatility in both developed and EM has increased

LONG-TERM VOLATILITY



INTERMEDIATE-TERM VOLATILITY



INTERNATIONAL EQUITY VOLATILITY



Source: CBOE, as of 12/31/15

Verus⁷⁷

Source: CBOE, as of 12/31/15

Source: MSCI, as of 12/31/15

Domestic equity size and style

Small cap equities trailed large cap in Q4, and growth continues to outperform value. Over the past three years investors have been reward for taking on exposure to size, but punished for taking on exposure to value.

Appreciation of the U.S. dollar contributed to small cap outperformance as larger firms with foreign currency receipts received currencies worth less relative to the U.S. dollar. Growth beat value by a significant margin in 2015, outperforming by 9.6% in 2015. Style performance is often displayed in cumulative terms; however, it is necessary to understand the degree of periodicity in these returns.

In the context of investment style factors, it should be noted that most of the embedded risk is primarily equity risk; however, factor awareness and management can be important in portfolio construction. Size and value risk factors suffered losses in Q4

SMALL CAP VS LARGE CAP (YOY)



VALUE VS GROWTH (YOY)



ROLLING 5 YEAR RETURN



Source: Russell Investments, as of 12/31/15

Source: Russell Investments, as of 12/31/15

Source: Russell Investments, as of 12/31/15

Domestic equity valuations

Domestic equity valuations rose slightly in Q4 on both a trailing and forward P/E basis, but have fallen back to a normal range since the beginning of the year.

Stronger profit margin and earnings growth, and a general economic recovery since the 2008 have justified an expansion of equity valuations. Nominal equity returns are driven by dividends, earnings growth, valuation expansion, and inflation (prices keeping up with higher input costs). Dividend yields are currently low relative to history, profit margins are strong relative to history, valuations are somewhat above above average, and inflation is near record lows. This environment is not particularly accommodative for the fundamental drivers of long-term nominal equity returns.

The spread between S&P 500 dividend yield and the U.S. 10yr Treasury yield remains wide. Continued interest rate hikes could help bring this spread back to an average level.

Valuations rose slightly in Q4, and remain somewhat high

12 MONTH FORWARD P/E



EQUITY YIELD LESS BOND YIELD



Source: Standard & Poor's, Bloomberg, as of 12/31/15

SHILLER P/E LONG-TERM



Source: Shiller, as of 12/31/15

Investment Landscape 1st Quarter 2016

Source: Standard & Poor's, Russell Investments, as of 1/7/15



International equity historical return

International developed market equities, in general, have lagged their U.S. counterparts since the lows of 2009. International developed small cap equities outperformed significantly during this time. Currency hedging decisions continue to have a material impact on performance as of late.

Emerging markets were relatively range-bound between 2010 and early 2015, but since early 2015 have moved into bear market territory. Growth concerns in China and a lower oil price have contributed to poor returns. Currency volatility makes it necessary for investors to understand the nature of unhedged exposures to international equities. At times the return from currency exposure can be as large or larger than the equity return. Investors should think of these two exposure sets as separate investment decisions. Significant concerns in emerging markets continue

Despite volatility, it is important to remember that emerging market exposure has typically bolstered portfolio performance significantly over the long run.

EAFE LONG TERM (USD)



EMERGING MARKETS LONG TERM (USD)



EM EFFECT ON GLOBAL EQUITY PORTFOLIO



Source: MSCI, as of 12/31/15

Source: MSCI, as of 12/31/15

Source: MSCI, as of 12/31/15

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International equity recent

Developed international equity performance was mixed in 2015. Currency fluctuations have overwhelmed positive equity returns in many markets, but added to returns in others.

European equities have typically underperformed U.S. equities in terms of earnings growth. This trend has reversed as European companies have outperformed. European equities appear less vulnerable than domestic equities, following aggressive financial engineering in the United States. Severe foreign currency drawdowns experienced earlier in 2015 appear to have moderated in many countries during Q4. The price of oil and other commodities will likely be important in determining the future trend of foreign exchange rates.

Emerging markets were volatile in Q4 on the back of further downward oil price pressure, China growth concerns, and currency movement.

Positive Q4 performance

Currency exposure had significant impact

SHORT-TERM PERFORMANCE



CUMULATIVE RETURN



12 MONTH FORWARD P/E



Source: MSCI, as of 1/25/16

Source: MSCI, as of 1/25/16

Source: MSCI, as of 1/25/16
International equity valuations

International equity valuations remain more attractive than domestic equities. Europe appears slightly cheap relative to history. Japan valuations are at the low end of the historical range, further contributing to our belief that Japan deserves a neutral or perhaps overweight position in portfolios. Emerging market valuations appear relatively attractive, though most likely priced appropriately due to greater accompanying risks. Investors should be aware of value traps in this space. Corporate earnings in European markets have improved while U.S. companies struggle, but European equities continue to lag their U.S. counterparts. In contrast to a tighter business environment in the U.S., conditions in Europe may offer more room to run in terms of labor market slack, easy monetary conditions, and devalued currencies. Large valuation differences exist between individual countries in Europe, which may suggest active management is preferable.

12 MONTH FORWARD P/E



COUNTRY VALUATIONS



EQUITY YIELD LESS BOND YIELD



Source: MSCI, as of 1/25/16

Source: Bloomberg, as of 1/25/16

Source: MSCI, as of 1/25/16



Emerging market equity

Emerging market equities continue a steep selloff in the face of decelerating Chinese growth and oil volatility. 2015 was a year of FX reserve net outflows for many countries which has been rare, given the steady accumulation of currency reserves in recent decades.

If allowed by current market environments U.S. interest rate hikes might result in further emerging market outflows; however, continued quantitative easing in other developed nations may counteract these effects, and in the current environment U.S. rate hikes are not certain. Brazil was downgraded to junk rating by Fitch. The country continues to fight higher inflation with high interest rates, and is feeling economic pain from a budget deficit and less competitive currency.

Chinese officials recently initiated a widespread crackdown on corruption, involving a large number of private sector and government officials. Luxury goods markets have felt much pain following this initiative, as an estimated 50% of global luxury spending comes from Chinese consumers. Energy price movement continues to have impact

China remains in the spotlight

LONG TERM PERFORMANCE



ROLLING 3 YEAR RETURN



FORWARD P/E



Source: MSCI, as of 12/31/15

Source: MSCI, as of 12/31/15

Source: MSCI, as of 1/21/16







Other asset volatility

Despite the highly anticipated rate hike at the end of the fourth quarter, fixed income volatility has remained relatively low. The end of 2015 was characterized by relatively range-bound trading as domestic investors experienced a flight to quality which was offset by the sell-off in global sovereign funds.

Foreign exchange volatility has remained relatively high based on activity from central banks and weaker commodity prices. The uncertainty around monetary policy decisions and global financial stability has introduced increased volatility in this space.

The volatility of commodities has spiked based on the recent price movements in oil. The price moving to levels last seen in 2009 has created a significant amount of volatility. Contrary to expectations, the price of gold has remained relatively stagnant over the last 12-18 months.

FIXED INCOME VOLATILITY



Source: Merrill Lynch, as of 12/31/15 (see Appendix)

FX VOLATILITY



Source: JP Morgan, Russell Investments, as of 12/31/15

COMMODITY VOLATILITY



Source: Bloomberg, as of 12/31/15



Real estate & REITs

Real estate assets provide high exposure to the general business cycle. The recovery from the economic crisis has benefited the real estate market, which has shown significant recovery.

Real estate fundamentals remain strong with lower and declining vacancy rates across all property types. NOI is strongest in apartments, while industrial has shown increased strength recently. Low interest rates have been accretive to returns for the asset class.

REITs have been volatile, trading with the uncertainty of future FED rate activity, which resulted in a discount to fund NAV though November.

Cap rates continue to trend downward, while spreads to Treasuries remain above historical averages.

Some opportunities but careful selection needed

REAL ESTATE & THE BUSINESS CYCLE



REAL ESTATE VACANCY BY TYPE



CAP RATE SPREADS



Source: NCREIF, as of 9/30/15

Verus⁷⁷

Source: NCREIF, as of 9/30/15

Source: NCREIF, as of 9/1/15

Commodities

The Bloomberg Commodity Index returned -10.5% in Q4, driven by energy and industrial metals. OPEC dropped its oil production quotas in December, and oil inventory levels continue to climb as producers struggle to generate cash flow. Large inventory builds, along with the lifting of sanctions against Iran (a source of supply), may also act as headwinds.

Oil prices continue to fluctuate, which has impacted credit spreads, energy-related equities, and the health of many energy-exporting countries. Significant bankruptcies of energy firms would traditionally help balance supply and help prices; however, large sums of money being dedicated to the distressed credit space may mean that assets, while written down, stay in production thereby prolonging the price pain. Commodity cycle weakness persists

Commodities are typically held in portfolios to provide inflation sensitivity. Despite commodities moving in an undesirable direction over the past year, they continue to fulfill this role.

3 YR ROLLING RETURNS



Source: Standard & Poor's, Bloomberg, as of 12/31/15

COMMODITY CORRELATION (3YR ROLLING)



Source: MPI, as of 12/31/15 - correlation to Bloomberg Commodity

COMMODITY CUMULATIVE RETURNS



Source: S&P Dow Jones, as of 12/31/15

Verus⁷⁷

Currency

The trade-weighted U.S. dollar extended its rise in Q4, strengthening to a level not seen since 2003. Dollar movement has a widespread impact, including: gains/losses for unhedged foreign equity exposure, commodity price volatility (many commodities are denominated in USD), and revenue volatility for businesses who pay or receive payment in non-U.S. dollars.

When measured and managed using unhedged benchmarks, international equity portfolios hold

significant exposure to a currency portfolio derived from the size and structure of the equity markets concerned. Despite recent dollar moderation, the trend towards U.S. dollar strength has made this a negative contribution for investors recently.

Treating currency as an independent market allows investors additional insight. Although returns from this exposure have typically been positive, recent price movements have tipped rolling one year return from currency beta into slightly negative territory. Short term questions over continuing dollar strength

LONG-TERM TRADE WEIGHTED USD



EFFECT OF CURRENCY (1YR ROLLING)



CURRENCY MARKET BEHAVIOR



Source: FRED, as of 1/1/16

Source: MSCI, as of 12/31/15

Source: Russell Investments, as of 12/31/15

$MLPs - a \ complex \ set \ of \ exposures$

A Master Limited Partnership (MLP) is a tax advantaged fund which derives most cash flows from investments in commodities and natural resources. These funds are often involved in midstream activities such as the transportation and storage of commodities (ex: oil pipelines and storage). MLPs generally hold exposure to toll-road type investments which are expected to earn fees somewhat independent of commodity prices due to take-or-pay contracts with commodity producing firms. As commodity prices have fallen, MLP valuations have followed. Many investors point to the fact that MLP contracts are more exposed to commodity *volume* than they are to commodity *price*, and claim that MLP valuations have fallen too far (are currently undervalued). However take-or-pay contracts do not fully protect MLP returns were the counterparty to become insolvent. There may be value in the MLP space, but the risk exposures are complex and it is difficult to forecast how MLPs will react to the commodity sell-off. It is difficult to forecast how MLPs will react to the effects of lower oil on the energy ecosystem

ALERIAN MLP INDEX



MLPS & COMMODITY PERFORMANCE (1YR)



ENERGY HY CREDIT DEFAULT SWAP



Source: Alerian, as of 1/15/15

Source: Bloomberg, Alerian, as of 12/31/15 (note difference in end date) Source

Source: Bloomberg, as of 1/22/15



Welcome to 2016

EQUITY DRAWDOWN AND RECOVERY





SPREAD EXPANSION AND COMPRESSION

Source: Bloomberg, as of 1/22/2016 Returns are for the period observed during from 1/1/2016 to 1/22/2016. Indices are stated in USD and returns are gross.



Significant

drawdowns

in January

moved wider

equity market

Credit

spreads

with the

drop in oil

compressed

but have

since

slightly

Appendix



Periodic table of returns – December 2015

EST																										
•		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	5-Year	10-Year
Î	Real Estate	74.8	16.6	38.4	23.2	35.2	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	10.1	13.5	8.5
	Large Cap Growth	32.9	8.1	37.8	23.1	32.9	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	12.5	8.0
	Large Cap Equity	26.3	6.4	37.2	22.4	31.8	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	12.4	8.0
	US Bonds	23.8	4.4	31.0	21.6	30.5	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	11.3	7.4
	Cash	19.3	3.2	28.5	21.4	22.4	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	10.7	6.8
	Hedge Funds of Funds	18.9	2.6	25.7	16.5	16.2	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	9.2	6.2
	International Equity	18.1	0.4	19.6	14.4	13.9	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	7.7	5.6
	Small Cap Growth	13.4	-1.5	18.5	11.3	12.9	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	4.2	4.7
	60/40 Global Portfolio	10.2	-1.8	15.2	10.3	10.6	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	3.6	4.5
	Large Cap Value	9.7	-2.0	11.6	9.9	9.7	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	3.2	3.6
	Small Cap Equity	3.1	-2.4	11.1	6.4	5.2	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.1	3.0
	Small Cap Value	2.9	-2.9	7.5	6.0	2.1	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	0.0	2.3
	Emerging Markets Equity	1.4	-3.5	5.7	5.1	-3.4	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	-4.8	1.1
¥	Commodities	-1.1	-7.3	-5.2	3.6	-11.6	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	-13.5	-6.4
ORST																										
Š				Large Cap Equity Small Cap Growth						Commodities																
				Large	Cap Va	ue	International Equity					Real Estate														
				Large	Cap Gro	owth		Emerging Markets Equity					H	Hedge F	unds of	fFunds										
				Small	Cap Equ	uity				US Bon	ds				60% MSCI ACWI/40% BC Global Bond											
				Small	Cap Va	ue				Cash																

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BC Agg, T-Bill 90 Day, Bloomberg Comm Index, NCREIF Property, HFRI FOF, MSCI ACWI, BC Global Bond.



Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



Source: Morningstar, Verus, as of 12/31/15

Source: Morningstar, Verus, as of 12/31/15



S&P 500 and S&P 500 sector returns



Source: Morningstar as of 12/31/15

Source: Morningstar as of 12/31/15



Detailed index returns

DOMESTIC EQUITY

.

FIXED INCOME

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(1.6)	7.0	1.4	1.4	15.1	12.6	7.3
S&P 500 Equal Weighted	(2.3)	5.0	(2.2)	(2.2)	15.1	12.4	8.5
DJ Industrial Average	(1.5)	7.7	0.2	0.2	12.7	11.3	7.7
Russell Top 200	(1.4)	7.7	2.4	2.4	15.4	12.9	7.2
Russell 1000	(1.8)	6.5	0.9	0.9	15.0	12.4	7.4
Russell 2000	(5.0)	3.6	(4.4)	(4.4)	11.7	9.2	6.8
Russell 3000	(2.1)	6.3	0.5	0.5	14.7	12.2	7.4
Russell Mid Cap	(2.7)	3.6	(2.4)	(2.4)	14.2	11.4	8.0
Style Index							
Russell 1000 Growth	(1.5)	7.3	5.7	5.7	16.8	13.5	8.5
Russell 1000 Value	(2.2)	5.6	(3.8)	(3.8)	13.1	11.3	6.2
Russell 2000 Growth	(4.8)	4.3	(1.4)	(1.4)	14.3	10.7	8.0
Russell 2000 Value	(5.3)	2.9	(7.5)	(7.5)	9.1	7.7	5.6

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BC US Treasury US TIPS	(0.8)	(0.6)	(1.4)	(1.4)	(2.3)	2.6	3.9
BC US Treasury Bills	0.0	(0.0)	0.1	0.1	0.1	0.1	1.3
BC US Agg Bond	(0.3)	(0.6)	0.6	0.6	1.4	3.2	4.5
Duration							
BC US Treasury 1-3 Yr	(0.1)	(0.4)	0.6	0.6	0.5	0.7	2.4
3C US Treasury Long	(0.0)	(1.4)	(1.2)	(1.2)	2.6	7.7	6.7
BC US Treasury	(0.2)	(0.9)	0.8	0.8	1.0	2.9	4.2
ssuer							
BC US MBS	(0.0)	(0.1)	1.5	1.5	2.0	3.0	4.6
3C US Corp. High Yield	(2.5)	(2.1)	(4.5)	(4.5)	1.7	5.0	7.0
BC US Agency Interm	(0.2)	(0.5)	1.2	1.2	0.9	1.6	3.5
3C US Credit	(0.8)	(0.5)	(0.8)	(0.8)	1.5	4.4	5.2

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI EAFE	(1.4)	4.7	(0.8)	(0.8)	5.0	3.6	3.0
MSCI AC World ex US	(1.9)	3.2	(5.7)	(5.7)	1.5	1.1	2.9
MSCI EM	(2.2)	0.7	(14.9)	(14.9)	(6.8)	(4.8)	3.6
MSCI EAFE Small Cap	0.7	6.8	9.6	9.6	10.4	6.3	4.6
Style Index							
MSCI EAFE Growth	(0.8)	6.7	4.1	4.1	6.8	4.6	4.0
MSCI EAFE Value	(1.9)	2.7	(5.7)	(5.7)	3.1	2.6	2.0
Regional Index							
MSCI UK	(3.9)	0.7	(7.6)	(7.6)	1.8	3.5	3.1
MSCI Japan	0.3	9.3	9.6	9.6	10.2	4.4	0.9
MSCI Euro	(3.5)	3.4	(2.8)	(2.8)	4.6	3.0	2.2
MSCI EM Asia	(0.7)	3.5	(9.8)	(9.8)	(1.2)	(0.8)	5.8
MSCI EM Latin American	(4.3)	(2.7)	(31.0)	(31.0)	(19.4)	(14.4)	1.2

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(3.1)	(10.5)	(24.7)	(24.7)	(17.3)	(13.5)	(6.4)
Wilshire US REIT	1.9	7.5	4.2	4.2	11.8	12.4	7.3
Regional Index							
JPM EMBI Global Div	(1.4)	1.3	1.2	1.2	1.0	5.4	6.9
JPM GBI-EM Global Div	(2.2)	0.0	(14.9)	(14.9)	(10.0)	(3.5)	4.3

Source: Morningstar, as of 12/31/15



Definitions

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

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

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

Merrill Lynch Option Volatility Estimate (MOVE) Index – a yield curve weighted index comprised of a weighted set of 1-month Treasury options, including 2.5.10 and 30 year tenor contracts. This index is an indicator of the expected (implied) future volatility in the rate markets.

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Contra Costa County Employees' Retirement Association

Investment Performance Review Period Ending: December 31, 2015



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Sources of Portfolio Growth	Last Three Months	Year-To-Date
Beginning Market Value	\$7,019,983,107	\$6,968,229,116
Net Additions/Withdrawals	-\$85,718,755	-\$22,237,006
Investment Earnings	\$166,346,734	\$154,618,977
Ending Market Value	\$7,100,611,087	\$7,100,611,087

Portfolio Reconciliation

Change in Market Value Last Three Months



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





Contra Costa County Employees' Retirement Association 3

Current	Long Term Policy		Allocatio	on vs. Long T	erm Targe	t		
Current			Current Balance	Current Lon Allocation	g Term Target	Difference	Long Term Target Range	Within IPS Range?
		Global Equity	\$3,151,883,505	44.4%	42.6%	\$127,023,182	40.0% - 55.0%	Yes
		Global Fixed Income	\$1,729,951,600	24.4%	24.4%	-\$2,597,505	20.0% - 30.0%	Yes
		High Yield Fixed Income	\$333,193,329	4.7%	5.0%	-\$21,837,226	2.0% - 9.0%	Yes
		Inflation Hedge/Real Assets	\$354,707,329	5.0%	5.0%	-\$323,226	0.0% - 10.0%	Yes
		Real Estate	\$861,083,043	12.1%	12.5%	-\$26,493,343	10.0% - 16.0%	Yes
44.4%	42.6%	Alternative Investments	\$558,023,867	7.9%	10.0%	-\$152,037,242	5.0% - 12.0%	Yes
		Opportunistic	\$35,476,051	0.5%	0.0%	\$35,476,051	0.0% - 5.0%	Yes
		Cash	\$76,292,364	1.1%	0.5%	\$40,789,308	0.0% - 1.0%	No
		Total	\$7,100,611,087	100.0%	100.0%			
	24.4% _		Allocatio	on vs. Curren Current Balance	t Targets Current Allocation	Current Target	Difference	
24.4%		Global Equity		\$3.151.883.505	44.4%	46.6%	-\$157.001.261	
		Global Fixed Income	9	\$1,729,951,600	24.4%	23.6%	\$54,207,384	
		High Yield Fixed Inc	ome	\$333,193,329	4.7%	5.0%	-\$21,837,226	
4 70/	5.0%	Inflation Hedge/Rea	l Assets	\$354,707,329	5.0%	5.0%	-\$323,226	
4.7%	F 00/	Real Estate		\$861,083,043	12.1%	12.5%	-\$26,493,343	
5.0%	5.0%	Alternative Investme	ents	\$558,023,867	7.9%	6.0%	\$131,987,202	
		Opportunistic		\$35,476,051	0.5%	0.8%	-\$21,328,838	
12.1%	12.5%	Cash		\$76,292,364	1.1%	0.5%	\$40,789,308	
12.170		Total		\$7,100,611,087	100.0%	100.0%		
7.9%	10.0%							
0.5%	0.0%							



Total Fund Executive Summary (Gross of Fees)

	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	2.4	2.6	2.6	9.0	8.7	6.7
Policy Index	2.7	0.6	0.6	8.2	8.4	
CPI + 4%	0.4	4.8	4.8	5.0	5.6	5.9
InvestorForce Public DB > \$1B Gross Rank	55	6	6	13	3	5
Total Domestic Equity	4.7	1.1	1.1	15.3	12.9	7.9
Russell 3000	6.3	0.5	0.5	14.7	12.2	7.4
eA US All Cap Equity Gross Rank	49	36	36	35	27	54
Total International Equity	4.4	-1.2	-1.2	5.3	4.1	2.9
MSCI ACWI ex USA Gross	3.3	-5.3	-5.3	1.9	1.5	3.4
MSCI EAFE Gross	4.7	-0.4	-0.4	5.5	4.1	3.5
eA All ACWI ex-US Equity Gross Rank	61	61	61	53	53	95
Total Global Equity	6.1	2.2	2.2	10.0	6.9	
MSCI ACWI	5.0	-2.4	-2.4	7.7	6.1	
eA All Global Equity Gross Rank	23	31	31	50	68	
Total Domestic Fixed Income	0.0	1.7	1.7	3.4	5.4	5.9
Barclays U.S. Universal	-0.5	0.4	0.4	1.5	3.5	4.7
Barclays Aggregate	-0.6	0.6	0.6	1.4	3.2	4.5
eA US Core Fixed Inc Gross Rank	5	8	8	3	3	8
Total High Yield	-1.6	-3.5	-3.5	2.0	5.2	7.1
BofA ML High Yield Master II	-2.2	-4.6	-4.6	1.6	4.8	6.8
eA US High Yield Fixed Inc Gross Rank	61	68	68	68	59	39
Total Global Fixed Income	-0.9	-3.0	-3.0	-2.1	1.1	3.0
Barclays Global Aggregate	-0.9	-3.2	-3.2	-1.7	0.9	3.7
eA All Global Fixed Inc Gross Rank	60	59	59	81	79	97

Attribution Effects 3 Months Ending December 31, 2015



Policy Index (as of 4/1/2012): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Barclays U.S. Aggregate, 5% Bank of America High Yield Master II, 4% Barclays Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.Real Estate Benchmark: 40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-USA.



Total Fund Executive Summary (Gross of Fees)

	QID	YID	1 Yr	3 Yrs	5 Yrs	TU Yrs
Total Inflation Hedge	-1.1	-5.6	-5.6	-1.7		
CPI + 4%	0.4	4.8	4.8	5.0		
Total Real Estate	2.7	12.3	12.3	14.4	14.1	7.1
Real Estate Benchmark	4.6	8.2	8.2	11.3	12.2	8.3
NCREIF-ODCE	3.3	15.0	15.0	13.8	13.7	6.5
NCREIF Property Index	2.9	13.3	13.3	12.0	12.2	7.8
Total Alternatives	0.8	14.0	14.0	15.4	13.9	12.7
S&P 500 Index +4% (Lagged)	-5.5	3.4	3.4	16.9	17.8	11.1
Total Opportunistic	-3.7	-11.0	-11.0	4.1	3.7	
CPI + 4%	0.4	4.8	4.8	5.0	5.6	

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Attribution Effects 1 Year Ending December 31, 2015



Policy Index (as of 4/1/2012): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Barclays U.S. Aggregate, 5% Bank of America High Yield Master II, 4% Barclays Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.Real Estate Benchmark: 40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-USA.



Total Fund Executive Summary (Net of Fees)

Period	Ending:	Decem	ber 31.	2015

	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Fund	2.3	2.0	2.0	8.3	8.1	6.1
Policy Index	2.7	0.6	0.6	8.2	8.4	
CPI + 4%	0.4	4.8	4.8	5.0	5.6	5.9
Total Domestic Equity	4.6	0.6	0.6	14.8	12.5	7.5
Russell 3000	6.3	0.5	0.5	14.7	12.2	7.4
Total International Equity	4.3	-1.6	-1.6	4.9	3.7	2.4
MSCI ACWI ex USA Gross	3.3	-5.3	-5.3	1.9	1.5	3.4
MSCI EAFE Gross	4.7	-0.4	-0.4	5.5	4.1	3.5
Total Global Equity	6.0	1.6	1.6	9.3	6.3	
MSCI ACWI	5.0	-2.4	-2.4	7.7	6.1	
Total Domestic Fixed Income	-0.1	1.4	1.4	3.0	5.0	5.4
Barclays U.S. Universal	-0.5	0.4	0.4	1.5	3.5	4.7
Barclays Aggregate	-0.6	0.6	0.6	1.4	3.2	4.5
Total High Yield	-1.6	-3.9	-3.9	1.6	4.9	7.0
BofA ML High Yield Master II	-2.2	-4.6	-4.6	1.6	4.8	6.8
Total Global Fixed Income	-0.9	-3.3	-3.3	-2.3	0.9	2.8
Barclays Global Aggregate	-0.9	-3.2	-3.2	-1.7	0.9	3.7
Total Inflation Hedge	-1.3	-6.5	-6.5	-2.6		
CPI + 4%	0.4	4.8	4.8	5.0		

Current Allocation



Policy Index (as of 4/1/2012): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Barclays U.S. Aggregate, 5% Bank of America High Yield Master II, 4% Barclays Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.Real Estate Benchmark: 40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-USA.

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Total Fund Executive Summary (Net of Fees)

	QTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Total Real Estate	2.5	11.3	11.3	13.0	12.8	6.0
Real Estate Benchmark	4.6	8.2	8.2	11.3	12.2	8.3
NCREIF-ODCE	3.3	15.0	15.0	13.8	13.7	6.5
NCREIF Property Index	2.9	13.3	13.3	12.0	12.2	7.8
Total Alternatives	0.8	12.5	12.5	13.5	11.7	10.2
S&P 500 Index +4% (Lagged)	-5.5	3.4	3.4	16.9	17.8	11.1
Total Opportunistic	-3.8	-11.1	-11.1	4.1	3.5	
CPI + 4%	0.4	4.8	4.8	5.0	5.6	

Current Allocation



Policy Index (as of 4/1/2012): 27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Barclays U.S. Aggregate, 5% Bank of America High Yield Master II, 4% Barclays Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.Real Estate Benchmark: 40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-USA.



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



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Total Fund Performance Summary (Gross of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
Total Fund	7,100,611,087	100.0	2.4	2.6	2.6	9.0	8.7	6.7	2.6	8.4	16.4	14.3	2.7
Policy Index			2.7	0.6	0.6	8.2	8.4		0.6	9.0	15.6	14.6	2.8
CPI + 4%			0.4	4.8	4.8	5.0	5.6	5.9	4.8	4.8	5.6	5.8	7.1
InvestorForce Public DB > \$1B Gross Rank			55	6	6	13	3	5	6	6	33	13	9
Total Domestic Equity	1,541,044,287	21.7	4.7	1.1	1.1	15.3	12.9	7.9	1.1	11.4	36.2	18.2	1.1
Russell 3000			6.3	0.5	0.5	14.7	12.2	7.4	0.5	12.6	33.6	16.4	1.0
eA US All Cap Equity Gross Rank			49	36	36	35	27	54	36	36	41	24	34
Intech Large Cap Core	296,607,282	4.2	5.7	3.8	3.8	16.5	13.5		3.8	14.7	32.7	15.3	3.6
S&P 500			7.0	1.4	1.4	15.1	12.6		1.4	13.7	32.4	16.0	2.1
eA US Large Cap Core Equity Gross Rank			56	16	16	24	25		16	31	54	54	25
PIMCO Stocks+ Absolute Return	232,375,016	3.3	7.6	-1.2	-1.2	13.8	12.7	7.4	-1.2	13.6	31.4	20.6	2.3
S&P 500			7.0	1.4	1.4	15.1	12.6	7.3	1.4	13.7	32.4	16.0	2.1
eA US Large Cap Core Equity Gross Rank			9	73	73	71	46	67	73	45	68	4	36
Jackson Square Partners	315,984,758	4.5	9.0	6.1	6.1	17.8	15.8	8.8	6.1	13.9	35.4	16.9	8.9
Russell 1000 Growth			7.3	5.7	5.7	16.8	13.5	8.5	5.7	13.0	33.5	15.3	2.6
eA US Large Cap Growth Equity Gross Rank			12	37	37	28	6	43	37	31	40	37	3
Robeco Boston Partners	299,239,459	4.2	4.8	-3.9	-3.9	13.9	12.6	8.2	-3.9	12.0	37.4	21.6	0.9
Russell 1000 Value			5.6	-3.8	-3.8	13.1	11.3	6.2	-3.8	13.5	32.5	17.5	0.4
eA US Large Cap Value Equity Gross Rank			67	65	65	44	24	26	65	55	24	5	46
Emerald Advisers	196,357,423	2.8	-1.0	4.1	4.1	18.8	14.6	9.9	4.1	7.3	50.3	18.5	-0.6
Russell 2000 Growth			4.3	-1.4	-1.4	14.3	10.7	8.0	-1.4	5.6	43.3	14.6	-2.9
eA US Small Cap Growth Equity Gross Rank			92	19	19	10	11	16	19	21	27	22	42
Ceredex	200,480,349	2.8	-0.4	-4.4	-4.4	10.4			-4.4	3.3	36.5	19.0	
Russell 2000 Value			2.9	-7.5	-7.5	9.1			-7.5	4.2	34.5	18.1	
eA US Small Cap Value Equity Gross Rank			91	52	52	67			52	74	66	38	
Total International Equity	740,282,947	10.4	4.4	-1.2	-1.2	5.3	4.1	2.9	-1.2	0.3	17.8	18.5	-11.5
MSCI ACWI ex USA Gross			3.3	-5.3	-5.3	1.9	1.5	3.4	-5.3	-3.4	15.8	17.4	-13.3
MSCI EAFE Gross			4.7	-0.4	-0.4	5.5	4.1	3.5	-0.4	-4.5	23.3	17.9	-11.7
eA All ACWI ex-US Equity Gross Rank			61	61	61	53	53	95	61	17	69	63	43
Pyrford	367,010,016	5.2	3.8	-2.9	-2.9				-2.9				
MSCI ACWI ex USA Value			1.4	-10.1	-10.1				-10.1				
eA ACWI ex-US Value Equity Gross Rank			41	59	59				59				

Total Fund Performance Summary (Gross of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
William Blair	372,738,334	5.2	5.0	0.5	0.5	6.3	5.3		0.5	-1.2	20.9	24.3	-13.2
MSCI ACWI ex USA Growth			5.0	-1.3	-1.3	3.5	2.1		-1.3	-2.6	15.5	16.7	-14.2
eA ACWI ex-US Growth Equity Gross Rank			68	69	69	57	44		69	37	44	6	55
International Equity Transition	534,597	0.0											
Total Global Equity	870,556,271	12.3	6.1	2.2	2.2	10.0	6.9		2.2	5.2	23.7	11.1	-5.6
MSCI ACWI			5.0	-2.4	-2.4	7.7	6.1		-2.4	4.2	22.8	16.1	-7.3
eA All Global Equity Gross Rank			23	31	31	50	68		31	44	64	90	40
Artisan Partners	290,204,390	4.1	7.8	9.2	9.2	12.7			9.2	3.9	26.1		
MSCI ACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8		
eA All Global Equity Gross Rank			8	4	4	17			4	56	51		
First Eagle	287,765,432	4.1	4.8	0.2	0.2	7.3			0.2	4.5	17.9	13.9	
MSCI ACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8	16.1	
eA All Global Equity Gross Rank			50	49	49	77			49	51	80	78	
Intech Global Low Vol	22,342,698	0.3	4.5	4.1	4.1	12.9			4.1	11.2	24.2		
MSCI ACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8		
eA All Global Equity Gross Rank			60	18	18	16			18	14	62		
JP Morgan Global Opportunities	270,243,751	3.8	5.9	-2.9	-2.9	9.6	7.4		-2.9	6.7	26.9	19.2	-9.0
MSCI ACWI			5.0	-2.4	-2.4	7.7	6.1		-2.4	4.2	22.8	16.1	-7.3
eA All Global Equity Gross Rank			27	75	75	54	62		75	30	46	32	63
Total Domestic Fixed Income	1,440,690,461	20.3	0.0	1.7	1.7	3.4	5.4	5.9	1.7	7.3	1.3	9.7	7.2
Barclays U.S. Universal			-0.5	0.4	0.4	1.5	3.5	4.7	0.4	5.6	-1.3	5.5	7.4
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
eA US Core Fixed Inc Gross Rank			5	8	8	3	3	8	8	8	2	5	71
AFL-CIO	241,295,637	3.4	-0.6	1.6	1.6	2.0	3.8	5.0	1.6	6.6	-1.9	4.7	8.3
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
eA US Core Fixed Inc Gross Rank			74	15	15	29	48	49	15	25	78	80	23
Goldman Sachs Core Plus	334,802,991	4.7	-0.4	0.8	0.8	2.1	4.3		0.8	6.0	-0.4	7.9	7.6
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2		0.6	6.0	-2.0	4.2	7.8
eA US Core Plus Fixed Inc Gross Rank			45	36	36	35	47		36	47	49	59	43
GSAM Workout Portfolio	4,078	0.0											
Lord Abbett	334,032,022	4.7	-0.5	0.0	0.0	2.0	4.5		0.0	6.7	-0.6	8.6	8.2
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2		0.6	6.0	-2.0	4.2	7.8
eA US Core Fixed Inc Gross Rank			71	94	94	29	10		94	18	18	8	27

Total Fund Performance Summary (Gross of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
PIMCO Fixed Income	405,573,417	5.7	0.0	0.5	0.5	1.7	3.7	5.6	0.5	6.3	-1.6	8.5	5.0
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
eA US Core Fixed Inc Gross Rank			6	75	75	61	56	12	75	34	61	8	97
Total High Yield	333,193,329	4.7	-1.6	-3.5	-3.5	2.0	5.2	7.1	-3.5	1.2	8.8	14.1	6.4
BofA ML High Yield Master II			-2.2	-4.6	-4.6	1.6	4.8	6.8	-4.6	2.5	7.4	15.6	4.4
eA US High Yield Fixed Inc Gross Rank			61	68	68	68	59	39	68	83	28	73	19
Allianz Global Investors	333,193,329	4.7	-1.6	-3.5	-3.5	2.0	5.2	7.1	-3.5	1.2	8.8	14.1	6.4
BofA ML High Yield Master II			-2.2	-4.6	-4.6	1.6	4.8	6.8	-4.6	2.5	7.4	15.6	4.4
eA US High Yield Fixed Inc Gross Rank			61	68	68	68	59	39	68	83	28	73	21
Total Global Fixed Income	289,261,140	4.1	-0.9	-3.0	-3.0	-2.1	1.1	3.0	-3.0	0.4	-3.5	6.7	5.6
Barclays Global Aggregate			-0.9	-3.2	-3.2	-1.7	0.9	3.7	-3.2	0.6	-2.6	4.3	5.6
eA All Global Fixed Inc Gross Rank			60	59	59	81	79	97	59	77	83	68	40
Lazard	289,261,140	4.1	-0.9	-3.0	-3.0	-2.1	1.1		-3.0	0.4	-3.5	6.7	5.6
Barclays Global Aggregate			-0.9	-3.2	-3.2	-1.7	0.9		-3.2	0.6	-2.6	4.3	5.6
eA All Global Fixed Inc Gross Rank			60	59	59	81	79		59	77	83	68	40
Total Inflation Hedge	355,363,392	5.0	-1.1	-5.6	-5.6	-1.7			-5.6	-0.6	1.3		
CPI + 4%			0.4	4.8	4.8	5.0			4.8	4.8	5.6		
PIMCO All Asset Fund	114,900,599	1.6	0.2	-8.0	-8.0				-8.0	1.7			
CPI + 4%			0.4	4.8	4.8				4.8	4.8			
Wellington Real Total Return	189,910,086	2.7	-2.0	-4.9	-4.9				-4.9	-2.5			
CPI + 4%			0.4	4.8	4.8				4.8	4.8			
Total Real Estate	861,083,043	12.1	2.7	12.3	12.3	14.4	14.1	7.1	12.3	20.6	10.5	16.7	10.4
Real Estate Benchmark			4.6	8.2	8.2	11.3	12.2	8.3	8.2	18.8	7.1	13.6	13.6
NCREIF-ODCE			3.3	15.0	15.0	13.8	13.7	6.5	15.0	12.5	13.9	10.9	16.0
NCREIF Property Index			2.9	13.3	13.3	12.0	12.2	7.8	13.3	11.8	11.0	10.5	14.3
Adelante	118,047,742	1.7	5.9	5.1	5.1	13.2	13.3	7.2	5.1	33.4	3.6	17.7	9.2
Wilshire REIT			7.5	4.2	4.2	11.8	12.4	7.3	4.2	31.8	1.9	17.6	9.2
INVESCO International REIT	75,878,750	1.1	0.0	-2.9	-2.9	1.7	4.6		-2.9	2.8	5.4	42.3	-16.5
FTSE EPRA/NAREIT Developed ex-USA			1.1	-3.2	-3.2	2.0	4.5		-3.2	3.2	6.1	38.6	-15.3
Willows Office Property	10,000,000	0.1	0.0	4.8	4.8	14.4	11.0	4.3	4.8	32.8	7.5	6.3	6.1
NCREIF Property Index			2.9	13.3	13.3	12.0	12.2	7.8	13.3	11.8	11.0	10.5	14.3

Total Fund Performance Summary (Net of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
Total Fund	7,100,611,087	100.0	2.3	2.0	2.0	8.3	8.1	6.1	2.0	7.7	15.6	13.6	2.1
Policy Index			2.7	0.6	0.6	8.2	8.4		0.6	9.0	15.6	14.6	2.8
CPI + 4%			0.4	4.8	4.8	5.0	5.6	5.9	4.8	4.8	5.6	5.8	7.1
Total Domestic Equity	1,541,044,287	21.7	4.6	0.6	0.6	14.8	12.5	7.5	0.6	11.0	35.7	17.8	0.8
Russell 3000			6.3	0.5	0.5	14.7	12.2	7.4	0.5	12.6	33.6	16.4	1.0
Intech Large Cap Core	296,607,282	4.2	5.6	3.3	3.3	16.0	13.1		3.3	14.2	32.2	14.8	3.3
S&P 500			7.0	1.4	1.4	15.1	12.6		1.4	13.7	32.4	16.0	2.1
PIMCO Stocks+ Absolute Return	232,375,016	3.3	7.6	-1.4	-1.4	13.5	12.4	7.1	-1.4	13.2	31.0	20.3	2.0
S&P 500			7.0	1.4	1.4	15.1	12.6	7.3	1.4	13.7	32.4	16.0	2.1
Jackson Square Partners	315,984,758	4.5	8.8	5.6	5.6	17.4	15.3	8.3	5.6	13.4	35.0	16.4	8.4
Russell 1000 Growth			7.3	5.7	5.7	16.8	13.5	8.5	5.7	13.0	33.5	15.3	2.6
Robeco Boston Partners	299,239,459	4.2	4.7	-4.2	-4.2	13.6	12.3	7.8	-4.2	11.6	37.0	21.2	0.6
Russell 1000 Value			5.6	-3.8	-3.8	13.1	11.3	6.2	-3.8	13.5	32.5	17.5	0.4
Emerald Advisers	196,357,423	2.8	-1.1	3.5	3.5	18.1	13.9	9.2	3.5	6.6	49.4	17.8	-1.2
Russell 2000 Growth			4.3	-1.4	-1.4	14.3	10.7	8.0	-1.4	5.6	43.3	14.6	-2.9
Ceredex	200,480,349	2.8	-0.6	-5.0	-5.0	9.8			-5.0	2.7	35.8	18.6	
Russell 2000 Value			2.9	-7.5	-7.5	9.1			-7.5	4.2	34.5	18.1	
Total International Equity	740,282,947	10.4	4.3	-1.6	-1.6	4.9	3.7	2.4	-1.6	0.0	17.4	17.9	-12.0
MSCI ACWI ex USA Gross			3.3	-5.3	-5.3	1.9	1.5	3.4	-5.3	-3.4	15.8	17.4	-13.3
MSCI EAFE Gross			4.7	-0.4	-0.4	5.5	4.1	3.5	-0.4	-4.5	23.3	17.9	-11.7
Pyrford	367,010,016	5.2	3.7	-3.3	-3.3				-3.3				
MSCI ACWI ex USA Value			1.4	-10.1	-10.1				-10.1				
William Blair	372,738,334	5.2	4.9	0.0	0.0	5.8	4.8		0.0	-1.7	20.4	23.7	-13.7
MSCI ACWI ex USA Growth			5.0	-1.3	-1.3	3.5	2.1		-1.3	-2.6	15.5	16.7	-14.2
International Equity Transition	534,597	0.0											
Total Global Equity	870,556,271	12.3	6.0	1.6	1.6	9.3	6.3		1.6	4.5	22.9	10.6	-6.1
MSCI ACWI			5.0	-2.4	-2.4	7.7	6.1		-2.4	4.2	22.8	16.1	-7.3
Artisan Partners	290,204,390	4.1	7.6	8.4	8.4	11.9			8.4	3.1	25.2		
MSCI ACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8		
First Eagle	287,765,432	4.1	4.7	-0.6	-0.6	6.5			-0.6	3.7	17.1	13.1	
MSCIACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8	16.1	
Intech Global Low Vol	22,342.698	0.3	4.5	3.9	3.9	12.5			3.9	10.8	23.8		
MSCI ACWI			5.0	-2.4	-2.4	7.7			-2.4	4.2	22.8		

Total Fund Performance Summary (Net of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
JP Morgan Global Opportunities	270,243,751	3.8	5.8	-3.3	-3.3	9.1	6.9		-3.3	6.2	26.4	18.7	-9.4
MSCIACWI			5.0	-2.4	-2.4	7.7	6.1		-2.4	4.2	22.8	16.1	-7.3
Total Domestic Fixed Income	1,440,690,461	20.3	-0.1	1.4	1.4	3.0	5.0	5.4	1.4	6.7	0.9	9.2	6.8
Barclays U.S. Universal			-0.5	0.4	0.4	1.5	3.5	4.7	0.4	5.6	-1.3	5.5	7.4
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
AFL-CIO	241,295,637	3.4	-0.7	1.1	1.1	1.6	3.3	4.6	1.1	6.1	-2.4	4.3	7.9
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
Goldman Sachs Core Plus	334,802,991	4.7	-0.5	0.6	0.6	1.9	4.1		0.6	5.8	-0.6	7.7	7.3
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2		0.6	6.0	-2.0	4.2	7.8
GSAM Workout Portfolio	4,078	0.0											
Lord Abbett	334,032,022	4.7	-0.6	-0.2	-0.2	1.8	4.3		-0.2	6.5	-0.8	8.4	8.0
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2		0.6	6.0	-2.0	4.2	7.8
PIMCO Fixed Income	405,573,417	5.7	-0.1	0.3	0.3	1.4	3.4	5.4	0.3	6.0	-1.9	8.2	4.7
Barclays Aggregate			-0.6	0.6	0.6	1.4	3.2	4.5	0.6	6.0	-2.0	4.2	7.8
Total High Yield	333,193,329	4.7	-1.6	-3.9	-3.9	1.6	4.9	7.0	-3.9	0.8	8.4	13.7	6.4
BofA ML High Yield Master II			-2.2	-4.6	-4.6	1.6	4.8	6.8	-4.6	2.5	7.4	15.6	4.4
Allianz Global Investors	333,193,329	4.7	-1.6	-3.9	-3.9	1.6	4.8	6.7	-3.9	0.8	8.4	13.6	6.0
BofA ML High Yield Master II			-2.2	-4.6	-4.6	1.6	4.8	6.8	-4.6	2.5	7.4	15.6	4.4
Total Global Fixed Income	289,261,140	4.1	-0.9	-3.3	-3.3	-2.3	0.9	2.8	-3.3	0.1	-3.8	6.4	5.3
Barclays Global Aggregate			-0.9	-3.2	-3.2	-1.7	0.9	3.7	-3.2	0.6	-2.6	4.3	5.6
Lazard	289,261,140	4.1	-0.9	-3.3	-3.3	-2.3	0.9		-3.3	0.1	-3.8	6.4	5.3
Barclays Global Aggregate			-0.9	-3.2	-3.2	-1.7	0.9		-3.2	0.6	-2.6	4.3	5.6
Total Inflation Hedge	355,363,392	5.0	-1.3	-6.5	-6.5	-2.6			-6.5	-1.5	0.3		
CPI + 4%			0.4	4.8	4.8	5.0			4.8	4.8	5.6		
PIMCO All Asset Fund	114,900,599	1.6	0.0	-8.8	-8.8				-8.8	0.8			
CPI + 4%			0.4	4.8	4.8				4.8	4.8			
Wellington Real Total Return	189,910,086	2.7	-2.1	-5.4	-5.4				-5.4	-3.1			
CPI + 4%			0.4	4.8	4.8				4.8	4.8			
Total Real Estate	861,083,043	12.1	2.5	11.3	11.3	13.0	12.8	6.0	11.3	19.1	8.9	15.7	9.4
Real Estate Benchmark			4.6	8.2	8.2	11.3	12.2	8.3	8.2	18.8	7.1	13.6	13.6
NCREIF-ODCE			3.3	15.0	15.0	13.8	13.7	6.5	15.0	12.5	13.9	10.9	16.0
NCREIF Property Index			2.9	13.3	13.3	12.0	12.2	7.8	13.3	11.8	11.0	10.5	14.3
Adelante	118,047,742	1.7	5.8	4.6	4.6	12.7	12.7	6.7	4.6	32.7	3.0	17.2	8.6
Wilshire REIT			7.5	4.2	4.2	11.8	12.4	7.3	4.2	31.8	1.9	17.6	9.2

Total Fund Performance Summary (Net of Fees)

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2015	2014	2013	2012	2011
INVESCO International REIT	75,878,750	1.1	-0.2	-3.5	-3.5	1.1	3.9		-3.5	2.2	4.7	41.3	-17.0
FTSE EPRA/NAREIT Developed ex-USA			1.1	-3.2	-3.2	2.0	4.5		-3.2	3.2	6.1	38.6	-15.3
Willows Office Property	10,000,000	0.1	0.0	4.8	4.8	14.4	11.0	4.3	4.8	32.8	7.5	6.3	6.1
NCREIF Property Index			2.9	13.3	13.3	12.0	12.2	7.8	13.3	11.8	11.0	10.5	14.3



			Verus Internal Analysis									
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/15 ³	Total Commitment	% 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
Fixed Income	3											
07/01/2006	Torchlight II	\$50,306,294	\$128,000,000	100%	\$128,000,000	\$0	\$5,940,422	\$152,341,552	\$0	1.19	1.58	12/31/2015
12/12/2008	Torchlight III	\$10,503,796	\$75,000,000	100%	\$75,000,000	\$0	\$0	\$98,512,563	\$0	1.31	1.45	12/31/2015
08/01/2012	Torchlight IV	\$53,001,686	\$60,000,000	95%	\$57,000,000	\$9,000,000	\$1,602,241	\$33,808,627	\$3,000,000	0.59	1.52	12/31/2015
03/12/2015	Torchlight V	\$11,170,539	\$75,000,000	0%	\$11,250,000	\$7,500,000	\$0	\$0	\$63,750,000	0.00	0.99	12/31/2015
	Total Fixed Income % of Portfolio (Market Value)	\$124,982,315 										
Inflation Hed	ge											
11/27/2013	Aether Real Assets III	\$7,916,617	\$25,000,000	33%	\$8,216,796	\$3,137,293	\$0	\$66,398	\$16,783,204	0.01	0.97	09/30/2015
11/27/2013	Aether Real Assets III Surplus	\$23,105,503	\$50,000,000	46%	\$22,939,476	\$7,465,648	\$0	\$193,803	\$27,060,524	0.01	1.02	09/30/2015
06/28/2013	Commonfund	\$18,874,524	\$50,000,000	44%	\$21,750,000	\$3,000,000	\$0	\$0	\$28,250,000	0.00	0.87	09/30/2015
12/08/2015	Wastewater Opporunity Fund	\$656,063	\$25,000,000	5%	\$1,142,512	\$1,142,512	\$0	\$0	\$23,857,488	0.00	0.57	12/31/2015
	Total Inflation Hedge	\$50,552,707										
	% of Portfolio (Market Value)	0.7%										
Opportunisti	C											
02/18/2010	Oaktree PIF 2009 ³	\$20,766,344	\$40,000,000	87%	\$34,800,000	\$0	\$1,428,000	\$24,718,579	\$5,200,000	0.71	1.31	12/31/2015
09/24/2015	Angelo Gordon Energy Credit Opp.	\$14,053,644	\$75,000,000	20%	\$15,000,000	\$7,500,000	\$0	\$0	\$60,000,000	0.00	0.94	12/31/2015
	Total Opportunistic	\$34,819,988										
	% of Portfolio (Market Value)	0.5%										

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



			verus internal Analysis									
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/15 ³	Total Commitment	Capital Called	Total % 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
Real Estate												
01/23/2012	Angelo Gordon Realty Fund VIII	\$62,152,820	\$80,000,000	\$74,600,000	93%	\$1,600,000	\$11,200,000	\$44,952,397	\$5,400,000	0.60	1.44	12/31/2015
12/08/2014	Angelo Gordon Realty Fund IX	\$7,957,165	\$65,000,000	\$8,287,500	13%	\$8,287,500	\$0	\$0	\$56,712,500	-	-	12/31/2015
09/24/1999	DLJ RECP II ⁶	\$0	\$40,000,000	\$40,000,000	100%	\$0	-\$3,050,265	\$78,991,824	\$0	1.97	1.97	12/31/2015
06/23/2005	DLJ RECP III	\$44,317,634	\$75,000,000	\$75,000,000	100%	\$0	\$0	\$58,420,451	\$0	0.78	1.37	12/31/2015
02/11/2008	DLJ RECP IV	\$79,338,355	\$100,000,000	\$100,000,000	100%	\$0	-\$4,034,811	\$51,082,344	\$0	0.51	1.30	12/31/2015
07/01/2014	DLJ RECP V	\$41,079,185	\$75,000,000	\$50,310,842	67%	\$18,502,264	\$0	\$15,422,419	\$24,689,158	0.31	1.12	12/31/2015
06/17/1998	Hearthstone II ⁴	-\$65,460	\$25,000,000	\$19,925,048	80%	\$0	\$0	\$19,952,734	\$0	1.00	1.00	09/30/2015
02/01/2005	Invesco Real Estate I	\$6,043,890	\$50,000,000	\$46,241,947	92%	\$0	\$0	\$43,616,113	\$3,758,053	0.94	1.07	12/31/2015
11/26/2007	Invesco Real Estate II	\$14,262,997	\$85,000,000	\$78,202,813	92%	\$0	\$3,400,000	\$86,702,813	\$6,797,187	1.11	1.29	12/31/2015
06/30/2013	Invesco Real Estate III	\$20,287,898	\$35,000,000	\$30,475,961	87%	\$770,000	\$4,970,000	\$21,022,850	\$4,524,039	0.69	1.36	12/31/2015
06/30/2014	Invesco Real Estate IV	\$9,008,861	\$35,000,000	\$13,300,000	38%	\$0	\$2,672,649	\$5,646,707	\$21,700,000	0.42	1.10	12/31/2015
07/16/2013	LaSalle Income & Growth VI	\$80,053,571	\$75,000,000	\$71,428,571	95%	\$0	\$68,959	\$12,698,316	\$3,571,429	0.18	1.30	12/31/2015
03/10/2004	Long Wharf Fund II ⁶	\$0	\$50,000,000	\$50,000,000	100%	\$0	\$154,133	\$33,414,381	\$0	0.67	0.67	12/31/2015
03/30/2007	Long Wharf Fund III	\$13,036,116	\$75,000,000	\$66,940,230	89%	\$0	\$0	\$76,182,982	\$8,059,770	1.14	1.33	12/31/2015
07/03/2013	Long Wharf Fund IV	\$24,574,365	\$25,000,000	\$25,000,000	100%	\$2,282,501	\$493,194	\$4,695,206	-\$0	0.19	1.17	12/31/2015
12/31/2011	Oaktree REOF V	\$37,087,160	\$50,000,000	\$50,000,000	100%	\$0	\$6,250,000	\$42,500,000	\$0	0.85	1.59	12/31/2015
09/30/2013	Oaktree REOF VI ⁵	\$89,875,952	\$80,000,000	\$80,000,000	100%	\$0	\$11,200,000	\$16,841,206	\$0	0.21	1.33	12/31/2015
04/01/2015	Oaktree REOF VII	\$0	\$65,000,000	\$0	0%	\$0	\$0	\$0	\$65,000,000	-	-	-
11/10/2013	Paulson Real Estate Fund II	\$20,212,685	\$20,000,000	\$15,307,123	77%	\$2,226,027	\$ 0	\$0	\$4,692,877	0.00	1.32	09/30/2015
01/25/2012	Siguler Guff DREOF	\$66,160,602	\$75,000,000	\$68,625,000	92%	\$0	\$7,546,250	\$36,012,238	\$6,375,000	0.52	1.49	12/31/2015
08/31/2013	Siguler Guff DREOF II	\$41,772,754	\$70,000,000	\$43,400,000	62%	\$1,400,000	\$40,000	\$641,123	\$26,600,000	0.01	0.98	12/31/2015
	Total Closed End Real Estate	\$657,156,550	\$1,250,000,000	\$1,007,045,036	81%			\$648,796,104	\$237,880,012	0.24	0.89	
	% of Portfolio (Market Value)	9.3%										

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

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

³Latest valuation + capital calls - distributions

⁴No further capital to be called

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

⁶Fund paid out it's final distribution during the quarter

Verus⁷⁷⁷

			Verus Internal Analysis										
Inception Date	Manager Name/Fund Name	Estimated Market Value as of 12/31/15 ³	Total Commitment	Total % 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 Equit	y & Venture Capital												
03/18/1996	Adams Street Partners	\$116,421,834	\$210,000,000	65%	\$2,230,589	\$3,472,403	\$69,517,796	\$73,119,786	0.51	1.36	09/30/2015		
01/16/2009	Adams Street Partners II	\$21,166,118	\$30,000,000	95%	\$0	\$0	\$25,123,201	\$1,635,000	0.89	1.63	09/30/2015		
09/21/2012	Adams Street Partners - Fund 5	\$15,698,244	\$40,000,000	54%	\$600,000	\$0	\$5,648,154	\$18,212,000	0.26	0.98	09/30/2015		
01/18/1996	Adams Street Partners - BFP	\$6,570,287	\$59,565,614	97%	\$0	\$0	\$97,223,119	\$2,048,205	1.69	1.80	09/30/2015		
06/14/2004	Bay Area Equity Fund	\$5,554,426	\$10,000,000	100%	\$0	\$0	\$35,310,439	\$0	3.53	4.09	12/31/2015		
12/07/2009	Bay Area Equity Fund II	\$10,753,097	\$10,000,000	97%	\$0	\$0	\$1,015,352	\$316,000	0.10	1.22	12/31/2015		
11/26/2003	EIF US Power Fund I	\$815,000	\$30,000,000	100%	\$0	\$0	\$64,168,646	\$0	2.14	2.17	09/30/2015		
08/16/2005	EIF US Power Fund II	\$38,668,644	\$50,000,000	100%	\$0	\$485,386	\$42,399,189	\$0	0.85	1.62	09/30/2015		
05/30/2007	EIF US Power Fund III	\$61,531,128	\$65,000,000	93%	\$6,740,741	\$0	\$25,774,539	\$4,609,285	0.43	1.45	09/30/2015		
11/28/2011	EIF US Power Fund IV	\$48,384,431	\$50,000,000	91%	\$0	\$0	\$7,918,685	\$4,576,688	0.17	1.24	09/30/2015		
05/24/2011	Pathway 6	\$25,420,534	\$40,000,000	64%	\$2,530,616	\$739,684	\$2,876,209	\$14,320,807	0.11	1.10	09/30/2015		
02/07/2013	Pathway 7	\$24,444,396	\$70,000,000	38%	\$3,818,129	\$239,822	\$1,356,590	\$43,401,630	0.05	0.97	09/30/2015		
11/23/2015	Pathway 8	\$3,606,416	\$70,000,000	38%	\$3,606,416	\$0	\$796,887	\$43,401,630	0.03	0.17	-		
11/09/1998	Pathway	\$45,600,136	\$125,000,000	97%	\$0	\$7,265,049	\$130,091,902	\$3,884,566	1.07	1.45	09/30/2015		
12/26/2008	Pathway 2008	\$23,128,193	\$30,000,000	80%	\$0	\$665,543	\$7,807,148	\$6,108,043	0.33	1.29	09/30/2015		
01/31/2008	Carpenter Bancfund	\$27,114,746	\$30,000,000	97%	\$0	\$497,855	\$17,137,847	\$979,074	0.59	1.52	09/30/2015		
02/15/2004	Nogales	\$278,994	\$15,000,000	99%	\$0	\$0	\$12,079,772	\$194,897	0.82	0.83	06/30/2015		
11/30/2007	Paladin III	\$22,641,808	\$25,000,000	86%	\$707,785	\$723,719	\$14,486,323	\$3,381,892	0.67	1.72	12/31/2015		
06/11/2014	Ocean Avenue Fund II	\$14,518,677	\$30,000,000	50%	\$4,500,000	\$0	\$589,938	\$15,000,000	0.04	1.01	12/31/2015		
06/03/2014	Siguler Guff CCCERA Opportunities	\$45,706,759	\$200,000,000	22%	\$8,496,000	\$4,589,491	\$4,589,491	\$155,082,500	0.10	1.12	12/31/2015		
Tota	I Private Equity and Venture Capital	\$558,023,867	\$1,189,565,614	67%	\$33,230,276	\$18,678,951	\$565,911,227	\$390,272,002	0.71	1.41			
	% of Portfolio (Market Value)	7.9%											

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

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	-0.2%	-0.0%	-1.6%	-1.4%	12/31/2015
Torchlight III	12/12/2008	-	18.4%	-	13.9%	12/31/2015
TorchlightIV	08/01/2012	-	14.2%	-	11.4%	12/31/2015
Torchlight V	03/12/2015	10.0%	11.4%	-4.5%	-1.3%	12/31/2015
Inflation Hedge	Inception	Fund Level (G)	CCCERA(G)	Fund Level (N)	CCCERA (N)	IRR Date
Aether Real Assets III ⁴	11/27/2013	4.9%	4.9%	-5.0%	-5.0%	09/30/2015
Aether Real Assets III Surplus ⁴	11/27/2013	6.5%	6.5%	1.9%	1.9%	09/30/2015
CommonFund ¹	06/28/2013	-	-	-	-	-
Opportunistic	Inception	Fund Level (G)	CCCERA(G)	Fund Level (N)	CCCERA (N)	IRR Date
Oaktree PIF	02/18/2010	7.4%	-	7.2%	-	12/31/2015
DeclEstate	Incontion	Fund Lovel (C)		Fund Lovel (N)		
Angele Corden VIII	01/02/2012		21 5%		17.0%	10/21/0015
	12/09/2012	20.4%	21.5%	15.0%	17.070	12/31/2015
	12/06/2014	20.0%	-	-	-	-
	06/23/2005	3.0%	-	-	19.076	12/31/2015
	02/11/2009	5.0%	-	-	3.0%	12/31/2015
	02/11/2008	0.0%	-	-	5.076	-
	06/17/1998	-	-	-	-	- 12/31/2015
Invesco Fund I	02/01/2005	2.5%	2.5%	1 4%	1 /%	12/31/2015
Invesco Fund I	11/26/2007	2.3% 8.4%	7.6%	7.0%	6.8%	12/31/2015
Invesco Fund III	06/30/2013	23.5%	24.8%	22 1%	18.3%	12/31/2015
	06/30/2014	20.070	24.070	22.170	10.070	12/31/2013
LaSalle Income & Growth	07/16/2013	23.3%	23.3%	20.6%	20.8%	06/30/2015
	03/10/2004	20.070	20.070	-8.3%	20.070	12/31/2015
Long What III	03/30/2007	9.8%	9.9%	7.7%	7 7%	12/31/2015
Long What IV	07/03/2013	25.2%	26.1%	17.4%	17.7%	12/31/2015
	12/31/2011	18.6%	-	13.6%	-	12/31/2015
	09/30/2013	21.6%	-	14.5%	-	12/31/2015
	04/01/2015	-	-	-	-	-
Paulson ¹	11/10/2013	-	-	-	-	-
Siguler Guff I	01/25/2012	16.5%	17.9%	14.1%	15.6%	09/30/2015
Siguler Guff II	08/31/2013	5.1%	3.9%	1.4%	1.3%	09/30/2015

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	03/18/1996	-	12.3%	-	9.2%	09/30/2015
Adams Street Partners II	01/16/2009	-	20.6%	-	17.8%	09/30/2015
Adams Street Partners - Fund 5	09/21/2012	-	2.5%	-	-2.0%	09/30/2015
Adams Street Partners - BPF	01/18/1996	-	14.3%	-	11.7%	09/30/2015
Bay Area Equity Fund I	06/14/2004	31.9%	32.4%	24.0%	24.4%	09/30/2015
Bay Area Equity Fund II	12/07/2009	12.0%	11.3%	5.1%	4.9%	09/30/2015
Energy Investor Fund	11/26/2003	33.6%	34.8%	28.6%	28.4%	09/30/2015
Energy Investor Fund II	08/16/2005	7.9%	7.3%	5.0%	4.4%	09/30/2015
Energy Investor Fund III	05/30/2007	8.6%	8.6%	5.9%	8.9%	09/30/2015
Energy Investor Fund IV	11/28/2011	24.3%	25.0%	15.5%	15.3%	09/30/2015
Pathway 6	05/24/2011	13.1%	13.1%	7.5%	7.5%	09/30/2015
Benchmark ⁴		7.1%	-	-	-	09/30/2015
Pathway 7 ¹	02/07/2013	-	-	-	-	-
Pathway Private Equity Fund	11/09/1998	10.3%	10.3%	8.4%	8.4%	09/30/2015
Benchmark ⁵		8.2%	-	-	-	09/30/2015
Pathway Private Equity Fund 2008	12/26/2008	13.6%	13.6%	9.8%	9.8%	09/30/2015
Benchmark ⁶		8.6%	-	-	-	09/30/2015
Carpenter Bancfund	01/31/2008	9.8%	9.6%	8.3%	8.1%	09/30/2015
Nogales	02/15/2004	-4.0%	-4.5%	-8.6%	-8.8%	03/31/2015
Paladin III	11/30/2007	15.7%	-	6.5%	6.7%	09/30/2015
Ocean Avenue	06/11/2014	-	-	8.7%	-	06/30/2015
Siguler Guff CCCERA Opportunities	06/03/2014	-	31.6%	-	24.0%	09/30/2015

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

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

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

⁴Private iQ global all private equity median pooled return for vintage years 2011-2014, as of March 31, 2015.

⁵Private iQ global all private equity median pooled return for vintage years 1999-2011, as of March 31, 2015.

⁶Private iQ global all private equity median pooled return for vintage years 2008-2014, as of March 31, 2015.



Total Fund Performance Analysis - 3 & 5 Years (Net of Fees)

Period Ending: December 31, 2015

3 Years												
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio	
Intech Large Cap Core	15.98%	0.85%	9.24%	2.33%	0.90	3.71%	0.85	1.73	0.23	98.51%	58.84%	
PIMCO Stocks+ Absolute Return	13.53%	-1.60%	11.11%	-4.05%	1.16	2.38%	0.97	1.21	-0.67	99.80%	158.51%	
Jackson Square Partners	17.35%	0.53%	10.98%	-2.79%	1.20	2.84%	0.96	1.58	0.19	108.50%	136.22%	
Robeco Boston Partners	13.56%	0.48%	10.69%	0.87%	0.97	2.63%	0.94	1.27	0.18	101.60%	93.29%	
Emerald Advisers	18.13%	3.85%	16.47%	4.00%	0.99	6.63%	0.84	1.10	0.58	112.82%	80.50%	
Ceredex	9.85%	0.78%	14.11%	0.89%	0.99	4.04%	0.92	0.70	0.19	95.90%	84.26%	
William Blair	5.82%	2.27%	10.55%	2.46%	0.95	1.95%	0.97	0.55	1.17	107.00%	80.62%	
Artisan Partners	11.85%	4.16%	10.04%	4.51%	0.96	3.68%	0.87	1.18	1.13	126.68%	71.28%	
First Eagle	6.50%	-1.19%	7.85%	0.51%	0.78	2.85%	0.94	0.82	-0.42	83.26%	87.20%	
Intech Global Low Vol	12.55%	4.86%	8.88%	7.38%	0.67	6.77%	0.55	1.41	0.72	121.60%	45.80%	
JP Morgan Global Opportunities	9.10%	1.41%	10.61%	0.93%	1.06	2.21%	0.96	0.85	0.64	107.67%	87.65%	
AFL-CIO	1.56%	0.12%	2.87%	0.13%	0.99	0.50%	0.97	0.53	0.24	99.00%	91.10%	
Goldman Sachs Core Plus	1.92%	0.47%	2.84%	0.70%	0.84	1.59%	0.71	0.66	0.30	90.23%	54.33%	
Lord Abbett	1.80%	0.36%	2.98%	0.40%	0.97	1.14%	0.85	0.59	0.31	94.04%	68.13%	
PIMCO Fixed Income	1.40%	-0.05%	3.14%	-0.13%	1.06	0.91%	0.92	0.43	-0.05	94.15%	92.46%	
Allianz Global Investors	1.63%	-0.01%	5.31%	0.04%	0.97	0.84%	0.98	0.30	-0.02	95.36%	94.55%	
Lazard	-2.34%	-0.61%	4.19%	-0.66%	0.97	1.15%	0.93	-0.57	-0.53	78.30%	100.59%	
Adelante	12.68%	0.84%	12.82%	1.89%	0.91	2.26%	0.98	0.99	0.37	93.89%	76.56%	
INVESCO International REIT	1.06%	-0.90%	9.55%	-0.82%	0.96	1.23%	0.99	0.11	-0.73	87.89%	99.00%	

5 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Intech Large Cap Core	13.10%	0.53%	12.82%	0.92%	0.97	3.30%	0.93	1.02	0.16	100.76%	93.10%
PIMCO Stocks+ Absolute Return	12.42%	-0.15%	14.02%	-1.24%	1.09	2.18%	0.98	0.88	-0.07	105.93%	113.89%
Jackson Square Partners	15.33%	1.79%	13.50%	1.33%	1.03	2.67%	0.96	1.13	0.67	112.59%	97.54%
Robeco Boston Partners	12.29%	1.02%	15.17%	0.18%	1.07	2.88%	0.97	0.81	0.35	112.10%	105.86%
Emerald Advisers	13.91%	3.24%	21.52%	2.10%	1.11	6.69%	0.91	0.64	0.48	126.98%	102.13%
William Blair	4.80%	2.67%	14.60%	2.72%	0.98	2.32%	0.98	0.33	1.15	110.50%	87.58%
JP Morgan Global Opportunities	6.90%	0.81%	14.90%	0.20%	1.10	2.42%	0.98	0.46	0.34	111.36%	103.46%
AFL-CIO	3.33%	0.09%	2.78%	0.24%	0.95	0.56%	0.96	1.18	0.16	99.89%	91.10%
Goldman Sachs Core Plus	4.12%	0.87%	2.83%	1.30%	0.87	1.41%	0.77	1.44	0.62	110.45%	54.33%
Lord Abbett	4.30%	1.05%	2.85%	1.47%	0.87	1.43%	0.77	1.49	0.74	118.91%	68.13%
PIMCO Fixed Income	3.39%	0.14%	2.86%	0.95%	0.75	2.01%	0.57	1.17	0.07	101.66%	92.46%
Allianz Global Investors	4.79%	-0.05%	6.26%	0.26%	0.94	0.97%	0.98	0.76	-0.05	93.77%	90.28%
Lazard	0.87%	-0.03%	4.16%	-0.04%	1.01	1.34%	0.90	0.20	-0.02	97.37%	98.03%
Adelante	12.74%	0.30%	14.30%	1.03%	0.94	1.80%	0.99	0.89	0.16	94.09%	87.79%

Performance Analysis excludes closed end funds and those funds without 3 and 5 years of performance.


Total Fund Investment Fund Fee Analysis

Name	Asset Class	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Intech Large Cap Core	Global Equity	0.50% of First \$100.0 Mil, 0.45% of Next \$100.0 Mil, 0.35% of Next \$100.0 Mil, 0.30% of Next \$200.0 Mil, 0.25% Thereafter	\$296,607,282	\$1,283,125	0.43%
PIMCO Stocks+ Absolute Return	Global Equity	0.15% of Assets	\$232,375,016	\$348,563	0.15%
Jackson Square Partners	Global Equity	0.50% of First \$100.0 Mil, 0.40% of Next \$150.0 Mil, 0.35% Thereafter	\$315,984,758	\$1,330,947	0.42%
Robeco Boston Partners	Global Equity	0.50% of First \$25.0 Mil, 0.30% Thereafter	\$299,239,459	\$947,718	0.32%
Emerald Advisers	Global Equity	0.75% of First \$10.0 Mil, 0.60% Thereafter	\$196,357,423	\$1,193,145	0.61%
Ceredex	Global Equity	0.85% of First \$10.0 Mil, 0.68% of Next \$40.0 Mil, 0.51% Thereafter	\$200,480,349	\$1,124,450	0.56%
Pyrford	Global Equity	0.70% of First \$50.0 Mil, 0.50% of Next \$50.0 Mil, 0.35% Thereafter	\$367,010,016	\$1,534,535	0.42%
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	\$372,738,334	\$1,533,215	0.41%
Artisan Partners	Global Equity	0.75% of Assets	\$290,204,390	\$2,176,533	0.75%
First Eagle	Global Equity	0.75% of Assets	\$287,765,432	\$2,158,241	0.75%
Intech Global Low Vol	Global Equity	0.25% of First \$100.0 Mil, 0.21% of Next \$100.0 Mil, 0.18% of Next \$100.0 Mil, 0.16% of Next \$200.0 Mil, 0.14% Thereafter	\$22,342,698	\$54,740	0.25%
JP Morgan Global Opportunities	Global Equity	0.50% of First \$100.0 Mil, 0.40% Thereafter	\$270,243,751	\$1,180,975	0.44%
AFL-CIO	Global Fixed Income	0.43% of Assets	\$241,295,637	\$1,037,571	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
Goldman Sachs Core Plus	Global Fixed Income	0.18% of First \$500.0 Mil, 0.16% Thereafter	\$334,802,991	\$585,905	0.18%
GSAM Workout Portfolio	Global Fixed Income		\$4,078		
Lord Abbett	Global Fixed Income	0.20% of First \$250.0 Mil, 0.15% of Next \$250.0 Mil, 0.13% Thereafter	\$334,032,022	\$626,048	0.19%
PIMCO Fixed Income	Global Fixed Income	0.25% of First \$600.0 Mil, 0.15% Thereafter	\$405,573,417	\$1,013,934	0.25%
Allianz Global Investors	High Yield Fixed Income	0.50% of First \$50.0 Mil, 0.40% of Next \$50.0 Mil, 0.35% Thereafter	\$333,193,329	\$1,266,177	0.38%
Lazard	Global Fixed Income	0.40% of First \$25.0 Mil, 0.30% of Next \$25.0 Mil, 0.25% Thereafter	\$289,261,140	\$773,153	0.27%
PIMCO All Asset Fund	Inflation Hedge/Real Assets	0.87% of Assets	\$114,900,599	\$999,635	0.87%

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

	Return (Ra	Return (Rank)													
5th Percentile	3.8	, ,	.7	2.7		2.7		9.5		8.5		11.2		6.7	
25th Percentile	3.0		.1	1.1		1.1		8.3		7.9		10.4		6.1	
Median	2.5	(.3	0.3		0.3		7.4		7.1		9.8		5.9	
75th Percentile	1.9	-(.7	-0.7		-0.7		6.1		6.4		9.1		5.4	
95th Percentile	0.5	-2	.8	-2.8		-2.8		3.8		4.5		6.6		4.5	
# of Portfolios	104		98	98		98		92		90		79		75	
Total Fund	2.4	(55) 2	.6 (6)	2.6	(6)	2.6	(6)	9.0	(13)	8.7	(3)	11.3	(4)	6.7	(5)
Policy Index	2.7	(39) (.6 (40)	0.6	(40)	0.6	(40)	8.2	(28)	8.4	(7)		()		()
× CPI + 4%	0.4	(96) 4	.8 (1)	4.8	(1)	4.8	(1)	5.0	(85)	5.6	(90)	5.8	(98)	5.9	(42)





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

	Return	Return (Rank)									
5th Percentile	2.7	8.5	20.2	14.7	3.3	15.7	27.7	-21.0	11.0	16.6	
25th Percentile	1.1	6.8	17.0	13.9	1.6	14.2	22.5	-24.9	9.5	15.0	
Median	0.3	5.7	15.0	13.0	0.8	13.5	20.5	-26.7	8.6	13.9	
75th Percentile	-0.7	4.9	12.0	12.1	0.1	12.5	18.1	-28.3	7.4	12.9	
95th Percentile	-2.8	3.1	8.7	9.2	-0.9	10.2	13.4	-30.2	6.2	11.2	
# of Portfolios	98	79	67	74	68	66	66	65	64	64	
Total Fund	2.6	(6) 8.4	(6) 16.4 (33)	14.3 (13)	2.7 (9)) 14.0 (29)	21.9 (34)	-26.5 (48)	7.3 (78)	15.4 (19)	
Policy Index	0.6	(40) 9.0	(2) 15.6 (43)	14.6 (8)	2.8 (9)) 14.1 (27)	()	()	()	()	
🗶 CPI + 4%	4.8	(1) 4.8	(80) 5.6 (99)	5.8 (99)	7.1 (1	5.6 (99)	6.8 (99)	4.1 (1)	8.2 (53)	6.6 (99)	

Domestic Equity Managers

Intech Large Cap Core Manager Portfolio Overview

Domestic equity large cap core portfolio with high correlation exposure to a broad universe seeking enhanced returns. Primary personnel include Adrian Banner, Vassilios Papathanakos, Joseph Runnels, and Phillip Whitman.

Characteristics

	Portfolio	S&P 500
Number of Holdings	297	504
Weighted Avg. Market Cap. (\$B)	38.84	128.54
Median Market Cap. (\$B)	17.73	17.46
Price To Earnings	25.29	22.19
Price To Book	5.05	4.25
Price To Sales	2.79	3.00
Return on Equity (%)	19.82	18.03
Yield (%)	1.67	2.17
Beta	0.90	1.00



Sector Allocation (%) vs S&P 500

Largest	Largest Holdings		Тс	op Contributo		Bottom Contributors				
	End Weight	Return		Avg Wgt	Return	Contribution	ı	Avg Wgt	Return	Contribution
KROGER	1.45	16.30	KROGER	1.30	16.30	0.21	UNION PACIFIC	0.79	-10.97	-0.09
LOCKHEED MARTIN	1.42	5.51	CONSTELLATION	1 30	1/ 03	0 18	WESTERN DIGITAL	0.34	-23.79	-0.08
CVS HEALTH	1.39	1.68	BRANDS 'A'	1.00	14.00	0.10	VF	0.98	-8.21	-0.08
CONSTELLATION BRANDS 'A'	1.37	14.03	NORTHROP GRUMMAN	1.27	14.26	0.18	FIDELITY NAT.INFO.SVS.	0.84	-9.28	-0.08
NORTHROP GRUMMAN	1.30	14.26	DR PEPPER SNAPPLE	0.95	18.52	0.18	F5 NETWORKS	0.42	-16.27	-0.07
FISERV	1.26	5.60	GROUP	4.00	44.07	0.40	UNDER ARMOUR 'A'	0.39	-16.71	-0.07
AMERISOURCEBERGEN	1.23	9.56	ALLERGAN	1.09	14.97	0.16	BEST BUY	0.34	-17.36	-0.06
ANTHEM	1.20	0.07	RAYTHEON 'B'	0.98	14.67	0.14	APPLE	1.30	-4.16	-0.05
APPLE	1.17	-4.16	AVAGO TECHNOLOGIES	0.87	16.47	0.14	RYDER SYSTEM	0.22	-22.78	-0.05
O REILLY AUTOMOTIVE	1.03	1.37	CARDINAL HEALTH	0.84	16.70	0.14	AKAMAI TECHS	0.20	-23.79	-0.05
			SOUTHWEST AIRLINES 0.97		13.39	0.13		0.20	20.15	0.000
			ROPER TECHNOLOGIES	0.58	21.30	0.12				

Unclassified sector allocation includes cash allocations.

45.0₁ 40.0 35.0 30.0 Annualized Return (%) 25.0 20.0 15.0 10.0 5.0 0.0 -5.0 -10.0 2015 2013 2012 Quarter 1 Year 3 Years 5 Years 10 Years 2014 2011

Inte	ch Large (Cap Core v	/s. eA US La	irge Cap Cor	e Equity Gross	Universe	

	Return (Rank)									
5th Percentile	8.0	6.3	18.5	15.2	9.9	6.3	17.7	39.6	20.1	7.0
25th Percentile	6.8	2.7	16.3	13.5	8.5	2.7	15.1	35.5	17.2	3.6
Median	5.9	0.6	15.1	12.4	7.8	0.6	13.3	32.9	15.4	1.3
75th Percentile	4.9	-1.6	13.6	11.0	7.2	-1.6	11.4	30.8	13.4	-1.5
95th Percentile	3.1	-4.1	10.9	9.1	6.2	-4.1	8.2	25.4	9.8	-5.9
# of Portfolios	268	267	262	248	210	267	267	261	254	259
 Intech Large Cap Core 	5.7 (56)	3.8 (16)	16.5 (24)	13.5 (25)	()	3.8 (16)	14.7 (31)	32.7 (54)	15.3 (54)	3.6 (25)
▲ S&P 500	7.0 (20)	1.4 (42)	15.1 (50)	12.6 (48)	7.3 (71)	1.4 (42)	13.7 (42)	32.4 (58)	16.0 (41)	2.1 (40)

Verus⁷⁷⁷



Rolling 5 Year Annualized Return (%)





Intech Large Cap Core Risk vs. Return 3 & 5 Year (Gross of Fees)



1.4

eA US Large Cap Core Equity Gross Median

3 Years

15.1%

10.7%

5 Years

eA US Large Cap Core Equity Gross Median

12.1%

1.1

12.4%



Domestic equity large cap core portfolio with high correlation exposure to a broad universe seeking enhanced returns. Primary personnel include Mohsen Fahmi and Scott Mather.









PIMCO Stocks+ Absolute Return vs. eA US Large Cap Core Equity Gross Universe

	Return (Rank)										
5th Percentile	8.0	6.3	18.5	15.2	9.9	6.3	17.7	39.6	20.1	7.0	
25th Percentile	6.8	2.7	16.3	13.5	8.5	2.7	15.1	35.5	17.2	3.6	
Median	5.9	0.6	15.1	12.4	7.8	0.6	13.3	32.9	15.4	1.3	
75th Percentile	4.9	-1.6	13.6	11.0	7.2	-1.6	11.4	30.8	13.4	-1.5	
95th Percentile	3.1	-4.1	10.9	9.1	6.2	-4.1	8.2	25.4	9.8	-5.9	
# of Portfolios	268	267	262	248	210	267	267	261	254	259	
PIMCO Stocks+ Absolute Return	7.6 (9)	-1.2 (73)	13.8 (71)	12.7 (46)	7.4 (67)	-1.2 (73)	13.6 (45)	31.4 (68)	20.6 (4)	2.3 (36)	
▲ S&P 500	(.0 (20)	1.4 (42)	15.1 (50)	12.6 (48)	(.3 (/1)	1.4 (42)	13.7 (42)	32.4 (58)	16.0 (41)	2.1 (40)	



----- PIMCO Stocks+ Absolute Return ------ S&P 500

Rolling 5 Year Annualized Return (%)





PIMCO Stocks+ Absolute Return Risk vs. Return 3 & 5 Year (Gross of Fees)



3 Years

5 Years



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	33	644
Weighted Avg. Market Cap. (\$B)	95.93	122.90
Median Market Cap. (\$B)	35.64	8.44
Price To Earnings	33.06	25.41
Price To Book	7.48	7.02
Price To Sales	6.66	3.80
Return on Equity (%)	19.85	25.00
Yield (%)	0.97	1.60
Beta	1.20	1.00



DENTSPLY INTL.

Largest Holdings **Top Contributors Bottom Contributors** End Weight Avg Wgt Avg Wgt Return Contribution Return Contribution Return VISA 'A' 5.78 11.52 MICROSOFT 4.10 26.20 1.07 VALEANT PHARMS. (NYS) 3.08 -43.01 -1.32 INTL. CELGENE 5.65 1.05 10.71 BAIDU 'A' ADR 10:1 2.80 37.57 5.39 -6.05 -0.33 QUALCOMM ALLERGAN 5.58 14.97 **TRIPADVISOR 'A'** 2.33 35.27 0.82 23.44 0.00 SYNGENTA SPN.ADR 5:1 0.00 QUALCOMM 4.81 -6.05 ALPHABET 'A' 3.58 21.87 0.78 DISCOVERY COMMS.'A' 0.77 2.50 0.02 WALGREENS BOOTS ALLIANCE 4.49 2.93 EQUINIX 4.78 15.54 0.74 **DISCOVERY COMMS.'C'** 1.31 3.83 0.05 4.40 14.97 0.74 MICROSOFT 26.20 ALLERGAN 4.92 NIKE 'B' 2.76 1.90 0.05 LIBERTY INTACT.QVC GROUP 'A' 4.39 4.16 ALPHABET 'C' 2.78 24.73 0.69 3.96 0.06 ELECTRONIC ARTS 1.43 EQUINIX 4.34 VISA 'A' 5.83 11.52 0.67 15.54 SIRONA DENTAL CROWN CASTLE INTL. 4.30 10.74 CELGENE 5.61 10.71 0.60 0.71 17.39 0.12 SYSTEMS MASTERCARD 4.24 8.22 PAYPAL HOLDINGS 3.52 16.62 0.59 WALGREENS BOOTS 4.53 2.93 0.13 ALLIANCE

Unclassified sector allocation includes cash allocations.

0.74

20.47

0.15

Sector Allocation (%) vs Russell 1000 Growth



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

	Return (Rank)										
5th Percentile	9.6	11.6	20.3	15.8	10.7	11.6	17.3	42.8	21.6	6.4	
25th Percentile	8.1	7.6	18.0	14.4	9.1	7.6	14.3	37.3	18.2	2.2	
Median	6.8	4.7	16.7	13.0	8.6	4.7	12.0	34.3	15.7	-0.3	
75th Percentile	5.6	2.1	14.9	11.7	7.7	2.1	9.5	31.0	13.4	-3.2	
95th Percentile	3.6	-2.4	11.9	9.7	6.6	-2.4	5.8	26.6	10.2	-8.0	
# of Portfolios	270	270	263	250	208	270	291	274	274	294	
Jackson Square Partners	9.0 (12)	6.1 (37) 17.8 (28)) 15.8 (6)	8.8 (43)	6.1 (37)	13.9 (31)	35.4 (40)	16.9 (37)	8.9 (3)	
	(3 (41)	5 ((42) 108 (48) 135 (41)	8.5 (53)	5.7 (42)	13.0 (38)	JJ (5b)	15.3 (55)	20 (22)	





— Jackson Square Partners — Russell 1000 Growth

Rolling 5 Year Annualized Return (%)





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



3 Years

16.7%

11.3%

1.5

eA US Large Cap Growth Equity Gross Median

5 Years

Verus⁷⁷

eA US Large Cap Growth Equity Gross Median

12.7%

1.0

13.0%

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	90	691
Weighted Avg. Market Cap. (\$B)	40.99	105.87
Median Market Cap. (\$B)	24.69	6.85
Price To Earnings	19.47	19.16
Price To Book	2.94	2.23
Price To Sales	1.89	2.50
Return on Equity (%)	14.37	11.40
Yield (%)	2.11	2.60
Beta	0.97	1.00

Sector Allocation (%) vs Russell 1000 Value



Largest	Holdings		Т	op Contributo	ors		Bott	om Contribu	tors	
	End Weight	Return		Avg Wgt	Return	Contribution	1	Avg Wgt	Return	Contribution
LIBERTY BROADBAND SR.C	4.47	1.35	MICROSOFT	2.88	26.20	0.76	WESTERN DIGITAL	0.73	-23.79	-0.17
CANADIAN NATURAL RES.	4.33	13.12	JP MORGAN CHASE &	1 31	0.08	0.30	ANADARKO PETROLEUM	0.89	-19.15	-0.17
WESTROCK	3.92	-10.62	CO.	4.54	9.00	0.59	TARGET	1.62	-6.98	-0.11
CBS 'B'	3.16	18.49	ACTIVISION BLIZZARD	1.37	25.32	0.35	ENERGEN	0.62	-17.76	-0.11
NAVIENT	3.07	3.23	JOHNSON & JOHNSON	3.12	10.84	0.34	WESTROCK	0.68	-10.62	-0.07
CRANE	2.97	3.29	TYSON FOODS 'A'	1.40	24.10	0.34	ALLY FINANCIAL	0.81	-8.54	-0.07
LEAR	2.91	13.15	WELLS FARGO & CO	3.85	6.59	0.25	MACY'S	0.19	-31.17	-0.06
OMNICOM GROUP	2.82	15.58	MEDTRONIC	1.58	15.47	0.24	EQT	0.28	-19.48	-0.05
PHILLIPS 66	2.53	7.10	RAYTHEON 'B'	1.60	14.67	0.23	EOG RES.	2.08	-2.57	-0.05
FIFTH THIRD BANCORP	2.53	6.97	ACE	1.70	13.64	0.23	APPLE	1.22	-4.16	-0.05
			DELTA AIR LINES	1.54	13.27	0.20				

Unclassified sector allocation includes cash allocations.





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

	Return (Rank)										
5th Percentile	7.5	2.8	17.0	14.4	9.7	2.8	16.3	42.5	21.5	9.5	
25th Percentile	6.2	-0.4	15.0	12.6	8.2	-0.4	13.9	37.2	18.0	3.4	
Median	5.4	-2.6	13.7	11.5	7.3	-2.6	12.2	33.6	15.7	0.5	
75th Percentile	4.2	-5.1	12.3	10.3	6.4	-5.1	10.4	30.8	13.0	-3.1	
95th Percentile	1.9	-9.4	8.8	7.9	4.8	-9.4	5.9	24.6	9.6	-8.6	
# of Portfolios	312	312	303	290	237	312	307	310	303	310	
Robeco Boston Partners	4.8 (67)	-3.9 (65)	13.9 (44)	12.6 (24)	8.2 (26)	-3.9 (65)	12.0 (55)	37.4 (24)	21.6 (5)	0.9 (46)	
Russell 1000 value	5.6 (43)	-3.8 (64)	13.1 (65)	11.3 (54)	6.2 (78)	-3.8 (64)	13.5 (33)	32.5 (60)	17.5 (30)	0.4 (51)	





— Robeco Boston Partners — Russell 1000 Value

Rolling 5 Year Annualized Return (%)





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



5 Years



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	116	1,194
Weighted Avg. Market Cap. (\$B)	1.80	2.07
Median Market Cap. (\$B)	1.09	0.74
Price To Earnings	26.54	27.56
Price To Book	5.25	4.96
Price To Sales	4.03	3.38
Return on Equity (%)	15.40	16.59
Yield (%)	0.54	0.52
Beta	0.99	1.00



Largest Holdings **Top Contributors Bottom Contributors** End Weight Avg Wgt Return Contribution Avg Wgt Return Contribution Return 2.21 -0.41 BANK OF THE OZARKS 13.40 8X8 1.51 38.45 0.58 CHIMERIX 0.53 -76.57 2.08 NEUROCRINE MICROSTRATEGY -8.74 SEQUENTIAL BRANDS 0.84 0.96 42.17 0.40 -45.34 -0.38 GROUP BIOSCIENCES EPAM SYSTEMS 1.97 5.50 -0.37 MACROGENICS 0.85 44.58 GTT COMMUNICATIONS -26.66 0.38 1.37 APOGEE ENTERPRISES 1.90 -2.35 GIGAMON 1.03 32.78 0.34 GLU MOBILE 0.79 -44.39 -0.35 OPUS BANK 1.82 -3.01 VEEVA SYSTEMS CL.A 1.45 23.24 0.34 AMICUS THERAPEUTICS 1.03 -30.66 -0.32 VEEVA SYSTEMS CL.A 1.81 23.24 ADAMAS MARCUS AND MILLICHAP 0.80 -36.64 -0.29 **VONAGE HOLDINGS** 1.80 -2.38 0.45 69.18 0.31 PHARMACEUTICALS **BOFI HOLDING** -0.28 0.80 -34.64 WELLCARE HEALTH PLANS 1.80 -9.25 BANK OF THE OZARKS 2.25 13.40 0.30 RED ROBIN WALKER & DUNLOP 1.77 10.47 -18.48 -0.28 1.50 ALARMCOM HOLDINGS 0.60 43.05 0.26 **GMT.BURGERS** ACADIA HEALTHCARE CO. 1.76 -5.75 RELYPSA 0.47 53.11 0.25 -13.14 -0.20 QLIK TECHNOLOGIES 1.49

1.51

14.13

0.21

BURLINGTON STORES

TREX

Unclassified sector allocation includes cash allocations.



1.19

-15.95

-0.19

Sector Allocation (%) vs Russell 2000 Growth



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

	Return (Rank)										
5th Percentile	8.2	7.1	19.6	15.9	11.1	7.1	11.3	58.2	23.8	8.1	
25th Percentile	5.3	2.5	16.5	13.2	9.5	2.5	6.7	50.6	18.0	2.4	
Median	3.5	-0.6	14.6	11.5	8.4	-0.6	3.9	45.6	14.3	-1.5	
75th Percentile	1.4	-3.5	12.7	10.2	7.5	-3.5	-0.1	42.6	11.6	-5.2	
95th Percentile	-1.6	-8.7	9.4	7.8	5.8	-8.7	-7.6	35.6	5.4	-11.5	
# of Portfolios	154	154	148	142	115	154	161	160	162	166	
Emerald Advisers	-1.0 (92)	4.1 (19)	18.8 (10)	14.6 (11)	9.9 (16)	4.1 (19)	7.3 (21)	50.3 (27)	18.5 (22)	-0.6 (42)	
Russell 2000 Growth	4.3 (39)	-14 (59)	14.3 (56)	10.7 (64)	8.0 (60)	-14 (59)	56 (32)	43.3 (70)	14.6 (48)	-2.9 (60)	







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

3 Years

5 Years



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	84	1,351
Weighted Avg. Market Cap. (\$B)	1.93	1.65
Median Market Cap. (\$B)	1.49	0.59
Price To Earnings	24.81	19.84
Price To Book	2.60	1.63
Price To Sales	2.09	2.62
Return on Equity (%)	12.65	7.44
Yield (%)	2.50	1.99
Beta	0.99	1.00



Sector Allocation (%) vs Russell 2000 Value

Largest H	Holdings		I	Fop Contributo	rs		Bot	tom Contribu	tors	
	End Weight	Return		Avg Wgt	Return	Contribution	l	Avg Wgt	Return	Contribution
FAIR ISAAC	4.81	11.48	FAIR ISAAC	4.41	11.48	0.51	CHICO'S FAS	1.51	-31.72	-0.48
HANOVER INSURANCE GROUP	3.32	5.27	GRANITE CON.	0.77	45.05	0.35	SOTHEBY'S	1.83	-19.17	-0.35
PROGRESSIVE WASTE SLTN.	3.06	-10.37	AAR	0.80	39.05	0.31	PROGRESSIVE WASTE	3.06	-10 30	-0.32
HILL-ROM HOLDINGS	2.68	-7.25	MUELLER WATER	1 70	10 50	0.00	(NYS) SLTN.	5.00	-10.00	-0.02
AMC ENTERTAINMENT HDG.	0.05	0.05	PRODUCTS	1.79	12.52	0.22	HSN	2.87	-10.86	-0.31
CL.A	2.65	-3.95	KELLY SERVICES 'A'	1.52	14.56	0.22	ADVANCED DRAINAGE	1.83	-16 79	-0.31
HSN	2.64	-10.86	THOR INDUSTRIES	2.15	9.60	0.21	SYS.	1.00	-10.75	-0.01
ENERGIZER HOLDINGS	2.55	-11.38	SANDERSON FARMS	1.39	13.05	0.18	ENERGIZER HOLDINGS	2.62	-11.38	-0.30
PLANTRONICS	2.52	-6.47	HANOVER INSURANCE	0.00	- 07	0.47	GUESS	2.46	-10.58	-0.26
MEDICAL PROPS.TRUST	2.51	6.09	GROUP	3.23	5.27	0.17	COVANTA HOLDING	1.95	-9.82	-0.19
HERMAN MILLER	2.42	-0.02	COHEN & STEERS	1.24	13.73	0.17	HILL-ROM HOLDINGS	2.61	-7.25	-0.19
			EVERCORE PARTNERS	1.98	8.23	0.16	PLANTRONICS	2.68	-6.47	-0.17

Unclassified sector allocation includes cash allocations.

CeredexManager Performance Comparisons (Gross of Fees)



Ceredex vs. eA US Small Cap Value Equity Gross Universe

	Return (Rank)										
5th Percentile	5.8	1.5	15.8	13.2	10.5	1.5	11.2	49.4	25.7	5.3	
25th Percentile	3.7	-2.2	13.6	11.3	8.8	-2.2	8.2	42.1	20.8	0.0	
Median	2.4	-4.3	11.9	9.9	7.9	-4.3	5.8	38.1	16.9	-3.3	
75th Percentile	1.2	-7.7	9.5	8.4	6.8	-7.7	3.1	35.2	14.7	-6.2	
95th Percentile	-1.5	-15.8	3.9	5.2	5.2	-15.8	-6.3	27.8	10.3	-12.6	
# of Portfolios	212	212	205	196	152	212	206	199	187	177	
• Ceredex	-0.4 (91)	-4.4 (52)) 10.4 (67)	()	()	-4.4 (52)	3.3 (74)	36.5 (66)	19.0 (38)	()	
Russell 2000 Value	2.9 (40)	-7.5 (74)) 9.1 (79)	7.7 (80)	5.6 (92)	-7.5 (74)	4.2 (68)	34.5 (78)	18.1 (43)	-5.5 (69)	







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



3 Years

Annualized Standard Deviation

	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Ceredex	10.4%	14.1%	0.7
Russell 2000 Value	9.1%	13.7%	0.7
eA US Small Cap Value Equity Gross Median	11.9%	13.4%	0.9



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	69	1,014
Weighted Avg. Market Cap. (\$B)	53.07	48.30
Median Market Cap. (\$B)	17.02	5.86
Price To Earnings	22.48	14.04
Price To Book	3.57	1.51
Price To Sales	2.16	1.62
Return on Equity (%)	17.81	10.93
Yield (%)	3.68	4.14
Beta		1.00

Country Allocation Manager Index Ending Allocation Ending Allocation (USD) (USD) Totals Developed 88.6% 79.6% Emerging* 8.4% 20.4% Cash 3.0% **Top 10 Largest Countries** Switzerland 14.8% 4.9% 11.4% 4.9% Australia 10.3% 17.3% Japan 7.9% 6.4% Germany 7.7% 8.4% France Hong Kong 7.3% 2.5% United Kingdom 6.3% 16.4% Netherlands 6.1% 1.2% Singapore 5.1% 0.9% Malaysia* 4.3% 0.7% Total-Top 10 Largest Countries 81.2% 63.6%

SAP



Top Contributors Bottom Contributors Avg Wgt Contribution Avg Wgt Contribution Return Return NIHON KOHDEN 1.16 47.98 0.56 SANOFI 2.26 -9.89 -0.22 BRAMBLES 1.87 23.07 0.43 VTECH HOLDINGS 1.34 -11.14 -0.15 1.44 24.33 0.35 NOVARTIS 'R' 2.81 -5.23 -0.15 JAPAN TOBACCO 1.26 22.22 0.28 **TELENOR** -0.14 1.77 -8.09 KDDI 1.47 17.74 0.26 CHINA MOBILE 1.81 -4.69 -0.08 MITSUBISHI ELECTRIC 1.38 17.14 0.24 **AIR LIQUIDE** 1.69 -4.52 -0.08 ASM PACIFIC TECH. 1.12 20.47 0.23 SEMBCORP INDUSTRIES 0.62 -11.65 -0.07 1.64 13.68 0.22 **ADVANTECH** COMPUTERSHARE 0.86 -5.77 -0.05 AXIATA GROUP 1.33 0.18 SUMITOMO RUBBER 13.15 1.43 -3.44 -0.05 INDS. TOYOTA TSUSHO 1.35 12.87 0.17

PROXIMUS

Unclassified sector allocation includes cash allocations.



1.14

-4.16

-0.05

Pyrford Manager Performance Comparisons (Gross of Fees)

3.8

1.4

(41)

(94)

-2.9

-10.1

(59)

(93)



-- (--)

2.1 (93)

-2.9

-10.1

(59)

(93)

-5.1 (49)

(--)

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

(--) (94)

-- (--)

-0.1 (89)

-0.6

5th Percentile

25th Percentile

75th Percentile

95th Percentile

of Portfolios

MSCI ACWI ex USA Value

Pyrford

•

▲

Median

(--)

(83)

15.0

(--)

(74)

-- (--)

-13.2 (81)

17.0

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

		MSCI ACWI
	Portfolio	ex USA
		Growth
Number of Holdings	196	1,058
Weighted Avg. Market Cap. (\$B)	37.25	50.15
Median Market Cap. (\$B)	12.30	6.63
Price To Earnings	22.44	22.84
Price To Book	4.31	4.22
Price To Sales	2.85	3.02
Return on Equity (%)	21.14	19.17
Yield (%)	2.27	2.00
Beta	0.95	1.00

Country Allocation						
	Manager Ending Allocation (USD)	Index Ending Allocation (USD)				
Totals						
Developed	84.2%	79.9%				
Emerging*	12.1%	20.1%				
Cash	3.7%					
Top 10 Largest Countries						
Japan	19.1%	17.0%				
United Kingdom	15.4%	12.3%				
France	8.6%	5.9%				
Germany	5.2%	7.0%				
Hong Kong	5.0%	2.3%				
Canada	4.6%	5.7%				
Switzerland	4.0%	9.0%				
Cash	3.7%	0.0%				
Spain	3.0%	1.7%				
China*	2.9%	5.0%				
Total-Top 10 Largest Countries	71.6%	66.0%				

3.7 Energy Materials 6.0 Industrials 9.5 12.5 Cons. Disc. 15.3 6.8 Cons. Staples 17.9 7.2 Health Care 13.0 28.2 Financials 14.4 Info. Tech 12.1 3.0 Telecomm. Utilities Unclassified 0.0 10.0 20.0 30.0 William Blair MSCI ACWI ex USA Growth

Top Contributors

HOYA

AXA

1:1

ORIX

Bottom Contributors Avg Wgt Return Contribution Avg Wgt Contribution Return FUJI HEAVY INDS. 1.50 16.85 0.25 MTN GROUP 0.40 -33.38 -0.13 0.93 0.25 27.06 STEINHOFF INTL. 0.71 -15.88 -0.11 AIA GROUP 1.43 16.35 0.23 FIRSTRAND 0.43 -21.31 -0.09 1.42 13.49 0.19 NOVARTIS 'R' 1.67 -5.23 -0.09 TEVA PHARM.INDS.ADR INTESA SANPAOLO 1.65 -4.77 -0.08 1.13 16.94 0.19 ENBRIDGE 0.82 -9.54 -0.08 0.34 NETEASE ADR 1:25 51.39 0.17 DOLLARAMA 0.54 -14.40-0.08 CONTINENTAL 1.10 15.15 0.17 VALEANT PHARMS. (NYS) 0.16 -43.01 -0.07 1.42 11.48 0.16 INTL. **KEYENCE** 25.53 -12.53 0.63 0.16 **BBV.ARGENTARIA** 0.44 -0.06 DAIKIN INDUSTRIES 0.45 32.74 0.15 NEXT 0.98 -5.40 -0.05

Unclassified sector allocation includes cash allocations.



Sector Allocation (%) vs MSCI ACWI ex USA Growth

William Blair Manager Performance Comparisons (Gross of Fees)



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

	Return (Rar	ık)									
5th Percentile	8.8	16.3	15.3	10.6	11.0	16.3	3.2	33.0	24.6	-4.3	
25th Percentile	7.4	9.0	10.5	7.6	7.5	9.0	-0.1	24.3	21.9	-9.7	
Median	5.7	3.5	7.3	5.0	6.4	3.5	-2.5	20.3	19.3	-12.6	
75th Percentile	4.8	-0.5	4.9	4.0	5.4	-0.5	-5.3	17.5	16.9	-15.7	
95th Percentile	3.0	-5.4	3.7	1.6	3.6	-5.4	-8.2	14.0	13.7	-20.3	
# of Portfolios	70	70	65	62	42	70	50	46	51	51	
William Blair	5.0 (6	6) 0.5 (6	9) 6.3 (57	7) 5.3 (44)	()	0.5 (69)	-1.2 (37)	20.9 (44)) 24.3 (6) -13.2 (5	5)
MSCI ACWI ex USA Growth	50 (7	71) -13 (8	3) 35 (96	6) 21 (94)	37 (95)	-1.3 (83)	-26 (53)	15.5 (87)) 167 (7	8) -14.2 (6)	2)

Verus⁷⁷⁷

▲



— William Blair — MSCI ACWI ex USA Growth



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

3 Years



Annualized Standard Deviation

	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
William Blair	6.3%	10.6%	0.6
MSCI ACWI ex USA Growth	3.5%	11.0%	0.3
eA ACWI ex-US Growth Equity Gross Median	7.3%	11.5%	0.6


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
Number of Holdings	32	2,491
Weighted Avg. Market Cap. (\$B)	103.15	88.07
Median Market Cap. (\$B)	27.37	7.98
Price To Earnings	28.31	20.93
Price To Book	8.38	3.29
Price To Sales	7.97	2.72
Return on Equity (%)	21.78	16.27
Yield (%)	1.02	2.52
Beta	0.96	1.00

Manager

Index



Country Allocation

	Ending Allocation (USD)	Ending Allocation (USD)
Totals		
Developed	88.3%	90.3%
Emerging*	2.7%	9.7%
Cash	9.0%	
Top 10 Largest Countries		
United States	78.2%	53.0%
Cash	9.0%	0.0%
Hong Kong	3.8%	1.1%
Ireland	2.8%	0.1%
China*	2.7%	2.8%
Canada	2.3%	2.8%
Italy	1.2%	0.8%
Total-Top 10 Largest Countries	100.0%	60.6%

Top Contributors

Bottom Contributors

	Avg Wgt	Return	Contribution		Avg Wgt	Return	Contribution
GENMAB	2.96	45.97	1.36	CHIPOTLE MEXN.GRILL	2.05	-33.38	-0.69
ALPHABET 'A'	3.68	21.87	0.81	NINTENDO	1.90	-16.84	-0.32
REGENERON PHARMS.	4.35	16.71	0.73	MONCLER	1.26	-21.41	-0.27
FACEBOOK CLASS A	4.13	16.42	0.68	EQT	0.94	-19.48	-0.18
TENCENT HOLDINGS	3.29	17.94	0.59	ANADARKO PETROLEUM	0.60	-19.15	-0.11
ALPHABET 'C'	2.25	24.73	0.56	RAIA DROGASIL ON	1.29	-8.36	-0.11
VISA 'A'	4.66	11.52	0.54	WEIR GROUP	0.66	-15.92	-0.11
MCGRAW HILL FINANCIAL	2.78	14.36	0.40	APPLE	2.01	-4.16	-0.08
HARMONIC DRIVE SYS.	0.67	54.01	0.36	ELECTROLUX 'B'	0.56	-13.50	-0.08
ABBOTT LABORATORIES	2.79	12.32	0.34	SHISEIDO	1.74	-2.79	-0.05

Unclassified sector allocation includes cash allocations.

Artisan Partners Manager Performance Comparisons (Gross of Fees)



Artisan Partners vs. eA All Global Equity Gross Universe

	Return (R	lank)									
5th Percentile	8.4	8.5	15.6	12.2	9.7	8.5	17.1	38.6	29.5	4.0	
25th Percentile	6.0	3.0	11.9	9.7	7.6	3.0	7.4	30.6	20.4	-3.0	
Median	4.8	0.1	9.9	8.1	6.3	0.1	4.6	26.2	17.2	-7.0	
75th Percentile	3.7	-2.9	7.6	6.2	5.2	-2.9	1.5	20.0	14.4	-11.2	
95th Percentile	-0.5	-15.1	-2.9	-2.2	1.9	-15.1	-7.4	2.7	7.4	-18.7	
# of Portfolios	692	692	648	550	279	692	609	552	475	434	
Artisan Partners	7.8	(8) 9.2	(4) 12.7 (17)) ()	()	9.2 (4)	3.9 (56)	26.1 (51)	(-) ()	
MSCI ACWI	5.0	(46) -2.4 (7	73) 7.7 (75) 6.1 (77)	4.8 (81)	-2.4 (73)	4.2 (54)	22.8 (66)	16.1 (61	I) -7.3 (53)	





Rolling 3 Year Annualized Return (%)

— Artisan Partners — MSCI ACWI



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





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
Artisan Partners	12.7%	10.1%	1.3
MSCI ACWI	7.7%	9.8%	0.8
eA All Global Equity Gross Median	9.9%	11.2%	0.9

Verus⁷⁷⁷

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	156	2,491
Weighted Avg. Market Cap. (\$B)	58.87	88.07
Median Market Cap. (\$B)	12.94	7.98
Price To Earnings	20.99	20.93
Price To Book	3.38	3.29
Price To Sales	2.95	2.72
Return on Equity (%)	15.21	16.27
Yield (%)	2.32	2.52
Beta	0.78	1.00



Sector Allocation (%) vs MSCI ACWI

Country Allocation

	Manager	Index
	Ending Allocation (USD)	Ending Allocation (USD)
Totals		
Developed	77.1%	90.3%
Emerging*	3.9%	9.7%
Cash	19.1%	
Top 10 Largest Countries		
United States	42.4%	53.0%
Cash	19.1%	0.0%
Japan	12.9%	8.0%
France	6.2%	3.3%
United Kingdom	3.7%	6.7%
Canada	3.2%	2.8%
Korea*	1.7%	1.5%
Mexico*	1.6%	0.4%
Germany	1.5%	3.1%
Switzerland	1.4%	3.3%
Total-Top 10 Largest Countries	93.7%	82.1%

Тор	Contributors

MICROSOFT

HOYA

KDDI

INTEL

SMC

SECOM

KEYENCE

HEIDELBERGCEMENT

SOMPO JAPAN NPNK.HDG.

OMNICOM GROUP

Avg Wgt

1.58

0.70

1.00

0.65

0.82

0.90

0.91

0.62

0.91

0.73

Bottom Contributors

Return	Contribution		Avg Wgt	Return	Contribution
26.20	0.41	NATIONAL OILWELL VARCO	0.74	-9.95	-0.07
27.06	0.19	POTASH CORPORATION	0 40	-15 25	-0.06
17.74	0.18	(NYS) OF SASKATCHEWAN	0.10	10.20	0.00
25.53	0.17	SANOFI	0.56	-9.89	-0.06
18.94	0.15	DEVON ENERGY	0.41	-13.11	-0.05
15.58	0.14	AMERICAN EXPRESS	0.90	-5.83	-0.05
15.10	0.14	TERADATA	0.48	-8.77	-0.04
21.40	0.13	CENOVUS ENERGY (NYS)	0.25	-15.99	-0.04
14.43	0.13	KT & G	0.53	-5.26	-0.03
15 55	0.11	FMC TECHNOLOGIES	0.39	-6.42	-0.03
		INDUST PENOLES	0.10	-24.54	-0.02

Unclassified sector allocation includes cash allocations and Gold allocations (6.1% as of 9/30/2015).

Verus⁷⁷

First Eagle Manager Performance Comparisons (Gross of Fees)



First Eagle vs. eA All Global Equity Gross Universe

	Return (Rank)										
5th Percentile	8.4	8.5	15.6	12.2	9.7	8.5	17.1	38.6	29.5	4.0	
25th Percentile	6.0	3.0	11.9	9.7	7.6	3.0	7.4	30.6	20.4	-3.0	
Median	4.8	0.1	9.9	8.1	6.3	0.1	4.6	26.2	17.2	-7.0	
75th Percentile	3.7	-2.9	7.6	6.2	5.2	-2.9	1.5	20.0	14.4	-11.2	
95th Percentile	-0.5	-15.1	-2.9	-2.2	1.9	-15.1	-7.4	2.7	7.4	-18.7	
# of Portfolios	692	692	648	550	279	692	609	552	475	434	
• First Eagle	4.8 (50)	0.2 (49)	7.3 (77)	()	()	0.2 (49)	4.5 (51)	17.9 (80)	13.9 (78) ()	
MSCI ACWI	50 (46)	-2.4 (73)	7.7 (75)	6.1 (77)	4.8 (81)	-2.4 (73)	4.2 (54)	22.8 (66)	16.1 (61) -7.3 (53)	





Rolling 3 Year Annualized Return (%)





	3 Years		
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
First Eagle	7.3%	7.8%	0.9
MSCI ACWI	7.7%	9.8%	0.8
eA All Global Equity Gross Median	9.9%	11.2%	0.9

3 Years



Intech Global Low Vol Manager Portfolio Overview

Contribution

-0.14

-0.10

-0.08

-0.07

-0.07

-0.07

-0.07

-0.07

-0.06

-0.06

Global equity diversified portfolio focused on maintaining volatility at or below the benchmark. Primary personnel include Adrian Banner, Vassilios Papthanakos, and Joseph Runnels.

3.90

1.08

0.73

3.54

10.84

15.84

Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	399	2,491
Weighted Avg. Market Cap. (\$B)	36.47	88.07
Median Market Cap. (\$B)	10.05	7.98
Price To Earnings	25.70	20.93
Price To Book	3.55	3.29
Price To Sales	3.19	2.72
Return on Equity (%)	15.60	16.27
Yield (%)	2.67	2.52
Beta	0.67	1.00



Country Allocation

	Ending Allocation (USD)	Ending Allocation (USD)
Totals		
Developed	99.0%	90.3%
Cash	1.0%	
Top 10 Largest Countries		
United States	57.2%	53.0%
Japan	16.2%	8.0%
Hong Kong	8.2%	1.1%
Canada	4.5%	2.8%
Israel	2.8%	0.3%
Switzerland	2.3%	3.3%
Singapore	2.1%	0.4%
Germany	1.3%	3.1%
United Kingdom	1.1%	6.7%
Cash	1.0%	0.0%
Total-Top 10 Largest Countries	96.7%	78.7%

	Top Contributo	Bottom Contributors				
	Avg Wgt	Return	Contribution		Avg Wgt	Return
KIMBERLY-CLARK	2.52	17.60	0.44	DOLLARAMA	0.98	-14.40
MCDONALDS	1.87	20.84	0.39	CHIPOTLE MEXN.GRILL	0.29	-33.38
PROCTER & GAMBLE	2.67	11.38	0.30	INTACT FINANCIAL	0.95	-8.13
SOUTHERN	5.02	5.97	0.30	WAL MART STORES	1.59	-4.67
CLOROX	1.76	10.47	0.18	STAPLES	0.40	-18.24
KELLOGG	1.70	9.38	0.16	BOMBARDIER 'B'	0.31	-22.56
NTT DOCOMO INC	0.62	24.09	0.15	URBAN OUTFITTERS	0.30	-22.57

0.14

0.12

0.12

ADV.AUTO PARTS

RANGE RES.

CABOT OIL & GAS 'A'

Unclassified sector allocation includes cash allocations.

0.32

0.34

0.26

-20.56

-19.00

-23.25

Manager Index

GENERAL MILLS

DOLLAR TREE

JOHNSON & JOHNSON

Intech Global Low Vol Manager Performance Comparisons (Gross of Fees)



Intech Global Low Vol vs. eA All Global Equity Gross Universe

	Return (Rank)										
5th Percentile	8.4	8.5	15.6	12.2	9.7	8.5	17.1	38.6	29.5	4.0	
25th Percentile	6.0	3.0	11.9	9.7	7.6	3.0	7.4	30.6	20.4	-3.0	
Median	4.8	0.1	9.9	8.1	6.3	0.1	4.6	26.2	17.2	-7.0	
75th Percentile	3.7	-2.9	7.6	6.2	5.2	-2.9	1.5	20.0	14.4	-11.2	
95th Percentile	-0.5	-15.1	-2.9	-2.2	1.9	-15.1	-7.4	2.7	7.4	-18.7	
# of Portfolios	692	692	648	550	279	692	609	552	475	434	
Intech Global Low Vol	4.5 (60)) 4.1 (18) 12.9 (16)	()	()	4.1 (18)	11.2 (14)	24.2 (62)	(-) ()	
MSCI ACWI	5.0 (46)) -2.4 (73) 7.7 (75)	6.1 (77)	4.8 (81)	-2.4 (73)	4.2 (54)	22.8 (66)	16.1 (61	l) -7.3 (53)	





Rolling 3 Year Annualized Return (%)



Intech Global Low Vol Risk vs. Return 3 Year (Gross of Fees)





	3 Years			
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	
ntech Global Low Vol	12.9%	8.9%	1.4	
MSCI ACWI	7.7%	9.8%	0.8	
eA All Global Equity Gross Median	9.9%	11.2%	0.9	



JP Morgan Global Opportunities Manager Portfolio Overview

Global equity diversified portfolio focused on companies with valuations below their intrinsic value. Primary personnel include Jeroen Huysinga, Georgina Perceval-Maxwell, and Gerd Woort-Menker.

Characteristics

	Portfolio	MSCI ACWI
Number of Holdings	100	2,491
Weighted Avg. Market Cap. (\$B)	74.69	88.07
Median Market Cap. (\$B)	37.88	7.98
Price To Earnings	23.02	20.93
Price To Book	4.40	3.29
Price To Sales	3.06	2.72
Return on Equity (%)	18.40	16.27
Yield (%)	1.81	2.52
Beta	1.06	1.00



Country Allocation Manager

Index

	Ending Allocation (USD)	Ending Allocation (USD)
Totals		
Developed	93.7%	90.3%
Emerging*	6.3%	9.7%
Top 10 Largest Countries		
United States	50.6%	53.0%
Japan	8.6%	8.0%
Germany	6.5%	3.1%
United Kingdom	6.0%	6.7%
Switzerland	5.0%	3.3%
France	3.2%	3.3%
Hong Kong	2.7%	1.1%
Australia	2.2%	2.4%
Finland	1.9%	0.3%
Norway	1.6%	0.2%
Total-Top 10 Largest Countries	88.3%	81.4%

Top Contributors

Bottom Contributors

	Avg Wgt	Return	Contribution	ı	Avg Wgt	Return	Contribution
ALPHABET 'A'	2.90	21.87	0.63	ELECTROLUX 'B'	1.73	-13.50	-0.23
MICROSOFT	1.62	26.20	0.42	UNION PACIFIC	1.64	-10.97	-0.18
DAIKIN INDUSTRIES	1.11	32.74	0.36	MTN GROUP	0.54	-33.38	-0.18
DAIMLER	1.61	16.80	0.27	PJSC MAGNIT GDR (REG	0.95	-15 3/	-0.15
CHINA OS.LD.& INV.	1.06	19.66	0.21	S)	0.55	-10.04	-0.15
NFINEON	0.04	20.02	0.00	ANADARKO PETROLEUM	0.76	-19.15	-0.15
TECHNOLOGIES	0.64	32.03	0.20	ARCELORMITTAL	0.61	-18.59	-0.11
JAPAN TOBACCO	0.77	22.22	0.17	MITSUI FUDOSAN	1.56	-6.76	-0.11
LAM RESEARCH	0.77	22.04	0.17	EQT	0.46	-19.48	-0.09
SAP	0.69	24.33	0.17	NOVARTIS 'R'	1.56	-5.23	-0.08
ALLERGAN	1.09	14.97	0.16	UNICREDIT	0.75	-10.28	-0.08

Unclassified sector allocation includes cash allocations.



JP Morgan Global Opportunities vs. eA All Global Equity Gross Universe

	Return (Rank)										
5th Percentile	8.4	8.5	15.6	12.2	9.7	8.5	17.1	38.6	29.5	4.0	
25th Percentile	6.0	3.0	11.9	9.7	7.6	3.0	7.4	30.6	20.4	-3.0	
Median	4.8	0.1	9.9	8.1	6.3	0.1	4.6	26.2	17.2	-7.0	
75th Percentile	3.7	-2.9	7.6	6.2	5.2	-2.9	1.5	20.0	14.4	-11.2	
95th Percentile	-0.5	-15.1	-2.9	-2.2	1.9	-15.1	-7.4	2.7	7.4	-18.7	
# of Portfolios	692	692	648	550	279	692	609	552	475	434	
 JP Morgan Global Opportunities 	5.9 (27)	-2.9 (75)	9.6 (54)	7.4 (62)	()	-2.9 (75)	6.7 (30)	26.9 (46)	19.2 (32) -9.0 (63)	
MSCI ACWI	5.0 (46)	-2.4 (73)	7.7 (75)	6.1 (77)	4.8 (81)	-2.4 (73)	4.2 (54)	22.8 (66)	16.1 (61) -7.3 (53)	





Rolling 3 Year Annualized Return (%)

— JP Morgan Global Opportunities — MSCI ACWI

Rolling 5 Year Annualized Return (%)





JP Morgan Global Opportunities Risk vs. Return 3 & 5 Year (Gross of Fees)



3 Years

5 Years

Verus⁷⁷⁷

Domestic Fixed Income Managers

AFL-CIO Manager Portfolio Overview

Barclays Quality Distribution AFL-CIO Aggregate 91.5 100.0 AFL-CIO 71.5 **Effective Duration** 5.05 4.01 80.0 Barclays Aggregate 60.0 Yield to Maturity 2.79 1.74 40.0 13.3 10.6 20.0 4.6 4.5 0.0 0.0 0.0 0.2 0.1 0.0 Average Quality AAA AA 0.0 AAA AA А BBB <BBB Not Rated Average Coupon 3.25% 2.21%

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)

-0.6

(72)

(75)

0.6

1.4 (79)

3.2 (84)



4.5 (87)

(75)

0.6

6.0 (52)

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

	# of Portfolios	
•	AFL-CIO	

5th Percentile

25th Percentile

75th Percentile

95th Percentile

Median

Barclays Aggregate



-2.0

(82)

4.2 (90)

7.8 (46)



Rolling 3 Year Annualized Return (%)



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



5 Years



Goldman Barclays **Quality Distribution** Aggregate Sachs 71.9 80.0 Goldman Sachs 63.1 **Option Adjusted Duration** 5.39 5.67 60.0 Barclays Aggregate Yield to Maturity 3.14 2.53 40.0 15.5 12.8 15.8 8.9 20.0 Average Quality AA AA+ 5.4 3.4 3.7 0.0 0.0 0.0 0.0 Average Coupon 3.38% 3.26% AAA AA BBB <BBB Not Rated А

Domestic core plus fixed income portfolio with a focus on security selection seeking enhanced returns. Primary personnel include Jonathan Beinner.





Duration and Quality distributions exclude cash.





Goldman Sachs Core Plus vs. eA US Core Plus Fixed Inc Gross Universe

	Return (Rank)									
5th Percentile	0.2	1.9	3.4	6.0	7.2	1.9	7.7	4.6	14.4	8.8
25th Percentile	-0.3	0.9	2.4	4.8	6.0	0.9	6.7	1.0	10.2	8.1
Median	-0.5	0.3	1.9	4.3	5.5	0.3	5.9	-0.4	8.3	7.4
75th Percentile	-0.7	-0.2	1.6	3.9	5.1	-0.2	5.2	-1.0	6.7	6.3
95th Percentile	-1.4	-2.4	1.2	3.3	4.1	-2.4	3.6	-2.0	5.1	4.4
# of Portfolios	115	115	114	111	88	115	118	116	124	118
Goldman Sachs Core Plus	-0.4 (45)	0.8 (36)	2.1 (35)	4.3 (47)	()	0.8 (36)	6.0 (47)	-0.4 (49)	7.9 (59)	7.6 (43)
▲ Barclavs Aggregate	-0.6 (60)	0.6 (42)	14 (85)	3.2 (97)	4.5 (95)	0.6(42)	6.0 (50)	-20 (96)	4.2 (97)	78 (37)





Rolling 3 Year Annualized Return (%)



Goldman Sachs Core Plus Risk vs. Return 3 & 5 Year (Gross of Fees)

111 Portfolios

7.0

1.5

1.1

1.4



0.5

0.6

Barclays Aggregate

eA US Core Plus Fixed Inc Gross Median

3 Years

1.4%

1.9%

2.8%

3.0%

5 Years

eA US Core Plus Fixed Inc Gross Median

Barclays Aggregate

2.9%

2.9%

3.2%

4.3%

Lord Abbett Manager Portfolio Overview

Barclays **Quality Distribution** Lord Abbett Aggregate 71.5 80.0 Lord Abbett 60.3 Effective Duration 5.30 5.82 60.0 Barclays Aggregate Yield to Maturity 3.80 2.12 40.0 23.2 13.3 10.6 20.0 9.3 Average Quality А AA 4.5 4.4 2.9 0.2 0.0 0.1 0.0 Average Coupon 3.90% 2.21% AAA AA А BBB <BBB Not Rated

Domestic core plus fixed income portfolio that is duration-neutral with a focus on sector selection seeking enhanced returns. Primary personnel include Robert Lee and Robert Gerber.







Lord Abbett Manager Performance Comparisons (Gross of Fees)

-0.6

(72)

0.6 (75) 1.4 (79) 3.2 (84)



4.5

(75)

6.0

(52)

0.6

Lord Abbett vs. eA US Core Fixed Inc Gross Universe

	# of Portfolios	
•	Lord Abbett	

5th Percentile

25th Percentile

75th Percentile

95th Percentile

Median

Barclays Aggregate ۸

Verus⁷⁷

(82)

-2.0

4.2 (90) (46)

7.8

Lord Abbett Manager Performance - Rolling 3 & 5 Year (Gross of Fees)



Rolling 3 Year Annualized Return (%)



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



5 Years



PIMCO Fixed Income Manager Portfolio Overview

PIMCOBarclays
AggregateEffective Duration4.355.74Yield to Maturity2.622.15Average QualityAAAAAverage Coupon3.28%3.05%



Domestic core plus fixed income portfolio seeking enhanced returns through sector and security selection, yield curve structure, and duration decision.









PIMCO Fixed Income vs. eA US Core Fixed Inc Gross Universe

	Return (Rank)									
5th Percentile	0.0	1.9	2.9	5.1	6.1	1.9	7.7	0.5	9.4	9.2
25th Percentile	-0.3	1.3	2.0	4.1	5.3	1.3	6.5	-0.8	7.0	8.2
Median	-0.4	0.9	1.7	3.7	5.0	0.9	6.0	-1.4	5.9	7.7
75th Percentile	-0.6	0.5	1.5	3.4	4.7	0.5	5.4	-1.9	4.9	7.0
95th Percentile	-0.9	-0.1	1.1	2.9	3.8	-0.1	2.9	-2.7	3.7	5.3
# of Portfolios	196	196	195	192	173	196	213	209	228	213
PIMCO Fixed Income	0.0 (6	6) 0.5 (75)	1.7 (61)	3.7 (56)	5.6 (12)	0.5 (75)	6.3 (34)	-1.6 (61)	8.5 (8)	5.0 (97)
 Barclays Aggregate 	-0.6 (72	2) 0.6 (75)	1.4 (79)	3.2 (84)	4.5 (87)	0.6 (75)	6.0 (52)	-2.0 (82)	4.2 (90)	7.8 (46)

Verus⁷⁷⁷

PIMCO Fixed Income Manager Performance - Rolling 3 & 5 Year (Gross of Fees)



Rolling 3 Year Annualized Return (%)



PIMCO Fixed Income Risk vs. Return 3 & 5 Year (Gross of Fees)



5 Years



High Yield Managers

AllianzBofA ML HY
Master II50
44Effective Duration4.54.4Yield to Maturity9.78.9Average QualityB1B1Average Coupon7.1%6.7%



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 vs. eA US High Yield Fixed Inc Gross Universe

	Return (Rank)									
5th Percentile	0.6	2.3	4.6	7.1	8.3	2.3	5.2	11.7	19.4	7.9
25th Percentile	-0.5	-0.7	3.2	5.9	7.5	-0.7	3.5	9.1	16.7	6.2
Median	-1.2	-2.4	2.6	5.5	6.9	-2.4	2.5	7.6	15.5	4.9
75th Percentile	-2.1	-3.8	1.7	4.8	6.3	-3.8	1.5	6.6	14.0	3.5
95th Percentile	-4.6	-7.2	0.1	3.4	5.5	-7.2	0.0	5.0	8.9	-0.7
# of Portfolios	155	155	148	131	104	155	141	130	129	117
 Allianz Global Investors BofA ML High Vield Master II 	-1.6 (61)	-3.5 (68)	2.0 (68)	5.2 (59)	7.1 (39)	-3.5 (68)	1.2 (83)	8.8 (28)	14.1 (73) 15.6 (47)	6.4 (21)





Rolling 3 Year Annualized Return (%)



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



5 Years



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Global Fixed Income Managers

Lazard Manager Portfolio Overview



Global core fixed income portfolio with a focus on country selection and currency management. Primary personnel include Yvette Klevan, Benjamin Dietrich, and Jared Daniels.







Lazard Manager Performance Comparisons (Gross of Fees)



Lazard vs. eA All Global Fixed Inc Gross Universe

	Return (Rank)										
5th Percentile	1.8	1.9	4.3	6.1	7.2	1.9	8.6	12.1	19.7	11.7	
25th Percentile	0.2	0.3	2.4	4.5	5.8	0.3	4.5	3.9	14.3	6.9	
Median	-0.6	-2.4	0.6	2.9	4.7	-2.4	2.5	0.2	9.5	5.0	
75th Percentile	-1.3	-4.2	-1.7	1.3	4.2	-4.2	0.5	-2.8	5.9	2.9	
95th Percentile	-3.1	-10.6	-5.2	-0.5	3.3	-10.6	-4.9	-5.6	2.5	-5.5	
# of Portfolios	335	332	308	258	139	332	263	225	197	171	
• Lazard	-0.9 (60)	-3.0 (59) -2.1 (81)	1.1 (79)	()	-3.0 (59)	0.4 (77)	-3.5 (83)	6.7 (68)	5.6 (40)	
Barclavs Global Aggregate	-0.9 (63)	-3.2 (61	, , -1.7 (77)	0.9 (83)	3.7 (88)	-3.2 (61)	0.6 (74)	-2.6 (74)	4.3 (87)	5.6 (39)	



Rolling 3 Year Annualized Return (%)



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

3 Years

5 Years



Inflation Hedge Managers

PIMCO All Asset Manager Portfolio Overview

Tactical multi-asset class real return strategy with a primary focus on inflation protection and a secondary focus on enhanced returns

	PIMCO All Asset
Effective Duration	2.61
Sharpe Ratio (10 year)	0.27
Volatility (10 Year)	9.3%
Equity Beta (10 Year)	0.46

I.







Wellington Total Return95.0%Number of Equity Holdings51275.0%Number of Commodity
Holdings9155.0%Effective Duration (Years)6.0035.0%Average QualityAa215.0%



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.





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	11.5%			
Equity Residential	Apartment	6.9%			
Welltower Inc.	Healthcare	5.9%			
Avalon Bay Communities Inc.	Apartment	4.8%			
Public Storage	Storage	4.9%			







Diversified portfolio of non-US REITs with a focus on cash flow and dividends

Top Five Holdings					
Holding	Country	Allocation			
Mitsubishi Estate	Japan	6.4%			
Land Securities PLC	U.K.	6.0%			
Mitsui Fudosan Co.	Japan	5.8%			
Sun Hung Kai Property	Hong Kong	4.6%			
Unibail-Rodamco SE	France	4.6%			





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Performance Return Calculations

Returns calculated in the performance summary tables are time-weighted rates of return (TWRR). TWRR are calculated from changes in monthly market values, adjusted for weighted cash flows between months. Returns are linked geometrically and annualized for periods longer than one year.

Data Source

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

Illiquid Alternatives

Closed end funds including but not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit may lag performance and market value data due to delayed reporting. Verus will show market values for closed end funds as of the most recent reported performance adjusted for capital calls and distributions. Closed end fund managers report performance using an internal rate of return (IRR), which differs from the TWRR calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Manager Line Up					
Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
Intech Large Cap Core	11/10/2006	State Street	LaSalle Income & Growth VI	07/16/2013	LaSalle
PIMCO Stocks+ AR	08/31/2002	State Street	Long Wharf Fund II	03/10/2004	Long Wharf
Jackson Square Partners	05/01/2005	State Street	Long Wharf Fund III	03/30/2007	Long Wharf
Robeco Boston Partners	06/01/1995	State Street	Long Wharf Fund IV	07/03/2013	Long Wharf
Emerald Advisors	04/07/2003	State Street	Hearthstone II	06/17/1998	Hearthstone
Ceredex	11/06/2011	State Street	Invesco Real Estate I	02/01/2005	Invesco
Pyrford	04/25/2014	State Street	Invesco Real Estate II	11/26/2007	Invesco
William Blair	10/29/2010	William Blair	Invesco Real Estate III	06/30/2013	Invesco
Artisan Partners	10/01/2012	SEI Trust	Invesco Real Estate IV	06/30/2014	Invesco
First Eagle	01/18/2011	State Street	Oaktree REOF V	12/31/2011	Oaktree
Intech Global Low Vol	05/06/2012	State Street	Oaktree REOF VI	09/30/2013	Oaktree
JP Morgan Global Opportunities	01/31/2010	JP Morgan	Oaktree REOF VII	04/01/2015	Oaktree
AFL-CIO	06/30/1991	AFL-CIO	Siguler Guff DREOF	01/25/2012	Siguler Guff
Goldman Sachs Core Plus	11/01/2008	State Street	Siguler Guff DREOF II	08/31/2013	Siguler Guff
Lord Abbett	10/22/2008	State Street	Paulson Real Estate Fund II	11/10/2013	State Street
PIMCO Total Return	05/31/2002	State Street	Adams Street Partners	03/18/1996	Adams Street
Torchlight II	09/30/2006	Torchlight	Adams Street Partners II	01/16/2009	Adams Street
Torchlight III	12/31/2008	Torchlight	Adams Street Partners - BFP	01/18/1996	Adams Street
Torchlight IV	07/01/2012	Torchlight	Adams Street Partners - Fund 5	09/21/2012	Adams Street
Torchlight V	07/01/2012	Torchlight	Bay Area Equity Fund	06/14/2004	DBL Investors
Allianz Global Investors	04/25/2000	State Street	Bay Area Equity Fund II	12/07/2009	DBL Investors
Lazard	12/31/2007	State Street	Carpenter Bancfund	01/31/2008	Carpenter Bancfund
PIMCO All Asset Fund	02/26/2013	State Street	EIF US Power Fund I	11/26/2003	Ares Management
Wellington Real Total Return	02/26/2013	State Street	EIF US Power Fund II	08/16/2005	Ares Management
Aether Real Assets III	11/27/2013	Aether	EIF US Power Fund III	05/30/2007	Ares Management
Commonfund	06/28/2013	Commonfund	EIF US Power Fund IV	11/28/2011	Ares Management
Adelante	09/30/2001	State Street	Nogales	02/15/2004	Nogales
Invesco International REIT	06/30/2008	Invesco	Paladin III	11/30/2007	Paladin
Angelo Gordon Realty Fund VIII	01/23/2012	Angelo Gordon	Ocean Avenue Fund II	06/11/2014	Ocean Avenue
Angelo Gordon Realty Fund IX	12/08/2014	Angelo Gordon	Pathway	11/09/1998	Pathway
DLJ RECP II	09/24/1999	DLJ	Pathway 2008	12/26/2008	Pathway
DLJ RECP III	06/23/2005	DLJ	Pathway 6	05/24/2011	Pathway
DLJ RECP IV	02/11/2008	DLJ	Pathway 7	02/07/2013	Pathway
DLJ RECP V	07/01/2014	DLJ	Siguler Guff CCCERA Opps	06/03/2014	Siguler Guff
Willows Office	-	Transwestern	Cash	-	State Street



Policy & Custom Index Compo	sition
Policy Index (4/1/2012-Current)	27.7% Russell 3000, 10.6% MSCI ACWI ex-US (Gross), 12.3% MSCI ACWI (Net), 19.6% Barclays U.S. Aggregate, 5% Bank of America High Yield Master II, 4% Barclays Global Aggregate, 13.5% Real Estate Benchmark, 6.8% S&P 500 +4% (Lagged), 0.5% 91-Day T-Bills.
Real Estate Benchmark	40% Wilshire REIT, 50% NCREIF Property Index, 10% FTSE/EPRA NAREIT Developed ex-USA.
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.

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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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CCCERA Risk Dashboard

12/31/2015

1 Portfolio risk



Portfolio: 7.6%

2 Portfolio equity beta



Portfolio: 0.54



Policy: 7.2%

Policy: 0.5



Average Pension: 7.4%



Average Pension: 0.53

3 Portfolio interest rate risk – Duration



Portfolio: 1.6

Policy: 1.3



Average Pension: 1.9

4 Portfolio credit risk – Spread duration







Policy: 0.7



Average Pension: o

5 Exposure allocation by asset class

		Portfolio	Policy	Average Pension
Alternatives	Risk Diversifying Strategies	7.8%	2.0%	5.0%
	Opportunistic	0.3%		
	Private Credit	0.0%	17.0%	
Alternatives Total		8.1%	19.0%	5.0%
Cash	Cash	0.3%	1.0%	
Cash Total		0.3%	1.0%	
Equity	Large Cap US Equity	22.0%	6.0%	
	Global Equity	12.4%		45.0%
	International Large	10.6%	10.0%	
	Emerging Markets	0.0%	14.0%	
	Private Equity	0.0%	17.0%	5.0%
Equity Total		45.0%	47.0%	50.0%
Fixed Income	US Bonds	20.5%		35.0%
	High Yield Fixed	4.8%		
	Global Bonds	4.1%		
	Short-term Gov/Credit	0.0%	24.0%	
	US Treasury	0.0%	2.0%	
Fixed Income Total		29.4%	26.0%	35.0%
Real Assets	Real Estate	12.3%	7.0%	5.0%
	Real Assets	4.9%		
	Commodities	0.0%		5.0%
Real Assets Total		17.2%	7.0%	10.0%
Total Portfolio		100%	100%	100%

6 Exposure allocation



7 Relative risk vs target by bucket



8 Relative risk vs target by risk factor



9 Risk factor weight relative to target





10 Tail risk – Scenario analysis

11 Tail risk – Stress tests



12 Risk contribution by risk factor



13 Active risk contribution by risk factor



14 Geographic allocation



15 Currency allocation

17 Net currency exposure



16 Net geographic exposure



9

18 Interest rate bucket

	Portfolio	Policy	Difference
Duration	5.6	2.2	3.3
Yield to Maturity	2.9%	1.6%	1.3%
Wt. Avg. Rating	Aa1 / Aa2	Aa1 / Aa2	

19 Rates bucket – Country allocation



20 Rates bucket – Currency allocation







22 Credit bucket

	Portfolio	Policy	Difference
Duration	4.0	4.1	-0.1
Coupon Yield	7.2%	7.6%	-0.4%
Yield to Maturity	8.3%	8.3%	0.0%
Wt. Avg. Rating	Ba3 / B1	Bı	

23 Credit bucket – Country allocation



24 Credit bucket – Currency allocation



25 Credit bucket – Security type



26 Inflation bucket

	Portfolio	Policy	Difference
Real Estate Allocation	12.3%	7.0%	5.3%
Other Real Assets	4.9%		4.9%

27 Inflation bucket – Country allocation



28 Inflation bucket – Currency allocation



29 Inflation bucket – Security type



30 Equity bucket

	Portfolio	Policy	Difference
Beta	1.0	0.9	0.1
Dividend Yield	2.5%	2.8%	-0.3%
PE Ratio	17.2	20.3	-3.1

31 Equity bucket – Country allocation



32 Equity bucket – Currency allocation



33 Equity bucket – Security type



Chart Definitions

1 Portfolio risk

Compares total risk (volatility) of portfolio relative to multiple reference benchmarks and liabilities.

2 Portfolio equity beta

Equity beta is a measure describing the sensitivity of portfolio returns with returns of the equity market as represented by MSCI ACWI (USD).

3 Portfolio interest rate risk - Duration

For investments, bonds, with fixed cash flows, interest rate duration is the estimated price change given a 1% change in interest rates, calculated by the weighted average of the instruments cash flows (including both interest and maturity payments).

4 Portfolio credit risk – Spread duration

For investments, bonds, with fixed cash flows, spread duration estimates the change in price given a 1% change in spreads. Spread duration is a more isolated measure than interest rate duration, by focusing solely on the spread component rather than both interest rates and spread.

5 Exposure allocation by asset class

Actual vs budgeted exposure to various asset classes and sub-asset classes as allocation in investment policy and another reference benchmark. Assignment to sub-asset classes is at the custodial account level according to manager mandate.

6 Exposure allocation

This bar chart provides a visual representation of the major asset classes and currency exposure listed in Exposure allocation by asset class table.

7 Relative risk vs target by bucket

Compares the total risk (volatility) of the portfolio vs. the reference benchmark at a total and sub-asset class account grouping level. The accounts are grouped in terms of mandates where all equity mandates or credit mandates are in their respective groups. For example, equity bucket relative risk compares the total risk of the equity grouped accounts vs the benchmark equity group bucket. Formula: (portfolio risk group bucket/ benchmark risk group bucket) – 1

8 Relative risk vs target by risk factor

Disregarding any specific asset class mandates and having a look through on the portfolio decomposing risk in respective risk factor contributions, this measure looks at the relative risk contributions specific factors of the portfolio vs. the reference benchmark. Formula: (factor risk contribution within portfolio / factor risk contribution within reference benchmark) – 1

9 Risk factor weight relative to target

Relative risk of individual asset classes or factors as displayed in charts 7 and 8 is instructive, but the picture in incomplete. Chart 9 shows contribution by factor to total relative risk of the portfolio vs the reference benchmark, reflecting the significance of each factor within the portfolio as it is currently constructed. For example, if the credit benchmark is based on domestic, investment grade securities and the portfolio has exposures to high yield and non-domestic corporate bonds, relative risk in charts 7 and/or 8 may be high in absolute terms; but if the portfolio has a small allocation to credit, contribution to total portfolio relative risk will be small. The factor risks displayed in this chart are additive to the total relative risk at the top line. Formula: (factor risk contribution within portfolio – reference benchmark factor risk contribution) / total reference benchmark risk

10 Tail risk – Scenario analysis

Tail risk is a form of risk that arises when the possibility that an investment will have losses greater than what the normal distribution would suggest. This graphic shows the expected performance under various historical scenarios, which are defined in the appendix at the end of this report. For each historical scenario, the current market value is recalculated to determine return under identical market conditions, assuming an instantaneous shock.

11 Tail risk – Stress tests

Expected performance when specific individual asset class or currency risk factors are subjected to stress tests with instantaneous shocks. Directly affected asset classes are revalued at the factor levels.

12 Risk contribution by risk factor

Contribution of various risk factors to the overall total risk (volatility) of the portfolio and the reference benchmarks. The contributions by each risk factor sum up to one. This measure takes into account the exposure, volatility and correlation of each asset class within the portfolio.

13 Active risk contribution by risk factor

Active risk in terms of annual tracking error: Tracking Error (TE) measures how closely a portfolio follows the reference benchmark. It is the standard deviation of the difference between the portfolio and reference benchmark returns.

14 Geographic allocation

The exposures by country, including derivatives with the exception of currency, calculated utilizing the notional exposure as a percentage of market value. Any portfolio that has explicit leverage due to the use of derivatives, the total could be higher or lower than 100% due to the use of notional in the numerator and net market value in the denominator.

15 Currency allocation

Exposure by currency, including both the underlying securities and the purchasing currency of any derivatives

16 Net geographic exposure

Difference between portfolio and policy allocation among major geographic areas

17 Net currency exposure

Difference between portfolio and policy allocation among major currencies

18 Interest rate bucket

Yield to Maturity is the interest rate of return earned by an investor who buys a fixed interest security today at the market price and holds it until maturity. Weighted Average Ratings indicates the average credit quality.

19 Rates bucket - Country allocation

Country exposures specific to interest rate allocations, calculated using the notional exposure as a percentage of market value, including derivatives but excluding currency derivatives. Any portfolio that has explicit leverage due to the use of derivatives, the total could be higher or lower than 100% due to the use of notional in the numerator and net market value in the denominator.

20 Rates bucket – Currency allocation

Currency exposures specific to interest rate allocations, including both the underlying securities and the purchasing currency of any derivatives

21 Rates bucket - Security type

Allocation of interest rate instruments among different security types Includes derivative overlays

22 Credit bucket

Country exposures specific to credit risk allocations, calculated using the notional exposure as a percentage of market value, including derivatives but excluding currency derivatives.

23 Credit bucket – Country allocation

Country exposures specific to credit risk allocations, calculated using the notional exposure as a percentage of market value, including derivatives but excluding currency derivatives. Any portfolio that has explicit leverage due to the use of derivatives, the total could be higher or lower than 100% due to the use of notional in the numerator and net market value in the denominator.

24 Credit bucket - Currency allocation

Currency exposures specific to credit risk allocations, including both the underlying securities and the purchasing currency of any derivatives

25 Credit bucket - Security type

Allocation of credit instruments among different security types.

26 Inflation bucket

Composition of inflation hedging instruments in portfolio and reference benchmark, including the notional duration of real rates instruments.

27 Inflation bucket – Country allocation

Country exposures specific to inflation hedging instruments, calculated using the notional exposure as a percentage of market value, including derivatives but excluding currency derivatives. Any portfolio that has explicit leverage due to the use of derivatives, the total could be higher or lower than 100% due to the use of notional in the numerator and net market value in the denominator.

28 Inflation bucket – Currency allocation

Currency exposures specific to inflation hedging instruments, including both the underlying securities and currency derivatives.

29 Inflation bucket – Security type

Allocation of inflation instruments among different security types

30 Equity bucket

P/E ratio is a valuation ratio of current share price compared to per share earnings. Beta measures returns sensitivity to global equities (MSCI ACWI USD).

31 Equity bucket – Country allocation

Country exposures specific to equity risk, calculated using the notional exposure as a percentage of market value, including derivatives but excluding currency derivatives. Any portfolio that has explicit leverage due to the use of derivatives, the total could be higher or lower than 100% due to the use of notional in the numerator and net market value in the denominator.

32 Equity bucket – Currency allocation

Currency exposures specific to equity risk, including both the underlying securities and currency derivatives.

33 Equity bucket – Security type

Allocation of equity assets among different security types

Tail Risk Scenario Definitions

1 2009-2010 July-January

(7/1/2009 – 12/31/2009) As global economic woes persisted, many countries were saddled with widening budget deficits, rising borrowing costs, slowing growth, higher unemployment, and higher inflation, which made monetary stimulus difficult. Dubai World sought to delay its huge debt repayments, shocking the global market, while the financial distress in Greece and Ireland began to emerge in late 2009.

2 2007-2009 Subprime Meltdown

(1/10/2007 – 2/27/2009) The burst of the housing bubble in mid-2007 marked the beginning of the years-long subprime mortgage crisis, rooted from the easy credit, low interest rates, and loose regulatory environment in the early 2000s, which made low quality (subprime) mortgaging extremely easy. The contagious meltdown quickly led to plunging asset prices in the financial markets, rising bankruptcies, delinquencies, and foreclosures, and central bank monetary rescues and fiscal interventions by governments around the globe.

3 2007-2008 Oil Price Rise

(1/18/2007 - 6/27/2008) Oil prices spiked from around \$60/bbl in 2007 to a record high of \$145/bbl on 3 July 2008.

4 2001 Dot-com Slowdown

(3/10/2001 - 10/9/2002) Upon the burst of the tech bubble in 2000, more and more internet companies went out of businessas the stock market plummeted further.

5 1997-1999 Oil Price Decline

(1/8/1997 - 2/16/1999) The combined effect of OPEC overproduction and lower oil demand due to the Asia economic crisis sent oil prices into a downward spiral.

6 1994 US Rate Hike

(1/31/1994 – 12/13/1994) In combating inflation, the U.S. Federal Reserve raised its interest rate from 3.25% in February to 5.5% in November 1994.

7 1992-1993 European Currency Crisis

(9/1/1992 – 8/13/1993) Upon Germany's reunification, the German mark appreciated rapidly, which destabilized exchange rates between European countries under the European Monetary System. It led to a series of European currency devaluations, interest rate increases, and the widening range of exchange rates in 1992.

8 1989-1990 Nikkei Stock Price Correction

(12/29/1989 – 3/30/1990) After hitting the Nikkei stock index's all-time high on December 29, 1989, the Japan financial market crashed and plunged to a low in March 1990.

9 1987 Market Crash (Oct. 14 to Oct. 19)

(10/14/1987 – 10/19/1987) The U.S. stock market began to topple on October 14, 1987 after reaching a record high. It was triggered by reports of a larger trade deficit and the elimination of the tax benefits of financing mergers. The aggravating selling pressure in October 19, from confused and fearful investors, and the failing portfolio insurers' models led to a substantial global market sell-off.

10 1972-1974 Oil Crisis (Dec. to Sep.)

(12/1/1972 – 9/30/1974) Many developed countries suffered in this energy crisis as OPEC members placed an oil embargo on the U.S. and Israel's allies during the Yom Kippur War in October 1973, which sent global oil prices soaring.

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