# FUND EVALUATION REPORT

**City of Phoenix Employees' Retirement System** 

September 30, 2015

- 1. Capital Markets Outlook
- 2. Global Macroeconomic Outlook
- 3. The Case for Diversification
- 4. Executive Summary
- 5. Plan Summary
- 6. Plan Detail
- 7. Portfolio Reviews
- 8. Glossary and Notes



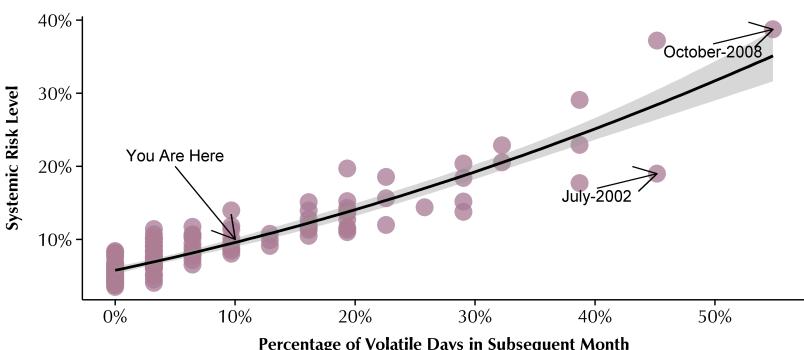
# **Capital Markets Outlook**

## Capital Markets Outlook<sup>1</sup>

- Investors are faced with four primary issues in the near-term: 1) historically low bond yields, 2) the potential for a transition into a rising rate environment, 3) the potential for deteriorating corporate earnings, and 4) the possibility of much lower energy prices for a sustained period.
  - The price of the U.S. stock market relative to ten-year average earnings has trended up after the financial crisis and it remains above its historical average (26.9x versus 21.7x).
    - Small cap domestic stocks' valuations remain expensive relative to large cap stocks.
  - Developed international and emerging market stocks are trading at lower valuations than U.S. stocks.
    - Sovereign debt issues and weak economic growth in Europe, and a cyclical slowdown in emerging economies, are weighing down valuations.
  - Risk across markets measured by our Systemic Risk metric has increased substantially, briefly surpassing our 'critical' threshold before retreating.
    - However, monetary policy changes by central banks and political upheaval will continue to have a meaningful impact.
  - At the end of September, spreads for high yield corporate and investment grade bonds (6.3% and 1.7% respectively) were just above their long-term averages.
  - At 2.1%, the yield on the ten-year Treasury remained far below its post-WWII average of 5.6%.
  - Crude Oil prices continue on a steep decline which has had wide ranging effects across several markets.



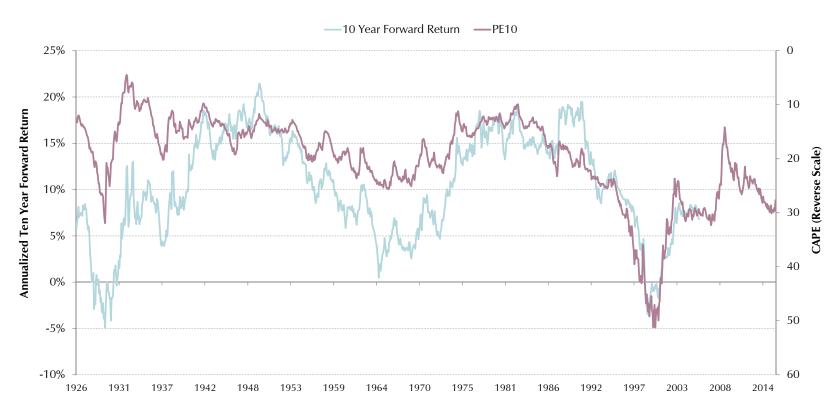




- **Percentage of Volatile Days in Subsequent Month**
- Systemic Risk which measures risk across markets is important because the more contagion of risk that exists between assets the more likely it is that markets will experience volatile periods.
- Despite a serious recent increase even briefly surpassing the level we deem 'critical' Systemic Risk has begun to subside.

<sup>&</sup>lt;sup>1</sup> Source: Meketa Investment Group, as of October 13, 2015. Volatile days are defined as the top 10 percent of realized turbulence which is a multivariate distance between asset returns.





The U.S. Cyclically Adjusted P/E<sup>1</sup> and Long-Term Equity Returns

- One of the most powerful predictors of long-term equity returns has been the Cyclically Adjusted Price to Earnings Ratio (CAPE).
- This fundamentally driven measure is highly correlated with future returns which are shown in the chart above using the CAPE metric on a reverse scale.

<sup>&</sup>lt;sup>1</sup> Source: PE data are from Robert Shiller's website from 1926 - 1946; S&P and Thomson Reuters 1946 – present. S&P 500 equity returns are from Morningstar Direct for the entire period. Data is from January 31, 1926 to September 30, 2015.





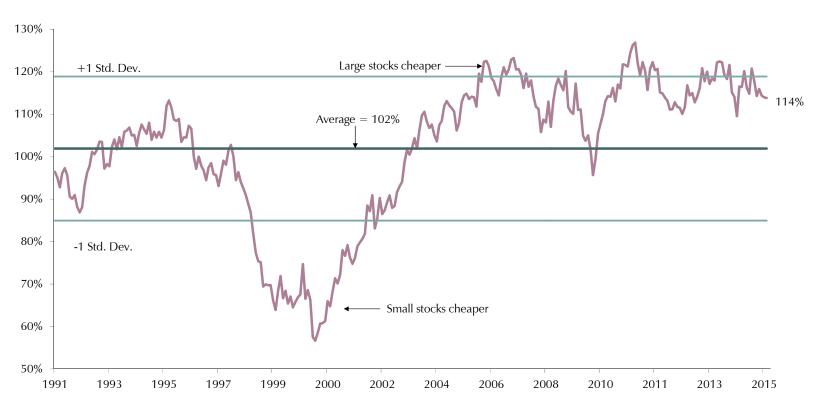


- The cyclically adjusted P/E ratio for the S&P 500 finished September at 26.9x, above its post-WWII average of 21.7x.
- Due to the recent pullback in equity markets this metric has fallen below the positive standard deviation threshold. Historically, a P/E ratio at this level has led to roughly average future returns over a 10 year horizon.

<sup>&</sup>lt;sup>1</sup> Source: Standard & Poor's. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is from January 31, 1946 to September 30, 2015.



# Small Cap P/E vs. Large Cap P/E<sup>1</sup>

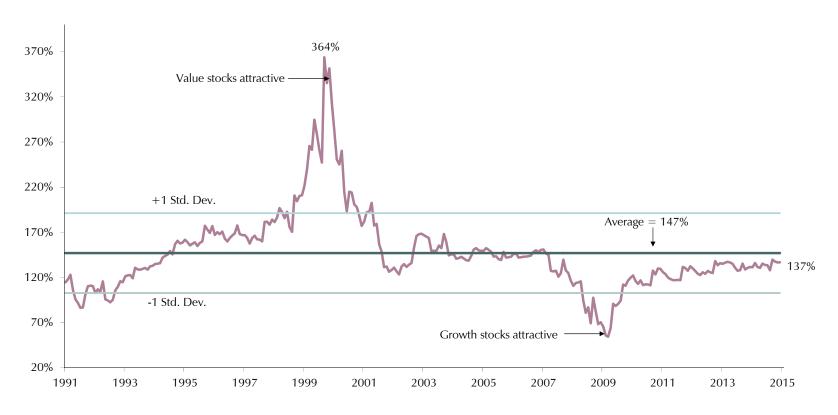


- The P/E ratio of small cap stocks (Russell 2000) relative to large cap stocks (Russell 1000) points to comparatively expensive small cap stocks.
- This relative valuation metric has remained largely range bound since 2010.

<sup>&</sup>lt;sup>1</sup> Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings. Data is as of September 30, 2015.



#### Growth P/E vs. Value P/E<sup>1</sup>



- The P/E ratio of growth stocks (Russell 3000 Growth) relative to value stocks (Russell 3000 Value) finished September at 137%, well above its level four years prior, but still below its long-term average.
- Of note, the long-term average was sharply influenced by the technology bubble of the late 1990s.

<sup>&</sup>lt;sup>1</sup> Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings. Data is as of September 30, 2015.



## Developed International Equity Cyclically Adjusted P/E<sup>1</sup>



- Valuations for the MSCI EAFE (ex-Japan) remain more than one standard deviation cheaper than their historical average.
- Sovereign debt concerns and the slow pace of economic growth in Europe likely account for the low valuation levels.

<sup>&</sup>lt;sup>1</sup> Source: MSCI and Thomson Reuters. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of September 30, 2015.



## **Emerging Market Equity Cyclically Adjusted P/E**<sup>1</sup>

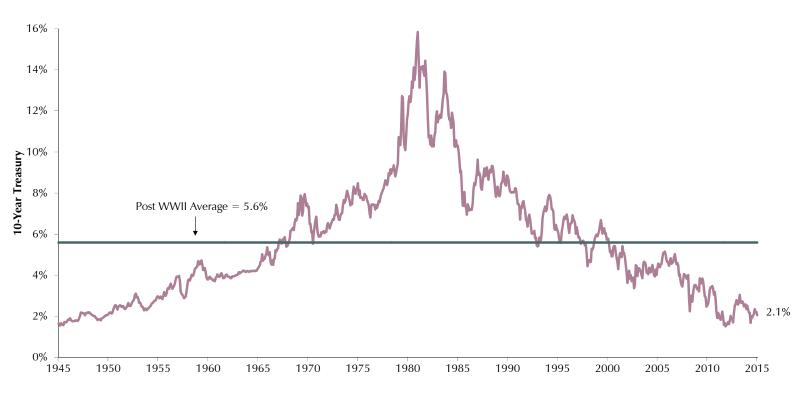


- Emerging market equities (MSCI Emerging Markets) are priced more than one standard deviation below their (brief) historical average.
- By this metric, emerging market equities are trading at a much lower valuation than U.S. equities, and at a slightly lower valuation than non-U.S. developed market equities.

<sup>&</sup>lt;sup>1</sup> Source: MSCI and Thomson Reuters. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of September 30, 2015.





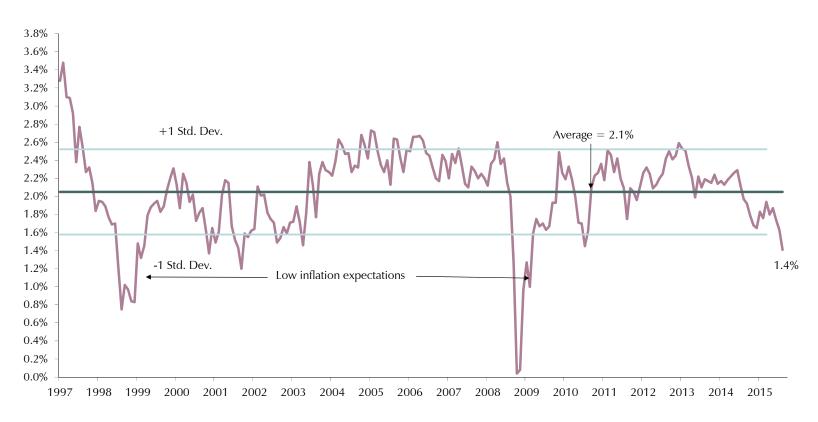


- Ten-year Treasury yields finished September at 2.1%, well below both their post-WWII average and the levels of
  one year ago.
- Markets have begun to focus on when the central bank will begin to raise interest rates, which will likely happen this year or early next year.

<sup>&</sup>lt;sup>1</sup> Source: U.S. Treasury. Data is as of September 30, 2015.



#### Ten-Year Breakeven Inflation<sup>1</sup>

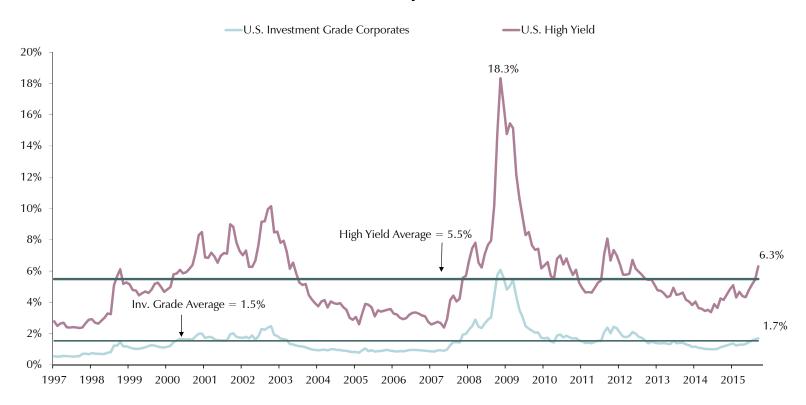


- Breakeven (or expected) inflation, the difference between the nominal yield on a ten-year Treasury and the real yield on a ten-year TIPS, has fallen well below its long-term average.
- Sharp falls in commodity prices have put pressure on inflation this year. The most recent Year over Year (YoY) inflation rate was only 0% and deflation occurred between August and September.

<sup>&</sup>lt;sup>1</sup> Source: U.S. Treasury and Federal Reserve. Data is as of September 30, 2015 for TIPS and Treasuries. Inflation is measured by the Consumer Price Index (CPI-U NSA) for which the most recent data point is from September 30, 2015.



## **Credit Spreads**<sup>1</sup>

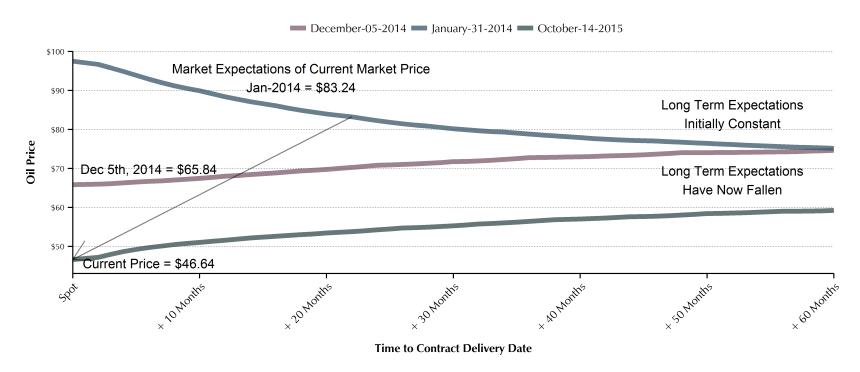


- Credit spreads (versus U.S. Treasury bonds) for both high yield and investment grade corporate bonds finished September close to and slightly above their respective historical averages.
- The recent jump in market risk caused a widening in spreads, especially within high yield which was affected by oil price declines.

Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays U.S. Corporate Investment Grade index. Data is as of September 30, 2015.



#### Oil Price Futures Curves<sup>1</sup>

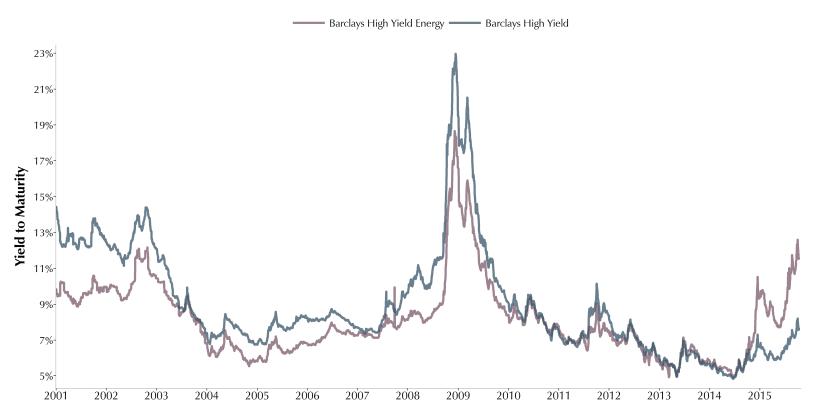


- The chart above shows the WTI Crude Oil futures prices as of January and December of last year and October of this year. This highlights how large the recent price fall has been, especially relative to expectations last year.
- Looking further out on the curve we can see that initially long-term price expectations remained the same. As the oil price has continued to fall, long-term expectations have begun to decline as well.

<sup>&</sup>lt;sup>1</sup> Source: WTI Crude Oil Futures Price via Bloomberg. Data is as of October 14, 2015.



## U.S. High Yield Sectors<sup>1</sup>

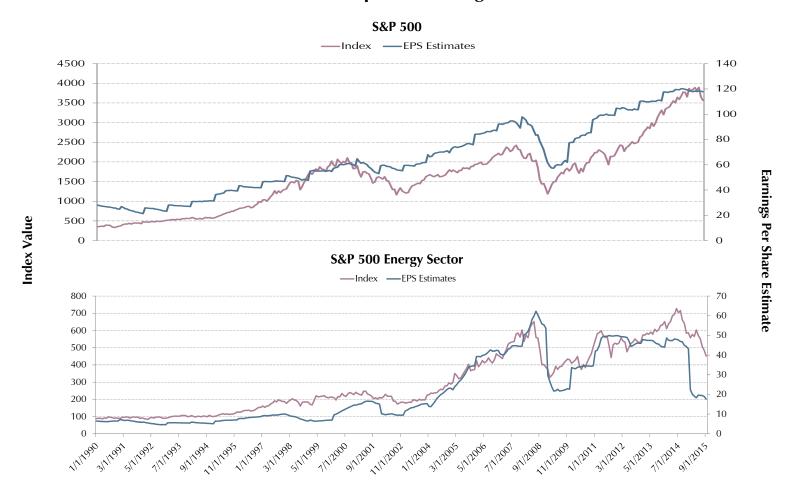


- The oil price decline has been a major contributing factor for the recent widening of spreads within U.S. High Yield.
- The energy sector represents roughly 15% of the index and as illustrated above, most of widening of spreads has come from the energy sector.

<sup>&</sup>lt;sup>1</sup> Source: Barclays and Thompson Reuters. Data is as of October 14, 2015.



## U.S. Corporate Earnings<sup>1</sup>

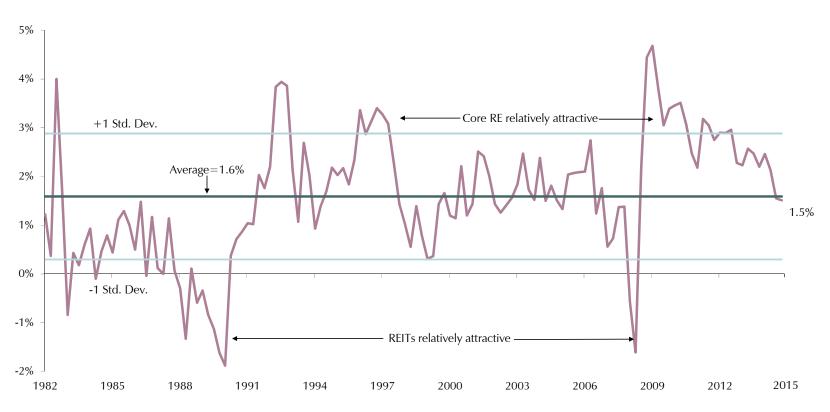


• The oil price decline has also had a major effect on U.S. earnings expectations. Earnings have fallen recently in that sector but much less than estimates. Aggregating all sectors, estimates have recently fallen slightly.

<sup>&</sup>lt;sup>1</sup> Source: Bloomberg. Earnings Per Share Estimates are the average current quarter estimates of market analyst. Data is as of September 30, 2015.



#### Core Real Estate vs. REITs<sup>1</sup>

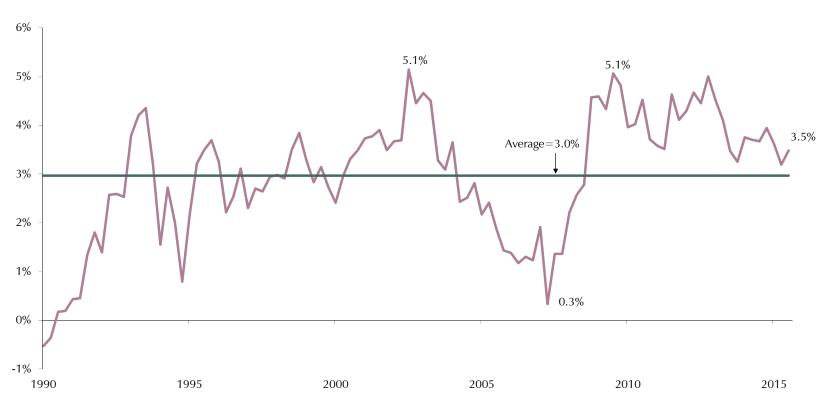


- At the end of September, the spread between core real estate cap rates and REIT yields was 1.5%, reaching just below the long term historical average level.
- REITs were yielding 4.0%, well below the 10.1% level of early 2009.

<sup>&</sup>lt;sup>1</sup> Sources: Thomson Reuters and NCREIF. Core Real Estate is proxied by the transaction-based cap rate for the NCREIF NPI index and REITs are proxied by the yield for the NAREIT Equity index. NPI transactional capitalization rates are calculated on a quarterly basis and lagged in their release. Data is as of June 30, 2015 for the NCREIF NPI and September 30, 2015 for the NAREIT Equity index.



# Core Real Estate Spread vs. Ten-Year Treasury<sup>1</sup>

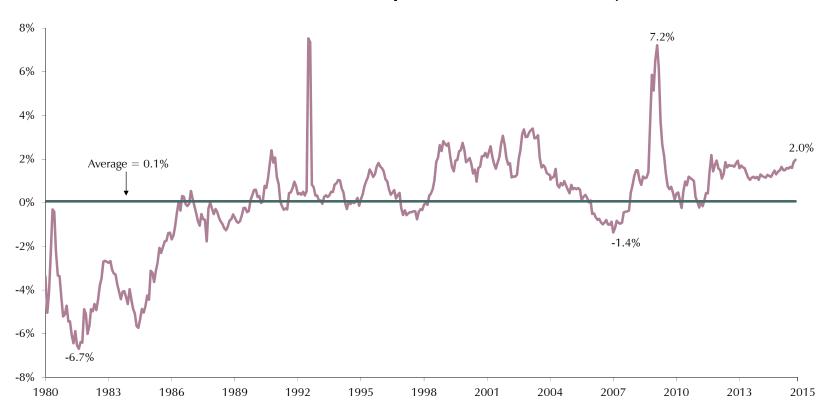


- At 3.5%, the difference between the 5.5% cap rate for core real estate and the 2.1% yield for the ten-year Treasury has come back towards its historical average.
- Still, the absolute level of core real estate cap rates is near a historical low.

<sup>&</sup>lt;sup>1</sup> Source: NCREIF, U.S. Treasury. NPI transactional capitalization rates are calculated on a quarterly basis. Data is as of June 30, 2015 for the NCREIF NPI and September 30, 2015 for the ten-year Treasury.



# **REITs Dividend Yield Spread vs. Ten-Year Treasury**<sup>1</sup>

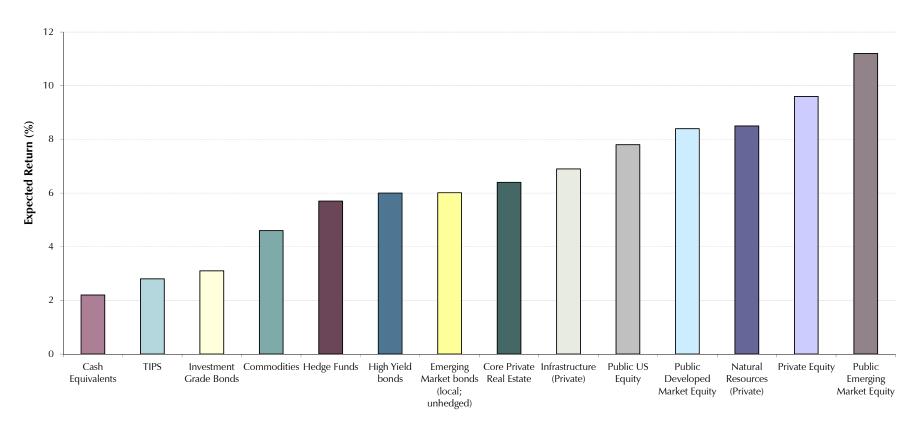


- REIT yield spreads were 2.0% at the end of September. This spread gradually increased last year despite strong REIT performance.
- As with core real estate, the absolute level of REIT dividend yields is near a historical low.

<sup>&</sup>lt;sup>1</sup> Source: NAREIT, U.S. Treasury. REITs are proxied by the yield for the NAREIT Equity index. Data is as of September 30, 2015.



# Long-Term Outlook<sup>1</sup>



• Based on Meketa Investment Group's long-term expectations, only a handful of asset classes are priced to produce returns above 8% per year. All of these asset classes incorporate a high degree of volatility.

 $<sup>^{\</sup>rm 1}$  Twenty-year expected returns based upon Meketa Investment Group's 2015 Annual Asset Study.



# Total Return Comparison of Barclays U.S. Aggregate Minus Barclays U.S. TIPS<sup>1</sup>

	Changes In Rates (bps)							
		-100	-50	0	50	100		
	4.0%	-5.77%	-4.06%	-2.59%	-1.35%	-0.35%		
Rate Scenarios	3.0%	-4.77%	-3.06%	-1.59%	-0.35%	0.65%		
	2.0%	-3.77%	-2.06%	-0.59%	0.65%	1.65%		
Inflation	1.0%	-2.77%	-1.06%	0.41%	1.65%	2.65%		
	0.0%	-1.77%	-0.06%	1.41%	2.65%	3.65%		

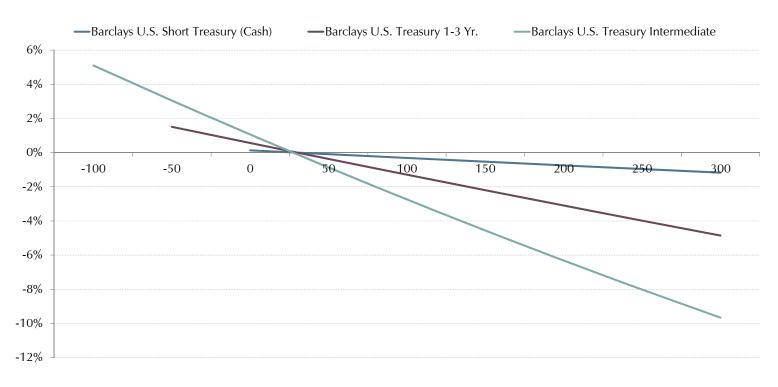
#### **Total Return Scenario: 100 bps Rate Increase and 2% Inflation**

<b>Total Return Over Longer Holding Periods</b>	1 Year	3 Year	5 Year	7 Year	10 Year
Barclays U.S. Aggregate	-3.41%	0.86%	1.74%	2.11%	2.40%
Barclays U.S. Treasury U.S. TIPS	-5.05%	0.78%	1.99%	2.51%	2.90%

Data is as of September 30, 2015 via Barclays, Bloomberg, and Thomson Reuters. Scenario assumes that the rate increase happens over one year.



# **Total Return Given Changes in Interest Rates (bps)**<sup>1</sup>



		Total Return for Given Changes in Interest Rates (bps)						Statistics			
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays U.S. Short Treasury (Cash)			0.1%	-0.1%	-0.3%	-0.5%	-0.8%	-1.0%	-1.2%	0.45	0.13%
Barclays U.S. Treasury 1-3 Yr.		1.5%	0.6%	-0.4%	-1.3%	-2.2%	-3.1%	-4.0%	-4.9%	1.88	0.56%
Barclays U.S. Treasury Intermediate	5.1%	3.0%	1.1%	-0.9%	-2.7%	-4.6%	-6.3%	-8.0%	-9.7%	3.92	1.06%
Barclays U.S. Treasury Long	22.4%	12.0%	2.7%	-5.6%	-12.8%	-19.1%	-24.3%	-28.4%	-31.6%	17.6	2.70%

<sup>1</sup> Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Data is as of September 30, 2015 via Barclays and Thomson Reuters.



#### Global Economic Outlook<sup>1</sup>

#### In the first half of 2015, global growth slowed, leading to further reductions in projections for the year.

- The IMF updated their projection for 2015 global growth to 3.1%, 0.2% lower than the prior estimate.
- As compared to 2014, growth is projected to be slightly higher in 2015 in advanced economies with further improvements in 2016. In the U.S., consumer spending, a strengthening labor market, and accommodative monetary policy helped bolster growth. In Europe, falling energy prices and a weaker euro helped growth to pick-up.
- Growth in emerging economies is projected to be lower in 2015 than in 2014, given lower commodity prices, and expectations of an interest rate increase in the U.S. China is projected to grow at a 6.8% rate in 2015, 0.5% lower than the prior year, with a further 0.5% decline in 2016.
- Excluding Japan, near-term global inflation is forecasted to trail the ten-year averages, with the recent decline in oil prices exerting further downward pressure on inflation.

		Real GDP (%)			Inflation (%)	
	IMF 2015 Forecast	IMF 2016 Forecast	Actual 10 Year Average	IMF 2015 Forecast	IMF 2016 Forecast	Actual 10 Year Average
World	3.1	3.6	3.9	3.3	3.4	4.2
U.S.	2.6	2.8	1.5	0.1	1.1	2.3
European Union	1.9	1.9	1.1	0.1	1.1	1.5
Japan	0.6	1.0	0.6	0.7	0.4	0.2
China	6.8	6.3	10.0	1.5	1.8	2.9
Emerging Markets (ex. China)	2.5	3.4	4.9	7.8	7.2	7.5

Source: IMF. World Economic Outlook, October 2015. "Actual 10 Year Average" represents data from 2005 to 2014. Data for 2014 is an estimate.



#### **Global Economic Outlook, Continued**

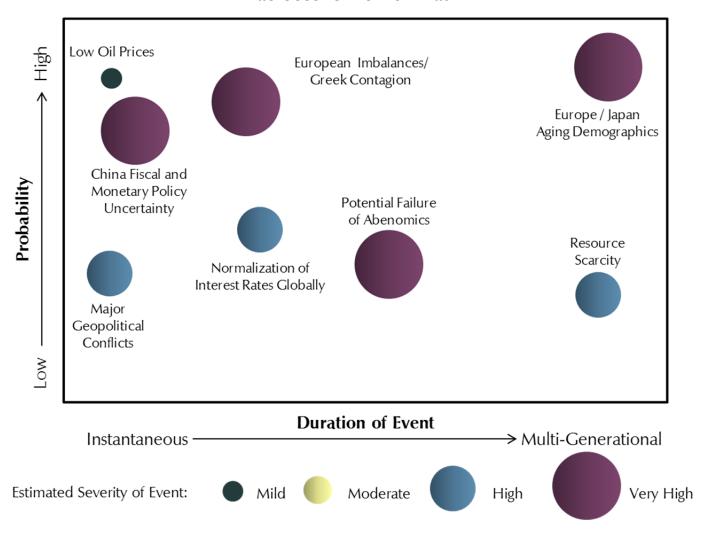
In Europe, Japan, and China, additional monetary stimulus is likely, while in the U.S. expectations are for a rate increase later this year or early next year.

- The Federal Reserve voted to maintain interest rates at their September meeting citing, for the first time, conditions outside the U.S. It is largely anticipated that the Fed will increase rates later this year or early next year. The timing and pace of rate increases is complicated by the fact that, despite improvements in the labor market, inflation remains low.
- The European Central Bank (ECB) continues their bond-purchase program, while maintaining interest rates at close to 0%. With inflation remaining low, it is likely that the ECB will further ease monetary policy, probably in the form of extending its existing quantitative easing. In England, it is projected that policy makers will raise interest rates in the short-term, but will likely wait for the Fed to act first.
- Given continued low inflation and weak growth, we expect that the Bank of Japan will further expand its already aggressive monetary policy.
- After policy makers in China responded to recent market declines with unprecedented measures, they further surprised markets in August with devaluing their currency. The reason offered for the devaluation was to allow it to float more freely, but it caused speculation that the true reason could be the economy was growing more slowly than previously thought.

Several issues are of primary concern: 1) declining growth in China along with uncertain fiscal and monetary policies; 2) continued economic sluggishness and financial risk in Europe; 3) diminishing effectiveness of monetary policy globally; 4) divergent growth in emerging economies.



#### **Macroeconomic Risk Matrix**





#### **Macroeconomic Risk Overviews**

Low Oil Prices	An extended period of low oil prices will particularly hurt countries such as Iran, Russia, and Venezuela that depend heavily on oil export revenues. Low prices will likely continue to hurt oil exploration and production (E&P) companies, and companies that support the oil industry. Recently, the stress of low oil prices has particularly affected E&P companies, with defaults ticking-up. The risk of increased geopolitical tensions also exists with depressed oil prices.
European Imbalances/ Greek Contagion	The crisis is rooted in structural issues in the Eurozone related to the combination of a single currency combined with 17 fiscal authorities. The events in Greece related to their third bailout highlighted the continued tensions in Europe. Allowing countries to leave the Eurozone could set a dangerous precedent, especially if they ultimately begin to experience growth due to a depressed currency. Alternatively, providing debt forgiveness for some countries could lead to others looking for similar treatment. The massive influx of refugees into Europe from the Middle East and North Africa exacerbate these economic stresses.
Potential Failure of Abenomics	Japan is engaged in a historic stimulus program, referred to as "Abenomics" to fight its decades of deflation. The plan includes monetary, fiscal, and structural components. If Japan overshoots with its policies, or dramatically changes them unexpectedly, it could prove disruptive to markets and growth.
Europe/Japan Aging Demographics	In Japan and Europe, birth rates have declined, resulting in populations becoming older and smaller relative to the rest of the world. These demographic trends will have a negative long-term impact on GDP growth and fiscal budgets, amplifying debt problems.
Major Geopolitical Conflicts	Russia recently started providing Syria military support, insisting first it was to fight ISIS. It quickly became clear that Russia was also targeting groups opposed to president Assad, a Russian ally. The presence of Russia in the region is complicated by the ongoing U.S. led attacks against ISIS. Other unresolved geopolitical issues remain, including the recent nuclear deal with Iran and the ongoing tensions between Russia and Ukraine.

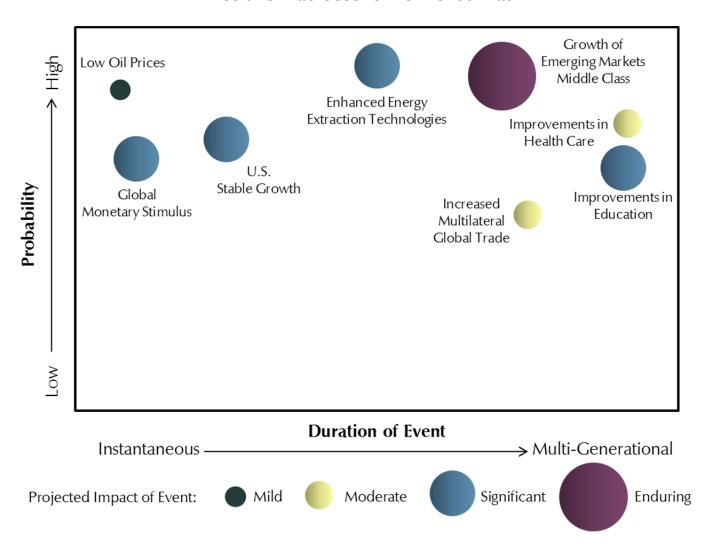


# **Macroeconomic Risk Overviews, Continued**

China Fiscal and Monetary Policy Uncertainty	China's recent policies, first to support its equity markets and then devaluing its currency, created heightened volatility in global markets. The process of transitioning from a model of growth based on fixed asset investment by the government to a model of consumption-based growth will be a delicate one. Going forward, similar measures in response to slowing growth, or to support stock prices, could prove disruptive and decrease confidence in China's government.
Normalization of Interest Rates Globally	After the Global Financial Crisis, the developed world, particularly the U.S., injected massive amounts of liquidity into the financial system in an effort to prevent depression-like declines in economic activity. Additionally, the world's central banks reduced short-term interest rates to record lows. Once monetary stimulus is withdrawn, it is likely that interest rates will normalize and weigh on growth globally, particularly in emerging markets.
Resource Scarcity	The increasing world population, urbanization, and a growing middle class, particularly in emerging economies, could all lead to a scarcity of resources, including food, water, land, energy, and minerals. As demand continues to grow and supply declines, certain commodity prices may skyrocket, hurting the living standards of many and increasing the risk of geopolitical conflicts.



#### **Positive Macroeconomic Trends Matrix**





### **Positive Macroeconomic Trends Overviews**

Low Oil Prices	Low oil prices will likely have a positive impact on global growth, particularly for energy importers like China, Japan, and India. Consumers should also benefit from falling oil prices in the form of lower prices for gasoline and heating oil.
U.S. Stable Growth	The U.S. economy has largely stabilized, with GDP growth improving and unemployment declining. Continued stabilization in the world's largest economy should improve employment and growth domestically, and increase demand for goods and services from abroad.
Growth of Emerging Markets Middle Class	In emerging economies, the size of the middle class is projected to grow significantly over the next twenty years. The growing middle class in the emerging economies should increase consumption globally, which in turn will drive GDP growth and create jobs.
Increased Multilateral Global Trade	The pace of globalization has accelerated, particularly in emerging economies. Increased trade and investment, and access to foreign capital and export markets for corporations, should lead to higher efficiencies and greater global growth.
Improvements in Education/Healthcare	Literacy rates and average life spans have increased globally, particularly in the emerging economies. Higher literacy rates will drive future growth, helping people learn new skills and improve existing skills. When people live longer, it increases incentives to make long-term investments in human capital (i.e., education and training), resulting in a more productive work force and ultimately more growth.



# Positive Macroeconomic Trends Overviews, Continued

Enhanced Energy Extraction Technologies	Hydraulic fracturing (i.e., fracking) technologies allowed large new supplies of natural gas and oil to be extracted from shale rocks, mainly in the U.S. The increased supply of oil and gas through fracking contributed to falling energy prices. It is likely that other countries will work to improve their fracking technologies, further increasing the supply of oil and gas globally.
Global Monetary Stimulus	Developed market central banks embarked on a massive monetary stimulus campaign in the aftermath of the Global Financial Crisis. The U.S., European, and Japanese central banks continue to maintain interest rates at record lows. Japan has embarked on an unprecedented asset purchase program (quantitative easing), while the European Central Bank recently began its own program. In contrast, the U.S. ended its bond buying last year. Additionally, emerging market central banks including Russia, India, and China, reduced interest rates to stimulate slowing growth. If central banks continue to provide liquidity and keep interest rates low, this should stimulate growth.



#### Global Real Gross Domestic Product (GDP) Growth<sup>1</sup>

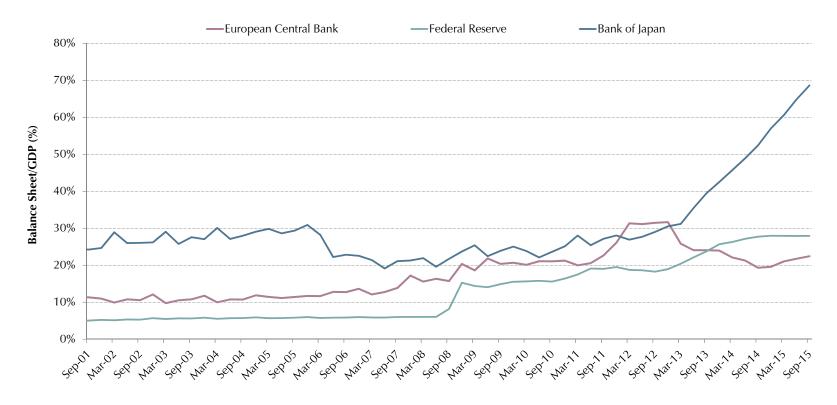


- Global growth levels remain lower than levels prior to the Global Financial Crisis for many countries.
- Emerging economies continue to grow more rapidly than developed economies, but results are varied, with commodity exporters generally experiencing lower growth. China's growth remains above other emerging economies, despite its recent decline.

Source: IMF. World Economic Outlook, October 2015. GDP data for 2014 and 2015 are IMF estimates.



### Central Bank Balance Sheets as a Percentage of GDP<sup>1</sup>

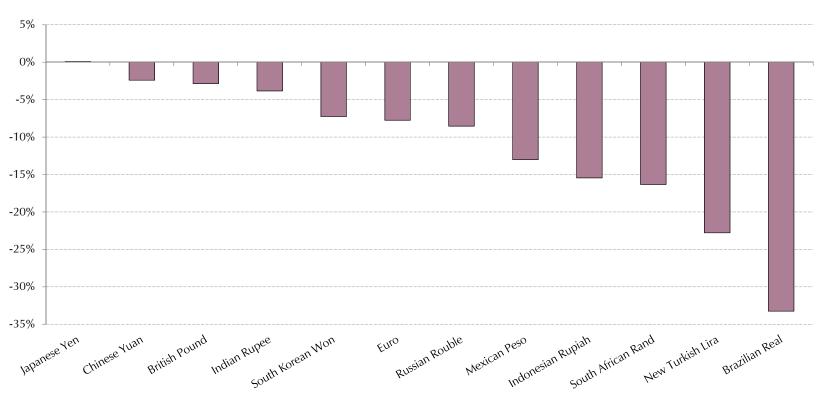


- The world's major central banks are in different points of quantitative easing, with Japan and Europe actively expanding their balance sheets and the U.S. ending its program last year.
- We expect that Japan and Europe will extend their purchase programs and increase their scale given slow growth and low price pressures.

Source: Bloomberg. IMF World Economic Outlook, October 2015. Balance sheet data is as of September 30, 2015. GDP data for 2014 and 2015 are IMF estimates.



## Major Currency Values versus the U.S. Dollar<sup>1</sup>

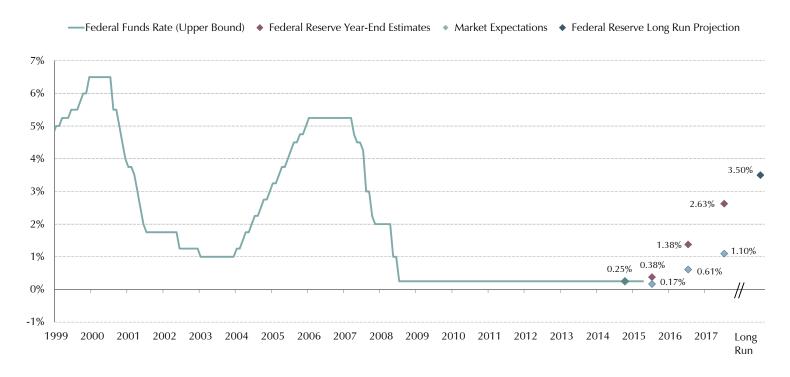


- The U.S. dollar recently strengthened against most major currencies, particularly emerging markets, due in part to expectations that the Federal Reserve will soon increase interest rates.
- Continued U.S. dollar strength should weigh on U.S. exporters and foreign companies with dollar debt, while benefiting domestic importers.

Source: Thompson Reuters. Represents depreciation against the U.S. dollar for the year-to-date period through September 30, 2015.



#### Federal Funds Rate<sup>1</sup>

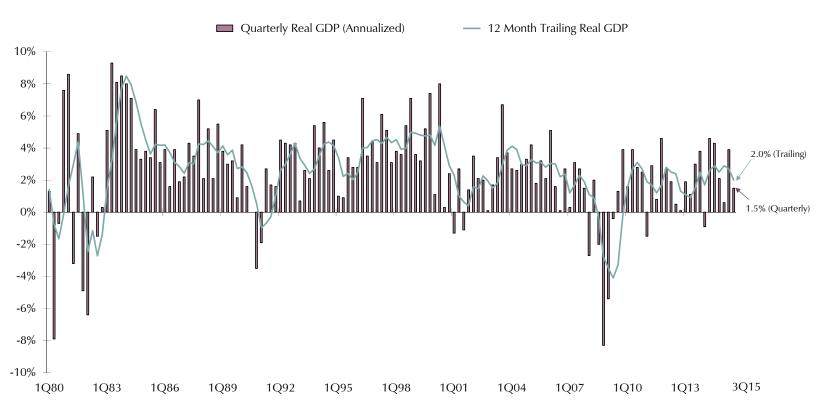


- At its September meeting, the Federal Reserve decided not to increase interest rates, in part citing "recent global economic and financial developments" for the delay.
- The Fed will likely raise rates in the short-term, but the pace and trajectory of the increases remain uncertain.

<sup>&</sup>lt;sup>1</sup> Source: Bloomberg. Federal Reserve September Economic Projections. The FOMC Year-End Estimates are the median estimates of the forecasts of the federal funds rate by the 17 FOMC participants at the end of the specified calendar year or over the long run. Data is as of September 30, 2015 for market expectations that represents the fed funds future rate at the end of the specified calendar year.



## U.S. Real Gross Domestic Product (GDP) Growth<sup>1</sup>

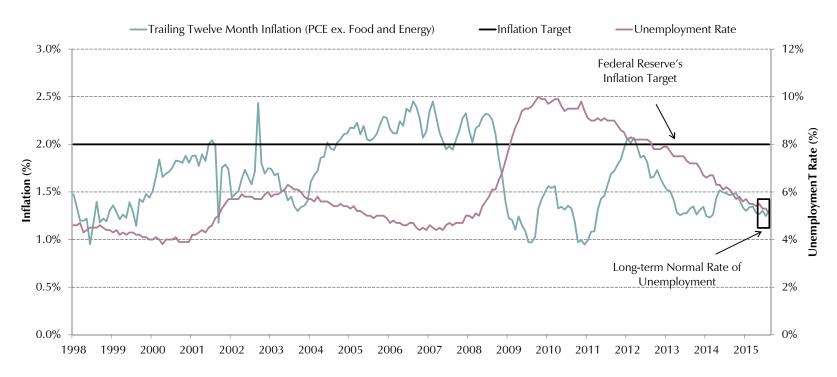


- In the third quarter, U.S. GDP grew at an annual rate of 1.5%, down from the 3.9% level of the prior quarter, due in part to lower business inventory purchases.
- Consumer spending remained strong during the quarter, helped by the improving labor market.

Source: U.S. Bureau of Economic Analysis. Data is as of the third quarter of 2015.



## U.S. Inflation & Employment<sup>1</sup>

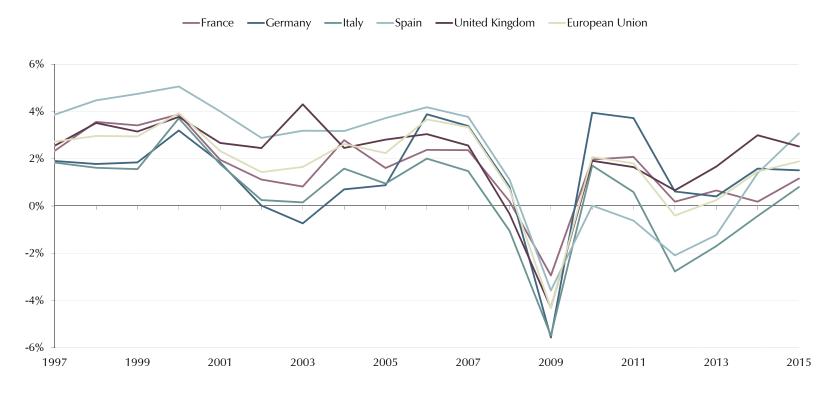


- The U.S. Federal Reserve has a dual mandate of maintaining stable prices and maximum employment.
- Complicating the decision to increase rates is the fact that the Fed's preferred measure of inflation (PCE ex. food and energy) remains below target, despite recent improvements in employment.

Source: Bureau of Labor Statistics. Data is as of September 30, 2015. Federal Open Market Committee (FOMC) participants' recent estimates of long-term normal unemployment had a median value of 4.9% and a range of 4.7% to 5.8%.



## European Annual Gross Domestic Product (GDP) Growth <sup>1</sup>



- Growth remains weak in Europe, but has shown signs of improvement recently, helped by the weaker euro and declining energy prices.
- Improving demand has helped growth in peripheral countries like Spain and Italy, offsetting weaker than expected growth in Germany.

<sup>&</sup>lt;sup>1</sup> Source: IMF. World Economic Outlook, October 2015. GDP data for 2014 and 2015 are IMF estimates.



#### 10-Year Government Bond Yields<sup>1</sup>

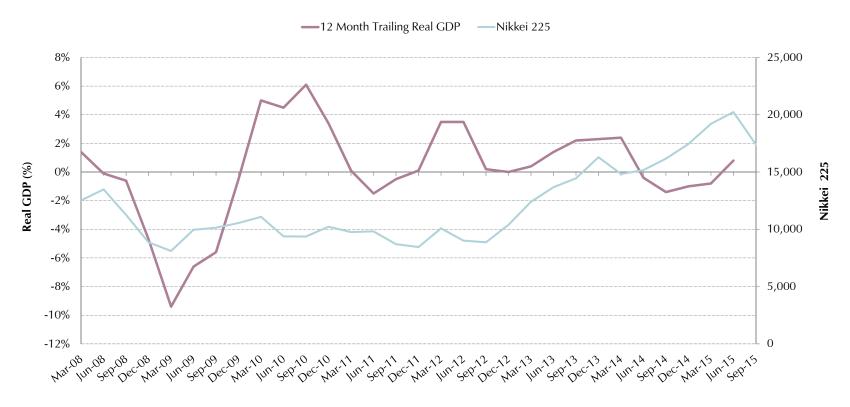


- In the third quarter, bond yields declined, driven by concerns over slowing growth in China.
- The 10-year U.S. Treasury yield finished the quarter at 2.0%, down 0.3% for the quarter, and yields in Germany fell 0.2% to 0.6%. Low inflation and monetary easing have kept bond yields on peripheral European countries like Ireland, Spain, and Italy below the U.S., despite higher financial risk.

Source: Bloomberg. Data is as of September 30, 2015.



## Japan Economic Conditions<sup>1</sup>



- After its strong advance since 2012, Japan's stock market declined (-14%) in the third quarter along with other major markets.
- The Japanese economy declined 1.2% on an annualized basis in the last quarter due to falling exports and consumer spending. Over the past year, the economy grew by 0.8%.

Source: Bloomberg, Cabinet Office Japan. Data is as of September 30, 2015 for the Nikkei 225 and Q2 2015 for real GDP.



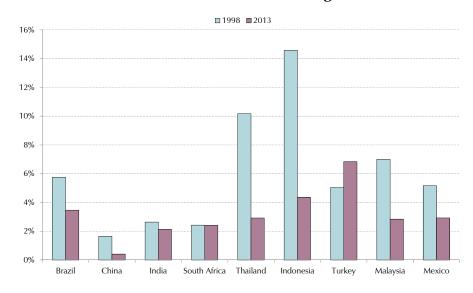
## Global Macroeconomic Outlook September 2015

## **Emerging Market Conditions**<sup>1</sup>

#### **Central Bank Reserves as Percentage of GDP**

# 1998 2014 45% 40% 35% 20% 15% 0% Brazil China India Russia South Thailand Indonesia Turkey Malasya Mexico South Korea

#### **External Debt Service as Percentage of GDP**



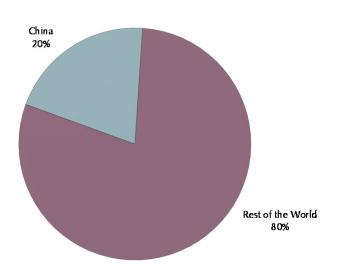
- Emerging markets have recently experienced lower investment returns, due in part to slowing growth in China, declining commodity prices, and a stronger U.S. dollar. Despite recent weakness, the long-term growth thesis remains in place for emerging markets.
- Contrasting current conditions with those during the Asian Financial Crisis in 1998, emerging economies generally
  have higher cash reserves and lower debt burdens, as well as less debt denominated in foreign currencies, making
  them better equipped to cope with currency fluctuations.

Source: IMF, World Bank, and Research Affiliates. Estimates start after 2013.

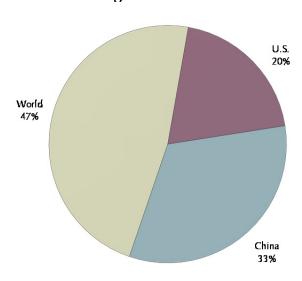


## China, the U.S., and World GDP<sup>1</sup>





#### Percentage of 2015e GDP Growth



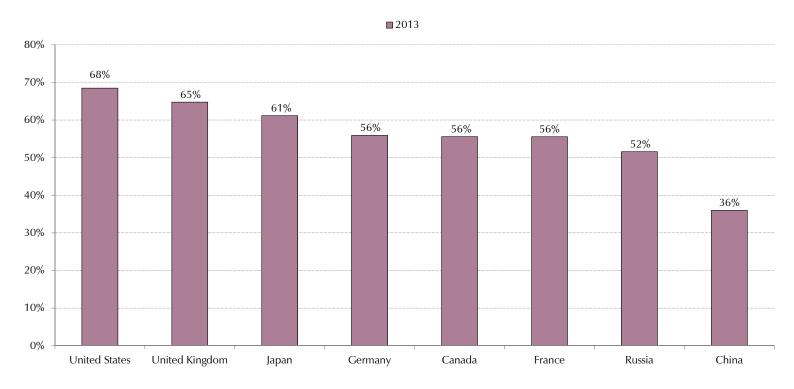
- Following China's recent equity market declines and unprecedented policy response, the government further surprised markets by devaluing their currency in the third quarter.
- China's economy continues to slow as it transitions from an investment-based model to a consumption-based model. The unexpected currency devaluation raised fears that the economy was slowing more than previously expected.
- The impact of a meaningful slowdown in China's economy would be far reaching, as it is the second largest economy in the world, but more importantly, it is the dominate contributor to global growth.

<sup>&</sup>lt;sup>1</sup> Source: International Monetary Fund, World Economic Outlook Database, October 2015.



## Global Macroeconomic Outlook September 2015

## Consumption as a Percentage of GDP<sup>1</sup>



- China's growth has largely been driven by government spending on fixed investments, a model that is not sustainable in the long-term.
- China is in the process of moving toward a consumption driven economy, but repositioning such a large economy will be a delicate process.

<sup>&</sup>lt;sup>1</sup> Source: World Bank, World Development Indicators, October 2015.



## Global Macroeconomic Outlook September 2015

### **Summary**

Four primary concerns face the global economy in 2015: 1) declining growth in China along with uncertain fiscal and monetary policies; 2) continued economic sluggishness and financial risk in Europe; 3) diminishing effectiveness of monetary policy globally; 4) divergent growth in emerging economies.

- Continued shifting fiscal and monetary policy by China could lead to further volatility in markets. The recent devaluation of the yuan could lower demand for goods elsewhere, particularly commodities, and hurt exports of China's competitors. A prolonged slowdown in China's economy could have a meaningful impact given the economy's size and contribution to global growth.
- Although there have been recent improvements in Europe's growth and prices, both remain weak. The recent Greek bailout negotiations are a reminder of the Eurozone's structural issues related to having one currency and many fiscal authorities. A prolonged slowdown, or further issues with the solidarity of the euro, could weigh heavily on global demand and be disruptive to markets and growth.
- The world's major central banks continue to keep interest rates close to 0%. In the U.S., the Federal Reserve ended bond purchases in 2014, while Japan's central bank continues to aggressively expand its balance sheet and Europe recently began its own purchase program. Additionally, several emerging economies recently began cutting interest rates. If another major decline in growth occurs, central banks would have few tools available to stimulate growth.
- Growth in emerging market economies could be uneven going forward, with commodity export-dependent economies particularly hurt by a sustained slowdown in global growth and prices. The future of China's economy is a key consideration in emerging markets.



**The Case for Diversification** 

#### Periodic Table of Returns<sup>1</sup>

• Even a naively diversified portfolio (U.S. 60/40) achieves a much more stable return stream than its components: U.S. Equity and Core Bonds.

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Long Term Bonds 20.3%	US Core Bonds 8.4%	Long Term Bonds 16.8%	US Equity 31.1%	Global 60/40 12.5%	Long Term Bonds 9.6%	US Equity 15.7%	Long Term Bonds 9.8%	Long Term Bonds 24.0%	US Equity 28.3%	US Equity 16.9%	Long Term Bonds 29.9%	US Equity 16.4%	US Equity 33.6%	Long Term Bonds 25.1%
US Core Bonds 11.6%	Long Term Bonds 4.2%	US Core Bonds 10.3%	Global 60/40 24.9%	US Equity 11.9%	US Equity 6.1%	Global 60/40 14.7%	Global 60/40 9.2%	US Core Bonds 5.2%	Global 60/40 20.8%	US 60/40 12.8%	US Core Bonds 7.8%	US 60/40 11.5%	US 60/40 19.3%	US Equity 12.6%
US 60/40 0.2%	US 60/40 -3.5%	Global 60/40 -5.3%	US 60/40 20.3%	US 60/40 8.9%	US 60/40 4.6%	US 60/40 11.2%	US Core Bonds 7.0%	US 60/40 -20.3%	US 60/40 19.4%	Long Term Bonds 9.4%	US 60/40 3.8%	Global 60/40 11.2%	Global 60/40 15.0%	US 60/40 9.9%
Global 60/40 -6.6%	Global 60/40 -9.5%	US 60/40 -8.8%	US Core Bonds 4.1%	Long Term Bonds 7.7%	Global 60/40 3.9%	US Core Bonds 4.3%	US 60/40 5.9%	Global 60/40 -22.5%	US Core Bonds 5.9%	Global 60/40 9.3%	US Equity 1.0%	US Core Bonds 4.2%	US Core Bonds -2.0%	US Core Bonds 6.0%
US Equity -7.5%	US Equity -11.5%	US Equity -21.5%	Long Term Bonds 2.5%	US Core Bonds 4.3%	US Core Bonds 2.4%	Long Term Bonds 1.9%	US Equity 5.1%	US Equity -37.3%	Long Term Bonds -12.9%	US Core Bonds 6.5%	Global 60/40 -1.1%	Long Term Bonds 3.6%	Long Term Bonds -12.7%	Global 60/40 3.2%

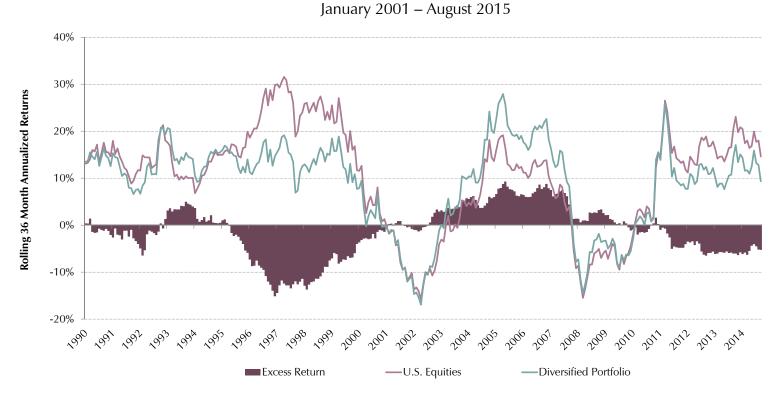
U.S. Equity represented by Russell 3000 Index, Long Term Bonds represented by Barclays Long Term Treasury, Core Bonds represented by Barclay's Aggregate, US 60/40 invests 60% in Russell 3000 and 40% in Barclays Aggregate, Global 60/40 invests 60% in MSCI World and 40% in Barclays Global Aggregate.



## **Returns are Cyclical**

• U.S. Equities outperformed a diversified portfolio by 7.4% and 5.3% per annum during the 1995-2001 and 2010-2015 periods, respectively. However, U.S. Equities trailed by 8.7% and 6.5% annually during the 1993-1994 and 2002-2007 periods, respectively.

Rolling 36-month Annualized Returns of U.S. Equities vs Diversified Equities Portfolio<sup>2</sup>



<sup>&</sup>lt;sup>2</sup> U.S. Equities represented by Russell 3000 Index. Diversified Equities Portfolio composition: 50% Russell 3000, 30% MSCI EAFE Index and 20% MSCI EM Index.



## **Performance Chasing Detracts Value<sup>3</sup>**

• Investors' performance lags actual fund performance due to performance chasing, a practice that effectively translates into buying high and selling low.

	Average 10 Year Total Return (%)	Asset-Weighted 10 Year Investor Return (%)	Returns Gap (%)
US Equity	8.18	6,52	-1.66
Sector Equity	9.46	6.32	-3.14
Balanced	6.93	4.81	-2.12
International Equity	8.77	5.76	-3.01
Taxable Bond	5.39	3.15	-2.24
Municipal	3,53	1.65	-1.88
Alternative	0.96	-1.15	-2.11
All Funds	7.30	4.81	-2.49

Source: Morningstar.

<sup>&</sup>lt;sup>3</sup> Source: Morningstar. Kinnel, Russel. "Mind the Gap 2014". February 27th, 2014. http://news.morningstar.com/articlenet/article.aspx?id=637022

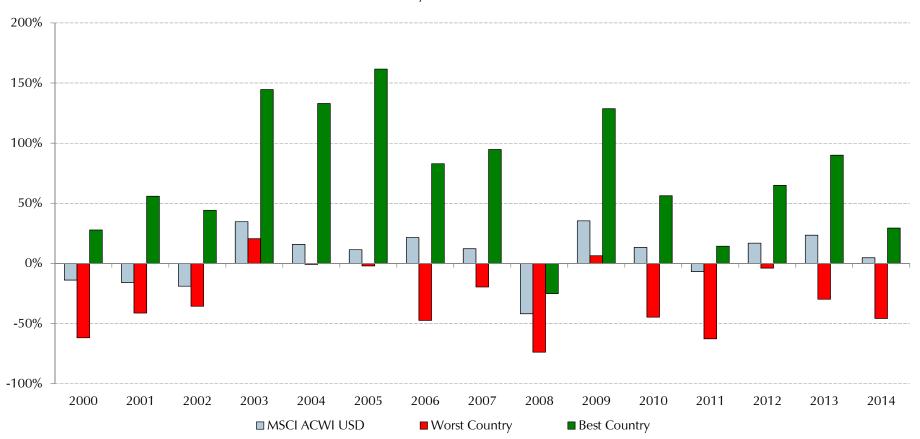


## **Diversification reduces Volatility**

• Taken together, the MSCI ACWI index is far less volatile than its constituents.

**MSCI ACWI** 

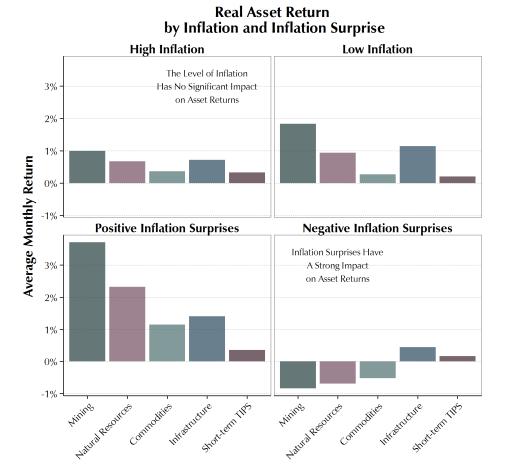
January 1995 – December 2014





#### The Value of Inflation When There Is No Inflation

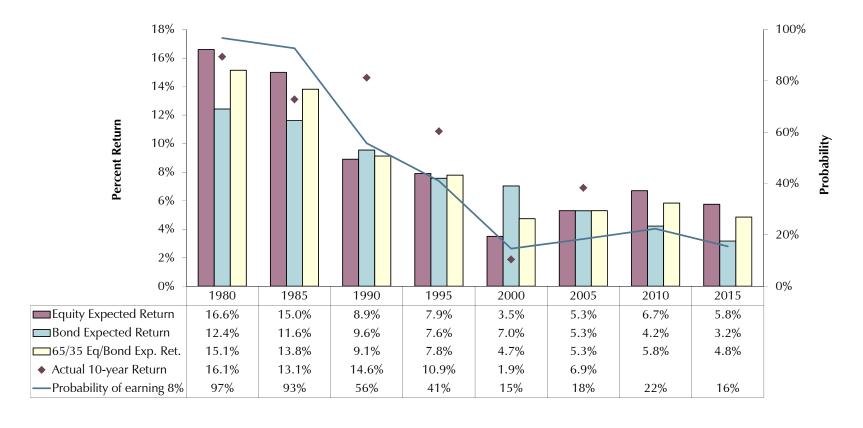
 Markets factor inflation into asset prices. When inflation is much higher (or lower) than what is expected, asset prices react strongly to these "surprises."





## The Secular Decline in Investment Returns<sup>4</sup>

• A portfolio composed of 65% domestic stocks and 35% investment grade bonds has produced diminishing expected returns as well as actual returns over the past thirty years.

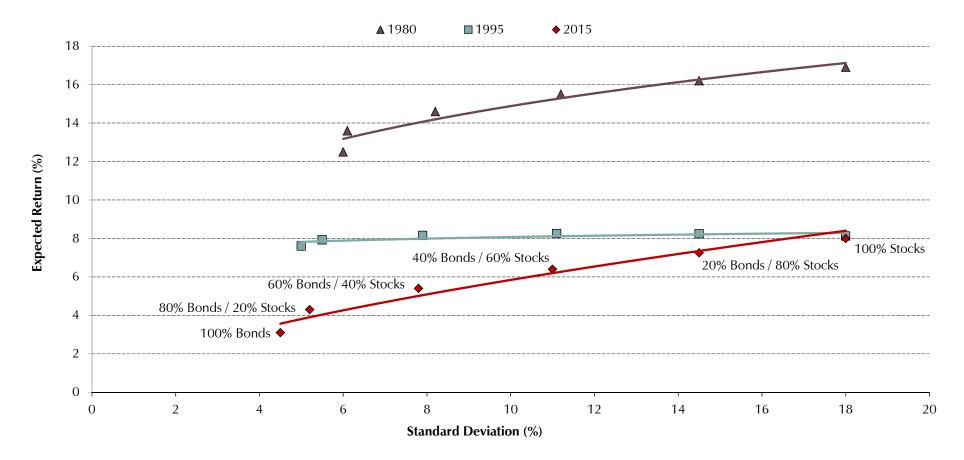


Expected return assumptions for 1) Bonds equals the yield of the ten-year Treasury plus 100 basis points, and 2) Equities equals the dividend yield plus the earnings yield of the S&P 500 index (using the inflation-adjusted trailing 10-year earnings). Probability calculation is for the subsequent ten years.



## The Long View: Less Return for the Risk

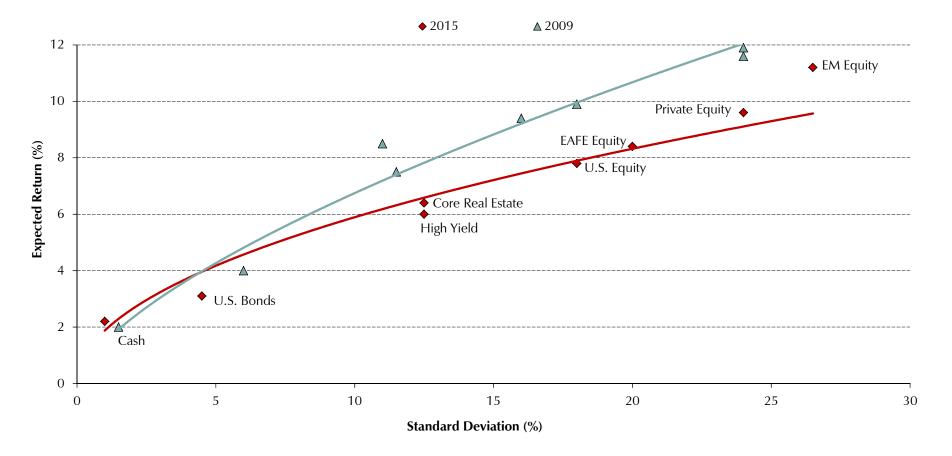
• As return expectations have declined, the efficient frontier has shifted down. Hence investors need to accept considerably more risk to target the same returns they could have achieved historically.





#### **Less Return for the Same or More Risk**

• Expected Returns for most major asset classes have continued to decline. Hence investors need to accept greater risk to target the same returns they could have achieved historically for less risk.





**Executive Summary** 

The value of the City of Phoenix Employees' Retirement System assets was \$2.1 billion on September 30, 2015, a decrease of approximately \$131.7 million from the end of the second quarter. The System had net cash outflows totaling \$20.3 million during the quarter.

- During the third quarter, the Retirement System's net of fees performance was -5.0%. The System's net of fees performance was -2.3% for the calendar year to date period and -1.3% for the trailing 12 months.
- During the third quarter, the Retirement System underperformed both the Policy Benchmark and Custom Benchmark by 1.8% and 1.6%, respectively.
  - The primary detractors from Retirement System relative performance for the quarter were the Real Return and Domestic Equity asset classes. Each asset class benchmark is included in the Policy and Custom Benchmark return calculations. For the quarter, Real Return returned -8.6% net of fees, while its benchmark (CPI +4%) returned +0.7%. Domestic Equity was slightly overweight and underperformed the Russell 3000 by 1.3% net of fees.
- The System outperformed the peer Public Pension Plans > \$1 billion universe median in the third quarter, calendar year to date, and trailing 12 month periods by 0.5%, 0.5%, and 0.1%, respectively. Over three- and five-year time periods, the System is between the 50th and 75th percentiles relative to peers.



Manager performance for the third quarter was impacted by the overall market environment. Almost all major benchmarks had negative returns for the quarter as concerns over declining growth in China, declining commodities prices, and uncertainty surrounding a Federal Reserve rate hike continued to weigh on investors.

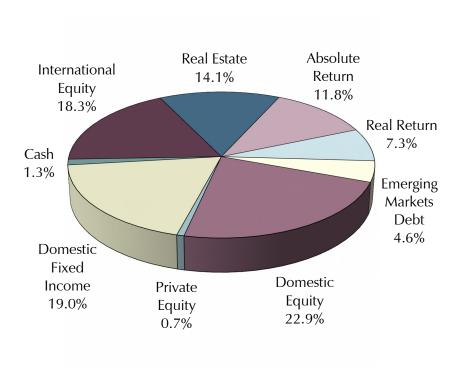
- Eagle Small Cap Growth returned -10.9% net of fees for the quarter, beating the Russell 2000 Growth's return of -13.1%. Holdings in the healthcare sector helped drive the relative outperformance. Anacor Pharmaceuticals, a developer of skin-related treatments, added 61 basis points to Eagle's return due to positive results from an eczema-treatment compound, and Thoratec, a medical device company, added 51 basis points after agreeing to be acquired by St. Jude Medical during the quarter.
- The Boston Company U.S. MidCap Opportunistic Value Equity fund trailed the Russell MidCap benchmark in the third quarter by 5.3%, and year to date by 6.2%, on a net of fees basis. Relative to peers, the fund is in the bottom quartile over recent periods, but for time periods three years and longer, the fund is at or above the peer median return. Third quarter performance was hurt by the Financial, Industrial, and Consumer Discretionary sectors.
- PIMCO All Asset returned -8.6% for the third quarter, -8.7% year to date, and -11.3% over the trailing 12 months. PIMCO underperformed the custom benchmark by 5.6%, 6.5%, and 9.9% over those same periods, respectively. The fund's allocations to emerging markets, international developed equities, and alternative strategies were major detractors during the quarter, while REITS provided a positive impact.
- Fir Tree International Value Fund, Ltd. underperformed the HFRI Relative Value Multi-Strategy benchmark by 6.2% and 6.7% over the third quarter and calendar year to date, respectively. Performance was mixed among Fir Tree's underlying positions for the quarter. The long-term arbitrage strategy and credit shorts had positive returns, while the special situations and yielding strategies negatively impacted the portfolio. Special situations were the biggest detractor, accounting for approximately 40% of the fund's losses due a position in a single global renewables company.



## Plan Summary As of September 30, 2015

# Aggregate Assets as of 9/30/15







## **City of Phoenix Employees' Retirement System**

# Aggregate Assets Asset Summary as of 9/30/15

	Market Value 9/30/15 (\$ mm)	% of Retirement Fund	Interim Target Allocation (%)	Approved Target Allocation (%)	Target Range (%)	Market Value 6/30/15 (\$ mm)
Total Fund	2,092.9	100	NA	NA	NA	2,224.7
Domestic Equity	480.2	23	22	18	20-55	531.4
International Equity	382.9	18	19	16	15-40	430.5
Domestic Fixed Income	397.0	19	20	20	15-30	406.0
Emerging Markets Debt	97.2	5	5	5	0-5	103.3
Real Return	151.8	7	8	8	0-8	166.1
Real Estate	295.7	14	15	15	7-19	281.5
Private Equity	14.6	1	1	3	0-5	8.0
Absolute Return	246.9	12	10	15	0-15	259.4
Cash	26.6	1	NA	NA	NA	38.6



# Aggregate Assets Portfolio Roster as of 9/30/15

	Market Value 9/30/15 (\$ mm)	% of Asset Class	% of Retirement Fund	Approved Target Allocation (%)	Target Range (%)	Market Value 6/30/15 (\$ mm)
Total Fund	2,092.9	NA	100	NA	NA	2,224.7
Domestic Equity	480.2	100	23	18	20-55	531.4
SSgA FTSE RAFI U.S. Low Volatility Index	117.4	24	6			122.8
Robeco BP Large Cap Value	115.4	24	6			130.1
Artisan Global Opportunities	113.1	24	5			123.7
Eagle Small Cap Growth	47.9	10	2			55.4
CRM Small Cap Value	47.0	10	2			54.0
Boston Company U.S. MidCap Opportunistic Value Equity	39.4	8	2			45.4
International Equity	382.9	100	18	16	15-40	430.5
Baillie Gifford ACWI ex-U.S. Alpha Equities	138.3	36	7			157.1
GMO Global All Country Equity Allocation	134.7	35	6			151.6
SSgA FTSE RAFI Developed ex-U.S. Low Volatility Index	60.4	16	3			0.0
Mondrian International Small Cap Equity	49.5	13	2			54.8
SSgA MSCI ACWI (ex U.S.) Index-NL <sup>1</sup>	0.0	0	0			67.0

 $<sup>^{\</sup>rm 1}$  Terminated in July 2015. Proceeds used to fund SSgA FTSE RAFI Developed ex-U.S. Low Volatility Index.



## **City of Phoenix Employees' Retirement System**

# Aggregate Assets Portfolio Roster as of 9/30/15

	Market Value 9/30/15 (\$ mm)	% of Asset Class	% of Retirement Fund	Approved Target Allocation (%)	Target Range (%)	Market Value 6/30/15 (\$ mm)
Domestic Fixed Income	397.0	100	19	20	15-30	406.0
Aberdeen Total Return Bond	167.4	42	8			169.1
PIMCO Total Return	145.4	37	7			149.6
Western Asset U.S. Core Plus	84.2	21	4			87.2
<b>Emerging Markets Debt</b>	97.2	100	5	5	0-5	103.3
MFS Emerging Markets Debt	97.2	100	5			103.3
Real Return	151.8	100	7	8	0-8	166.1
PIMCO All Asset	151.8	100	7			166.1
Real Estate	295.7	100	14	15	7-19	281.5
Core Real Estate	187.6	100	9	7	7-10	182.1
Non-Core Real Estate	108.2	100	5	8	0-9	99.4
Private Equity	14.6	100	1	3	0-5	8.0
Neuberger Berman Sonoran	14.6	100	1			8.0
Absolute Return	246.9	100	12	15	0-15	259.4
PAAMCO Newport Phoenix, LLC	129.5	52	6			136.0
Carlson Double Black Diamond, L.P.	60.4	24	3			61.1
Fir Tree International Value Fund, Ltd.	57.1	23	3			62.3



## **City of Phoenix Employees' Retirement System**

# Aggregate Assets Portfolio Roster as of 9/30/15

				Approved		
	Market Value 9/30/15 (\$ mm)	% of Asset Class	% of Retirement Fund	Target Allocation (%)	Target Range (%)	Market Value 6/30/15 (\$ mm)
Cash	26.6	100	1	NA	NA	38.6
Dreyfus Government Cash Management Institutional	26.6	100	1			38.6



	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Total Fund	-5.0	-2.0	-0.9	6.3	7.1	4.5	12/1/87	7.7
Net of Fees	-5.0	-2.3	-1.3	5.9	6.6	4.1		7.5
COPERS Policy Benchmark <sup>1</sup>	-3.2	-0.2	1.1	7.2	7.7	4.7		8.5
COPERS Custom Benchmark <sup>2</sup>	-3.4	-0.5	0.7	7.0	7.4	4.7		NA
Domestic Equity	-8.4	-5.4	<b>-</b> 1.3	12.4	12.6	6.9	3/1/05	7.0
Net of Fees	-8.5	-5.8	-1.9	11.9	12.1	6.5		6.5
Russell 3000	-7.2	-5.4	-0.5	12.5	13.3	6.9		7.0
International Equity	-10.9	-6.4	-7.8	4.4	4.2	3.2	3/1/05	3.9
Net of Fees	-11.1	-6.8	-8.2	3.9	3.7	2.7		3.4
MSCI ACWI (ex. U.S.) IMI <sup>3</sup>	-11.9	-7.6	-11.1	3.2	2.5	2.5		3.0
Domestic Fixed Income	0.5	0.4	1.9	1.6	3.5	5.2	3/1/05	5.1
Net of Fees	0.4	0.2	1.6	1.3	3.2	4.9		4.8
Barclays Aggregate	1.2	1.1	2.9	1.7	3.1	4.6		4.6
Emerging Markets Debt	-2.7	-0.4	-1.1	NA	NA	NA	2/1/13	0.8
Net of Fees	-2.8	-0.6	-1.5	NA	NA	NA		0.4
JPMorgan EMBI Global Diversified	-1.7	-0.1	-0.6	1.5	4.7	6.9		1.2

<sup>&</sup>lt;sup>3</sup> Prior to 6/1/11, the International Equity benchmark was the MSCI EAFE Index.



<sup>&</sup>lt;sup>1</sup> The COPERS Policy Benchmark is composed of 22% Russell 3000, 19% MSCI ACWI (ex. U.S.) IMI, 20% Barclays U.S. Aggregate Bond, 5% JP Morgan CEMBI Global Diversified Total Return (USD), 8% Consumer Price Index + 4%, 15% NCREIF ODCE, 1% Russell 3000 + 3%, and 10% ARS Custom Benchmark.

<sup>&</sup>lt;sup>2</sup> The Dynamic Benchmark represents how the System is currently invested and will be modified as the System invests in new asset classes. Each asset class benchmark is weighted monthly based on the actual asset allocation.

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Total Fund (continued)								
Real Return	-8.4	-8.1	-10.6	-3.5	-0.7	NA	7/1/07	0.0
Net of Fees	-8.6	-8.7	<b>-11.</b> 3	-4.1	-1.1	NA		-0.4
CPI (inflation) + 4%	0.7	4.3	3.9	4.9	5.7	NA		5.6
Real Estate	3.2	10.6	13.2	13.1	15.5	NA	12/1/06	6.9
Net of Fees	3.2	10.2	12.6	12.4	14.6	NA		6.0
NCREIF ODCE (lagged one qtr.)	3.8	10.8	14.4	13.1	14.4	6.9		5.7
Private Equity	0.0	NA	NA	NA	NA	NA	4/1/15	0.0
Absolute Return <sup>1</sup>	-4.8	-2.2	-2.2	NA	NA	NA	1/1/14	0.9
ARS Custom Benchmark <sup>2</sup>	-3.1	-0.8	-0.1	4.1	2.7	2.4		1.3
Cash	0.1	0.6	1.2	1.9	2.4	1.5	3/1/05	2.1
Net of Fees	0.1	0.6	1.2	1.9	2.4	1.5		1.6
90-Day T-Bills	0.0	0.0	0.0	0.0	0.1	1.3		1.4

<sup>&</sup>lt;sup>2</sup> Since 8/1/14, the ARS custom benchmark is calculated as the beginning weight of each underlying Absolute Return manager times their benchmark return. Prior to 8/1/14, the ARS custodian benchmark was the HFRI Fund of Funds composite index.



<sup>&</sup>lt;sup>1</sup> Performance is shown net of fees.

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Total Fund	-5.0	-2.0	-0.9	6.3	7.1	4.5	12/1/87	7.7
Net of Fees	-5.0	-2.3	-1.3	5.9	6.6	4.1		7.5
COPERS Policy Benchmark <sup>1</sup>	-3.2	-0.2	1.1	7.2	7.7	4.7		8.5
COPERS Custom Benchmark <sup>2</sup>	-3.4	-0.5	0.7	7.0	7.4	4.7		NA
Domestic Equity	-8.4	-5.4	-1.3	12.4	12.6	6.9	3/1/05	7.0
Net of Fees	-8.5	-5.8	-1.9	11.9	12.1	6.5		6.5
SSgA FTSE RAFI U.S. Low Volatility Index	-4.4	-6.7	NA	NA	NA	NA	1/1/15	-6.7
Net of Fees	<b>-4.</b> 5	-6.8	NA	NA	NA	NA		-6.8
FTSE RAFI U.S. Low Volatility Index	-4.4	-6.7	-2.1	10.9	13.4	9.3		-6.7
Robeco BP Large Cap Value	-9.0	-8.5	-3.4	NA	NA	NA	5/1/13	9.1
Net of Fees	-9.2	-8.9	-3.8	NA	NA	NA		8.7
Russell 1000 Value	-8.4	-9.0	-4.4	11.6	12.3	5.7		7.9
Peer Large Cap Value	-8.1	-7.6	-3.5	12.2	12.6	6.5		8.7
Peer Ranking (percentile)	68	67	47	NA	NA	NA		41
Artisan Global Opportunities	-8.4	1.2	NA	NA	NA	NA	12/1/14	-0.4
Net of Fees	-8.6	0.6	NA	NA	NA	NA		-1.1
MSCI ACWI	-9.4	-7.0	-6.7	7.0	6.8	4.6		-8.8
Peer Global Equity	-8.7	-4.4	-3.0	9.6	9.2	6.5		-6.0
Peer Ranking (percentile)	40	6	NA	NA	NA	NA		6

<sup>&</sup>lt;sup>2</sup> The Dynamic Benchmark represents how the System is currently invested and will be modified as the System invests in new asset classes. Each asset class benchmark is weighted monthly based on the actual asset allocation.



<sup>&</sup>lt;sup>1</sup> The COPERS Policy Benchmark is composed of 22% Russell 3000, 19% MSCI ACWI (ex. U.S.) IMI, 20% Barclays U.S. Aggregate Bond, 5% JP Morgan CEMBI Global Diversified Total Return (USD), 8% Consumer Price Index + 4%, 15% NCREIF ODCE, 1% Russell 3000 + 3%, and 10% ARS Custom Benchmark.

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Domestic Equity (continued)								
Eagle Small Cap Growth	-10.7	-3.4	3.9	12.7	13.9	10.3	7/1/05	10.5
Net of Fees	-10.9	-3.8	3.3	12.1	13.3	9.7		9.9
Russell 2000 Growth	-13.1	-5.5	4.0	12.8	13.3	7.7		8.1
Peer Small Cap Growth	-11.2	-4.4	4.1	12.6	13.6	8.6		9.1
Peer Ranking (percentile)	42	40	50	48	44	7		7
CRM Small Cap Value	-10.0	-5.7	2.2	12.1	11.4	NA	2/1/08	7.4
Net of Fees	-10.2	-6.4	1.2	11.1	10.4	NA		6.4
Russell 2000 Value	-10.7	-10.1	-1.6	9.2	10.2	5.3		6.0
Peer Small Cap Value	-9.6	-7.3	-0.1	12.0	12.3	7.5		8.3
Peer Ranking (percentile)	57	25	21	44	63	NA		68
Boston Company U.S. MidCap Opportunistic Value Equity	-13.0	-11.2	-5.0	14.0	13.1	9.7	5/1/02	10.9
Net of Fees	<b>-</b> 13.2	-11.7	-5.8	13.2	12.3	8.9		10.1
Russell MidCap	-8.0	-5.8	-0.2	13.9	13.4	7.9		9.2
Peer MidCap Value	-9.1	-6.8	-2.1	13.5	12.6	7.9		8.9
Peer Ranking (percentile)	93	91	78	42	42	8		17
International Equity	-10.9	-6.4	-7.8	4.4	4.2	3.2	3/1/05	3.9
Net of Fees	-11.1	-6.8	-8.2	3.9	3.7	2.7		3.4
Baillie Gifford ACWI ex-U.S. Alpha Equities	-11.8	-6.1	-5.8	4.3	NA	NA	7/1/11	2.7
Net of Fees	<b>-</b> 11.9	-6.5	-6.3	3.6	NA	NA		2.1
MSCI ACWI (ex. U.S.)	-12.2	-8.6	-12.2	2.3	1.8	3.0		-0.4
Peer International Growth	-9.2	-2.2	-4.3	6.9	5.9	5.4		3.9
Peer Ranking (percentile)	85	91	79	90	NA	NA		68



## **City of Phoenix Employees' Retirement System**

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
International Equity (continued)								
GMO Global All Country Equity Allocation	-11.0	-8.0	-10.0	NA	NA	NA	10/1/13	-0.8
Net of Fees	-11.1	-8.4	-10.5	NA	NA	NA		<b>-1</b> .3
MSCI ACWI	-9.4	-7.0	-6.7	7.0	6.8	4.6		1.9
Peer Global Equity	-8.7	-4.4	-3.0	9.6	9.2	6.5		3.9
Peer Ranking (percentile)	84	84	86	NA	NA	NA		88
SSgA FTSE RAFI Developed ex-U.S. Low Volatility Index	NA	NA	NA	NA	NA	NA	8/1/15	-9.3
Net of Fees	NA	NA	NA	NA	NA	NA		-9.4
FTSE RAFI Developed ex U.S. Low Volatility Index	-6.9	-2.5	-5.9	7.1	6.9	6.3		-9.3
Mondrian International Small Cap Equity	-9.3	-3.1	-3.6	5.3	NA	NA	7/1/11	3.7
Net of Fees	-9.7	-3.8	-4.4	4.6	NA	NA		3.0
MSCI World (ex. U.S.) Small Cap	-8.0	-0.3	-3.7	7.5	5.7	4.2		3.0
Peer International Small Cap	-7.1	2.9	-1.0	10.3	8.3	7.2		5.7
Peer Ranking (percentile)	68	75	63	81	NA	NA		73
Domestic Fixed Income	0.5	0.4	1.9	1.6	3.5	5.2	3/1/05	5.1
Net of Fees	0.4	0.2	1.6	1.3	3.2	4.9		4.8
Aberdeen Total Return Bond	0.9	0.5	2.0	1.6	3.5	NA	7/1/10	3.9
Net of Fees	0.9	0.4	1.8	1.3	3.2	NA		3.7
Barclays Aggregate	1.2	1.1	2.9	1.7	3.1	4.6		3.4
Peer Core Fixed Income	1.2	1.2	3.0	1.7	3.1	4.9		3.5
Peer Ranking (percentile)	79	89	89	92	37	NA		33



## **City of Phoenix Employees' Retirement System**

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
<b>Domestic Fixed Income (continued)</b>								
PIMCO Total Return	0.1	0.2	1.7	1.0	3.0	NA	7/1/10	3.6
Net of Fees	0.0	-0.1	1.4	0.7	2.7	NA		3.3
Barclays Aggregate	1.2	1.1	2.9	1.7	3.1	4.6		3.4
Peer Core Fixed Income	1.2	1.2	3.0	1.7	3.1	4.9		3.5
Peer Ranking (percentile)	99	99	93	99	77	NA		37
Western Asset U.S. Core Plus	0.0	0.3	1.6	2.6	4.4	5.2	2/1/05	5.1
Net of Fees	-0.1	0.1	1.3	2.3	4.1	4.9		4.8
Barclays Aggregate	1.2	1.1	2.9	1.7	3.1	4.6		4.5
Peer Core Fixed Income	1.2	1.2	3.0	1.7	3.1	4.9		4.7
Peer Ranking (percentile)	99	93	99	1	1	39		39
Emerging Markets Debt	-2.7	-0.4	-1.1	NA	NA	NA	2/1/13	0.8
Net of Fees	-2.8	-0.6	-1.5	NA	NA	NA		0.4
MFS Emerging Markets Debt	-2.8	-0.5	-1.2	NA	NA	NA	2/1/13	0.8
Net of Fees	-2.9	-0.7	-1.6	NA	NA	NA		0.4
JPMorgan EMBI Global Diversified	-1.7	-0.1	-0.6	1.5	4.7	6.9		1.2
Peer Emerging Market Debt	-4.8	-3.5	-7.1	-1.4	2.9	6.8		-2.6
Peer Ranking (percentile)	17	25	15	NA	NA	NA		12



	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Real Return	-8.4	-8.1	-10.6	-3.5	-0.7	NA	7/1/07	0.0
Net of Fees	-8.6	-8.7	-11.3	-4.1	-1.1	NA		-0.4
PIMCO All Asset	-8.4	-8.1	-10.6	NA	NA	NA	12/1/13	-3.5
Net of Fees	-8.6	-8.7	<b>-11.</b> 3	NA	NA	NA		-4.4
All Asset Custom Benchmark <sup>1</sup>	-3.0	-2.2	-1.4	3.0	4.6	4.9		1.2
Real Estate	3.2	10.6	13.2	13.1	15.5	NA	12/1/06	6.9
Net of Fees	3.2	10.2	12.6	12.4	14.6	NA		6.0
Core Real Estate	3.5	11.6	15.6	15.0	15.4	NA	1/1/09	7.0
Net of Fees	3.5	11.2	14.9	13.9	14.2	NA		5.9
NCREIF ODCE (lagged one qtr.)	3.8	10.8	14.4	13.1	14.4	6.9		3.8
Non-Core Real Estate <sup>2</sup>	2.8	8.7	8.9	9.7	17.1	NA	2/1/09	8.5
NCREIF ODCE (lagged one qtr.)	3.8	10.8	14.4	13.1	14.4	6.9		3.9
Private Equity	0.0	NA	NA	NA	NA	NA	4/1/15	0.0
Neuberger Berman Sonoran	0.0	NA	NA	NA	NA	NA	4/1/15	0.0

<sup>&</sup>lt;sup>2</sup> Performance is shown net of fees.



<sup>&</sup>lt;sup>1</sup> The All Asset Custom Benchmark is composed of 12.5% BofA Merrill Lynch 1 Year Treasury Bill Index, 12.5% Barclays U.S. Aggregate Bond, 12.5% PIMCO Global Advantage Bond, 12.5% BofA Merrill Lynch U.S. High Yield Master II Index, 12.5% Barclays TIPS, 12.5% Russell 3000, 12.5% MSCI ACWI, and 12.5% BofA Merrill Lynch 3 Month U.S. T-Bill Index + 3%.

	3Q15 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Inception Date	Since Inception (%)
Absolute Return <sup>1</sup>	-4.8	-2.2	-2.2	NA	NA	NA	1/1/14	0.9
PAAMCO Newport Phoenix, LLC	-4.8	<b>-</b> 1.9	-1.7	NA	NA	NA	1/1/14	0.9
HFRI Fund of Funds Composite	-3.7	-1.1	-0.1	4.1	2.7	2.4		1.3
Carlson Double Black Diamond, L.P.	-1.2	1.4	0.1	NA	NA	NA	8/1/14	0.6
HFRI RV Multi-Strategy	-2.2	0.5	0.4	4.7	4.1	4.1		0.5
Fir Tree International Value Fund, Ltd.	-8.4	-6.2	NA	NA	NA	NA	11/1/14	<b>-</b> 4.9
HFRI RV Multi-Strategy	-2.2	0.5	0.4	4.7	4.1	4.1		0.8
Cash	0.1	0.6	1.2	1.9	2.4	1.5	3/1/05	2.1
Net of Fees	0.1	0.6	1.2	1.9	2.4	1.5		1.6
Dreyfus Government Cash Management Institutional	0.1	0.6	1.2	1.9	2.4	2.6	3/1/05	2.8
Net of Fees	0.0	0.0	0.0	0.0	0.0	0.0		0.0
90-Day T-Bills	0.0	0.0	0.0	0.0	0.1	1.3		1.4

<sup>&</sup>lt;sup>1</sup> Performance is shown net of fees.



## **City of Phoenix Employees' Retirement System**

## Aggregate Assets Calendar Year Performance

	<b>2014</b> (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
Total Fund	4.8	13.9	13.0	0.6	12.6	13.8	-25.9	7.9	12.1	6.7
Net of Fees	4.3	13.5	12.6	0.2	12.3	13.2	-26.3	7.5	11.8	6.5
COPERS Policy Benchmark <sup>1</sup>	6.2	14.0	11.5	1.7	12.8	12.5	-26.5	7.9	12.7	6.0
COPERS Custom Benchmark <sup>2</sup>	5.8	14.2	11.0	1.2	11.7	13.6	-24.7	7.0	13.1	NA
Domestic Equity	8.7	35.6	17.0	-3.5	22.9	32.2	-38.8	6.8	14.0	NA
Net of Fees	8.3	35.1	16.5	-3.9	22.4	31.5	-39.0	6.5	13.7	NA
Russell 3000	12.6	33.6	16.4	1.0	16.9	28.3	-37.3	5.1	15.7	6.1
International Equity	-2.3	16.9	19.8	-11.2	13.4	25.3	-41.7	11.9	24.9	NA
Net of Fees	-2.8	16.3	19.1	-11.7	12.8	24.6	-42.1	11.3	24.2	NA
MSCI ACWI (ex. U.S.) IMI <sup>3</sup>	-3.5	16.3	17.6	-12.9	8.2	32.5	-43.1	11.6	26.9	14.0
Domestic Fixed Income	5.9	-2.0	7.2	7.9	9.6	14.8	-1.6	5.8	4.5	NA
Net of Fees	5.6	-2.3	6.9	7.5	9.4	14.6	-1.9	5.7	4.3	NA
Barclays Aggregate	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0	4.3	2.4
Emerging Markets Debt	6.7	NA								
Net of Fees	6.0	NA								
JPMorgan EMBI Global Diversified	7.4	-5.3	17.4	7.3	12.2	29.8	-12.0	6.2	9.9	10.2

<sup>&</sup>lt;sup>3</sup> Prior to 6/1/11, the International Equity benchmark was the MSCI EAFE Index.



<sup>&</sup>lt;sup>1</sup> The COPERS Policy Benchmark is composed of 22% Russell 3000, 19% MSCI ACWI (ex. U.S.) IMI, 20% Barclays U.S. Aggregate Bond, 5% JP Morgan CEMBI Global Diversified Total Return (USD), 8% Consumer Price Index + 4%, 15% NCREIF ODCE, 1% Russell 3000 + 3%, and 10% ARS Custom Benchmark.

<sup>&</sup>lt;sup>2</sup> The Dynamic Benchmark represents how the System is currently invested and will be modified as the System invests in new asset classes. Each asset class benchmark is weighted monthly based on the actual asset allocation.

	2014 (%)	<b>2013</b> (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
Total Fund (continued)										
Real Return	1.7	-6.7	11.0	1.6	3.8	2.5	<b>-</b> 4.5	NA	NA	NA
Net of Fees	0.8	-6.9	10.9	1.5	3.8	1.8	-5.1	NA	NA	NA
CPI (inflation) + 4%	4.7	5.5	5.8	7.0	5.5	6.8	4.1	8.2	NA	NA
Real Estate	11.7	15.4	11.7	22.6	13.7	-29.8	-5.7	17.5	NA	NA
Net of Fees	10.9	14.6	10.9	21.6	12.7	-30.5	-6.7	16.6	NA	NA
NCREIF ODCE (lagged one qtr.)	12.4	13.0	11.6	18.3	7.0	-35.2	3.2	18.2	17.5	19.7
Private Equity	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Absolute Return	3.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARS Custom Benchmark <sup>1</sup>	3.1	9.0	4.8	-5.7	5.7	11.5	-21.4	10.3	10.4	7.5
Cash	1.9	2.8	0.8	5.7	1.1	0.4	-5.9	2.6	4.5	NA
Net of Fees	1.9	2.8	0.8	5.7	1.1	0.4	-5.9	2.6	4.4	NA
90-Day T-Bills	0.0	0.1	0.1	0.1	0.1	0.2	2.1	4.9	4.7	2.8

<sup>&</sup>lt;sup>1</sup> Since 8/1/14, the ARS custom benchmark is calculated as the beginning weight of each underlying Absolute Return manager times their benchmark return. Prior to 8/1/14, the ARS custodian benchmark was the HFRI Fund of Funds composite index.



	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
Total Fund	4.8	13.9	13.0	0.6	12.6	13.8	-25.9	7.9	12.1	6.7
Net of Fees	4.3	13.5	12.6	0.2	12.3	13.2	-26.3	7.5	11.8	6.5
COPERS Policy Benchmark	6.2	14.0	11.5	1.7	12.8	12.5	-26.5	7.9	12.7	6.0
COPERS Custom Benchmark	5.8	14.2	11.0	1.2	11.7	13.6	-24.7	7.0	13.1	NA
Domestic Equity	8.7	35.6	17.0	-3.5	22.9	32.2	-38.8	6.8	14.0	NA
Net of Fees	8.3	35.1	16.5	-3.9	22.4	31.5	-39.0	6.5	13.7	NA
SSgA FTSE RAFI U.S. Low Volatility Index	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FTSE RAFI U.S. Low Volatility Index	15.1	28.6	12.8	12.7	15.6	18.1	-24.8	9.5	25.4	6.4
Robeco BP Large Cap Value	11.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Net of Fees	11.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Russell 1000 Value	13.5	32.5	17.5	0.4	15.5	19.7	-36.8	-0.2	22.2	7.1
Artisan Global Opportunities	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MSCI ACWI	4.2	22.8	16.1	-7.3	12.7	34.6	-42.2	11.7	21.0	10.8
Eagle Small Cap Growth	6.0	36.2	18.4	-1.6	34.0	38.1	-35.7	12.8	21.4	NA
Net of Fees	5.4	35.5	17.6	-2.1	33.3	37.3	-36.2	12.1	20.8	NA
Russell 2000 Growth	5.6	43.3	14.6	-2.9	29.1	34.5	-38.5	7.0	13.3	4.2
CRM Small Cap Value	4.0	39.3	17.6	-12.6	29.9	30.1	NA	NA	NA	NA
Net of Fees	3.1	38.1	16.5	<b>-</b> 13.5	28.6	28.8	NA	NA	NA	NA
Russell 2000 Value	4.2	34.5	18.1	-5.5	24.5	20.6	-28.9	-9.8	23.5	4.7
Boston Company U.S. MidCap Opportunistic Value Equity	10.5	41.9	20.1	-3.8	25.9	61.8	-37.7	6.5	11.1	10.8
Net of Fees	9.7	41.0	19.3	-4.6	25.0	60.6	-38.4	5.8	10.3	10.0
Russell MidCap	13.2	34.8	17.3	-1.5	25.5	40.5	-41.5	5.6	15.3	12.7



	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
International Equity	-2.3	16.9	19.8	-11.2	13.4	25.3	-41.7	11.9	24.9	NA
Net of Fees	-2.8	16.3	19.1	-11.7	12.8	24.6	-42.1	11.3	24.2	NA
Baillie Gifford ACWI exU.S. Alpha Equities	-2.3	16.1	23.3	NA						
Net of Fees	-2.9	15.4	22.5	NA						
MSCI ACWI (ex. U.S.)	-3.9	15.3	16.8	-13.7	11.2	41.4	-45.5	16.7	26.7	16.6
GMO Global All Country Equity Allocation	-0.3	NA								
Net of Fees	-0.9	NA								
MSCI ACWI	4.2	22.8	16.1	-7.3	12.7	34.6	-42.2	11.7	21.0	10.8
SSgA FTSE RAFI Developed exU.S. Low Volatility Index	NA									
FTSE RAFI Developed ex. U.S. Low Volatility Index	-0.2	22.5	11.8	-0.1	7.1	23.2	-26.5	5.0	33.1	16.5
Mondrian International Small Cap Equity	-4.2	18.1	25.6	NA						
Net of Fees	-4.8	17.4	24.6	NA						
MSCI World (ex. U.S.) Small Cap	-5.3	25.6	17.5	-15.8	24.5	50.8	-48.0	3.3	19.5	25.0
Domestic Fixed Income	5.9	-2.0	7.2	7.9	9.6	14.8	-1.6	5.8	4.5	NA
Net of Fees	5.6	-2.3	6.9	7.5	9.4	14.6	-1.9	5.7	4.3	NA
Aberdeen Total Return Bond	6.1	-2.3	6.6	8.2	NA	NA	NA	NA	NA	NA
Net of Fees	5.7	-2.5	6.3	7.8	NA	NA	NA	NA	NA	NA
Barclays Aggregate	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0	4.3	2.4
PIMCO Total Return	4.9	-2.4	7.2	7.5	NA	NA	NA	NA	NA	NA
Net of Fees	4.6	-2.7	6.9	7.1	NA	NA	NA	NA	NA	NA
Barclays Aggregate	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0	4.3	2.4



	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
Domestic Fixed Income (continued)	(/*/	(,0,	(/0/	(/%)	(,0,	(/0/	(/0)	(70)	(,0)	(70)
Western Asset U.S. Core Plus	7.5	-0.6	8.3	8.0	11.1	16.9	-6.9	4.2	5.0	NA
Net of Fees	7.2	-1.0	8.1	7.7	10.8	16.6	-7.1	4.0	4.8	NA
Barclays Aggregate	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0	4.3	2.4
<b>Emerging Markets Debt</b>	6.7	NA								
Net of Fees	6.0	NA								
MFS Emerging Markets Debt	6.7	NA								
Net of Fees	6.0	NA								
JPMorgan EMBI Global Diversified	7.4	-5.3	17.4	7.3	12.2	29.8	-12.0	6.2	9.9	10.2
Real Return	1.7	-6.7	11.0	1.6	3.8	2.5	-4.5	NA	NA	NA
Net of Fees	0.8	-6.9	10.9	1.5	3.8	1.8	-5.1	NA	NA	NA
PIMCO All Asset	1.7	NA								
Net of Fees	0.8	NA								
All Asset Custom Benchmark <sup>1</sup>	4.0	6.1	8.9	3.5	8.7	18.7	-13.3	7.8	9.0	3.9
Real Estate	11.7	15.4	11.7	22.6	13.7	-29.8	-5.7	17.5	NA	NA
Net of Fees	10.9	14.6	10.9	21.6	12.7	-30.5	-6.7	16.6	NA	NA
Core Real Estate	13.3	16.8	12.7	16.9	15.3	-29.7	NA	NA	NA	NA
Net of Fees	12.0	15.5	11.4	15.7	14.2	-30.5	NA	NA	NA	NA
NCREIF ODCE (lagged one qtr.)	12.4	13.0	11.6	18.3	7.0	-35.2	3.2	18.2	17.5	19.7

<sup>&</sup>lt;sup>1</sup> The All Asset Custom Benchmark is composed of 12.5% BofA Merrill Lynch 1 Year Treasury Bill Index, 12.5% Barclays U.S. Aggregate Bond, 12.5% PIMCO Global Advantage Bond, 12.5% BofA Merrill Lynch U.S. High Yield Master II Index, 12.5% Barclays TIPS, 12.5% Russell 3000, 12.5% MSCI ACWI, and 12.5% BofA Merrill Lynch 3 Month U.S. T-Bill Index + 3%.

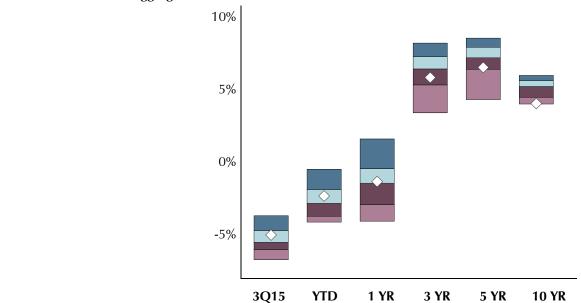


	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)	2006 (%)	2005 (%)
Real Estate (continued)										
Non-Core Real Estate	9.0	12.9	9.6	42.6	6.9	NA	NA	NA	NA	NA
NCREIF ODCE (lagged one qtr.)	12.4	13.0	11.6	18.3	7.0	-35.2	3.2	18.2	17.5	19.7
Private Equity	NA									
Neuberger Berman Sonoran	NA									
Absolute Return	3.8	NA								
PAAMCO Newport Phoenix, LLC	3.6	NA								
HFRI Fund of Funds Composite	3.4	9.0	4.8	-5.7	5.7	11.5	-21.4	10.3	10.4	7.5
Carlson Double Black Diamond, L.P.	NA									
HFRI RV Multi-Strategy	3.4	7.9	8.2	-2.4	13.2	24.7	-20.3	1.8	9.0	5.7
Fir Tree International Value Fund, Ltd.	NA									
HFRI RV Multi-Strategy	3.4	7.9	8.2	-2.4	13.2	24.7	-20.3	1.8	9.0	5.7
Cash	1.9	2.8	8.0	5.7	1.1	0.4	-5.9	2.6	4.5	NA
Net of Fees	1.9	2.8	0.8	<b>5.7</b>	1.1	0.4	-5.9	2.6	4.4	NA
Dreyfus Government Cash Management Institutional	1.9	2.8	0.8	5.7	1.1	0.4	2.2	5.2	4.5	NA
Net of Fees	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
90-Day T-Bills	0.0	0.1	0.1	0.1	0.1	0.2	2.1	4.9	4.7	2.8



# Aggregate Assets Universe Comparison as of 9/30/15

Total Fund Aggregate vs Public Plans > \$1 Billion Universe<sup>1</sup>



	(%)	(%)	(%)	(%)	(%)	(%)
Total Fund Aggregate <sup>2</sup>	-5.0	-2.3	-1.3	5.9	6.6	4.1
25th Percentile	-4.7	-1.8	-0.4	7.3	8.0	5.7
Median	-5.5	-2.8	-1.4	6.5	7.3	5.3
75th Percentile	-6.0	-3.7	<b>-</b> 2.9	5.4	6.5	4.5
Population	41	41	41	41	41	39

<sup>&</sup>lt;sup>2</sup> Net of Fees.



<sup>&</sup>lt;sup>1</sup> Final universe data provided by InvestorForce. Returns are net of fees.

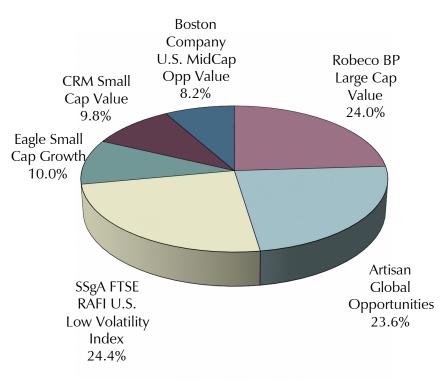
## **Plan Details**

Domestic Equity Assets As of September 30, 2015



## Domestic Equity Assets as of 9/30/15







## Domestic Equity Assets Risk as of 9/30/15

Risk: (sixty months)	Aggregate Domestic Equity 9/30/15	Russell 3000 9/30/15
Annualized Return (%)	12.6	13.3
Standard Deviation (%)	15.2	13.5
Best Monthly Return (%)	13.1	11.5
Worst Monthly Return (%)	-9.2	-7.8
Beta	1.11	1.00
Correlation to Index	0.98	1.00
Correlation to Total Fund Return	0.94	NA
Sharpe Measure (risk-adjusted return)	0.82	0.98
Information Ratio	Neg.	NA



## Domestic Equity Assets Characteristics as of 9/30/15

Capitalization Structure:	Aggregate Domestic Equity 9/30/15	Russell 3000 9/30/15	Aggregate Domestic Equity 6/30/15
Weighted Average Market Cap. (US\$ billion)	69.4	97.4	74.5
Median Market Cap. (US\$ billion)	6.7	1.4	7.5
Large (% over US\$20 billion)	54	67	53
Medium (% US\$3 billion to US\$20 billion)	30	25	32
Small (% under US\$3 billion)	16	8	15
Fundamental Structure:			
Price-Earnings Ratio	20	19	23
Price-Book Value Ratio	3.1	2.3	3.7
Dividend Yield (%)	1.9	2.1	1.7
Historical Earnings Growth Rate (%)	11	11	12
Projected Earnings Growth Rate (%)	12	11	12



# Domestic Equity Assets Diversification as of 9/30/15

Diversification:	Aggregate Domestic Equity 9/30/15	Russell 3000 9/30/15	Aggregate Domestic Equity 6/30/15
Diversification.	5/30/13	<i>J</i> /30/13	0/30/13
Number of Holdings	538	2,979	541
% in 5 largest holdings	7	9	7
% in 10 largest holdings	13	14	12

Largest Five Holdings:	% of Portfolio	<b>Economic Sector</b>
Johnson & Johnson	1.6	Pharmaceuticals & Biotech.
Berkshire Hathaway	1.5	Diversified Financials
Microsoft	1.4	Software & Services
HIS	1.3	Commercial Services
Pfizer	1.2	Pharmaceuticals & Biotech.



## Domestic Equity Assets Sector Allocation as of 9/30/15

Sector Allocation (%):	Aggregate Domestic Equity 9/30/15	Russell 3000 9/30/15	Aggregate Domestic Equity 6/30/15
Health Care	17	14	17
Utilities	4	3	4
Industrials	12	11	12
Telecommunication Services	2	2	2
Energy	6	6	6
Materials	3	3	3
Financials	18	18	18
Information Technology	19	20	19
Consumer Staples	7	9	8
Consumer Discretionary	12	14	11

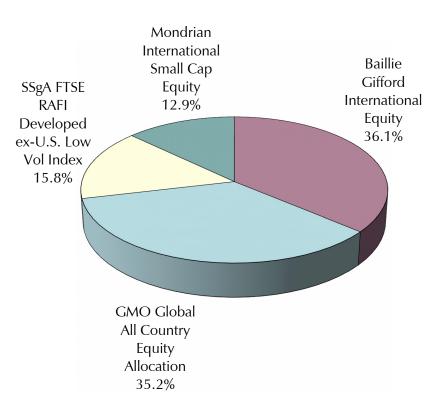


**International Equity Assets** As of September 30, 2015



# International Equity Assets as of 9/30/15







## International Equity Assets Risk as of 9/30/15

Risk: (sixty months)	Aggregate International Equity 9/30/15	MSCI ACWI (ex. U.S.) IMI <sup>1</sup> 9/30/15
Annualized Return (%)	4.2	2.5
Standard Deviation (%)	15.6	15.9
Best Monthly Return (%)	9.7	10.3
Worst Monthly Return (%)	-11.2	-11.3
Beta	0.96	1.00
Correlation to Index	0.99	1.00
Correlation to Total Fund Return	0.97	NA
Sharpe Measure (risk-adjusted return)	0.27	0.16
Information Ratio	0.81	NA

 $<sup>^{\</sup>rm 1}~$  Prior to 6/1/11, the International Equity benchmark was the MSCI EAFE Index.



# **International Equity Assets Characteristics as of 9/30/15**

Capitalization Structure:	Aggregate International Equity 9/30/15	MSCI ACWI (ex. U.S.) IMI 9/30/15	Aggregate International Equity 6/30/15
Weighted Average Market Cap. (US\$ billion)	50.4	41.3	54.8
Median Market Cap. (US\$ billion)	4.5	1.1	6.4
Large (% over US\$20 billion)	54	50	53
Medium (% US\$3 billion to US\$20 billion)	34	36	37
Small (% under US\$3 billion)	12	14	10
Fundamental Structure:			
Price-Earnings Ratio	17	15	19
Price-Book Value Ratio	2.0	1.4	2.7
Dividend Yield (%)	3.2	3.1	2.7
Historical Earnings Growth Rate (%)	7	8	8
Projected Earnings Growth Rate (%)	9	10	11



# **International Equity Assets Diversification as of 9/30/15**

Diversification:	Aggregate International Equity 9/30/15	MSCI ACWI (ex. U.S.) IMI 9/30/15	Aggregate International Equity 6/30/15	
Number of Holdings	1,606	6,069	2,402	
% in 5 largest holdings	6	5	6	
% in 10 largest holdings	11	8	10	

Largest Five Holdings:	est Five Holdings: % of Portfolio	
Nestle	1.9	Food, Beverage & Tobacco
Taiwan Semiconductor	1.2	Semiconductors
Samsung	1.1	Technology Equipment
Total	1.1	Energy
ВР	1.1	Energy



# **International Equity Assets Sector Allocation as of 9/30/15**

Sector Allocation (%):	Aggregate International Equity 9/30/15	MSCI ACWI (ex. U.S.) IMI 9/30/15	Aggregate International Equity 6/30/15
Industrials	17	12	18
Information Technology	12	8	13
Energy	7	6	7
Consumer Staples	11	10	9
Consumer Discretionary	13	13	15
Telecommunication Services	5	5	4
Utilities	3	3	3
Health Care	8	9	8
Materials	5	7	5
Financials	18	26	17



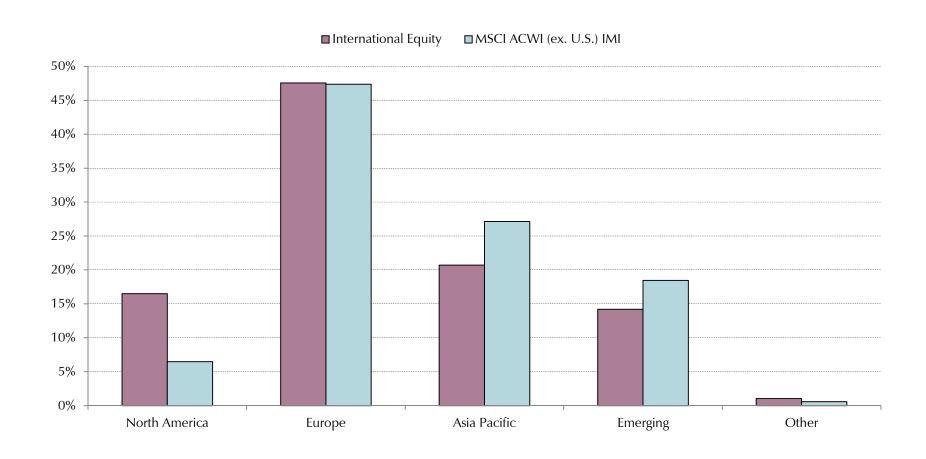
## International Equity Assets Country & Region Breakdown as of 9/30/15

	Aggregate International Equity 9/30/15 (%)	MSCI ACWI (ex. U.S.) IMI 9/30/15 (%)
North America	16.5	6.5
United States of America	12.3	0.1
Canada	4.2	6.4
Europe	47.5	47.4
Ireland	2.8	0.8
United Kingdom	14.7	13.5
Denmark	2.1	1.4
Netherlands	3.6	2.9
Sweden	2.7	2.3
Finland	1.1	0.7
Germany	6.6	6.2
Spain	1.6	2.4
France	5.5	6.5
Italy	1.0	2.0
Switzerland	4.9	6.8

	Aggregate International Equity 9/30/15 (%)	MSCI ACWI (ex. U.S.) IMI 9/30/15 (%)
Asia Pacific	20.7	27.1
Singapore	2.2	1.0
Australia	2.8	4.6
Hong Kong	2.6	4.3
Japan	12.8	17.1
Emerging	14.2	18.5
Turkey	1.0	0.3
Russia	1.1	0.7
Brazil	1.3	1.1
Taiwan	2.8	2.7
South Korea	3.2	3.3
South Africa	1.3	1.6
India	1.0	1.9
China	1.7	2.6
Other	1.0	0.6



## International Equity Assets Region Breakdown as of 9/30/15



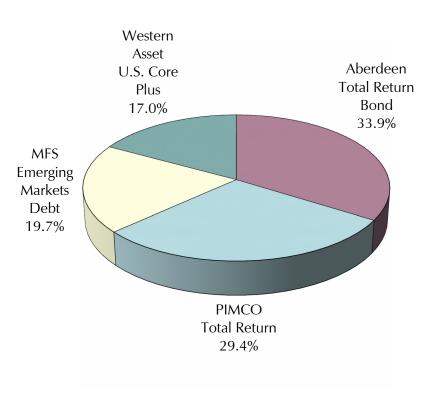


Fixed Income Assets
As of September 30, 2015



# Fixed Income Assets as of 9/30/15







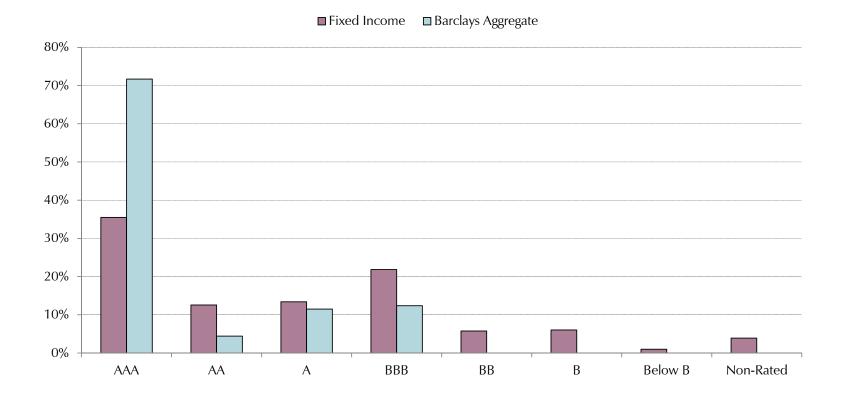
# Fixed Income Assets Risk as of 9/30/15

Risk: (sixty months)	Aggregate Fixed Income 9/30/15	Barclays Aggregate 9/30/15	Barclays Multiverse 9/30/15
Annualized Return (%)	3.4	3.1	0.9
Standard Deviation (%)	3.3	2.9	4.5
Best Monthly Return (%)	1.8	2.1	3.1
Worst Monthly Return (%)	-2.7	-1.8	-3.8
Beta	1.05 / 0.46	1.00	1.00
Correlation to Index	0.91 / 0.64	1.00	1.00
Correlation to Total Fund Return	0.25	NA	NA
Sharpe Measure (risk-adjusted return)	1.00	1.06	0.20
Information Ratio	0.20	NA	NA



# Fixed Income Assets Characteristics as of 9/30/15

Duration & Yield:	Aggregate Fixed Income 9/30/15	Barclays Aggregate 9/30/15	Barclays Multiverse 9/30/15	Aggregate Fixed Income 6/30/15
Average Effective Duration (years)	5.6	5.6	6.5	5.2
Yield to Maturity (%)	3.9	2.3	2.0	3.4





# Fixed Income Assets Diversification as of 9/30/15

United States         73         91         39         70           Foreign (developed markets)         5         7         54         7           Foreign (emerging markets)         22         2         8         23           Currency Allocation (%):           Non-U.S. Dollar Exposure         -2         0         54         -2           Sector Allocation (%):           U.S. Treasury-Nominal         3         36         14         4           U.S. Treasury-TIPS         4         0         0         5           U.S. Agency         2         3         1         2           Mortgage Backed         27         28         11         11           Corporate         24         24         21         19           Bank Loans         0         0         0         0           Local & Provincial Government         1         1         3         0           Sovereign & Supranational         -2         4         46         2           Commercial Mortgage Backed         7         2         0         6           Asset Backed         4         1         0         4           <	Market Allocation (%):	Aggregate Fixed Income 9/30/15	Barclays Aggregate 9/30/15	Barclays Multiverse 9/30/15	Aggregate Fixed Income 6/30/15
Foreign (emerging markets)         22         2         8         23           Currency Allocation (%):           Non-U.S. Dollar Exposure         -2         0         54         -2           Sector Allocation (%):           U.S. Treasury-Nominal         3         36         14         4           U.S. Treasury-TIPS         4         0         0         5           U.S. Agency         2         3         1         2           Mortgage Backed         27         28         11         11           Corporate         24         24         21         19           Bank Loans         0         0         0         0           Local & Provincial Government         1         1         3         0           Sovereign & Supranational         -2         4         46         2           Commercial Mortgage Backed         7         2         0         6           Asset Backed         4         1         0         4           Cash Equivalent         4         0         0         10	United States	73	91	39	70
Currency Allocation (%):         Non-U.S. Dollar Exposure       -2       0       54       -2         Sector Allocation (%):         U.S. Treasury-Nominal       3       36       14       4         U.S. Treasury-TIPS       4       0       0       5         U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Foreign (developed markets)	5	7	54	7
Non-U.S. Dollar Exposure       -2       0       54       -2         Sector Allocation (%):         U.S. Treasury-Nominal       3       36       14       4         U.S. Treasury-TIPS       4       0       0       5         U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Foreign (emerging markets)	22	2	8	23
Sector Allocation (%):         U.S. Treasury-Nominal       3       36       14       4         U.S. Treasury-TIPS       4       0       0       5         U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Currency Allocation (%):				
U.S. Treasury-Nominal       3       36       14       4         U.S. Treasury-TIPS       4       0       0       5         U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Non-U.S. Dollar Exposure	-2	0	54	-2
U.S. Treasury-TIPS       4       0       0       5         U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Sector Allocation (%):				
U.S. Agency       2       3       1       2         Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	U.S. Treasury-Nominal	3	36	14	4
Mortgage Backed       27       28       11       11         Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	U.S. Treasury-TIPS	4	0	0	5
Corporate       24       24       21       19         Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	U.S. Agency	2	3	1	2
Bank Loans       0       0       0       0         Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Mortgage Backed	27	28	11	11
Local & Provincial Government       1       1       3       0         Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Corporate	24	24	21	19
Sovereign & Supranational       -2       4       46       2         Commercial Mortgage Backed       7       2       0       6         Asset Backed       4       1       0       4         Cash Equivalent       4       0       0       10	Bank Loans	0	0	0	0
Commercial Mortgage Backed         7         2         0         6           Asset Backed         4         1         0         4           Cash Equivalent         4         0         0         10	Local & Provincial Government	1	1	3	0
Asset Backed 4 1 0 4 Cash Equivalent 4 0 0 10	Sovereign & Supranational	-2	4	46	2
Cash Equivalent 4 0 0 10	Commercial Mortgage Backed	7	2	0	6
	Asset Backed	4	1	0	4
Other 26 0 3 38	Cash Equivalent	4	0	0	10
	Other	26	0	3	38



## Portfolio Reviews As of September 30, 2015

## Domestic Equity Portfolio Reviews As of September 30, 2015



### SSgA FTSE RAFI U.S. Low Volatility Index Portfolio Detail as of 9/30/15

Mandate: Domestic Equities Active/Passive: Passive Market Value: \$117.4 million Portfolio Manager: Team Large Location: Boston, Massachusetts Inception Date: 1/1/2015 Medium Account Type: Commingled Small

#### Fee Schedule:

0.08% on first \$50 mm; 0.06% on next \$50 mm; 0.05% thereafter; \$25,000 minimum annual fee.

#### **Liquidity Constraints:**

Daily

#### Strategy:

The strategy seeks an investment return that approximates as closely as practicable, before expenses, the performance of the FTSE RAFI® U.S. Low Volatility Index over the long-term.

Performance (%):	3Q15	Since 1/1/15
SSgA FTSE RAFI U.S. Low Volatility Index	-4.4	-6.7
Net of Fees	-4.5	-6.8
FTSE RAFI U.S. Low Volatility Index	-4.4	-6.7

	9/30	0/15 ETSE DAEL	6/3	0/15 ETGE DAEL
Capitalization Structure:	SSgA FTSE RAFI U.S. Low Volatility	FTSE RAFI U.S. Low Volatility Index	SSgA FTSE RAFI U.S. Low Volatility	FTSE RAFI U.S. Low Volatility Index
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	112.5 11.4	112.6 11.4	118.6 12.7	118.8 12.7
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	83 17 1	83 16 1	82 17 1	82 17 1
Fundamental Structure:				
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	20 2.3 3.4 2 5	20 2.3 3.4 2 5	19 2.5 3.1 3 6	19 2.5 3.1 3 6
Sector Allocation (%):				
Financials Materials Utilities Industrials Consumer Discretionary Energy Health Care Telecommunication Services Consumer Staples Information Technology	8 2 12 7 4 13 15 9 21	8 2 12 7 4 13 15 9 21	8 2 11 7 4 14 15 9 21	8 2 11 7 4 14 15 9 21
Diversification:				
Number of Holdings % in 5 largest holdings % in 10 largest holdings	237 20 32	237 20 32	233 20 32	233 20 32
Largest Ten Holdings:		Industry		
AT&T ExxonMobil Chevron Verizon Communications Johnson & Johnson Microsoft Procter & Gamble Wal-Mart Stores Pfizer IBM	4.9 4.6 4.0 3.1 3.0 2.9 2.7 2.4 2.1	Telecom Services Energy Energy Telecom Services Pharmaceuticals & Biotech. Software & Services Household Products Food & Staples Retailing Pharmaceuticals & Biotech. Software & Services		



### Robeco BP Large Cap Value Portfolio Detail as of 9/30/15

Mandate: Domestic Equities

Active/Passive: Active

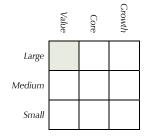
Market Value: \$115.4 million

Portfolio Manager: Team

**Location:** Boston, Massachusetts

**Inception Date:** 5/1/2013

Account Type: Separately Managed



#### Fee Schedule:

0.45% on first \$50 mm; 0.40% on next \$50 mm; 0.30% thereafter

#### **Liquidity Constraints:**

Daily

#### Strategy:

Robeco utilizes in-house, bottom-up research employing a blend of quantitative and fundamental inputs. The investment process is guided by three aspects; valuation, fundamentals, and business momentum. The fund seeks to outperform the Russell 1000 Value Index over rolling three- and five-year periods, or a full market cycle, whichever is longer.

#### **Guidelines:**

Benchmark = Russell 1000 Value; Max position = 5%; max 5% of company's float; Max % per industry = 35%; Max 15% in Int'l securities; Max cash = 10%

Performance (%):	3Q15	1 YR	Since 5/1/13
Robeco BP Large Cap Value	-9.0	-3.4	9.1
Net of Fees	-9.2	-3.8	8.7
Russell 1000 Value	-8.4	-4.4	7.9
Peer Large Cap Value	-8.1	-3.5	8.7
Peer Ranking (percentile)	68	47	41

	, a 1 a	00/4 F	- 1a	00/45	
	9/3 Robeco BP	30/15	6/3 Robeco BP	30/15	
Capitalization Structure:	Large Cap Value	Russell 1000 Value	Large Cap Value	Russell 1000 Value	
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	102.6 25.0	95.0 6.8	109.5 28.8	102.3 7.9	
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	80 18 2	71 27 2	79 21 0	72 27 1	
Fundamental Structure:					
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	14 2.3 2.2 8 9	17 2.0 2.8 6 7	16 2.5 1.9 9	18 2.2 2.5 7 8	
Sector Allocation (%):					
Health Care Consumer Discretionary Information Technology Materials Industrials Financials Telecommunication Services Energy Consumer Staples Utilities	19 9 14 4 10 30 1 10 3	12 5 11 3 10 30 3 13 7 6	19 9 16 4 9 29 1 9 4	12 5 11 3 10 30 2 14 7 6	
Diversification:					
Number of Holdings % in 5 largest holdings % in 10 largest holdings	88 19 33	689 13 23	90 18 30	684 13 23	
Largest Ten Holdings:		Industry			
Berkshire Hathaway JP Morgan Chase Wells Fargo & Company Johnson & Johnson Capital One Citigroup Pfizer Microsoft Occidental Petroleum Cisco Systems	4.4 4.3 4.0 3.7 3.2 3.0 3.0 2.7 2.7 2.3	Diversified Financials Banks Banks Pharmaceuticals & Biotech. Diversified Financials Banks Pharmaceuticals & Biotech. Software & Services Energy Technology Equipment			



## **Artisan Global Opportunities Portfolio Detail as of 9/30/15**

Mandate: Global Equities Active/Passive: Active Market Value: \$113.1 million Portfolio Manager: James D. Hamel, CFA Large Location: Milwaukee, Wisconsin Inception Date: 12/1/2014 Medium Account Type: Commingled Small

Fee Schedule:

0.85% on all assets

**Liquidity Constraints:** 

Daily

#### Strategy:

Artisan Global Opportunities employs a fundamental investment process to construct a diversified global equity portfolio of companies across a broad capitalization range. The investment process focuses on two distinct areas: security selection and capital allocation.

Performance (%):	3Q15	Since 12/1/14
Artisan Global Opportunities	-8.4	-0.4
Net of Fees	-8.6	-1.1
MSCI ACWI	-9.4	-8.8
Peer Global Equity	-8.7	-6.0
Peer Ranking (percentile)	40	6

	9/30 Artisan	9/30/15		/15
	Global		Artisan Global	
Capitalization Structure:	Opportunities	MSCI ACWI	Opportunities	MSCI ACWI
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	67.8 20.0	82.0 7.7	80.2 19.8	87.6 8.8
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	58 40 2	69 30 2	59 40 1	71 28 1
Fundamental Structure:				
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	27 5.4 0.9 23 19	17 1.9 2.7 9 10	33 7.4 0.9 23 18	18 2.1 2.4 10
Sector Allocation (%):				
Information Technology Health Care Consumer Discretionary Industrials Utilities Materials Telecommunication Services Consumer Staples Energy Financials	35 18 18 11 2 2 0 5 2	14 12 13 10 3 5 4 10 7	35 19 15 11 2 2 0 7 2 8	14 12 13 10 3 5 4 9 7
Diversification:				
Number of Holdings % in 5 largest holdings % in 10 largest holdings	46 24 41	2,476 5 9	46 23 39	2,477 5 8
Region Allocation (%):				
North America Europe Asia Pacific Emerging Other	61 22 13 5 0	54 24 13 9 0	59 21 13 7 0	53 24 13 10 0
Largest Five Holdings:		Industry		
HIS Visa Regeneron Facebook Google	5.4 5.0 4.7 4.5 4.0	Commercial Se Software & Ser Pharmaceutica Software & Ser Software & Ser	vices ls & Biotech. vices	



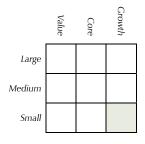
### Eagle Small Cap Growth Portfolio Detail as of 9/30/15

Mandate: Domestic Equities

Active/Passive: Active
Market Value: \$47.9 million
Portfolio Manager: Bert L. Boksen, CFA
Location: St. Petersburg, Florida

**Inception Date:** 7/1/2005

Account Type: Separately Managed



#### Fee Schedule:

0.55% on first \$75 mm; 0.50% thereafter

#### **Liquidity Constraints:**

Daily

#### Strategy:

Eagle Asset Management seeks to capture the significant long-term capital appreciation potential of small, rapidly growing, under-researched companies. The market capitalization of these companies falls within the market cap range of the Russell 2000 Index at the time of purchase. Since the small company sector historically has been less efficient than the large capitalization sector, they believe that conducting extensive proprietary research on companies that are not widely followed or owned institutionally should enable Eagle to capitalize on market inefficiencies and thus outperform the Russell 2000 Growth Index.

#### Guidelines:

Benchmark = Russell 2000 Growth; Max position = 5%; Max 5% in foreign and ADRs; No negative cash; No shorts; Weighted avg. market cap within high/low of Russell 2000 Growth Index;

Performance (%):	3Q15	1 YR	3 YR	5 YR	Since 7/1/05
Eagle Small Cap Growth	-10.7	3.9	12.7	13.9	10.5
Net of Fees	-10.9	3.3	12.1	13.3	9.9
Russell 2000 Growth	-13.1	4.0	12.8	13.3	8.1
Peer Small Cap Growth	-11.2	4.1	12.6	13.6	9.1
Peer Ranking (percentile)	42	50	48	44	7
Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Eagle Small Cap Growth	19.0%	0.95	0.73	0.15	0.97
Russell 2000 Growth	19.3	1.00	0.68	NA	1.00

	0/3	<b>3</b> 0/15	6/30/15		
	Eagle Small Cap	Russell 2000	Eagle Small Cap	Russell 2000	
Capitalization Structure:	Growth	Growth	Growth	Growth	
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	3.1 2.3	1.9 0.7	3.3 2.8	2.1 0.9	
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	0 46 54	0 20 80	0 48 52	0 24 76	
Fundamental Structure:					
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	22 3.3 0.5 17 18	24 3.4 0.7 17 18	25 3.5 0.4 19 18	26 3.9 0.6 17 18	
Sector Allocation (%):					
Industrials Consumer Discretionary Materials Energy Health Care Utilities Consumer Staples Financials Telecommunication Services Information Technology	14 20 5 2 27 0 3 7 0 22	13 19 4 1 27 0 3 8 1	13 15 4 3 28 0 4 8 0 24	13 18 4 2 28 0 3 7 1 24	
Diversification:					
Number of Holdings % in 5 largest holdings % in 10 largest holdings	96 13 22	1,154 3 5	98 11 19	1,162 2 4	
Largest Ten Holdings:		Industry			
Martin Mrta.Mats. Imperva Jetblue Airways Thoratec Quaker Chemical Anacor Pharmaceuticals Genesco Centene Synovus Financial Natus Medical	2.8 2.7 2.6 2.3 2.1 2.0 1.9 1.9 1.8	Materials Software & Serv Transportation Health Care Ser Materials Pharmaceuticals Retailing Health Care Ser Banks Health Care Ser	vices & Biotech. vices		



### CRM Small Cap Value Portfolio Detail as of 9/30/15

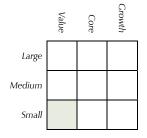
Mandate: Domestic Equities

Active/Passive: Active
Market Value: \$47.0 million
Portfolio Manager: Team

**Location:** New York, New York

**Inception Date:** 2/1/2008

Account Type: Separately Managed



#### Fee Schedule:

0.90% on all assets

#### **Liquidity Constraints:**

Daily

#### Strategy:

CRM's investment strategy is based on three main attributes: Change, Neglect, and Valuation. They believe that most investors tend to greet change with skepticism and rather than research the effects of the change on a company, investors choose to neglect the company. This neglect leads to securities being mispriced. CRM performs bottom-up, fundamental research on the neglected companies and seeks to purchase stocks in this group that are trading at a discount to their fair value. The investment style is primarily relative value, but also opportunistic, with a contrarian bias. The strategy is moderately diversified, benchmark agnostic and has a typical investment horizon of two years.

#### **Guidelines:**

Benchmark = Russell 2000 Value; 55-65 stocks; Max position = 8%; Max 35% in one sector; Max cash = 10%

Performance (%):	3Q15	1 YR	3 YR	5 YR	2/1/08
CRM Small Cap Value	-10.0	2.2	12.1	11.4	7.4
Net of Fees	-10.2	1.2	11.1	10.4	6.4
Russell 2000 Value	-10.7	-1.6	9.2	10.2	6.0
Peer Small Cap Value	-9.6	-0.1	12.0	12.3	8.3
Peer Ranking (percentile)	57	21	44	63	68
Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
CRM Small Cap Value	17.9%	1.00	0.64	0.29	0.96
Russell 2000 Value	17.1	1.00	0.59	NA	1.00

	9/30/15		6/30/15		
Capitalization Structure:	CRM Small Cap Value	Russell 2000 Value	CRM Small Cap Value	Russell 2000 Value	
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	1.8 1.4	1.6 0.6	2.1 1.7	1.7 0.7	
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	0 11 89	0 11 89	0 16 84	0 12 88	
Fundamental Structure:					
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	22 2.0 1.7 9 15	17 1.5 2.3 8 10	27 2.3 1.3 10 13	18 1.6 2.1 10 10	
Sector Allocation (%):					
Industrials Consumer Discretionary Health Care Utilities Telecommunication Services Materials Energy Consumer Staples Information Technology Financials	22 17 9 7 0 2 2 2 0 7	12 10 4 7 1 3 5 3 11	26 17 10 5 0 2 3 0 8 29	12 11 4 6 1 4 6 3 10 42	
Diversification:					
Number of Holdings % in 5 largest holdings % in 10 largest holdings	62 14 25	1,304 2 4	62 14 25	1,319 2 4	
Largest Ten Holdings:		Industry			
Regis Steris FTI Consulting Conmed Sterling Bancorp James River Group Hdg. Kennedy-Wilson Holdings Ciena Premier Class A Childrens Place	3.1 2.8 2.8 2.7 2.3 2.3 2.2 2.2 2.2	Consumer Servi Health Care Ser Commercial Ser Health Care Ser Banks Insurance Real Estate Technology Equ Health Care Ser Retailing	vices vices vices ipment		



Since

### Boston Company U.S. MidCap Opportunistic Value Equity Portfolio Detail as of 9/30/15

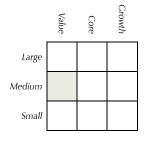
Mandate: Domestic Equities

Active/Passive: Active
Market Value: \$39.4 million
Portfolio Manager: Team

**Location:** Boston, Massachusetts

**Inception Date:** 5/1/2002

Account Type: Separately Managed



#### Fee Schedule:

0.80% on first \$25 mm; 0.60% thereafter

#### **Liquidity Constraints:**

Daily

### Strategy:

The Boston Company invests a portfolio focused on medium capitalization stocks. The firm focuses on overlooked companies and turnaround situations, seeking to buy companies as their condition improves and the stock price increases, then to realize the gain and reinvest the proceeds in other improving companies.

#### **Guidelines:**

Benchmark = Russell Midcap; Max position = 5%; Max 5% in Int'l stock; Max 5% in REITs; Max 10% in preferred.

Performance (%):	3Q15	1 YR	3 YR	5 YR	Since 5/1/02
Boston Company U.S. MidCap Opportunistic Value Equity	-13.0	-5.0	14.0	13.1	10.9
Net of Fees	-13.2	-5.8	13.2	12.3	10.1
Russell MidCap	-8.0	-0.2	13.9	13.4	9.2
Peer MidCap Value	-9.1	-2.1	13.5	12.6	8.9
Peer Ranking (percentile)	93	78	42	42	17
Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Boston Company U.S. MidCap Opportunistic Value Equity	18.6%	1.20	0.70	Neg.	0.96
Russell MidCap	14.8	1.00	0.90	NA	1.00

Capitalization Structure:	9/30 Boston Company U.S. MidCap Opportunistic Value Equity	0/15 Russell MidCap	6/30/ Boston Company U.S. MidCap Opportunistic Value Equity	15 Russell MidCap
AACTA AACTA GOOGLEGE AND AACTA A	. ,	44.5	10.0	10.1
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	9.8 7.2	11.5 5.8	10.8 8.6	12.1 6.4
Large (% over US\$20 billion)	9	13	16	15
Medium (% US\$3 billion to US\$20 billion)	85	82	81	82
Small (% under US\$3 billion)	6	5	4	3
Fundamental Structure:				
Price-Earnings Ratio	18	20	19	21
Price-Book Value Ratio	2.2	2.5	2.3	2.7
Dividend Yield (%)	1.4	1.9	1.2	1.6
Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	11 14	13 11	18 14	14 12
	14	11	14	12
Sector Allocation (%):				
Financials	38	23	39	21
Information Technology	19	15	17	15
Industrials Materials	16	13	17	13
Materials Health Care	6 9	6 10	7 8	6 11
Telecommunication Services	0	10	0	1
Energy	0	5	0	6
Utilities	1	6	1	5
Consumer Staples	1	6	1	6
Consumer Discretionary	10	17	10	16
<b>Diversification:</b>				
Number of Holdings	63	828	64	829
% in 5 largest holdings	17	2	17	2
% in 10 largest holdings	32	4	31	4
Largest Ten Holdings:		Industry		
E*Trade Financial	3.8	Diversified Fin		
Leucadia National	3.4	Diversified Fin		
Intercontinental Exchange	3.4	Diversified Fin		
TD Ameritrade Holding	3.3 3.2	Diversified Fin Real Estate	ancials	
Realogy Holdings Mednax	3.2	Health Care So	ervices	
Seagate Tech.	3.1	Technology Ec		
Ingersoll-Rand	3.0	Capital Goods		
Keysight Technologies	3.0	Technology Ec		
SLM	2.9	Diversified Fin	ancials	



## International Equity Portfolio Reviews As of September 30, 2015



### Baillie Gifford ACWI ex-U.S. Alpha Equities Portfolio Detail as of 9/30/15

Mandate: International Equities

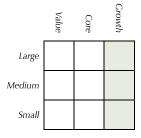
Active/Passive: Active

Market Value: \$138.3 million

Portfolio Manager: Team

**Location:** Edinburgh, United Kingdom

**Inception Date:** 7/1/2011 **Account Type:** Commingled



#### Fee Schedule:

0.54% on all assets

### **Liquidity Constraints:**

Daily

#### Strategy:

The strategy employs a bottom-up stock picking approach based on the fundamental research produced by the investment teams. The team selects a diversified portfolio of quality growth companies with a long-term perspective, resulting in a low portfolio turnover.

Performance (%):	3Q15	1 YR	3 YR	Since 7/1/11
Baillie Gifford ACWI ex-U.S. Alpha Equities	-11.8	-5.8	4.3	2.7
Net of Fees	-11.9	-6.3	3.6	2.1
MSCI ACWI (ex. U.S.)	-12.2	-12.2	2.3	-0.4
Peer International Growth	<b>-</b> 9.2	-4.3	6.9	3.9
Peer Ranking (percentile)	85	79	90	68

Risk: (fifty-one months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Baillie Gifford ACWI ex-U.S. Alpha Equities	16.2%	0.97	0.16	0.77	0.97
MSCI ACWI (ex. U.S.)	15.7	1.00	Neg.	NA	1.00

			s /00 /4 =		
	9/30 Baillie Gifford	/15	6/30, Baillie Gifford	/15	
Capitalization Structure:	ACWI ex-U.S. Alpha Equities	MSCI ACWI (ex. U.S.)	ACWI ex-U.S. Alpha Equities	MSCI ACWI (ex. U.S.)	
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	38.0 15.3	47.5 6.2	40.8 17.8	52.2 7.0	
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	52 44 4	58 39 3	53 44 3	62 36 2	
Fundamental Structure:					
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	20 2.9 2.4 11	16 1.4 3.2 7 10	21 3.2 2.0 10 13	17 1.8 2.9 8 10	
Sector Allocation (%):					
Industrials Information Technology Consumer Discretionary Consumer Staples Materials Financials Utilities Energy Telecommunication Services Health Care	22 14 15 12 7 24 0 2 1	11 7 12 11 7 27 4 6 5	21 16 14 11 7 24 0 3 1	11 7 12 10 7 28 3 7 5	
Diversification:					
Number of Holdings % in 5 largest holdings % in 10 largest holdings	84 14 24	1,839 6 9	85 14 23	1,838 6 9	
Region Allocation (%):					
North America Europe Asia Pacific Emerging Other	5 54 20 18 2	6 48 26 18 1	5 52 21 20 3	7 46 27 20 0	
Largest Five Holdings:		Industry			
Taiwan Semiconductor Nestle Naspers Ryanair Svenska Handelsbanken	3.2 3.1 2.9 2.5 2.5	Semiconductor Food, Beverage Media Transportation Banks			



## GMO Global All Country Equity Allocation Portfolio Detail as of 9/30/15

 Mandate:
 Global Equities

 Active/Passive:
 Active

 Market Value:
 \$134.7 million

 Portfolio Manager:
 Benjamin Inker

 Samuel Wilderman
 Large

 Location:
 Boston, Massachusetts

 Inception Date:
 10/1/2013

Mutual Fund (GMGEX)

Fee Schedule:

**Account Type:** 

0.63% on all assets

#### **Liquidity Constraints:**

Daily

#### Strategy:

The strategy is a portfolio of portfolios, utilizing internally managed strategies at GMO that provide broad multi-cap exposure to U.S. and non-U.S. stocks. GMO employs both a top-down and bottom-up approach where by the asset allocation team develops forecasts for a group of stocks based on the principal that markets regress over time to their fundamental fair value. By categorizing groups of companies by common metrics and asking the question "what is the level of the metric today versus its level in the future" they generate their expected returns. Then, the international and U.S. equity teams combine the top-down views with bottom-up valuation of individual securities to build a diversified portfolio.

Small

Performance (%):	3Q15	1 YR	Since 10/1/13
GMO Global All Country Equity Allocation Net of Fees	-11.0 -11.1	-10.0 -10.5	-0.8 -1.3
MSCI ACWI	-9.4	-6.7	1.9
Peer Global Equity	-8.7	-3.0	3.9
Peer Ranking (percentile)	84	86	88

	GMO Global All Country Equity	0/15	GMO Global All Country Equity	0/15
Capitalization Structure:	Allocation	MSCI ACWI	Allocation	MSCI ACWI
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	74.6 4.1	82.0 7.7	84.7 7.3	87.6 8.8
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	66 25 9	69 30 2	70 23 7	71 28 1
Fundamental Structure:				
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	14 1.2 3.6 5 8	17 1.9 2.7 9 10	17 1.7 3.3 4 9	18 2.1 2.4 10 10
Sector Allocation (%):				
Telecommunication Services Energy Consumer Discretionary Utilities Information Technology Health Care Materials Consumer Staples Industrials Financials	8 10 16 4 15 12 3 8 8	4 7 13 3 14 12 5 10 10 22	8 14 14 5 16 11 4 10 9	4 7 13 3 14 12 5 9 10 22
Diversification:				
Number of Holdings % in 5 largest holdings % in 10 largest holdings	1,273 8 14	2,476 5 9	880 9 16	2,477 5 8
Region Allocation (%):				
North America Europe Asia Pacific Emerging Other	36 30 13 20 0	54 24 13 9 0	34 34 11 20 1	53 24 13 10 0
Largest Five Holdings:		Industry		
Valeant Pharmaceuticals Total Johnson & Johnson Apple AstraZeneca	1.8 1.7 1.5 1.5	Pharmaceutical Energy Pharmaceutical Technology Eq Pharmaceutical	ls & Biotech. uipment	



## SSgA FTSE RAFI Developed ex.-U.S. Low Volatility Index Portfolio Detail as of 9/30/15

Mandate: International Equities Active/Passive: Passive Market Value: \$60.4 million Portfolio Manager: Team Large Location: Boston, Massachusetts Inception Date: 8/1/2015 Medium Account Type: Commingled Small

#### Fee Schedule:

0.10% on first \$50 mm; 0.08% on next \$50 mm; 0.07% thereafter; \$25,000 minimum annual fee

#### **Liquidity Constraints:**

Daily

#### Strategy:

The Fund seeks an investment return that approximates as closely as practicable, before expenses, the performance of the FTSE RAFI® Developed ex.-U.S. Low Volatility Index over the long term.

Performance (%):	3Q15	Since 8/1/15
SSgA FTSE RAFI Developed exU.S. Low Volatility Index Net of Fees	NA NA	-9.3 -9.4
FTSE RAFI Developed exU.S. Low Volatility Index	-6.9	-9.3

	9/30/15		
Capitalization Structure:	SSgA FTSE RAFI Developed exU.S. Low Volatility Index	FTSE RAFI Developed exU.S. Low Volatility Index	
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	57.7 7.5	57.8 7.5	
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	67 31 2	67 31 2	
Fundamental Structure:			
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	17 1.5 4.2 1 7	17 1.5 4.2 1 7	
Sector Allocation (%):			
Industrials Consumer Discretionary Materials Telecommunication Services Consumer Staples Information Technology Utilities Health Care Energy Financials	9 2 5 11 20 2 6 14 16	9 2 5 11 20 3 6 14 16	
Diversification:			
Number of Holdings % in 5 largest holdings % in 10 largest holdings	374 16 27	374 16 27	
Region Allocation (%):			
North America Europe Asia Pacific Emerging Other	6 66 25 2 1	6 66 25 2 1	
Largest Five Holdings:	Industry		
Nestle HSBC Total	3.3 Banks 3.1 Energy	age & Tobacco	



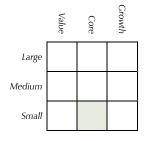
## Mondrian International Small Cap Equity Portfolio Detail as of 9/30/15

Mandate: International Equities

Active/Passive: Active
Market Value: \$49.5 million
Portfolio Manager: Ormala Krishnan

**Location:** London, United Kingdom

**Inception Date:** 7/1/2011 **Account Type:** Commingled



#### Fee Schedule:

0.85% on first \$25 mm; 0.65% on next \$25 mm; 0.625% on next \$50 mm; 0.60% thereafter

#### **Liquidity Constraints:**

Monthly

#### Strategy:

The Mondrian International Small Cap investment strategy is an actively-managed, value-oriented strategy. Mondrian's value driven investment philosophy is based on the belief that investments need to be evaluated in terms of their fundamental long-term value. They believe that the value of a company lies in its future income stream as dividends represent the most direct form of cash flow to a shareholder. As such, Mondrian's investment team uses an inflation-adjusted dividend discount model to derive the underlying value of a company. The strategy seeks to generate three investment benefits: a rate of return meaningfully greater than the client's domestic rate of inflation, downside protection during protracted international market declines, and portfolio performance that is less volatile than the benchmark.

Performance (%):	3Q15	1 YR	3 YR	Since 7/1/11
Mondrian International Small Cap Equity	-9.3	-3.6	5.3	3.7
Net of Fees	-9.7	-4.4	4.6	3.0
MSCI World (ex. U.S.) Small Cap	-8.0	-3.7	7.5	3.0
Peer International Small Cap	-7.1	-1.0	10.3	5.7
Peer Ranking (percentile)	68	63	81	73

Risk: (fifty-one months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Mondrian International Small Cap Equity	13.8%	0.83	0.26	0.13	0.96
MSCI World (ex. U.S.) Small Cap	15.8	1.00	0.19	NA	1.00

		0/15	-,-	0/15
Capitalization Structure:	Mondrian International Small Cap Equity	MSCI World (ex. U.S.) Small Cap	Mondrian International Small Cap Equity	MSCI World (ex. U.S.) Small Cap
Weighted Average Market Cap. (US\$ billion) Median Market Cap. (US\$ billion)	2.7 1.8	2.2 0.8	3.1 2.0	2.3 1.0
Large (% over US\$20 billion) Medium (% US\$3 billion to US\$20 billion) Small (% under US\$3 billion)	0 35 65	0 23 77	0 47 53	0 26 74
Fundamental Structure:				
Price-Earnings Ratio Price-Book Value Ratio Dividend Yield (%) Historical Earnings Growth Rate (%) Projected Earnings Growth Rate (%)	18 2.5 2.9 12 9	16 1.3 2.4 11 13	20 2.8 2.6 11 10	18 1.5 2.2 11 13
Sector Allocation (%):				
Industrials Telecommunication Services Utilities Energy Health Care Consumer Staples Consumer Discretionary Information Technology Materials Financials	43 3 3 7 4 15 6 6	22 1 2 3 8 6 17 9 9	42 2 3 4 6 3 15 5 7	22 1 2 4 7 6 17 9 10 22
Diversification:				
Number of Holdings % in 5 largest holdings % in 10 largest holdings	65 16 29	2,366 2 3	63 17 31	2,392 2 3
Region Allocation (%):				
North America Europe Asia Pacific Emerging Other	6 53 40 0 1	8 53 37 0 1	6 53 40 0 1	9 51 38 0 1
Largest Five Holdings:		Industry		
Chr Hansen CapitaMall Trust Rotork MTU Aero Engines Spirax-Sarco	4.0 3.1 3.0 2.8 2.7	Materials Real Estate Capital Goods Capital Goods Capital Goods		



# Domestic Fixed Income Portfolio Reviews As of September 30, 2015



## Aberdeen Total Return Bond Portfolio Detail as of 9/30/15

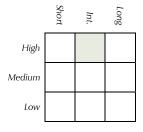
Mandate: Fixed Income
Active/Passive: Active

Market Value: \$167.4 million

Portfolio Manager: Team

**Location:** New York, New York

**Inception Date:** 7/1/2010 **Account Type:** Commingled



#### Fee Schedule:

0.30% on first \$100 mm; 0.25% on next \$150 mm; 0.20% on next \$750 mm; 0.18% thereafter

#### **Liquidity Constraints:**

Daily

#### Strategy:

The Total Return Bond strategy invests investment grade fixed income securities with the goal of delivering strong risk-adjusted returns. In the U.S., the team considers Treasuries, TIPS, agency securities, mortgage-backed securities, asset-backed securities, and investment grade corporate issues. In foreign markets, the team concentrates only on investment-grade government debt. Non-USD denominated bonds can represent up to 40% of the strategy.

Performance (%):	3Q15	1 YR	3 YR	5 YR	7/1/10
Aberdeen Total Return Bond	0.9	2.0	1.6	3.5	3.9
Net of Fees	0.9	1.8	1.3	3.2	3.7
Barclays Aggregate	1.2	2.9	1.7	3.1	3.4
Peer Core Fixed Income	1.2	3.0	1.7	3.1	3.5
Peer Ranking (percentile)	79	89	92	37	33

Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Aberdeen Total Return Bond	3.1%	1.00	1.10	0.32	0.92
Barclays Aggregate	2.9	1.00	1.06	NA	1.00

	9/30/15		6/30/15		
	Aberdeen		Aberdeen		
5 4 6 4 11	Total Return	Barclays	Total Return	Barclays	
Duration & Yield:	Bond	Aggregate	Bond	Aggregate	
Average Effective Duration (years)	5.6	5.6	5.4	5.6	
Yield to Maturity (%)	2.8	2.3	2.5	2.4	
Quality Structure (%):					
Quality Structure (%):					
Average Quality	AA	AA+	AA	AA+	
AAA (includes Treasuries and Agencies)	50	72	55	71	
AA	11	4	10	4	
A	19	11	15	12	
BBB	18	12	18	13	
BB	0	0	0	0	
В	1	0	1	0	
Below B	0	0	0	0	
Non-Rated	0	0	0	0	
Sector Allocation (%):					
U.S. Treasury-Nominal	6	36	10	36	
U.S. Treasury-TIPS	0	0	0	0	
U.S. Agency	4	3	3	3	
Mortgage Backed	22	28	21	28	
Corporate	32	24	25	24	
Bank Loans	0	0	0	0	
Local & Provincial Government	0	1	0	1	
Sovereign & Supranational	0	4	1	5	
Commercial Mortgage Backed	11	2	9	2	
Asset Backed	9	1	9	1	
Cash Equivalent	1	0	2	0	
Other	17	0	19	0	
Market Allocation (%):					
United States	81	91	78	91	
Foreign (developed markets)	18	7	17	7	
Foreign (developed markets)	0	2	5	2	
Currency Allocation (%):					
Non-U.S. Dollar Exposure	0	0	0	0	



## PIMCO Total Return Portfolio Detail as of 9/30/15

Mandate: Fixed Income
Active/Passive: Active

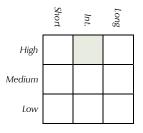
Market Value: \$145.4 million

Portfolio Manager: Team

**Location:** Newport Beach, California

**Inception Date:** 7/1/2010

Account Type: Separately Managed



#### Fee Schedule:

0.50% on first \$25 mm; 0.375% on next \$25 mm; 0.25% thereafter

#### **Liquidity Constraints:**

Daily

#### Strategy:

PIMCO Total Return is a core plus portfolio that typically invests in intermediate term, investment grade bonds and seeks to maximize total return using both top-down and bottom-up analysis to construct portfolios. PIMCO couples their three-to-five year secular outlook for interest rates and the global economy with their bottom-up fundamental credit research to construct the portfolios.

#### **Guidelines:**

None

Performance (%):	3Q15	1 YR	3 YR	5 YR	Since 7/1/10
PIMCO Total Return	0.1	1.7	1.0	3.0	3.6
Net of Fees	0.0	1.4	0.7	2.7	3.3
Barclays Aggregate	1.2	2.9	1.7	3.1	3.4
Peer Core Fixed Income	1.2	3.0	1.7	3.1	3.5
Peer Ranking (percentile)	99	93	99	77	37
Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
PIMCO Total Return	3.2%	1.02	0.92	Neg.	0.90
Barclays Aggregate	2.9	1.00	1.06	NA	1.00

	9/30/15		6/30/15		
Duration & Yield:	PIMCO Total Return	Barclays Aggregate	PIMCO Total Return	Barclays Aggregate	
Average Effective Duration (years) Yield to Maturity (%)	4.9 3.7	5.6 2.3	3.8 2.6	5.6 2.4	
Quality Structure (%):					
Average Quality AAA (includes Treasuries and Agencies) AA A BBB BB B Below B Non-Rated	AA 63 4 12 15 2 4 0	AA+ 72 4 11 12 0 0 0 0	AA 61 5 14 17 2 1 0	AA+ 71 4 12 13 0 0 0	
Sector Allocation (%):					
U.S. Treasury-Nominal U.S. Treasury-TIPS U.S. Agency Mortgage Backed Corporate Bank Loans Local & Provincial Government Sovereign & Supranational Commercial Mortgage Backed Asset Backed Cash Equivalent Other	-1 13 1 50 27 0 4 -12 6 0 4 8	36 0 3 28 24 0 1 4 2 1 0	-2 14 1 -5 18 0 0 -1 5 0 27	36 0 3 28 24 0 1 5 2 1 0	
Market Allocation (%):					
United States Foreign (developed markets) Foreign (emerging markets)	95 -7 12	91 7 2	92 0 8	91 7 2	
Currency Allocation (%):					
Non-U.S. Dollar Exposure	-7	0	-6	0	



## Western Asset U.S. Core Plus Portfolio Detail as of 9/30/15

Mandate: Fixed Income
Active/Passive: Active
Market Value: \$84.2 million
Portfolio Manager: Team

**Location:** Pasadena, California

2/1/2005

Account Type: Separately Managed

High Low

#### Fee Schedule:

Inception Date:

0.30% on first \$100 mm; 0.15% thereafter

#### **Liquidity Constraints:**

Barclays Aggregate

Daily

#### Strategy:

The Western Asset U.S. Core Plus strategy invests primarily in U.S. corporate bonds, U.S. government and agency securities, mortgage-backed securities, and money market instruments. Western Asset may invest up to 20% of their assets in foreign fixed income instruments.

#### **Guidelines:**

Benchmark = Barclays Aggregate; Avg. duration =  $\pm$ -20% of benchmark; Max % in non-U.S. = 10%; Min. avg. quality = 3 notches below benchmark; Max % below "A-" = 20%

Performance (%):	3Q15	1 YR	3 YR	5 YR	Since 2/1/05
Western Asset U.S. Core Plus Net of Fees	0.0 -0.1	1.6 1.3	2.6 2.3	4.4 4.1	5.1 4.8
Barclays Aggregate Peer Core Fixed Income Peer Ranking (percentile)	1.2 1.2 99	2.9 3.0 99	1.7 1.7 1	3.1 3.1 1	4.5 4.7 39
Risk: (sixty months)	Standard Deviation	Beta	Sharpe Measure	Info. Ratio	Correlation to Index
Western Asset U.S. Core Plus	3.2%	1.03	1.35	1.09	0.93

1.00

1.06

	9/30/15		6/30/15		
Duration & Yield:	Western Asset U.S. Core Plus	Barclays Aggregate	Western Asset U.S. Core Plus	Barclays Aggregate	
Average Effective Duration (years) Yield to Maturity (%)	6.3 4.0	5.6 2.3	6.1 3.7	5.6 2.4	
Quality Structure (%):					
Average Quality AAA (includes Treasuries and Agencies) AA A BBB BB B B Below B Non-Rated	A 39 8 20 19 8 3 3	AA+ 72 4 11 12 0 0 0 0	A+ 43 7 18 18 8 3 3	AA+ 71 4 12 13 0 0 0	
Sector Allocation (%):					
U.S. Treasury-Nominal U.S. Treasury-TIPS U.S. Agency Mortgage Backed Corporate Bank Loans Local & Provincial Government Sovereign & Supranational Commercial Mortgage Backed Asset Backed Cash Equivalent Other	5 3 5 31 30 0 0 9 7 5 -2 7	36 0 3 28 24 0 1 4 2 1 0	9 3 5 32 28 0 0 9 6 4 -3 7	36 0 3 28 24 0 1 5 2 1 0	
Market Allocation (%):					
United States Foreign (developed markets) Foreign (emerging markets)	88 6 6	91 7 2	86 5 9	91 7 2	
Currency Allocation (%):					
Non-U.S. Dollar Exposure	-2	0	1	0	



1.00

# **Emerging Markets Debt Portfolio Review As of September 30, 2015**



## MFS Emerging Markets Debt Portfolio Detail as of 9/30/15

Mandate: International Fixed Income,

**Emerging Markets** 

Active/Passive: Active

Market Value: \$97.2 million

Portfolio Manager: Team

Location: Boston, Massach

**Inception Date:** 2/1/2013 **Account Type:** Comming

Boston, Massachusetts
2/1/2013

Commingled

Low

High

#### Fee Schedule:

0.60% on first \$25 mm; 0.55% on next \$25 mm; 0.45% on next \$50 mm; 0.35% thereafter

#### **Liquidity Constraints:**

Daily with 10 days notice

#### Strategy:

The MFS Emerging Markets Debt team utilizes a top-down, research-intensive approach to construct the portfolio. The process begins by generating a view of current and anticipated macroeconomic and financial market conditions, from which general investment themes are developed. Within this framework, security selection focuses on relative value and spread duration considerations. MFS favors high quality, liquid, sovereign securities. Corporate credits are purchased when country creditworthiness is deemed favorable but sovereign bond valuations are perceived as too rich.

Performance (%):	3Q15	1 YR	Since 2/1/13
MFS Emerging Markets Debt	-2.8	-1.2	0.8
Net of Fees	-2.9	-1.6	0.4
JPMorgan EMBI Global Diversified	-1.7	-0.6	1.2
Peer Emerging Market Debt	-4.8	-7.1	-2.6
Peer Ranking (percentile)	17	15	12

	9/30/15 6/30/15			
Duration & Yield:	MFS Emerging Markets Debt	JPMorgan EMBI Global Diversified	MFS Emerging Markets Debt	JPMorgan EMBI Global Diversified
Average Effective Duration (years) Yield to Maturity (%)	6.0 6.2	6.6 6.2	6.1 5.6	6.8 5.7
Quality Structure (%):				
Average Quality AAA (includes Treasuries and Agencies) AA A BBB BB B B Below B Non-Rated	BB 0 2 5 40 21 17 2 14	BB+ 0 6 9 31 30 16 6	BB 0 3 5 41 21 15 1	BB+ 0 6 9 36 27 16 5
Sector Allocation (%):				
U.S. Treasury-Nominal U.S. Treasury-TIPS U.S. Agency Mortgage Backed Corporate Bank Loans Local & Provincial Government Sovereign & Supranational Commercial Mortgage Backed Asset Backed Cash Equivalent Other	1 0 0 0 1 0 0 1 0 0 0 1 3 85	0 0 0 0 0 0 0 0 100 0 0	0 0 0 0 1 0 0 1 0 0 1 0 0 1 2 8 8	0 0 0 0 0 0 0 0 100 0 0
Market Allocation (%):				
United States Foreign (developed markets) Foreign (emerging markets)	13 2 86	0 0 100	12 2 86	0 0 100
Currency Allocation (%):				
Non-U.S. Dollar Exposure	1	0	0	0



## Real Return Portfolio Review As of September 30, 2015



# PIMCO All Asset Portfolio Detail as of 9/30/15

Mandate:TacticalScope:DomesticMarket Value:\$151.8 millionPortfolio Manager:Robert D. Arnott

Location: Newport Beach, California

Inception Date: 12/1/2013

**Account Type:** Mutual Fund (PAAIX)

Fee Schedule: 0.88% on all assets Liquidity Constraints:

Liquidity Constraints: Daily

Strategy:

The PIMCO All Asset strategy strives to maximize real returns consistent with preservation of capital and prudent investment management. The strategy invests tactically among multiple PIMCO strategies, including both conventional and alternative market sectors.

Performance (%):	3Q15	1 YR	Since 12/1/13
PIMCO All Asset Net of Fees	-8.4 -8.6	-10.6 -11.3	-3.5 -4.4
All Asset Custom Benchmark <sup>1</sup>	-3.0	-1.4	1.2

Current Positioning <sup>2</sup> Short-Term Strategies	9/30/15 (%) 1.1	6/30/15 (%) 1.5
Government Money Market		0.4
Low Duration Fund		0.9
Low Duration ETF		0.2
Commodities and REITS	6.1	6.4
Real Estate Real Return Strategy Fund	011	2.0
Commodities PLUS Strategy Fund		2.2
Commodities Real Return Strategy Fund		2.2
Emerging Markets Bonds	22.2	22.5
Emerging Local Bond Fund Emerging Markets Currency Fund Emerging Market Bonds Fund Emerging Market Bonds Fund		9.8 12.3 0.3 0.1
U.S. Bond Strategies:	1.9	1.5
Long Term Credit Fund Total Return Fund Long-Term U.S. Government Fund		0.6 0.9 0.0
Alternative Strategies:	19.1	19.1
Worldwide Fundamental Advantage Fund Credit Absolute Return Fund Unconstrained Bond Fund Fundamental Advantage Absolute Return Fund Mortgage Opportunities EqS Long/Short Fund		7.5 0.4 2.4 3.8 0.7 0.3
Credit Strategies:	16.1	15.2
Income Fund High Yield Fund High Yield Spectrum Fund Senior Floating Rate Fund Floating Income Fund		6.0 2.9 3.2 2.6 0.3
Equity Strategies:	5.6	5.7
RAE Fundamental PLUS RAE Low Volatility PLUS Eqs Pathfinder Fund		1.6 4.1 0.0

<sup>&</sup>lt;sup>1</sup> The All Asset Custom Benchmark is composed of 12.5% BofA Merrill Lynch 1 Year Treasury Bill Index, 12.5% Barclays U.S. Aggregate Bond, 12.5% PIMCO Global Advantage Bond, 12.5% BofA Merrill Lynch U.S. High Yield Master II Index, 12.5% Barclays TIPS, 12.5% Russell 3000, 12.5% MSCI ACWI, and 12.5% BofA Merrill Lynch 3 Month U.S. T-Bill Index + 3%.

 $<sup>^{2}</sup>$   $\,$  Detailed positional breakdowns for 9/30/2015 were not available at the time of this report.



# Private Equity Portfolio Review As of September 30, 2015



# **Neuberger Berman Sonoran Portfolio Detail as of 9/30/15**

Strategy: Private Equity
Fund of One
Senior Professionals: Team

**Location:** Dallas, Texas

Vintage Year: 2015

**Fee Schedule:** Year 1: 0.25%; years 2-8:

0.3%; years 9-10: 0.05%; fees based on committed

capital.

**Commitment:** \$165.0 million

Capital Contributions: \$14.6 million

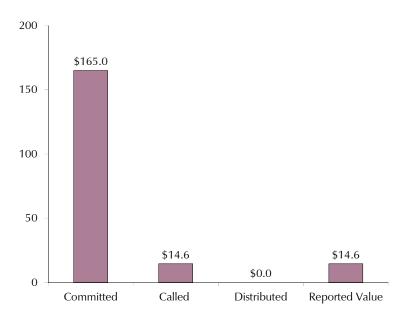
**Outstanding Commitment:** \$150.4 million

Realized Proceeds: \$0.0 million

**Total Value:** \$14.6 million

Net IRR: NM

**Net Mult.**<sup>1</sup>: 1.0%



### **Investment Strategy:**

The Fund of One is globally diversified across four strategic asset classes:

(i) small and midcap buyout; (ii) large cap buyout; (iii) special situations; and (iv) venture and growth capital. The Fund includes primary fund investments along with opportunistic co-investments and secondaries.



## Absolute Return Portfolio Reviews As of September 30, 2015



# PAAMCO Newport Phoenix, LLC Portfolio Detail as of 9/30/15

Mandate: Hedge Fund, Fund of Funds,

Absolute Return Strategies

Market Value: \$129.5 million

Portfolio Manager: Team

**Location:** Irvine, California

**Inception Date:** 1/1/2014

Account Type: Separately Managed

# of Investments: Not Provided

Fee Schedule:

1.00% on first \$300 mm; 0.85% on next \$300 mm; 0.70% thereafter

**Liquidity Constraints:** 

Quarterly (with a 90 days notice)

Strategy:

The Newport Phoenix portfolio seeks to achieve an attractive risk-adjusted rate of return over a complete market cycle with a relatively low sensitivity (Beta) with most equity and fixed income indices. To pursue this objective, PAAMCO will allocate assets across a variety of underlying Investment Funds that in turn invest in a variety of investment strategies.

Performance (%):	3Q15	1 YR	Since 1/1/14
PAAMCO Newport Phoenix, LLC <sup>1</sup>	-4.8	-1.7	0.9
HFRI Fund of Funds Composite	-3.7	-0.1	1.3

Performance is shown net of fees.



Geographic Exposure (%): 9/30/2015 6/30/2015 3/31/2015 12/30/2014 North America 60.0 58.2 59.6 0.0 19.1 0.0 Developed Europe 20.5 19.9 Developed Asia 8.7 2.9 2.7 0.0 **Emerging Markets** 10.8 18.9 18.7 0.0 **Exposure Report (%):** Total Gross Exposure 301 175 179 0 Gross Long Exposure 176 119 119 0 60 Gross Short Exposure 125 56 0 63 59 Net Exposure 51 0

# Carlson Double Black Diamond, L.P. Portfolio Detail as of 9/30/15

Mandate: Hedge Fund, Multi-Strategy

Market Value: \$60.4 million

Portfolio Manager:TeamLocation:Dallas, TexasInception Date:8/1/2014

Account Type: Limited Partnership
# of Investments: Not Provided

Fee Schedule:

1.50% management fee; 20% performance fee

**Liquidity Constraints:** 

Quarterly (with 60 days notice)

#### Strategy:

Double Black Diamond is Carlson's flagship multi-strategy fund. Double Black Diamond has a bias towards non-directional, relative value investment strategies that seek to identify, isolate, and exploit mispricings across related securities within similar industry sectors. The Fund employs three core strategies: Equity Relative Value, Cross-Asset Relative Value, and Event-Driven. These core strategies currently make up  $^{\sim}65\%$  of Double Black Diamond's long market value. The remaining  $^{\sim}35\%$  is comprised of smaller, complementary strategies that operate in-line with our investment philosophies but contribute a return stream that is uncorrelated with the core strategies.

Performance (%):	3Q15	1 YR	8/1/14
Carlson Double Black Diamond, L.P. <sup>1</sup>	-1.2	0.1	0.6
HFRI RV Multi-Strategy	-2.2	0.4	0.5

Performance is shown net of fees.



<sup>9/30/2015</sup> 6/30/2015 Geographic Exposure (%): Gross Net Gross Net North America 221.2 34.2 155.1 0.9 Developed Europe 69.6 6.7 38.4 0.8 Developed Asia 4.6 -1.2 4.1 -2.1 **Emerging Markets** 3.5 0.8 2.5 0.3 **Exposure Report (%):** 9/30/2015 6/30/2015 3/31/2015 12/31/2014 Total Gross Exposure 299 48 48 48 Gross Long Exposure 170 26 26 26 Gross Short Exposure 129 22 22 22 Net Exposure 41 4 4 4

# Fir Tree International Value Fund, Ltd. Portfolio Detail as of 9/30/15

Mandate: Hedge Fund, Multi-Strategy,

Absolute Return Strategies

Market Value: \$57.1 million

Portfolio Manager: Team

**Location:** New York, New York

Inception Date: 11/1/2014

Account Type: Limited Partnership

**# of Investments:** 43

Fee Schedule:

1.5% management fee; 20% performance fee

#### **Liquidity Constraints:**

Quarterly (with 90 days notice)

#### Strategy:

Fir Tree's mission is to provide investors with attractive long-term risk-adjusted returns by applying a focused research driven approach to concentrated opportunistic value investing through the proven expertise of investment professionals, and the support of a robust organizational infrastructure. Fir Tree employs an opportunistic value approach to find the most attractive, value oriented investments on a global basis. The Value Fund's broad mandate allows the chance to look for value opportunities across a variety of sectors, assets classes, industries, and geographies. The Fund seeks to earn low double-digit net annualized returns over an economic cycle, while limiting downside risk and achieving its long-term objective independently of broad market movements.

Performance (%):	3Q15	Since 11/1/14
Fir Tree International Value Fund, Ltd. <sup>1</sup>	-8.4	-4.9
HFRI RV Multi-Strategy	-2.2	0.8

Performance is shown net of fees.



<sup>9/30/2015</sup> 6/30/2015 Geographic Exposure (%): Gross Net Gross Net North America 109.8 49.7 95.8 48.3 Developed Europe 8.9 5.6 7.2 5.6 Developed Asia 15.5 -6.8 12.3 -8.1 **Emerging Markets** 18.3 1.3 20.0 5.7 **Exposure Report (%):** 9/30/2015 6/30/2015 3/31/2015 12/31/2014 Total Gross Exposure 152 135 135 175 Gross Long Exposure 101 93 89 110 Gross Short Exposure 51 42 46 65 Net Exposure 50 52 44 45

# Glossary and Notes As of September 30, 2015

## Glossary Investment Terminology

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit



## Glossary Investment Terminology

above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

Sources: <u>Investment Terminology</u>, International Foundation of Employee Benefit Plans, 1999.

The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991.



### **Notes**

The Russell Indices ®, TM, SM are trademarks/service marks of the Frank Russell Company.

Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

