

HEALTH WEALTH CAREER

COMMUNITY FOUNDATION OF GREATER DES MOINES INVESTMENT EDUCATION SESSION

FEBRUARY 13, 2018

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Elizabeth M. Monticelli

Principal

18+ years with Mercer, 23+ years of investment experience

Elizabeth is a Principal assigned to Mercer's St. Louis office in Investments where she has worked for over 17 years consulting to institutional investors. She works with non-profit institutions that include endowments, foundations, and trusts.

She received an MA degree in International Trade from George Mason University and a BA in Economics from the University of Virginia. She has prior experience with The Witan Company, a financial reporting firm for families of high net worth and before that, she was an accountant and performance analyst for the Scripps family office (SLN Service Co.).

Elizabeth currently is a member of the St. Louis Zoo's Executive Board and serves as the Chair of the Zoo's Investment Oversight Committee. She is on the Board of the Ladue Education Foundation, chaired the Foundation's Partnership Committee and is a member of the CFA Institute and the St. Louis Society of Financial Analysts. Previously, Elizabeth served as the Co-Chair of the St. Louis Chapter of Families for Russian and Ukrainian Adoption.

Biography



Christopher C. Cozzoni

Principal

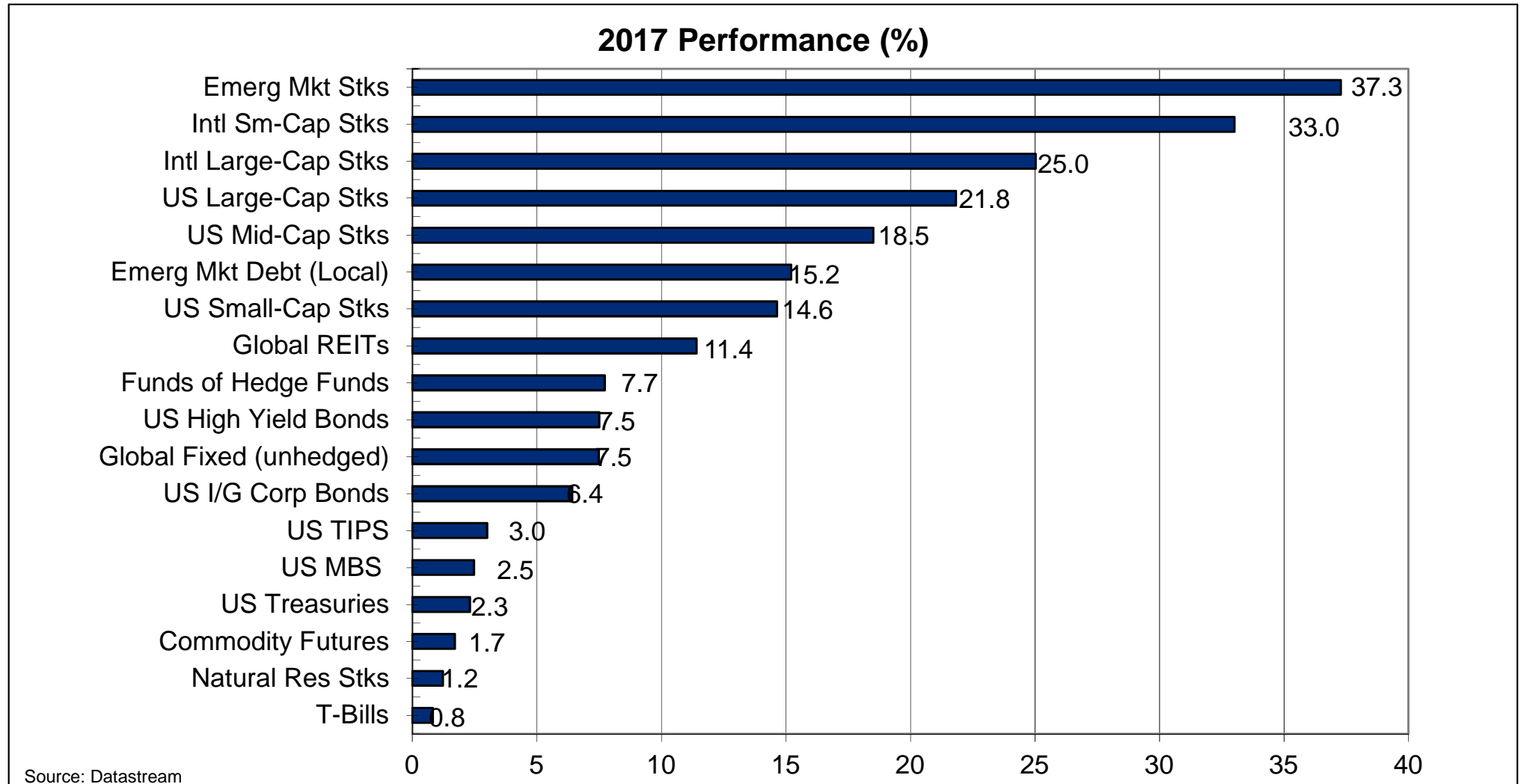
12+ years with Mercer, 22+ years of industry experience

Chris is a Principal in the St. Louis office of Mercer's Investments business. With more than a decade of experience as an investment consultant, Chris consults primarily to endowments, foundations, and healthcare clients.

Prior to joining Mercer, he served as the Assistant Treasurer at Saint Louis University where he was responsible for managing the institution's endowment and operating funds, totaling \$1 billion and included more than \$200 million in direct alternative investments. He was also responsible for all treasury management functions and bonds issued by the University and the University Medical Group. Before working at Saint Louis University, he was a treasury analyst and internal auditor at Bunge Corporation.

Chris holds a MS in finance from Saint Louis University and a BSBA with an emphasis in Accounting from the University of Missouri – St. Louis.

DIVERSIFICATION WORKED IN 2017



Past performance is no guarantee of future results. Please see Important Notices for further information.

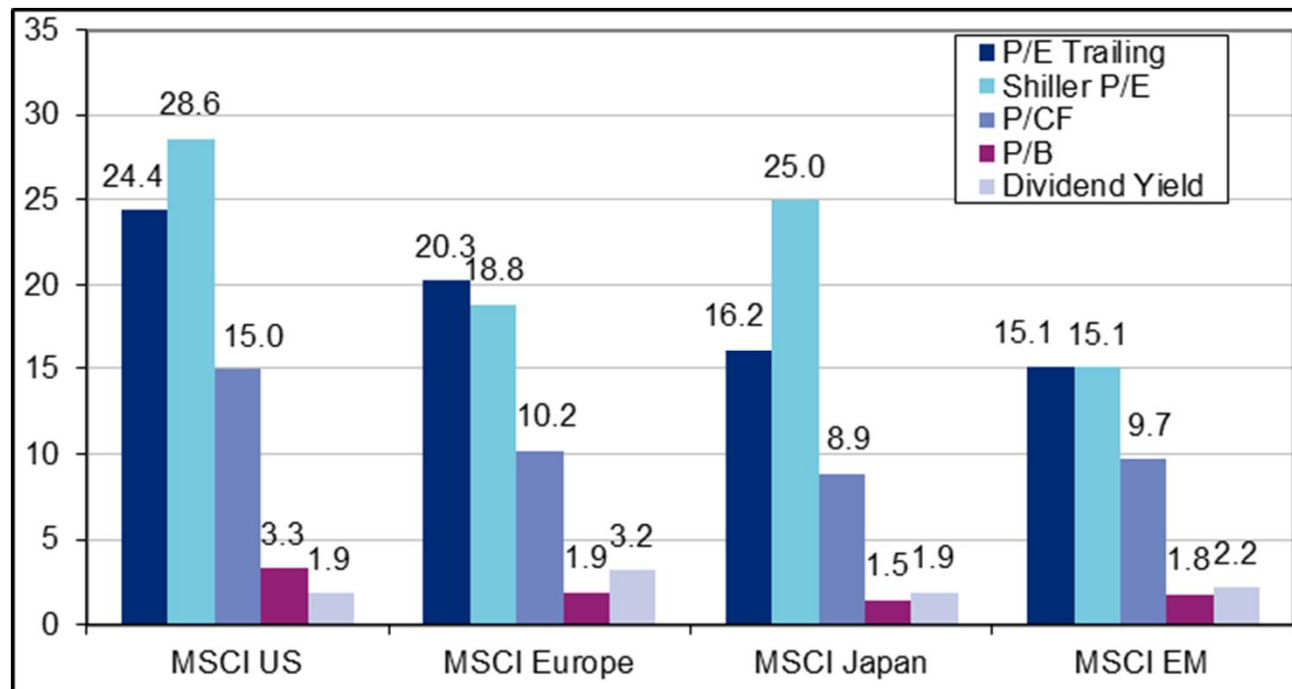
PERFORMANCE SUMMARY

AS OF DECEMBER 31, 2017

Global Equities

- Global equities posted positive returns during the fourth quarter, driven mostly by US and Japanese stocks. The MSCI ACWI index increased 5.7% during the fourth quarter and finished the year up 24.0%.
- International developed equities posted strong returns during the fourth quarter. In \$US terms, the MSCI EAFE index returned 4.2% during the quarter, finishing the year with a 25.0% gain.
- Emerging market stocks posted solid gains during the fourth quarter, rising 7.4% and finishing the year up 37.3%.

Global Valuations



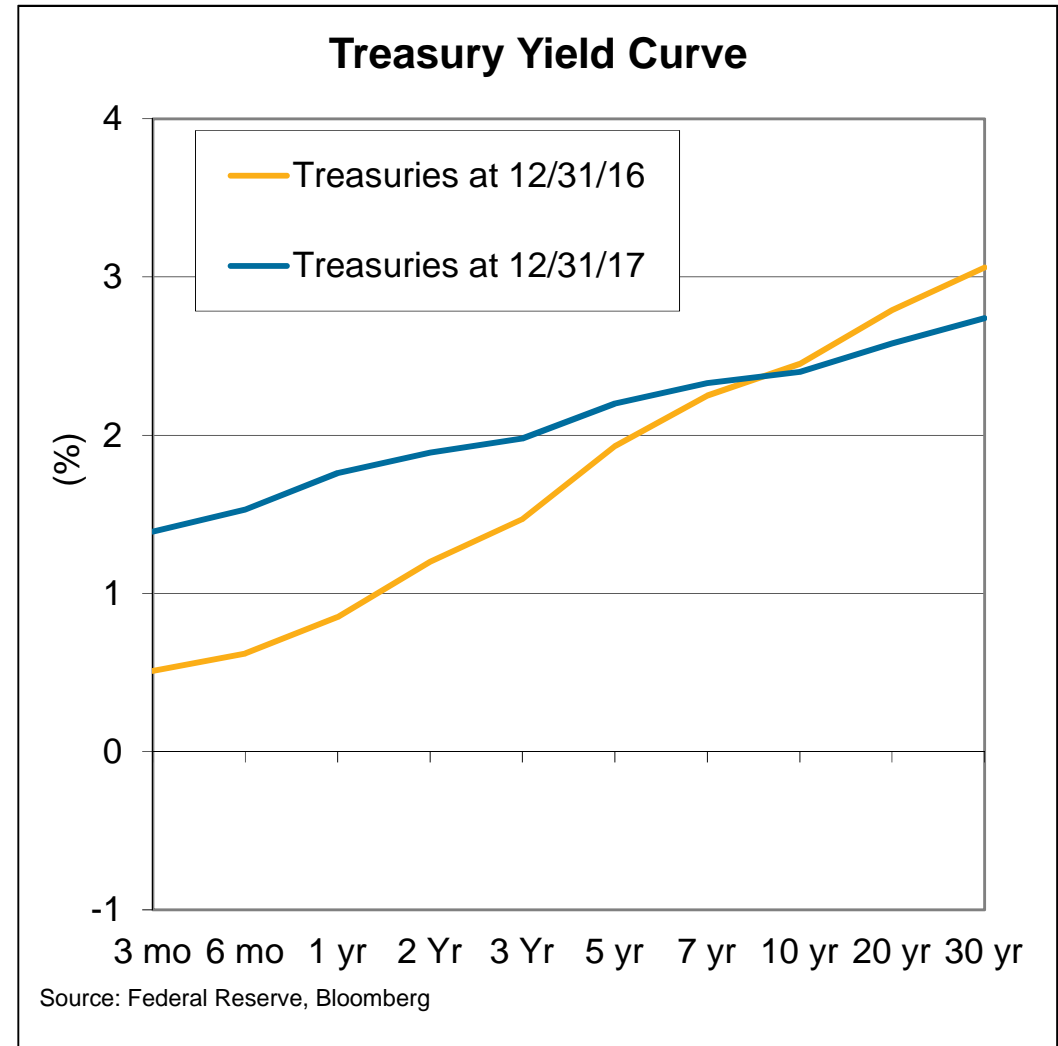
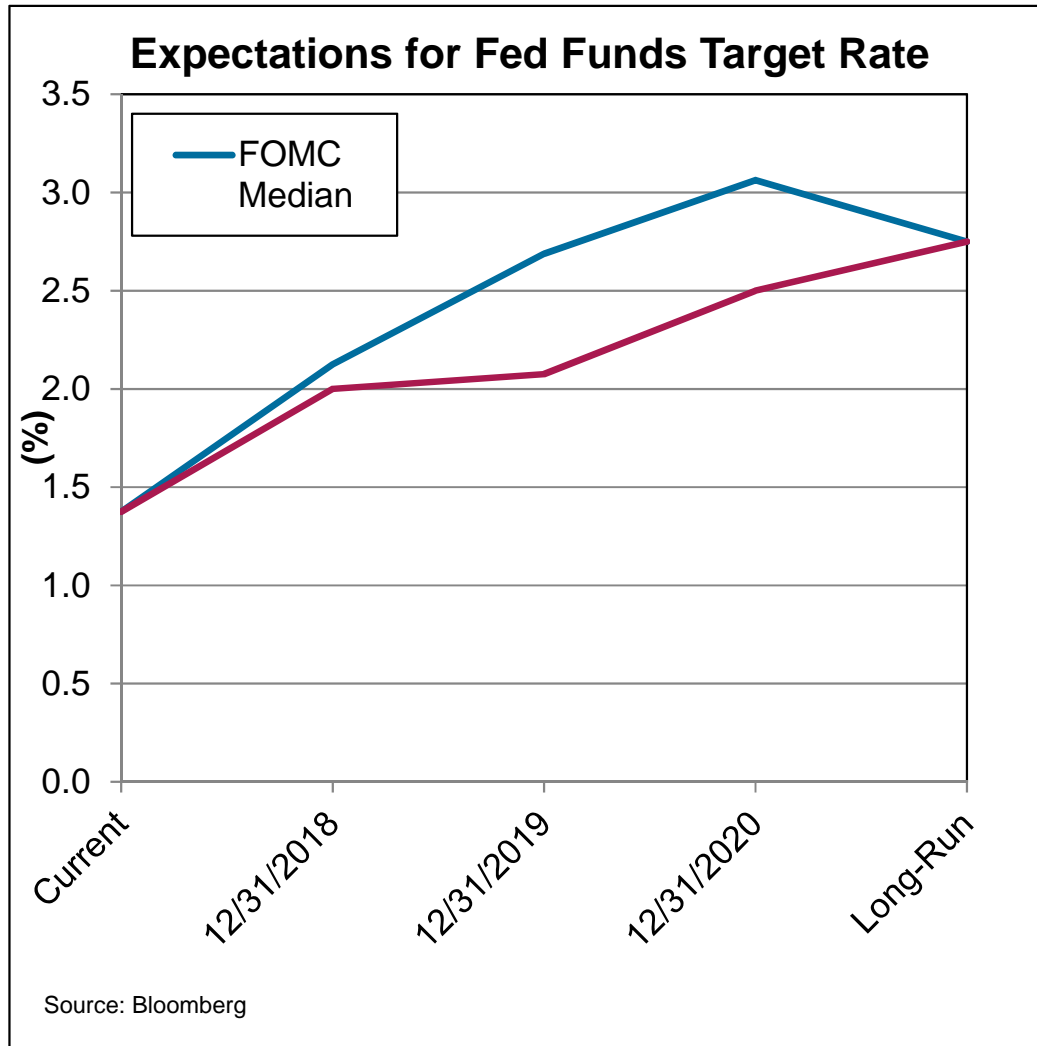
PERFORMANCE SUMMARY

AS OF DECEMBER 31, 2017

Macro Environment

- The **global economy** is growing at its fastest pace since the financial crisis and growth is likely to strength further in 2018.
 - The IMF estimates that the global economy expanded by 3.6% in 2017 and projects that growth will increase to 3.7% in 2018 driven by higher capital investment and stronger productivity growth.
- In the **US**, economists forecast growth to improve to 2.6% in 2018.
- The **Eurozone** remains solid with the IMF estimating that the economy expanded by 2.1% in 2017.
 - The region should benefit from loose monetary policies and is still early in its economic cycle, but political risks are still a concern.
- **Emerging market economies** led global growth in 2017 supported by looser monetary and fiscal policies and improved competitiveness.
 - The IMF estimates that growth will accelerate to 4.9% in 2018.
 - EM economies are generally in the infancy of their economic cycle and so supply constraints are limited.

THE MARKET IS LIKELY UNDERESTIMATING FED RATE HIKES



INVESTMENT OBJECTIVES

Community Foundation of Greater Des Moines

Investment Objective:

“The primary investment objective of the Foundation is to provide a real rate of return over inflation sufficient to support in perpetuity the mission of the Foundation. It is particularly important to grow the assets in real terms to enable the Foundation to maintain the purchasing power of the spending on grants and administration without eroding the real value of the principal corpus of the Foundation.”¹

¹ Source: *Statement of Investment Policy for Greater Des Moines Community Foundation*

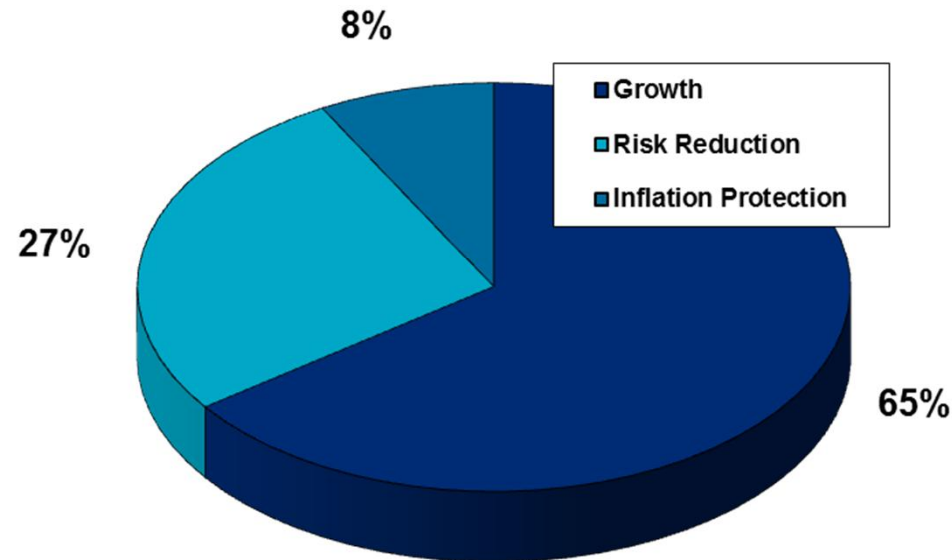
Components of Return Need	
Distribution Rate	5.0%
Inflation Rate	2.2%
Real Portfolio Growth	0.0 - 1.0%
Net Long Term Return Need	7.2 - 8.2%
10-Year Horizon Expected Return	6.5%

- We project that the Long-Term Growth Portfolio will gain 6.5% per annum over the intermediate-term, less than the spending and inflation target of 7.2% and falling short of the Foundation’s aspiration for 1.0% real growth. Manager alpha may improve performance beyond that projected above. There is some flexibility in the distribution rate.
- Since Oct. 2002, the Long-Term Growth Portfolio has earned 7.8%, annualized and net of fees.
- In addition to meeting the distribution rate, inflation, and providing some growth, the Community Foundation also charges an administrative fee. The fee schedule collects about 100 basis points from most fund types and 50 basis points from agency funds.

ASSET ALLOCATION - POLICY

LONG-TERM GROWTH PORTFOLIO - STRATEGIC VIEW

Policy Strategic Objectives



Policy Strategic Objectives

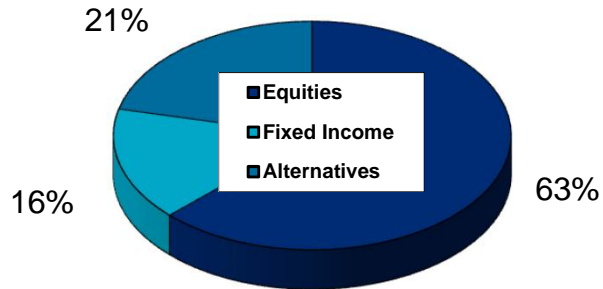
Growth		Risk Reduction		Inflation Protection	
65%		27%		8%	
US Equities	29%	US Fixed Income	14%	Real Assets	
Intl Equities	29%	Global Fixed Income	2%		
Private Equity	7%	Hedge Funds	11%		

- Viewed strategically, the Long-Term Growth Portfolio has a 65% allocation to growth assets and a 27% allocation to risk reduction assets. Therefore, the Portfolio should be able to perform better than the equity market during periods of market decline.
- The Portfolio also has an 8% allocation to inflation protection assets, which should help the portfolio retain purchasing power during inflationary periods. Inflation is not a pressing concern at the moment, but as unemployment remains at an all time low it may create upward pressure on inflation.

ASSET ALLOCATION – PRO-RATA POLICY

LONG-TERM GROWTH PORTFOLIO - TRADITIONAL VIEW

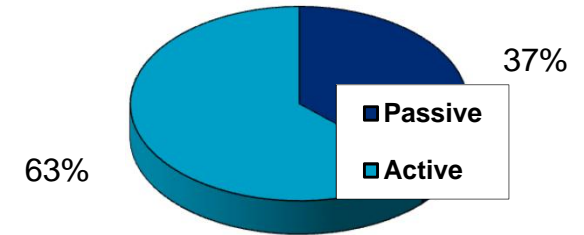
Equity/Fixed Income/Alternatives



Domestic/International Equities

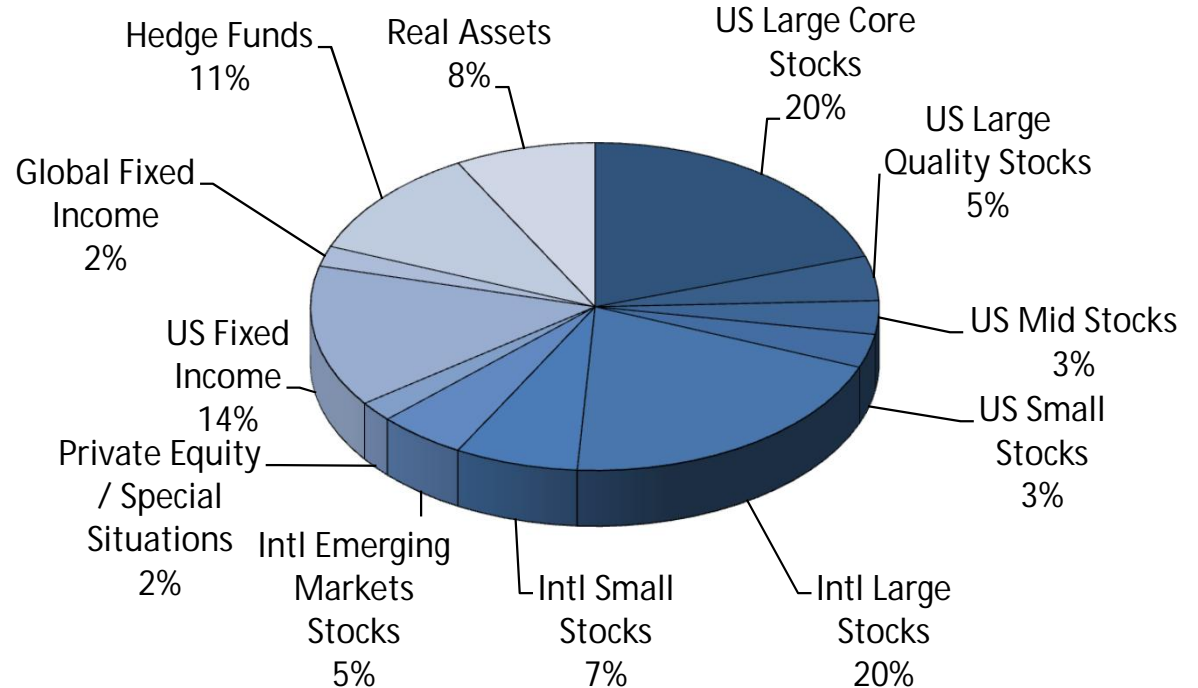


Active/Passive



- This is the pro-rata, where the uncalled private equity allocation is invested across equities on a pro-rata basis.
- This page shows the traditional view where equity, fixed income and alternative investments are separated into different categories.
- Currently, the Portfolio is well-diversified between domestic and international assets.
- The pie chart on the right shows the breakout of the Portfolio into each underlying asset class.

Policy Asset Allocation

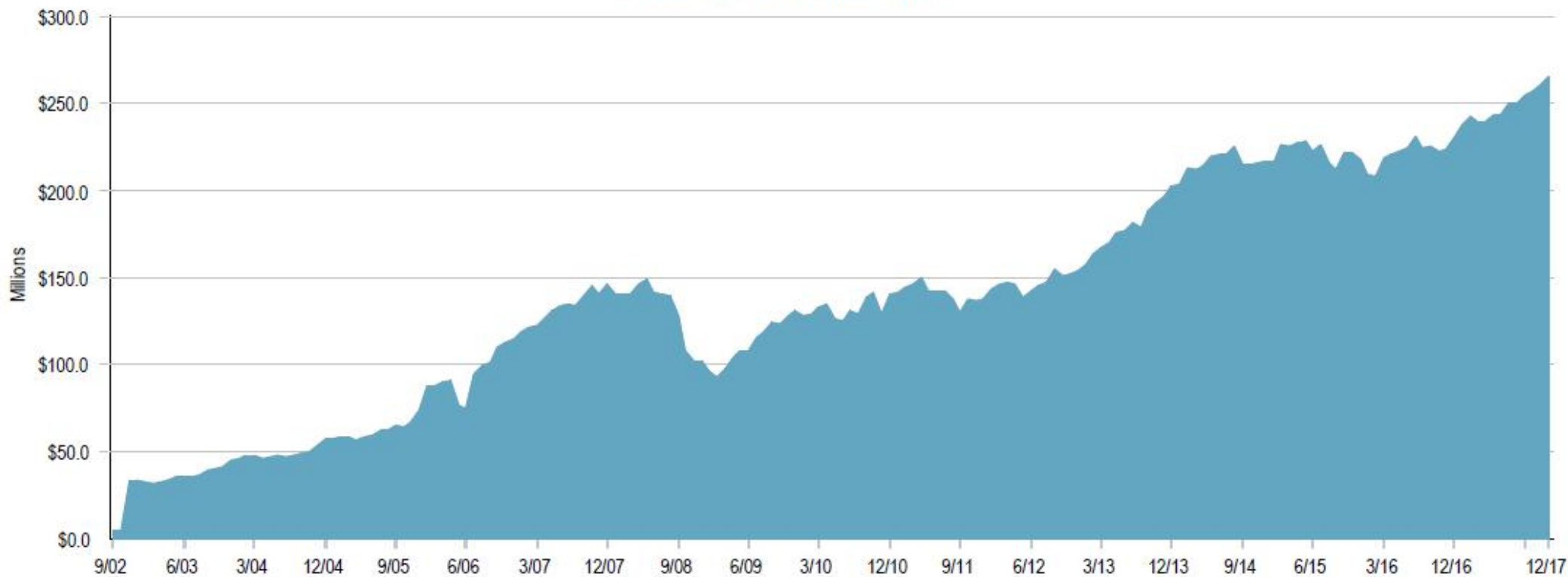


MARKET VALUE HISTORY

LONG-TERM GROWTH PORTFOLIO

The LTG Portfolio 12/31/17 market value was \$265.5M.

Market Value History - Since Inception



Beginning Value \$33.7 million

12/31/17 Value \$265.5 million

Annualized Return 7.8%

PERFORMANCE ATTRIBUTION

LONG-TERM GROWTH PORTFOLIO

Performance Update:

- For the 1-year period ending December, the Long-Term Growth Portfolio gained 17.2% compared to 17.5% for the Blended Historical Benchmark (a broad benchmark of equities and fixed income, consisting of 70% MSCI ACWI / 30% Bloomberg Barclays US Aggregate).
- The average return for calendar year 2017 for other Community Foundation's with similar asset size was 16.1%*, 110 bps less than the Long-Term Growth Portfolio's return.

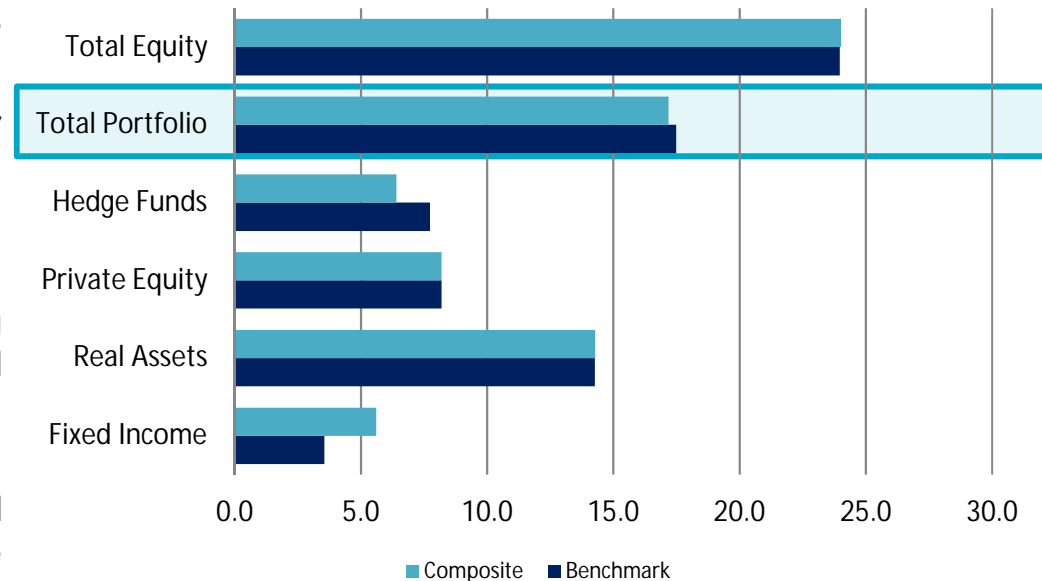
What Worked:

- The Total Equity composite finished the 1-year period with strong absolute returns, returning 24.0%. Emerging market and international small cap stocks were the best performers, up 30.2% and 32.2%, respectively.
- Private equity performed well over the 1-year period, and generated an 8.2% internal rate of return (IRR) since the inception of the program (Feb '06).
- Fixed income beat its benchmark over the 1-year period (5.6% vs. 3.5%), driven by the Portfolio's multi-asset credit and global fixed income managers.

What Didn't Work:

- Hedge Funds earned 6.4% in 2017. While they underperformed the HFRI Fund-of-Funds Composite Index, the funds outperformed fixed income by 80 basis points while providing diversification to interest rate risk.

1-Year Return (%)



*Return based on the 2017 Colonial Consulting Investment Performance and Asset Allocation Survey for Community Foundations

PERFORMANCE REVIEW - LONG-TERM GROWTH

AS OF DECEMBER 31, 2017

- The Community Foundation of Greater Des Moines Long-Term Growth Portfolio, valued at \$265.5 million, earned 17.2% in calendar-year 2017, net of fees.
- The Total Equity Composite returned 24%, net of fees, matching its benchmark in 2017.

As of December 31, 2017

	Allocation		Performance(%)								Inception Date
	Market Value (\$)	% of Portfolio	Since Inception	10 Years	5 Years	3 Years	1 Year	YTD	3 Months	1 Month	
CF OF GREATER DES MOINES	265,514,150	100.0	7.8	4.8	7.7	6.9	17.2	17.2	4.1	1.3	Nov-02
<i>Blended Historical Benchmark</i>			7.4	4.4	8.1	7.3	17.5	17.5	4.1	1.3	
TOTAL MARKETABLE SECURITIES	259,230,559	97.6	7.6	-	7.7	7.0	17.5	17.5	4.1	1.3	Oct-08
TOTAL EQUITY	168,003,187	63.3	12.0	-	11.2	9.7	24.0	24.0	5.8	1.5	Aug-12
<i>MSCI AC World Index (Net)</i>			11.6	-	10.8	9.3	24.0	24.0	5.7	1.6	
TOTAL DOMESTIC EQUITY	82,185,892	31.0	9.3	8.0	14.3	9.8	19.8	19.8	6.2	1.0	Sep-02
<i>Dow Jones U.S. Total Stock Market Index</i>			10.0	8.7	15.5	11.1	21.2	21.2	6.3	1.0	
TOTAL INTERNATIONAL EQUITY	85,817,294	32.3	8.8	4.4	7.9	9.7	28.6	28.6	5.4	2.0	Jan-02
<i>MSCI AC World ex USA Index (Net)</i>			7.1	1.8	6.8	7.8	27.2	27.2	5.0	2.2	
TOTAL FIXED INCOME	39,962,432	15.1	4.6	4.6	1.5	2.7	5.6	5.6	0.6	0.5	Sep-02
<i>Bimbg. Barc. U.S. Aggregate Index</i>			4.3	4.0	2.1	2.2	3.5	3.5	0.4	0.5	
TOTAL CASH	3,469,849	1.3	1.2	0.4	0.2	0.3	0.7	0.7	0.2	0.0	Jan-03
TOTAL HEDGE FUNDS	27,765,417	10.5	3.6	2.3	3.5	2.5	6.4	6.4	0.3	0.5	Jul-06
<i>HFRI Fund of Funds Composite Index</i>			2.3	1.1	4.0	2.6	7.6	7.6	1.9	0.8	
TOTAL ILLIQUID REAL ASSETS	546,731	0.2									
TOTAL PRIVATE EQUITY	5,736,860	2.2	5.2	6.4	7.7	4.2	8.2	8.2	2.3	2.5	Feb-06
<i>CF of Greater Des Moines Private Equity</i>			5.2	6.4	7.7	4.2	8.2	8.2	2.3	2.5	

The less diversified benchmark mentioned above reflects the broad asset allocation of global equities and US broad fixed income existing during the period, e.g., 70%/30%, 68%/32%, etc. Any return greater than one year is annualized. All returns are net of fees.

RISK AND RETURN ANALYSIS

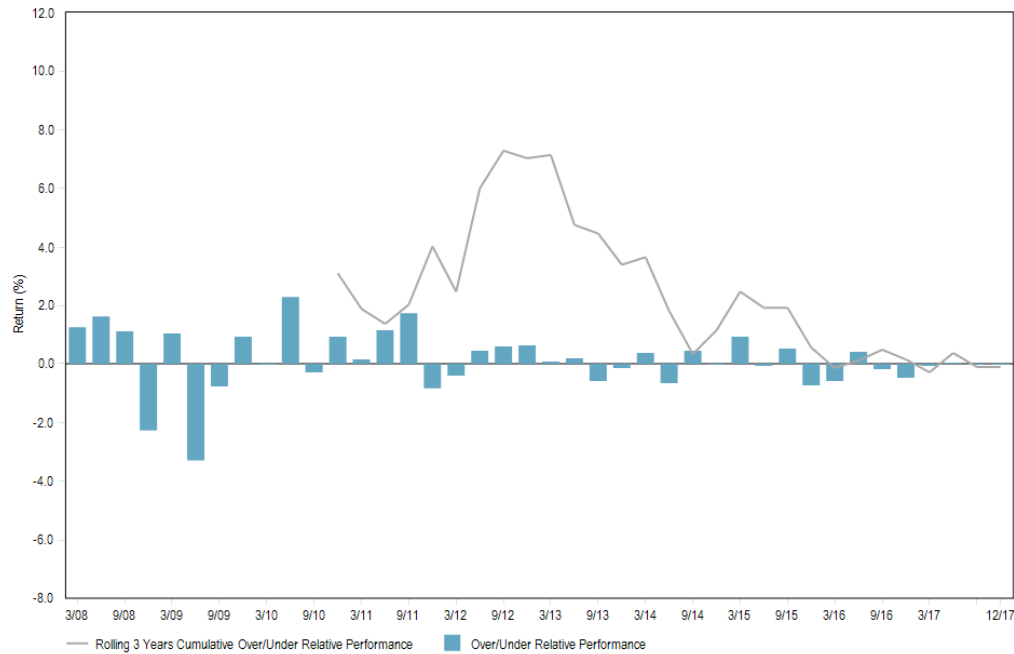
LONG-TERM GROWTH PORTFOLIO

- We performed a risk and return analysis for the Long-Term Growth Portfolio for the ten-year period ending December 31, 2017. A less diversified blended benchmark of global equities and US broad fixed income was used as a market proxy, e.g., 70%/30%.
- In summary, the Portfolio generated an annualized return of 5.1% while incurring annual volatility of +/- 10.9% (standard deviation). In comparison, the blended benchmark also returned 4.4% over the same period and exhibited a higher standard deviation of +/- 12.0%.
- Relative to the blended benchmark, the Portfolio had a beta of 0.90 which means it was less sensitive to overall market movements.
- The Portfolio generated a higher Sharpe ratio (.48 versus .39) which implies higher risk-adjusted returns (greater return per each unit of risk taken).
- **In summary, the Long-Term Growth Portfolio generated similar returns to the blended benchmark while taking less risk.**
- **The diversification within the Portfolio allowed it to capture most of the return potential in rising markets while protecting capital in market downturns.**

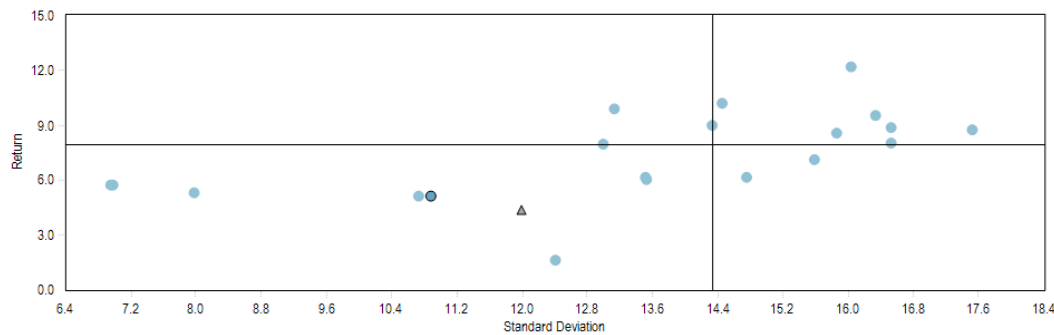
RISK AND RETURN ANALYSIS

LONG-TERM GROWTH PORTFOLIO

Quarterly and Excess Performance
Mar-2008 to Dec-2017



Annualized Return vs. Annualized Standard Deviation
10 Years ending December 31, 2017



Return Summary Statistics

	Total Fund	Policy Benchmark
Maximum Return	7.22	8.41
Minimum Return	-15.60	-15.45
Return	5.10	4.41
Cumulative Return	64.42	54.03
Excess Return	5.21	4.68
Active Return	0.53	0.00

Risk Summary Statistics

Beta	0.90	1.00
Upside Risk	7.60	8.44
Downside Risk	7.97	8.64

Risk/Return Summary Statistics

Standard Deviation	10.89	11.98
Sharpe Ratio	0.48	0.39
Tracking Error	2.06	0.00

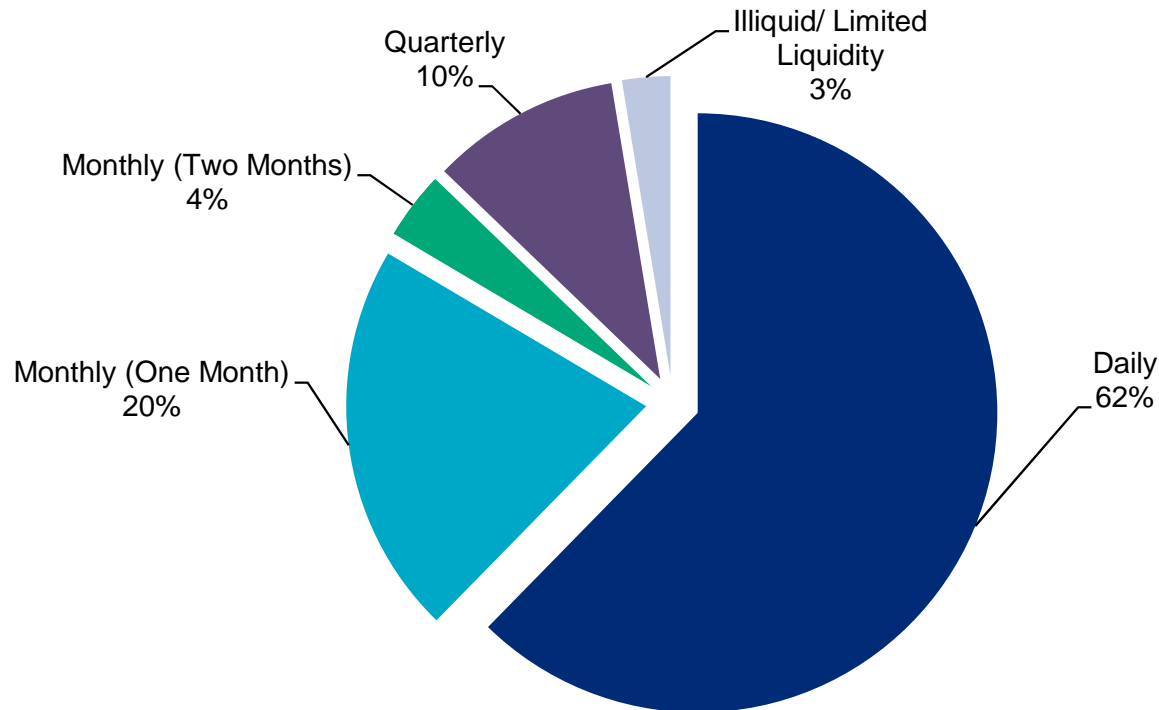
Correlation Statistics

R-Squared	0.98	1.00
Actual Correlation	0.99	1.00

LIQUIDITY REVIEW

AS OF DECEMBER 31, 2017 - LONG-TERM GROWTH PORTFOLIO

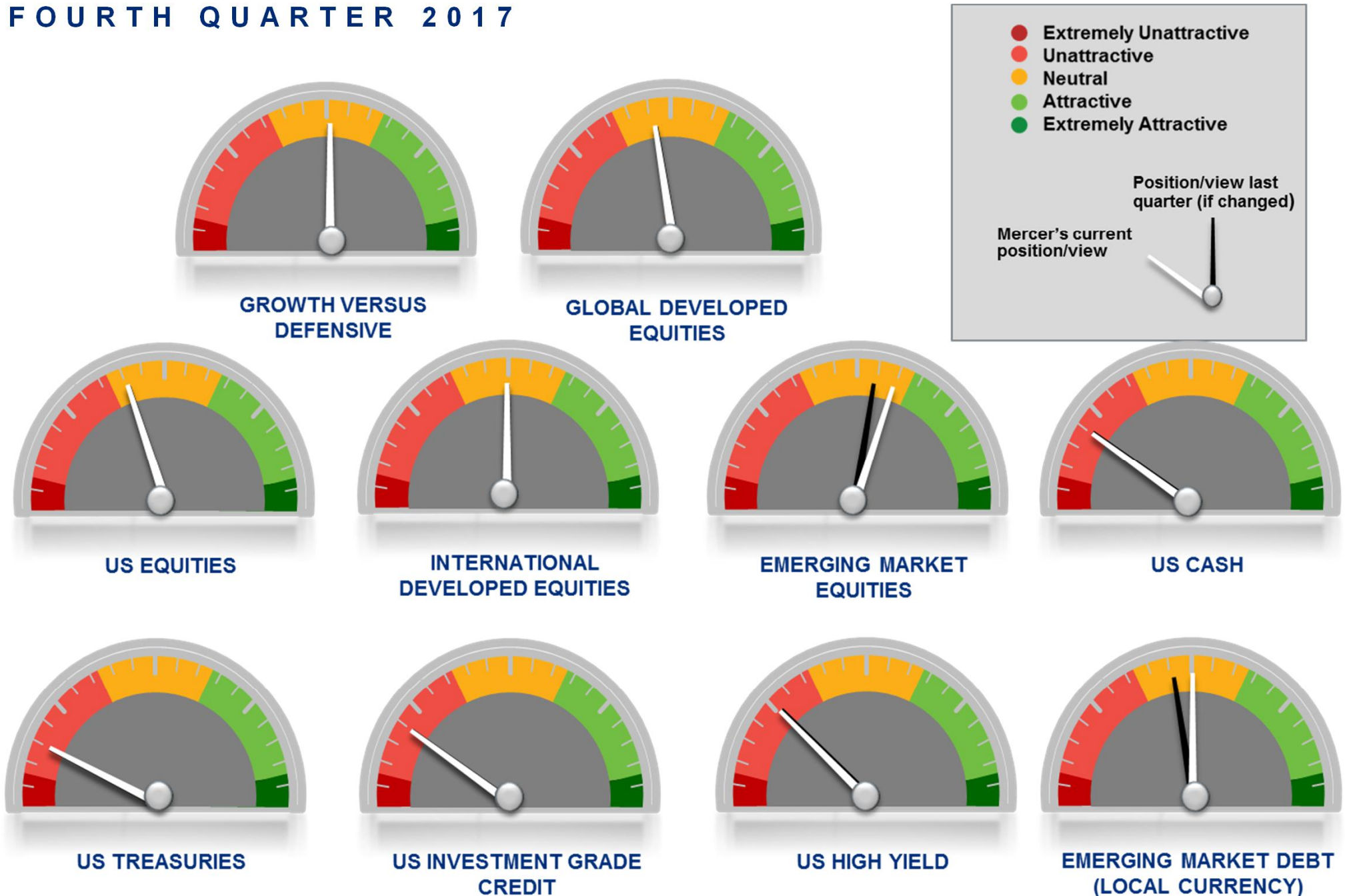
Liquidity Breakdown



- The Long-Term Growth Portfolio has 62% of the assets that can be liquidated daily.
- Another 20% of the portfolio is liquid within one month.
- In total, 87% of the assets could be available within 60 days.
- The private equity and real assets portion of the portfolio is illiquid.

U.S. DYNAMIC ASSET ALLOCATION OUTLOOK

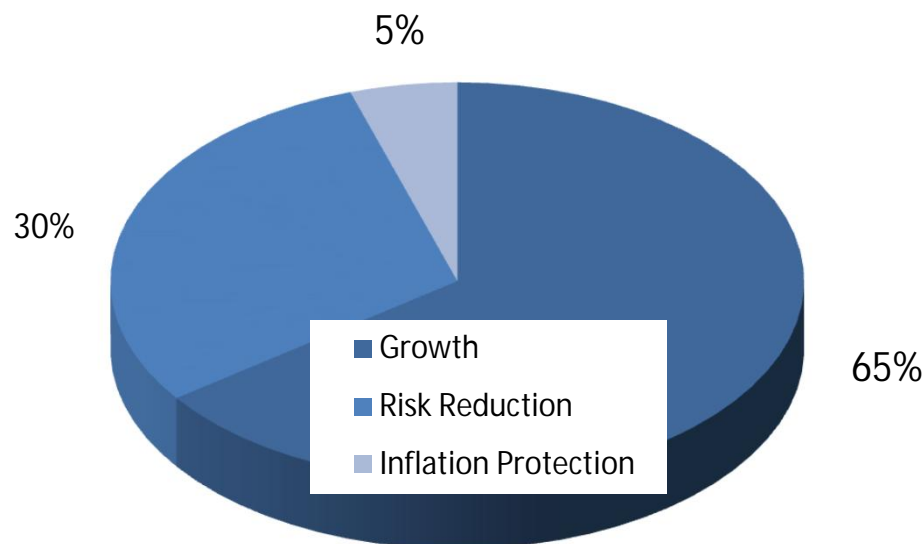
FOURTH QUARTER 2017



ASSET ALLOCATION - POLICY

INDEXED GROWTH PORTFOLIO - STRATEGIC VIEW

Policy Strategic Objectives



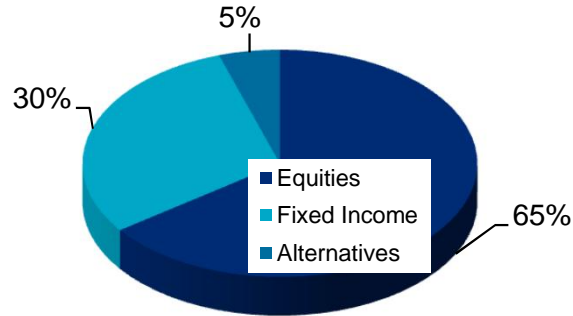
Policy Strategic Objectives					
Growth	65%	Risk Reduction	30%	Inflation Protection	5%
US Equities	33%	US Fixed Income	26%	Real Assets	5%
Intl Equities	32%	Global Fixed Income	4%		

- Viewed strategically, the Indexed Growth Portfolio has a 65% allocation to growth assets and a 30% allocation to risk reduction assets. Therefore, the portfolio should be able to perform better than the equity market during periods of market decline.
- The Portfolio also has an 5% allocation to inflation protection assets, which should help the it retain purchasing power during inflationary periods. Inflation is not a pressing concern at the moment, but as unemployment remains at an all time low it may create upward pressure on inflation.

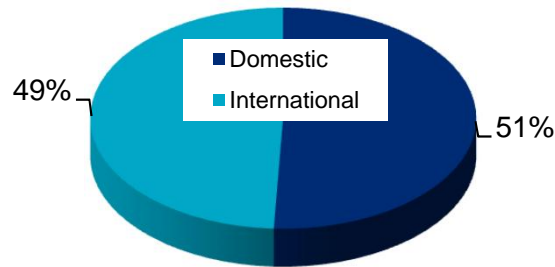
ASSET ALLOCATION - POLICY

INDEXED GROWTH PORTFOLIO - TRADITIONAL VIEW

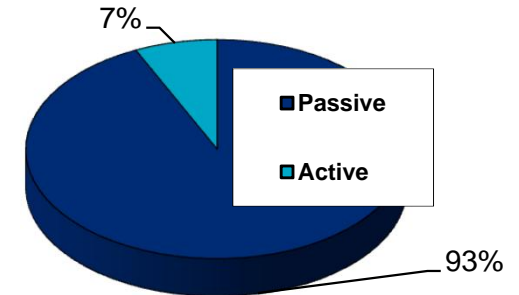
Equity/Fixed Income/Alternatives



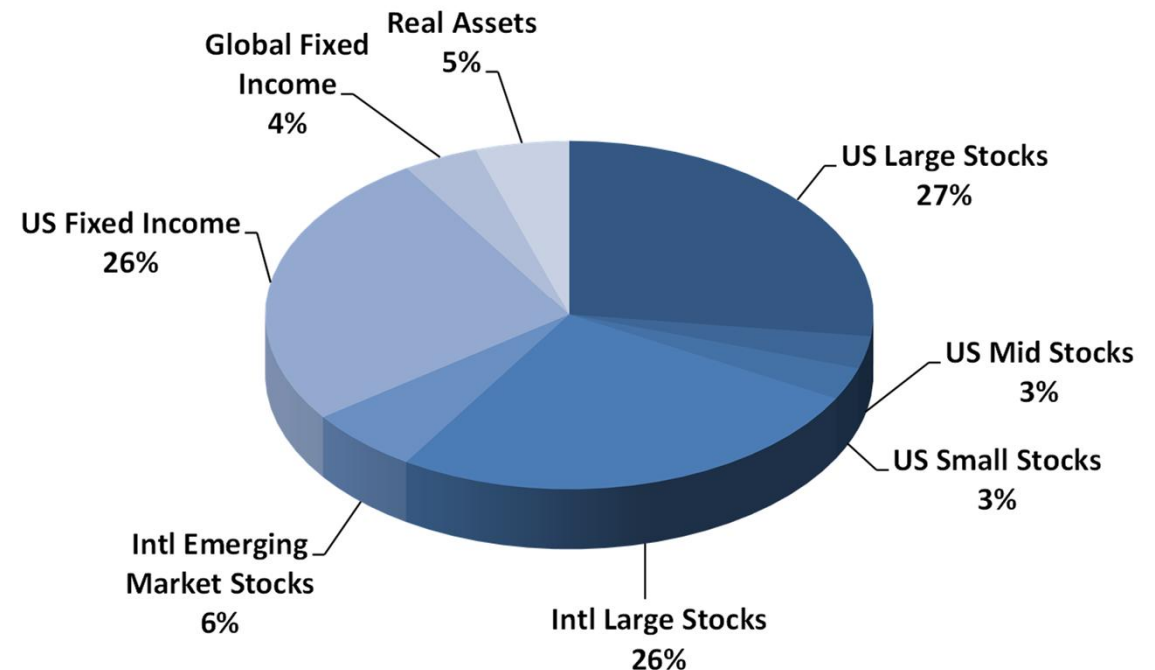
Domestic/International Equities



Active/Passive



Policy Asset Allocation



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- Currently, the Portfolio has a well-diversified mix of domestic and international assets.
- The chart on the right shows the breakout of the Portfolio into each underlying asset class.

PERFORMANCE

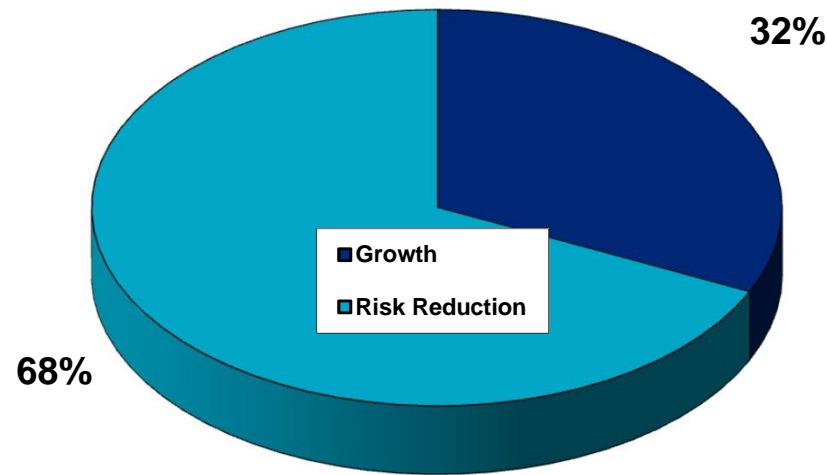
INDEXED GROWTH PORTFOLIO

	Allocation		Performance(%)							
	Market Value (\$)	% of Portfolio	Since Inception	5 Years	3 Years	1 Year	YTD	3 Months	1 Month	Inception Date
INDEXED GROWTH PORTFOLIO	39,468,155	100.0	8.1	7.4	6.4	16.1	16.1	3.9	1.2	Jul-10
<i>70% MSCI ACWI(net)/30% BBgBarc Agg Index</i>			9.0	8.2	7.3	17.5	17.5	4.1	1.3	
TOTAL EQUITY	25,887,828	65.6	8.3	10.8	9.4	23.6	23.6	5.5	1.5	Jun-11
<i>MSCI AC World Index Index (Net)</i>			8.3	10.8	9.3	24.0	24.0	5.7	1.6	
TOTAL DOMESTIC EQUITY	13,339,856	33.8	12.9	15.0	10.8	20.9	20.9	6.3	1.0	Jun-11
<i>Dow Jones U.S. Total Stock Market Index</i>			13.0	15.5	11.1	21.2	21.2	6.3	1.0	
TOTAL INTERNATIONAL EQUITY	12,547,973	31.8	4.5	6.7	8.3	26.3	26.3	4.6	2.0	Jun-11
<i>MSCI AC World ex USA Index (Net)</i>			4.4	6.8	7.8	27.2	27.2	5.0	2.2	
TOTAL FIXED INCOME	10,936,153	27.7	2.6	1.6	1.6	4.6	4.6	0.3	0.5	Jun-11
<i>Blmbg. Barc. U.S. Aggregate Index</i>			2.9	2.1	2.2	3.5	3.5	0.4	0.5	
TOTAL CASH	793,772	2.0	0.4	0.5	0.7	1.8	1.8	0.1	0.0	Jun-11
Cash	793,772	2.0	0.4	0.5	0.7	1.8	1.8	0.1	0.0	Jun-11
<i>90 Day U.S. Treasury Bill Index</i>			0.2	0.2	0.4	0.9	0.9	0.3	0.1	
TOTAL REAL ASSETS	1,850,401	4.7	4.4	-	4.2	7.8	7.8	3.5	1.4	Sep-14
<i>Dow Jones Global Select Real Estate Securities Ind Index</i>			4.2	-	3.9	7.5	7.5	3.7	1.3	

ASSET ALLOCATION - POLICY

DEFENSIVE GROWTH PORTFOLIO - STRATEGIC VIEW

Policy Strategic Objectives



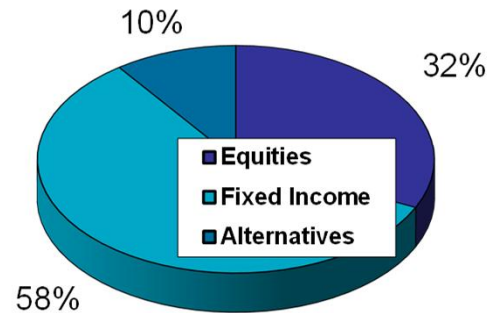
Policy Strategic Objectives			
Growth		32%	
Risk Reduction		68%	
US Equities	16%	US Fixed Income	49%
Intl Equities	16%	Global Fixed Income	9%
		Absolute Return	10%

- Viewed strategically, the Defensive Growth Portfolio has a 32% allocation to growth assets and a 68% allocation to risk reduction assets.

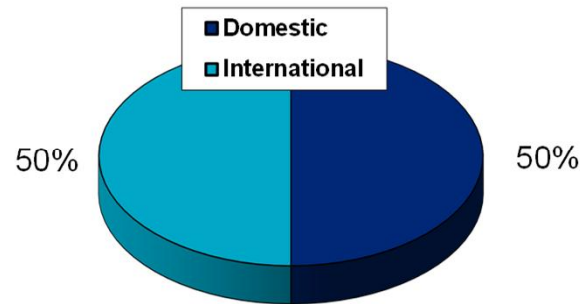
ASSET ALLOCATION - POLICY

DEFENSIVE GROWTH PORTFOLIO - TRADITIONAL VIEW

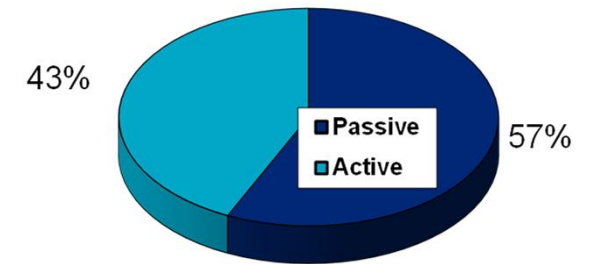
Equity/Fixed Income/Alternatives



Domestic/International Equities

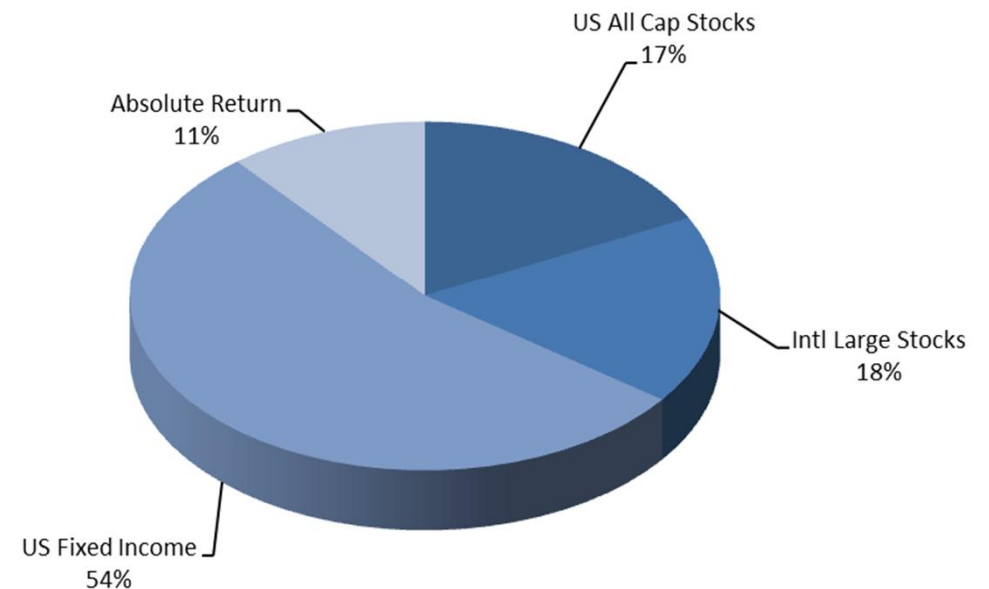


Active/Passive



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- The chart on the right shows the breakout of the Portfolio into each underlying asset class.

Policy Asset Allocation



PERFORMANCE

DEFENSIVE GROWTH PORTFOLIO

As of December 31, 2017

	Allocation		Performance(%)							
	Market Value (\$)	% of Portfolio	Since Inception	5 Years	3 Years	1 Year	YTD	3 Months	1 Month	Inception Date
DEFENSIVE GROWTH PORTFOLIO	12,983,510	100.0	5.7	4.3	3.9	9.2	9.2	1.9	0.5	Jul-10
<i>30% MSCI ACWI(net)/70% BBgBarc Agg Index</i>			5.7	4.8	4.4	9.3	9.3	2.0	0.8	
TOTAL EQUITY	4,246,407	32.7	9.1	11.7	10.0	23.6	23.6	5.4	1.3	Jun-11
<i>MSCI AC World Index (Net)</i>			8.3	10.8	9.3	24.0	24.0	5.7	1.6	
TOTAL DOMESTIC EQUITY	2,126,945	16.4	15.8	15.5	11.1	21.1	21.1	6.3	1.0	Jul-10
<i>Dow Jones U.S. Total Stock Market Index</i>			15.8	15.5	11.1	21.2	21.2	6.3	1.0	
TOTAL INTERNATIONAL EQUITY	2,119,461	16.3	9.2	8.3	9.0	25.8	25.8	4.4	1.7	Jul-10
<i>MSCI AC World ex USA Index (Net)</i>			7.8	6.8	7.8	27.2	27.2	5.0	2.2	
TOTAL FIXED INCOME	7,414,658	57.1	2.5	1.5	2.0	3.7	3.7	0.1	0.0	Jun-11
<i>Blmbg. Barc. U.S. Aggregate Index</i>			2.9	2.1	2.2	3.5	3.5	0.4	0.5	
TOTAL CASH	26,821	0.2	0.5	0.5	0.8	2.2	2.2	0.0	0.0	Jun-11
Cash	26,821	0.2	0.5	0.5	0.8	2.2	2.2	0.0	0.0	Jun-11
<i>90 Day U.S. Treasury Bill Index</i>			0.2	0.2	0.4	0.9	0.9	0.3	0.1	
TOTAL HEDGE FUNDS	1,295,624	10.0	2.4	-	0.8	3.4	3.4	1.4	0.3	Sep-13
<i>HFRI Fund of Funds Composite Index</i>			3.7	-	2.6	7.7	7.7	2.0	0.9	

DYNAMIC ASSET ALLOCATION SUMMARY

RETURN EXPECTATIONS

	Equilibrium Return	Standard Deviation	20-Year Horizon Return	10-Year Horizon Return	High Vol Standard Deviation	Lowest Likely Return
Growth Assets						
US Large Stocks	6.8	18.1	5.8	4.8	27.1	-35.7
US Large Value Stocks	6.8	18.1	5.8	4.8	27.1	-35.7
US Large Growth Stocks	6.8	18.1	5.8	4.8	27.1	-35.7
US Large Quality Stocks	6.8	13.7	5.9	5.0	20.6	-26.1
US Mid Stocks	7.1	19.6	6.1	5.2	29.5	-38.7
US Small Stocks	7.3	22.1	6.3	5.2	33.2	-44.1
Intl Large Stocks	6.9	20.3	7.1	7.1	30.4	-38.2
Intl Large Quality Stocks	6.9	13.7	6.7	6.6	20.5	-24.4
Intl Small Stocks	7.4	22.4	7.6	7.6	33.6	-42.4
Emerging Market Stocks	8.2	26.4	9.0	9.0	39.6	-49.4
Global Stocks	7.2	18.9	7.0	6.1	28.3	-36.1
Emerging Market Debt (Local)	4.9	11.2	6.1	6.1	16.9	-19.5
US High Yield Fixed	6.1	10.0	4.7	3.3	15.0	-19.5
Private Debt	6.6	10.3	6.0	5.5	15.5	-18.1
Private Equity / Special Situations	9.8	24.4	9.0	8.5	36.6	-45.7
Risk Reduction Assets						
Cash	3.1	2.0	2.8	2.5	3.1	-2.3
US Treasuries	4.0	5.2	3.1	2.3	7.7	-9.6
US Short Duration Fixed Income	4.1	4.5	3.3	2.6	6.7	-7.7
US Long Treasuries	4.1	12.9	2.8	1.6	19.4	-27.7
US I/G Corporate Bonds	4.7	6.9	3.7	2.7	10.3	-13.0
US Long I/G Corp	4.7	10.1	3.4	2.1	15.1	-20.9
US MBS	4.4	5.6	3.5	2.5	8.4	-10.3
US Broad Fixed Income	4.4	5.3	3.5	2.5	7.9	-9.6
US Municipal Bonds	4.3	6.3	3.5	2.6	9.4	-11.9
Global Fixed Income	4.0	6.5	2.6	1.2	9.8	-13.7
Defensive Hedge Funds	6.4	8.2	6.1	5.8	12.3	-12.9
Liquid Absolute Return	5.7	8.2	5.4	5.1	12.3	-13.6
Inflation Protected Assets						
US Inflation Protected Fixed	3.8	5.6	3.1	2.5	8.4	-10.4
Global Real Estate - Private	7.8	15.9	7.4	6.7	23.9	-29.3
Global Real Estate - REITS	6.2	21.3	6.2	5.9	31.9	-41.6
Infrastructure - Listed	6.5	15.2	6.3	6.2	22.8	-28.1
Infrastructure - Private	8.2	16.7	7.9	7.3	25.0	-30.2
Natural Resources - Listed	7.1	24.7	6.4	5.7	37.1	-49.1
Natural Resource Stocks - Private	9.3	25.3	8.9	8.6	38.0	-47.5
Liquid Real Assets	6.7	17.2	6.5	6.1	30.5	-32.6
Private Real Assets	8.9	15.5	8.6	8.0	28.8	-27.1

Equilibrium Expected Return: The long-term expectations represent the expected returns of asset classes at equilibrium. They are an estimate of what investors require to invest in each asset class, given the risk, in a normal interest rate environment. They are not affected by current valuations.

10-Year Horizon Return: The 10-year mean reversion return represents Mercer's best estimate of returns over the next 10 years. We assume that normalized P/E ratios and interest rates revert to their equilibrium levels over the next 10-years.

20-Year Horizon Return: Our long-term expected returns are based on what asset classes are expected to return over the next 20 years. They incorporate current interest rates and assume rates return to equilibrium over five years.

Standard Deviation: This statistic quantifies the expected variability of returns around their mean. Both returns above and below the expected return are included in this risk measure. There is roughly a two out of three chance that the return in any given year will fall within the range bounded by the expected return plus or minus the standard deviation. The standard deviation expectations are based on a combination of realized historical results and an examination of current conditions. The high volatility regime expectations represent our estimate of risk in an environment where volatility spikes and correlations between assets increase significantly.

Mercer's approach to developing equilibrium expected returns blends realized historical results and an examination of current conditions. In developing the forecasts, we begin by averaging historical data for the longest period available to determine how much investors have been rewarded for exposure to risk factors in the past. We then use internal and external research to identify structural reasons that risk premiums in the future might be different than those experienced in the past, and adjust our forecasts accordingly. This methodology generally results in lower return forecasts, particularly for equity asset classes, than have been experienced in the past. The return expectations do not include manager alpha except for absolute return strategies. The expected return in excess of cash for absolute return strategies consists mostly of expected alpha.

GLOSSARY OF TERMS

- **10-Yr Horizon Return** - The 10-year mean reversion return represents our best estimate of returns over the next 10 years. We assume that normalized P/E ratios and interest rates revert to their equilibrium levels over the next 10-years.
- **Standard Deviation** - This statistic simply quantifies the expected variability of returns around their mean. Both returns above and below the expected return are included in this risk measure. There is roughly a two out of three chance that the return in any given year will fall within the range bounded by the expected return plus or minus the standard deviation.
- **Sharpe Ratio** - The Sharpe Ratio is a measure of risk-adjusted returns. It is the amount of return obtained (above the risk-free rate) for each unit of risk incurred; therefore, higher Sharpe Ratios indicate a more favorable reward/risk tradeoff. Mathematically, it is the expected return of the portfolio less the risk-free rate divided by the standard deviation.
- **Lowest Likely Return** – Also known as the Value at Risk (VAR), VAR indicates the lowest return we would expect from the portfolio in 99 periods out of 100. In one period out of 100, we would expect the return to be worse.
- **Downside Probability** - The probability of missing the goal return over the period. A 20 year downside probability of 33% indicates that there is a one in three chance of missing the goal return over a twenty- year horizon.

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