

Philanthropy Southwest

Graystone Consulting  
a business of Morgan Stanley Smith Barney

The Role and Importance of Asset Allocation for Foundation Portfolios

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Morgan Stanley Forecast

10 Yr Govt Bond Interest Rate Forecast			
	Q 4 2015	2016 Forecast	
U.S.	2.20%	2.60%	
German Bund	.80%	1.50%	
GDP Growth Forecast			
	2015	2016 Forecast	2017 Forecast
U.S.	2.40%	1.90%	1.80%
EuroZone	1.30%	1.9%	1.80%
Developing Mkts	4.10%	4.60%	5.10%

Source: Morgan Stanley Global Investment Committee-F-Forecast 9/2014

## Global Inflation Forecasts

Forecasts as of August 31, 2015

Headline CPI <sup>1</sup>	Quarterly												Annual		
	2015				2016				2017				2015E	2016E	2017E
	1Q	2Q	3QE	4QE	1QE	2QE	3QE	4QE	1QE	2QE	3QE	4QE			
Global	3.0	3.1	3.1	3.3	3.4	3.4	3.6	3.8	3.9	3.9	3.7	3.7	3.1	3.5	4.0
G10	0.2	0.1	0.2	0.5	1.2	1.2	1.5	1.8	2.0	2.1	2.1	2.2	0.3	1.5	2.1
US	-0.1	0.0	0.2	0.3	1.3	1.3	1.4	1.9	2.2	2.2	2.2	2.4	0.1	1.5	2.2
Euro Area	-0.3	0.2	0.1	0.5	1.1	1.1	1.4	1.7	1.7	1.7	1.6	1.7	0.1	1.3	1.7
Japan	2.1	0.1	-0.2	0.2	0.9	0.9	1.5	1.6	1.7	2.9	2.9	2.8	0.6	1.3	2.6
UK	0.1	0.0	0.1	0.3	1.1	1.1	1.5	1.8	1.7	1.6	1.5	1.5	0.1	1.4	1.6
EM	5.1	5.3	5.2	5.4	5.1	5.1	5.2	5.2	5.3	5.3	5.0	4.8	5.3	5.1	5.3
China	1.2	1.4	1.5	2.0	1.9	1.9	1.4	1.1	1.2	1.4	1.6	1.8	1.5	1.5	1.5
India	5.3	5.1	3.9	4.9	4.8	4.8	5.0	4.7	4.9	4.4	4.5	4.2	4.8	4.9	4.5
Brazil	7.7	8.5	9.5	9.3	7.8	7.8	5.4	5.5	5.4	5.2	4.8	4.6	8.7	6.3	5.0
Russia	16.2	15.8	15.5	14.5	8.6	8.6	9.0	8.5	8.0	7.5	7.0	6.4	15.5	8.6	7.2

Source: Morgan Stanley & Co. Research. (1) Quarterly percentage change, seasonally adjusted annual rate. Headline CPI measures inflation that is not adjusted for food and energy prices. CPI numbers are period averages. Past performance is no guarantee of future results. Estimates of future performance are based on assumptions that may not be realized. This material is not a solicitation of any offer to buy or sell any security or other financial instrument or to participate in any trading strategy. Please refer to important information, disclosures and qualifications at the end of this material.

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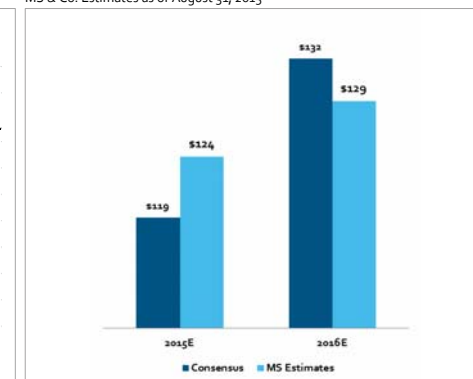
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## S&P 500 Index Forecasts

Morgan Stanley & Co. 12-Month S&P 500 Target  
Forecasts as of August 31, 2015

EPS Landscape	Probability of Scenario	EPS		Multiple	Scenario Target	Upside / Downside
		2015E	2016E			
Bull Case	20%	126.1	133.7	17.4x	2425	21.9%
Growth		6%	6%			
Base Case	60%	124.0	128.5	16.6x	2200	10.6%
Growth		4%	6%			
Bear Case	20%	116.6	110.8	14.0x	1500	-24.6%
Growth		-2%	-5%			
Current S&P 500 Price					1989	

Morgan Stanley & Co. and Consensus S&P 500 Earnings Estimates  
MS & Co. Estimates as of August 31, 2015



Source: FactSet, Thomson Reuters, Morgan Stanley & Co. Research. Base case represents Morgan Stanley & Co. Research's estimate between the bear and bull estimates.

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## Global Equity Price Targets

Forecasts as of August 31, 2015; Performance Data as of August 31, 2015

Equity Index	August 31, 2015	Bear	Upside/Downside	3Q 2016 Forecast				Risk/Reward Ratio <sup>2</sup>
				Base <sup>1</sup>	Upside/Downside	Bull	Upside/Downside	
S&P 500	1972	1500	-24%	2200	12%	2425	23%	1.62
MSCI Europe	1403	1090	-22%	1550	10%	1670	19%	1.53
Topix	1537	1300	-15%	1740	13%	2044	33%	1.57
MSCI EM	819	600	-27%	860	5%	1000	22%	1.67
MSCI Asia Pacific ex-Japan	404	310	-23%	440	9%	510	26%	1.65

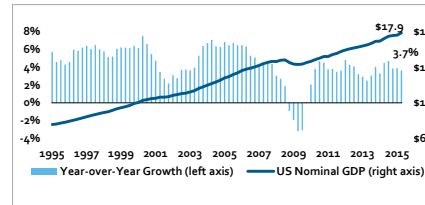
Source: Morgan Stanley & Co. Research. (1) Base represents Morgan Stanley & Co. Research's estimate between the bear and bull estimates. (2) Risk/reward ratio is the bull estimate divided by the bear estimate.

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## US Economy Still Improving

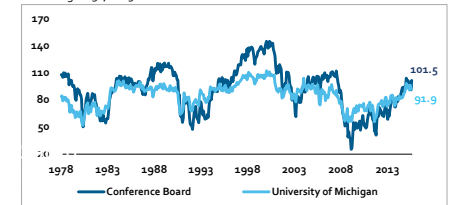
### US Nominal GDP<sup>1</sup>

Trillions of US Dollars as of 2Q 2015



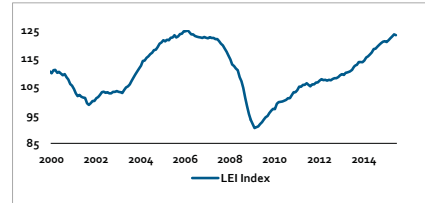
### Consumer Confidence

As of August 31, 2015



### Conference Board Leading Economic Indicator Index

As of July 31, 2015



### Citi US Economic Surprise Index

As of August 31, 2015



Source: Bloomberg, Citigroup, FactSet, University of Michigan, Conference Board. (1) Nominal GDP does not account for the effects of inflation.

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## Stocks Can Continue Solid Returns During A Hiking Cycle

As of August 31, 2015

Hiking Cycle	1954-1957	1958-1959	1961-1969	1972-1974	1976-1981	1983-1984	1986-1989	1994-1995	1999-2000	2004-2006
Starting Fed Funds Rate	0.8%	0.6%	1.2%	3.3%	4.8%	8.8%	6.0%	3.1%	4.7%	1.0%
Fed Funds Rate at End of Cycle	3.5%	4.0%	8.6%	12.9%	19.0%	11.2%	9.9%	6.1%	6.5%	5.0%
Length of Hiking Cycle (Years)	2.9	1.5	8.1	2.4	5.3	1.3	2.3	1.2	1.1	2.1
Increase in Rates (bps)	267	337	744	963	1420	243	381	300	179	399
Percent Increase in Rates	322%	535%	636%	293%	293%	28%	63%	98%	38%	399%
Annualized Nominal GDP Growth	7.0%	7.9%	7.7%	10.5%	11.0%	12.1%	7.4%	5.8%	6.9%	6.4%
Annualized Inflation	1.9%	1.1%	2.6%	7.7%	9.7%	4.1%	4.5%	3.1%	3.4%	3.4%
Annualized S&P Returns	6.4%	20.4%	4.5%	-11.5%	4.6%	1.0%	8.3%	8.5%	12.1%	8.2%

Source: Bloomberg, Haver Analytics, Morgan Stanley Wealth Management GIC.

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## What does an Organization Do With It's Investment Pool in a Time of Historically Low Interest Rates?

» Bonds have typically been the Asset Class that:

1. Generate interest income to help fund payouts and programming
2. Reduce Risk and add Stability to a portfolio

» At a point of Historic low rates Bonds :

1. Are generating little or low levels of income
2. Historically fall in value as interest rates rise

» Bonds could have a negative impact on portfolio returns in a rising interest rate environment.

## Bonds are trading at Historically Low Yields.

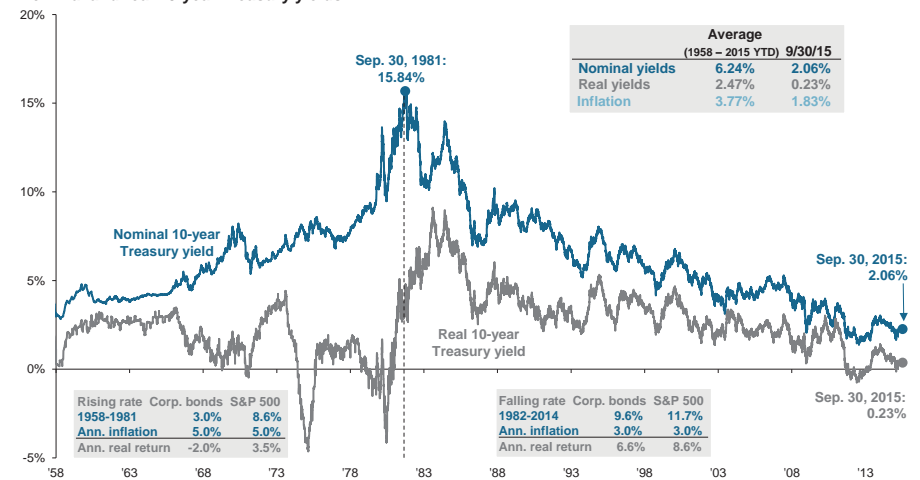
- » The Fed has said that they will raise interest rates before year-end 2016.\*
- » The rise in rates will reflect the Federal Reserve's conviction that the economy is recovery from the effects of the financial crisis as evidenced by falling unemployment rates and other indicators.
- » As Interest Rates begin to rise, Bond Prices will fall to reflect higher available yields on new bonds.
- » As interest rates rise and bond prices fall, it could provoke a flight from bond mutual funds and ETF's further exacerbating rate rises.

\*Source:Wall Street Journal 9/2015

## Interest rates and inflation

Nominal and real 10-year Treasury yields

Fixed Income

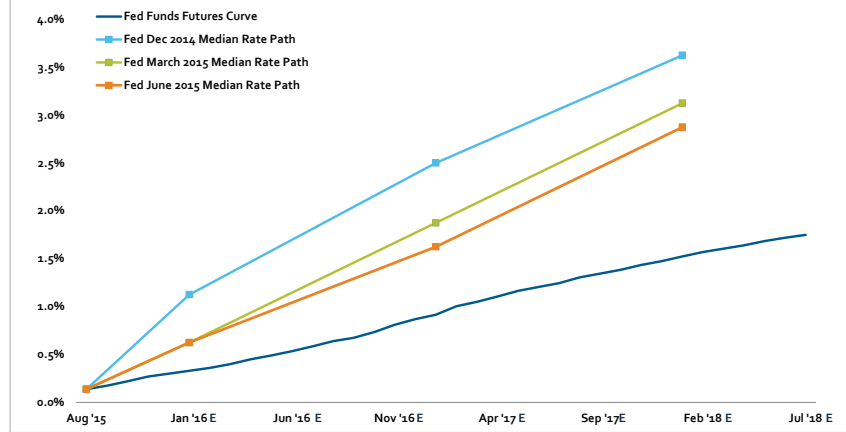


Source: BLS, Federal Reserve, J.P. Morgan Asset Management.  
 Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for September 2015, where real yields are calculated by subtracting out August 2015 year-over-year core inflation. All returns above reflect annualized total returns, which include reinvestment of dividends. Corporate bond returns are based on a composite index of investment-grade bond performance.  
 Guide to the Markets – U.S. Data are as of September 30, 2015.

## Fed Will Likely Raise Interest Rates as Economy Continues to Expand

Fed Funds Futures Curve (2015E – 2018E)

As of August 31, 2015



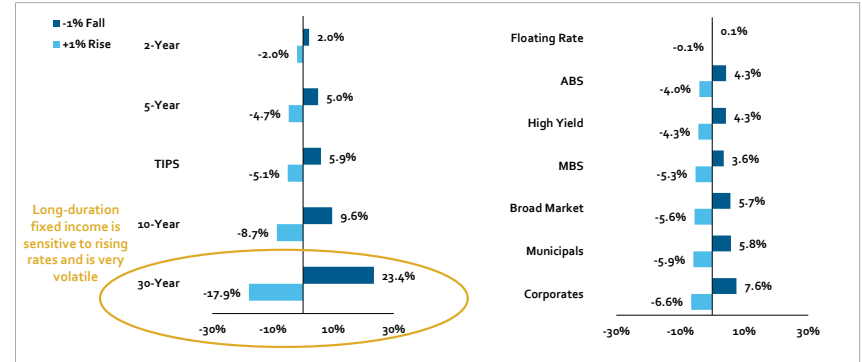
Source: Bloomberg, Morgan Stanley Wealth Management GIC. Squares indicate Fed members' median projection for interest rates.

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## Long-Duration<sup>1</sup> Bonds Can Be Risky When Rates Rise

Total Return Impact of a 1% Rise/Fall in Interest Rates

As of August 31, 2015



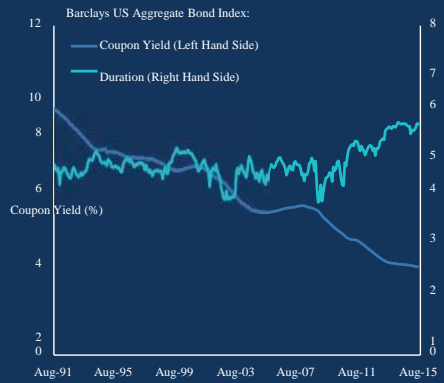
Source: FactSet, Morgan Stanley Wealth Management GIC. The following Barclays indices were used for the sectors above: US Aggregate for Broad Market, US Aggregate Securitized – MBS Index for MBS, US Corporates for Corporate, Mun Bond 30-year Index for Municipals, Corporate High Yield Index for High Yield, US TIPS Index for TIPS, FRN (BBB) for Floating Rate, US Convertibles Composite for Convertibles and Barclays ABS + CMB for ABS. Barclays US Treasury benchmark indices used for US Treasury data. (1) For more information about the risks to Duration please refer to the Risk Considerations section at the end of this material.

# Interest Rates

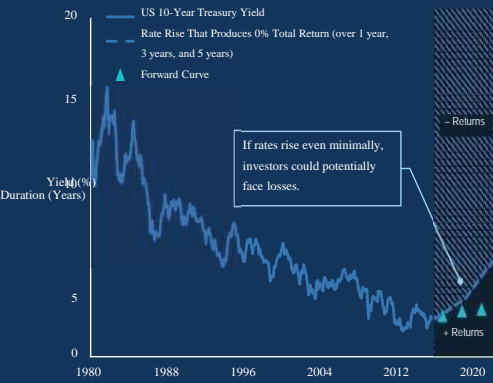
## Risk Management Remains Essential

Macro Markets Implementation

### As Income Has Declined, Interest Rate Risk Has Risen



### Asymmetry of Risk: Point of Zero Return

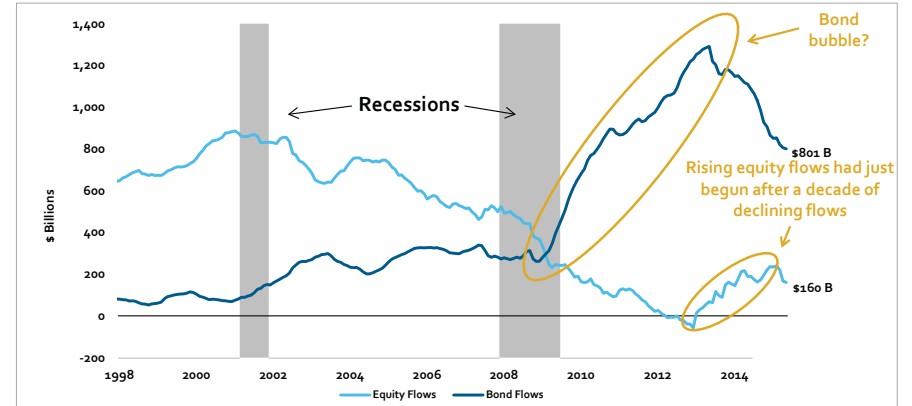


Left Chart Source: Barclays Live and GSAM as of 31-August-2015. Right Chart Source: Bloomberg and GSAM as of 31-August-2015. Please see slide 21 for slide 10 disclosures. These examples are for illustrative purposes only and are not actual results. If any assumptions used do not prove to be true, results may vary substantially. Past performance does not guarantee future results, which may vary.

# Unprecedented Flows Into Bond Funds

## US Net Flows: Five-Year Cumulative Flows (includes Mutual Funds + ETFs)

As of May 31, 2015



Source: Simfund, ICI

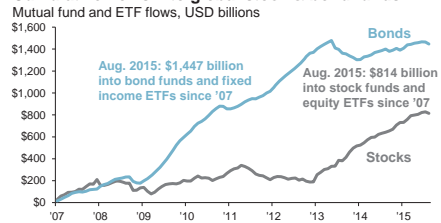
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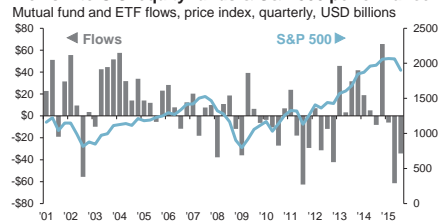
## Fund flows

USD billions	AUM	Mutual fund flows																	
		YTD 2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	
Domestic equity	6,015	(100)	(60)	18	(159)	(133)	(81)	(28)	(149)	(68)	(3)	17	100	120	(25)	57	258	176	
World equity	2,115	98	85	141	7	4	57	26	(80)	142	151	107	72	24	(4)	(23)	58	11	
Taxable bond	2,903	18	16	(13)	256	129	221	301	22	100	44	21	0	40	125	76	(36)	7	
Tax-exempt bond	573	5	28	(58)	50	(12)	12	70	8	11	15	5	(15)	(7)	17	12	(14)	(12)	
Hybrid	1,348	3	27	71	45	40	35	20	(26)	40	20	43	53	39	8	7	(37)	(13)	
Money market	2,673	(56)	6	32	4	(85)	(455)	(444)	624	570	220	41	(175)	(273)	(62)	354	133	183	

### Cumulative flows into global stock & bond funds



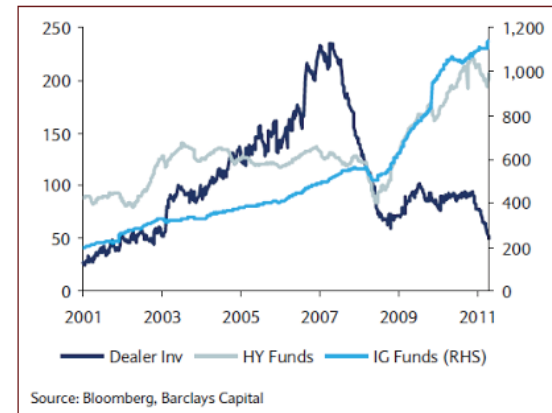
### Flows into U.S. equity funds & S&P 500 performance



Source: Investment Company Institute, J.P. Morgan Asset Management.  
 Top: Data includes flows through August 2015 and excludes ETFs. Bottom left and right: Data includes flows through August 2015 and includes ETFs. ICI data are subject to periodic revisions. World equity flows are inclusive of emerging market, global equity and regional equity flows. Hybrid flows include asset allocation, balanced fund, flexible portfolio and mixed income flows.  
 Guide to the Markets – U.S. Data are as of September 30, 2015.

## As a Result of New Regulation, Dealer's Bond Inventories Have Fallen Dramatically

The dealers have started pulling back on inventory ahead of new regulatory framework  
 The chart below shows the levels of dealer inventory of corporate bonds, both High Yield (HY) and Investment Grade (IG) vs. mutual fund holdings.



Source: Bloomberg, Barclays Capital



## Why is Asset Allocation Important?

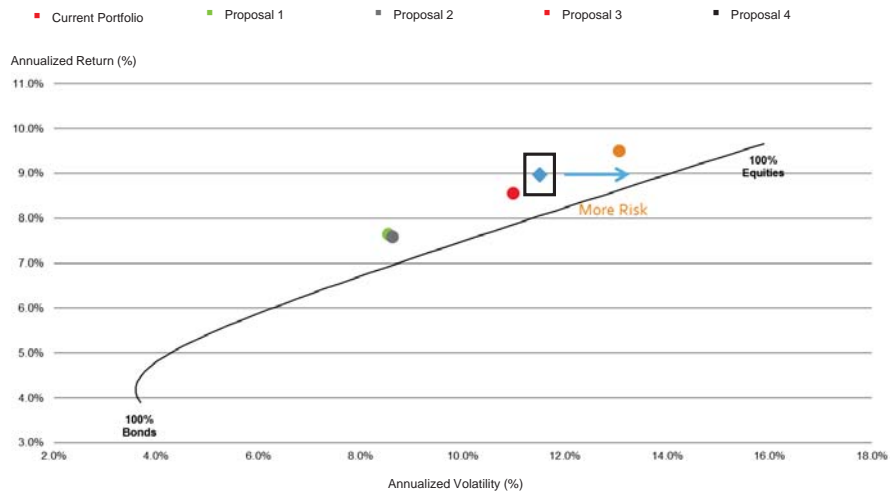
## STRATEGIC ASSET ALLOCATION - SUMMARY

ASSET ALLOCATION SUMMARY					
	Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4
Cash	0.2%				
<b>Total Cash</b>	<b>0.2%</b>				
Investment Grade Bonds	4.2%	23.1%	26.0%	14.4%	3.0%
High Yield Bonds		4.1%	4.7%	2.4%	
Emerging Market Bonds	3.0%	2.3%	2.4%	2.4%	
Convertible Bonds	5.0%	5.0%	5.0%	5.0%	5.0%
<b>Total Bonds</b>	<b>12.2%</b>	<b>34.5%</b>	<b>38.1%</b>	<b>24.2%</b>	<b>8.0%</b>
US Equity	24.5%	15.0%	15.0%	17.6%	18.8%
International Equity	13.4%	7.0%	7.0%	15.1%	18.2%
Emerging Markets Equity	7.3%	5.0%	5.0%	8.7%	10.0%
<b>Total Equities</b>	<b>45.2%</b>	<b>27.0%</b>	<b>27.0%</b>	<b>41.4%</b>	<b>47.0%</b>
Hedged Strategies	21.1%	18.8%	15.0%	15.0%	15.0%
Private Equity	8.9%	10.0%	10.0%	10.0%	15.0%
<b>Total Alternatives</b>	<b>30.0%</b>	<b>28.8%</b>	<b>25.0%</b>	<b>25.0%</b>	<b>30.0%</b>
Inflation-Linked Securities		2.2%	2.4%		
Real Estate Investment Trusts				1.9%	5.0%
Master Limited Partnerships	8.9%	5.0%	5.0%	5.0%	5.0%
Private Real Estate	3.5%	2.5%	2.5%	2.5%	5.0%
<b>Total Real Assets</b>	<b>12.4%</b>	<b>9.7%</b>	<b>9.9%</b>	<b>9.4%</b>	<b>15.0%</b>
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
FORECASTED STATISTICS					
	Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4
<b>Return</b>	9.0%	7.6%	7.6%	8.6%	9.5%
<b>Volatility</b>	11.5%	8.5%	8.6%	11.0%	13.1%
<b>Sharpe Ratio</b>	0.58	0.63	0.61	0.57	0.55
<b>Probability &lt; 0%</b>	21.2%	18.2%	18.6%	21.2%	22.8%
<b>Yield</b>	2.7%	2.8%	3.0%	2.8%	2.6%

Please refer to page 1 of the Appendix for a breakdown of the above portfolios into more granular asset classes. The Model Portfolios on page 3 of the Appendix are disclosed for comparison with the above and vary by risk profile from lowest (Model 1) to highest (Model 6). The forecasts of risk and return used in this analysis are detailed in pages 4-6 of the Appendix. Please see the Glossary in the Appendix for definitions of the risk and return metrics depicted throughout this presentation. Please see the Appendix for important disclosures about this presentation.

STATISTICAL COMPARISON - HYPOTHETICAL EFFICIENCY ANALYSIS\*

EFFICIENCY RELATIVE TO THE EQUITY-BOND FRONTIER



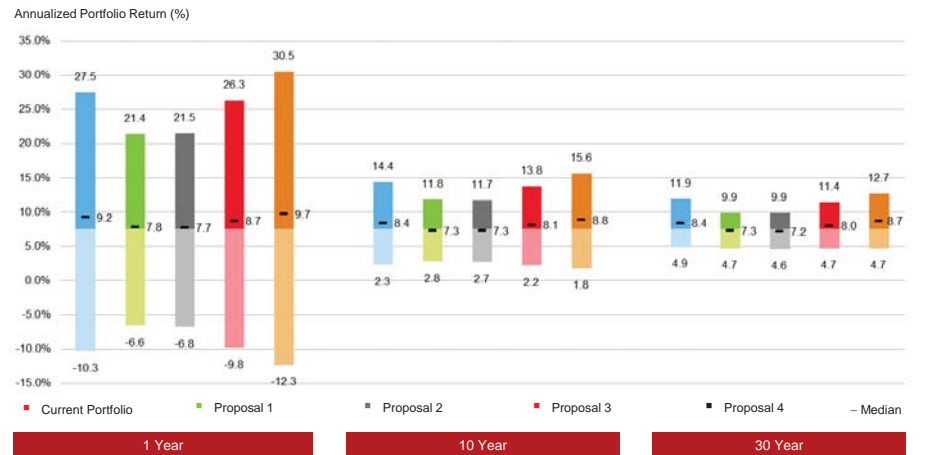
Notes: The 'Equity-Bond Frontier', plotted here for comparison, represents the efficiency of a full spectrum of bond and equity portfolios that vary by their proportion of each from 100% bonds to 100% equities. \*All figures based on assumptions of risk and return detailed on pages 4-6 of the Appendix. Please see the Glossary in the Appendix for definitions of certain terms used above.

IMPORTANT: The projections or other information generated by the Asset Allocation Center, the investment analysis tool used to compile this report, regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect any actual investment results, and are not guarantees of future results. Results generated using this simulation analysis will vary with each use and over time. Please see the Appendix for important disclosures about this presentation.

STATISTICAL COMPARISON - HYPOTHETICAL RANGE OF RETURNS AT 3 HORIZONS

PROBABILITY OF RETURN > 7.5% TARGET

55.8% 51.2% 51.0% 54.5% 56.7% 60.2% 47.6% 46.8% 56.4% 62.4% 66.2% 45.3% 43.7% 60.0% 69.6%



Source: Global Investment Committee

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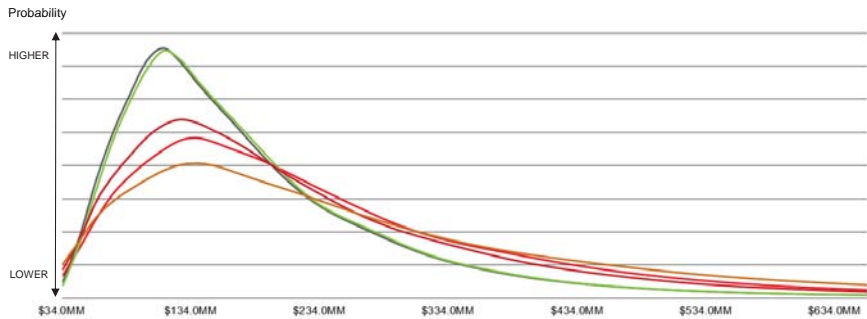
## SIMULATION ANALYSIS - PORTFOLIO VALUE



	END OF HORIZON VALUE				
	Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4
<b>95th Percentile</b>	\$607,874,612	\$428,558,230	\$427,612,452	\$555,289,662	\$781,978,563
<b>Median</b>	\$205,741,008	\$157,655,334	\$154,918,601	\$187,099,753	\$228,849,042
<b>5th Percentile</b>	\$69,090,729	\$66,539,955	\$64,355,350	\$65,503,254	\$65,606,358
<b>Probability&gt;Target*</b>	68.4%	53.5%	52.3%	63.8%	71.8%

\* Target End of Horizon Value = \$150,000,000

END OF HORIZON VALUE				
Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4



Results adjusted for assumed inflation. For assumptions underlying these projections, please refer to the "Simulation Analysis; Purpose and Methodology" and "Simulation Analysis; Assumptions" slides, and pages 4-6 of the Appendix.

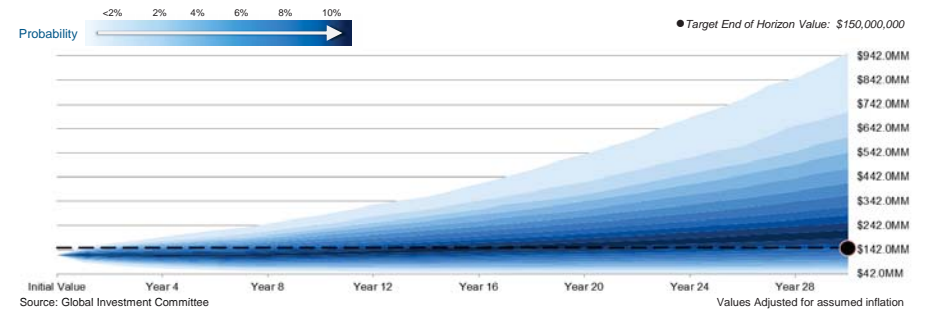
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## SIMULATION ANALYSIS - PORTFOLIO VALUE: CURRENT PORTFOLIO



END OF HORIZON VALUE	REBALANCING & DISTRIBUTION POLICY	
<b>95th Percentile</b>	\$607,874,612	<b>Rebalancing Policy</b> ■ Annual Rebalancing to Target.
<b>Median</b>	\$205,741,008	
<b>5th Percentile</b>	\$69,090,729	<b>Planned Distributions &amp; Contributions</b> ■ 4.5% of the 3 Year Average Portfolio Value per annum. Prior Period Portfolio Value: \$111,000,000. It is assumed that Distributions are taken from the portfolio at the end of each year.
<b>Probability&gt;Target*</b>	68.4%	

### HYPOTHETICAL RANGE OF PORTFOLIO VALUES BY YEAR (\$MM)



Graphic depicts the hypothetically plausible range of the Current Portfolio's value over the course of the investment horizon based on assumptions of risk and return detailed on pages 4-6 of the Appendix and assumptions as per the "Simulation Analysis; Assumptions" slide. More darkly shaded areas imply a greater likelihood that the portfolio's value will lie in that range at that point in the horizon than more lightly shaded ones. Please see the Glossary in the Appendix for definitions of certain terms used above.

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## Portfolio Stress Testing

### More Stressful Scenarios

- » **“Significant Recession”** most likely to transpire should the economy enter a severe retrenchment
- » **“External or Internal Shock”** most likely to transpire should there be a severe geopolitical or other shock to the global economy, such as a major terrorist attack, war, energy shock, etc.
- » **“Robust Economic Growth”** most likely to transpire if economic growth were to accelerate rapidly, such as what might be associated with a massive technology/ productivity shock.
  - Would be a stressful event for those investors with heavy exposure to government or other high credit quality bonds with significant exposure to interest rates, which would most likely rise appreciably in such a scenario.

### Less Stressful Scenarios

- » **“Better-Than-Expected-Economic-Growth”** most likely to transpire should the economy experience a mildly more optimistic version of the GIC’s base case for economic growth,
- » **“Subpar, Sluggish Growth”** most likely to transpire should the economy experience a mildly more pessimistic version of the GIC’s base case for economic growth
- » **“Stagnation, and/or Stagflation”** most likely to transpire in the event unfavorable economic and monetary conditions reminiscent of those that prevailed during the 1970’s to take hold. This scenario, while not attractive from an investors standpoint, is nonetheless not as stressful as the events above.

## SCENARIO ANALYSIS - HISTORICAL SCENARIOS

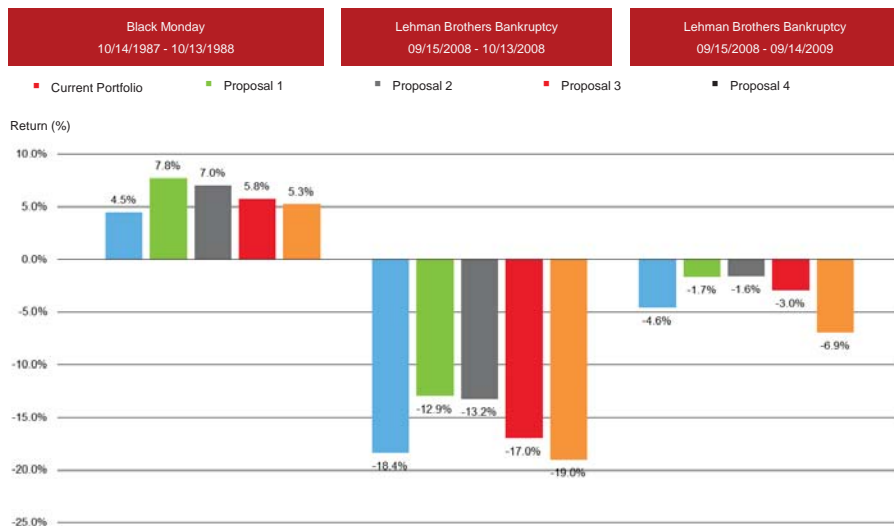


Source: Global Investment Committee

The analysis assumes a hypothetical portfolio of representative indexes, rather than investment products or securities, and the returns shown are estimated gross of any applicable taxes or fees. Please see the appendix pages 7-9 for details of the assumed asset class returns in each historical scenario presented, and for the list of asset classes for which historical data was not available for a particular scenario, (e.g. hedge funds in 1987), and the index proxy used to estimate their return.

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SCENARIO ANALYSIS - HISTORICAL SCENARIOS (CONT'D)



Source: Global Investment Committee

The analysis assumes a hypothetical portfolio of representative indexes, rather than investment products or securities, and the returns shown are estimated gross of any applicable taxes or fees. Please see the appendix pages 7-8 for details of the assumed asset class returns in each historical scenario presented, and for the list of asset classes for which historical data was not available for a particular scenario, (e.g. hedge funds in 1987), and the index proxy used to estimate their return.

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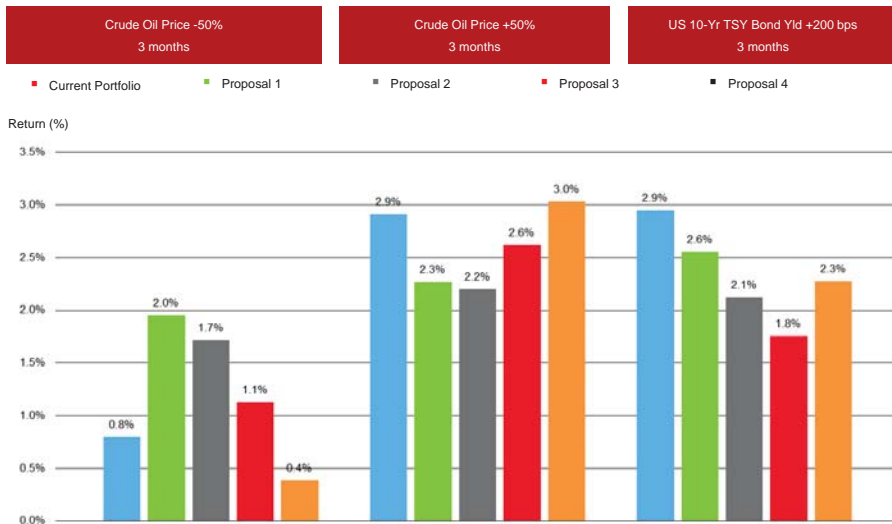
SCENARIO ANALYSIS – SUMMARY

SCENARIO ANALYSIS RANK SUMMARY							
Type	Event Name	Horizon	Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4
Historical	9/11 Attack	1 month	-2.9%	-1.8%	-1.9%	-3.0%	-3.6%
Historical	9/11 Attack	12 months	-5.0%	-1.9%	-2.2%	-4.2%	-5.9%
Historical	Black Monday	1 month	-9.2%	-5.1%	-5.1%	-8.0%	-9.3%
Historical	Black Monday	12 months	4.5%	7.8%	7.0%	5.8%	5.3%
Historical	Lehman Brothers Bankruptcy	1 month	-18.4%	-12.9%	-13.2%	-17.0%	-19.0%
Historical	Lehman Brothers Bankruptcy	12 months	-4.6%	-1.7%	-1.6%	-3.0%	-6.9%
<b>Rank Summary</b>	<b>All Scenarios</b>		<b>4th</b>	<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>5th</b>

Note: "Rank Summary" is the rank of the performance of each portfolio in each category of scenarios and overall. A portfolio's rank across a given category of scenarios or overall is the average of its performance rank in each scenario, not its performance. All figures are gross of any applicable taxes and fees. For details of the returns assumed per asset class for each of the above scenarios, please see page 7-8 of the Appendix. Please see the Glossary in the Appendix for definitions of certain terms used above. Please see the Appendix for important disclosures about this presentation.

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SCENARIO ANALYSIS – CONDITIONAL SCENARIOS

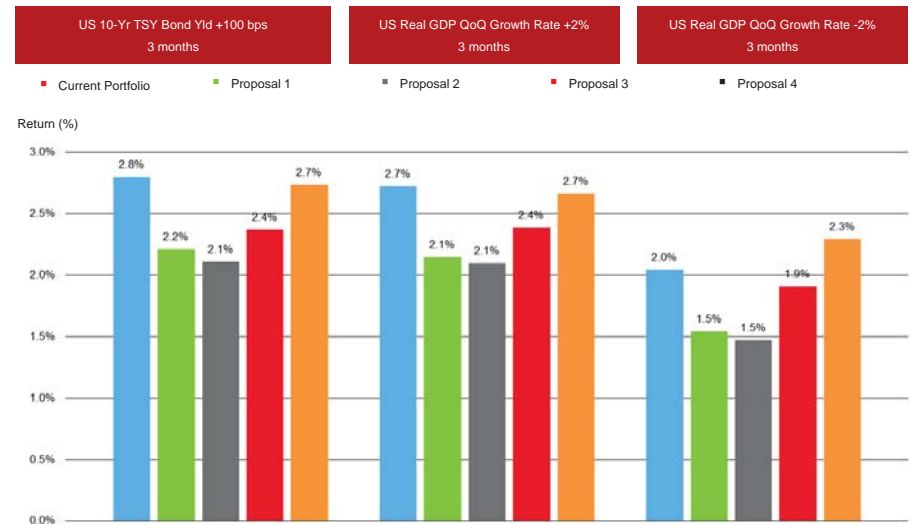


Source: Global Investment Committee

The analysis assumes a hypothetical portfolio of representative indexes, rather than investment products or securities, and the returns shown are estimated gross of any applicable taxes or fees. Please see page9 of the Appendix for details of the assumed returns for all positions in the portfolio in each hypothetical scenario presented.

IMPORTANT: The projections or other information generated by the Asset Allocation Center, the investment analysis tool used to compile this report, regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect any actual investment results, and are not guarantees of future results. Results generated using this simulation analysis will vary with each use and over time. Please see the Appendix for important disclosures about this presentation.

SCENARIO ANALYSIS – CONDITIONAL SCENARIOS (CONT'D)



Source: Global Investment Committee

The analysis assumes a hypothetical portfolio of representative indexes, rather than investment products or securities, and the returns shown are estimated gross of any applicable taxes or fees. Please see page9 of the Appendix for details of the assumed returns for all positions in the portfolio in each hypothetical scenario presented.

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## SCENARIO ANALYSIS – SUMMARY



SCENARIO ANALYSIS RANK SUMMARY								
Type	Event Name	Horizon	Current Portfolio	Proposal 1	Proposal 2	Proposal 3	Proposal 4	Proposal 5
Historical	9/11 Attack	1 month	-2.9%	-1.8%	-1.9%	-3.0%	-3.6%	
Historical	9/11 Attack	12 months	-5.0%	-1.9%	-2.2%	-4.2%	-5.9%	
Historical	Black Monday	1 month	-9.2%	-5.1%	-5.1%	-8.0%	-9.3%	
Historical	Black Monday	12 months	4.5%	7.8%	7.0%	5.8%	5.3%	
Historical	Lehman Brothers Bankruptcy	1 month	-18.4%	-12.9%	-13.2%	-17.0%	-19.0%	
Historical	Lehman Brothers Bankruptcy	12 months	-4.6%	-1.7%	-1.6%	-3.0%	-6.9%	
<b>Rank Summary</b>	<b>Historical Scenarios</b>		<b>4th</b>	<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>5th</b>	
Conditional	Crude Oil Price -50%	3 months	0.8%	2.0%	1.7%	1.1%	0.4%	
Conditional	Crude Oil Price +50%	3 months	2.9%	2.3%	2.2%	2.6%	3.0%	
Conditional	US 10-Yr TSY Bond Yld +200 bps	3 months	2.9%	2.6%	2.1%	1.8%	2.3%	
Conditional	US 10-Yr TSY Bond Yld +100 bps	3 months	2.8%	2.2%	2.1%	2.4%	2.7%	
Conditional	US Real GDP QoQ Growth Rate +2%	3 months	2.7%	2.1%	2.1%	2.4%	2.7%	
Conditional	US Real GDP QoQ Growth Rate -2%	3 months	2.0%	1.5%	1.5%	1.9%	2.3%	
<b>Rank Summary</b>	<b>Conditional Scenarios</b>		<b>1st</b>	<b>3rd</b>	<b>5th</b>	<b>4th</b>	<b>2nd</b>	
<b>Rank Summary</b>	<b>All Scenarios</b>		<b>3rd</b>	<b>1st</b>	<b>2nd</b>	<b>4th</b>	<b>5th</b>	

Note: "Rank Summary" is the rank of the performance of each portfolio in each category of scenarios and overall. A portfolio's rank across a given category of scenarios or overall is the average of its performance rank in each scenario, not its performance. All figures are gross of any applicable taxes and fees. For details of the returns assumed per asset class for each of the above scenarios, please see page 7-9 of the Appendix. Please see the Glossary in the Appendix for definitions of certain terms used above. Please see the Appendix for important disclosures about this presentation.

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## GIC RISK AND RETURN ASSUMPTIONS



	STRATEGIC FORECASTS (Year 1-7)				SECULAR FORECASTS (Year 8+)				Source: Global Investment Committee as of Dec. 31, 2013. Annual return is the forecasted arithmetic average annual return. Annualized volatility, skewness and kurtosis estimates are based on data from January 1994 through December 2013. Strategic Forecasts are calibrated to a 7 year investment horizon. Secular Forecasts are calibrated to a 20+ year horizon. Forecast estimates are for illustrative purposes only, are based on proprietary models and are not indicative of the future performance of any specific investment, index or asset class. Actual performance may be more or less than the estimates shown in this table. Estimates of future performance are based on assumptions that may not be realized.
	Return	Volatility	Skewness	Kurtosis	Return	Volatility	Skewness	Kurtosis	
<b>Cash &amp; Bonds</b>									
Cash	1.0%	0.6%	0.54	3.17	2.7%	0.6%	0.54	3.17	
Short Term Fixed Income	1.8%	2.2%	0.11	3.10	3.6%	2.2%	0.11	3.10	
US Fixed Income	2.7%	3.7%	-0.07	3.08	4.3%	3.7%	-0.07	3.08	
International Fixed Income	2.0%	2.8%	-0.07	3.01	4.5%	2.8%	-0.07	3.01	
High Yield	4.6%	9.9%	-0.49	3.84	7.9%	9.9%	-0.49	3.84	
Emerging Markets Fixed Income	7.4%	12.0%	-0.24	3.22	6.5%	12.0%	-0.24	3.22	
Convertible Bond	4.8%	9.2%	-0.31	3.34	7.1%	9.2%	-0.31	3.34	
Preferred Stock	5.1%	12.0%	-0.82	5.25	8.1%	12.0%	-0.82	5.25	
<b>Equities</b>									
US Large Cap Growth Equity	6.3%	17.5%	-0.21	3.10	9.9%	17.5%	-0.21	3.10	
US Large Cap Value Equity	6.0%	15.1%	-0.22	3.16	9.5%	15.1%	-0.22	3.16	
US Mid Cap Growth Equity	7.5%	21.3%	-0.16	3.17	11.1%	21.3%	-0.16	3.17	
US Mid Cap Value Equity	6.6%	16.2%	-0.24	3.27	10.3%	16.2%	-0.24	3.27	
US Small Cap Growth Equity	8.5%	23.3%	-0.11	3.08	12.0%	23.3%	-0.11	3.08	
US Small Cap Value Equity	7.5%	17.5%	-0.22	3.17	11.1%	17.5%	-0.22	3.17	
Europe Equity	8.4%	18.0%	-0.20	3.15	9.9%	18.0%	-0.20	3.15	
Japan Equity	5.8%	18.9%	0.05	3.00	9.1%	18.9%	0.05	3.00	
Asia Pacific ex Japan Equity	7.0%	21.4%	-0.16	3.16	11.4%	21.4%	-0.16	3.16	
Emerging Markets Equity	13.2%	23.9%	-0.18	3.15	12.3%	23.9%	-0.18	3.15	
<b>Non-Traditional Asset Classes*</b>									
Hedged Strategies	4.7%	8.1%	-0.12	3.15	7.3%	8.1%	-0.12	3.15	
Managed Futures	3.7%	13.9%	0.12	3.06	6.5%	13.9%	0.12	3.06	
Inflation-Linked Securities	2.5%	7.9%	-0.29	3.45	4.3%	7.9%	-0.29	3.45	
Real Estate Investment Trusts	6.4%	18.5%	-0.27	3.36	9.2%	18.5%	-0.27	3.36	
Commodities	3.8%	15.7%	-0.17	3.19	5.4%	15.7%	-0.17	3.19	
Master Limited Partnerships	7.8%	15.5%	-0.11	3.20	11.3%	15.5%	-0.11	3.20	
Private Real Estate Funds	6.9%	15.6%	-0.69	6.68	9.8%	15.6%	-0.69	6.68	
Private Equity	9.6%	21.5%	0.22	3.62	13.9%	21.5%	0.22	3.62	

\* The GIC applies significant statistical adjustments to correct for distortions typically associated with hedge fund, private equity and private real estate index returns. For more information, see the Return Series Adjustments section on Appendix page 20.

Investor Suitability: Morgan Stanley recommends that investors independently evaluate each asset class, investment style, issuer, security, instrument or strategy discussed. Legal, accounting and tax restrictions, transaction costs and changes to any assumptions may significantly affect the economics and results of any investment. Investors should consult their own tax, legal or other advisors to determine suitability for their specific circumstances. Investments in private funds (including hedge funds, managed-futures funds and private-equity funds) are speculative and include a high degree of risk. All figures annualized. Asset class returns are assumed to be serially independent. In some cases, the asset classes in the foregoing presentation are aggregations of the asset classes listed above, as per the mapping detailed on page 2 of the Appendix.

Assumptions for aggregated asset class are simply aggregates of the above assumptions with weights as per the Granular Portfolio Allocations on Page 1 of the Appendix and Model Allocations on page 3 of the Appendix respectively. Please refer to the end of this Appendix for important disclosures about this presentation.

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## The Role of Rebalancing

- Investors should define acceptable ranges for asset allocation to drift from their original targets
- When market action causes an asset class to rise (or fall) to the limit of its range, either the class or the entire fund should be rebalanced back to the target
- Reinforces a “buy low-sell high” philosophy

Portfolio Rebalancing does not guarantee a profit or prevent against a loss.

## At Target Allocation

### Portfolio Allocations

	1/1/99	1/1/00	1/1/01
Large Growth	20%	28%	14%
Large Value	20%	14%	18%
Small Growth	10%	24%	12%
Small Value	10%	12%	8%
International	15%	10%	12%
Bonds	25%	12%	36%

Source: Consulting Group



Out of Balance

Portfolio Allocations

Trim Stocks

	1/1/99	1/1/00	1/1/01
Large Growth	20%	28%	14%
Large Value	20%	14%	18%
Small Growth	10%	24%	12%
Small Value	10%	12%	8%
International	15%	10%	12%
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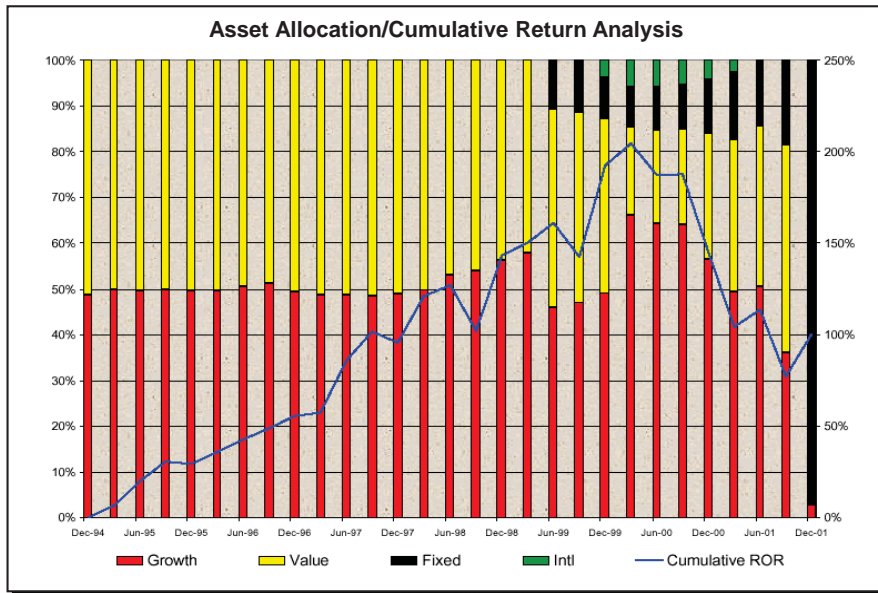
Out of Balance

Portfolio Allocations

Trim Bonds

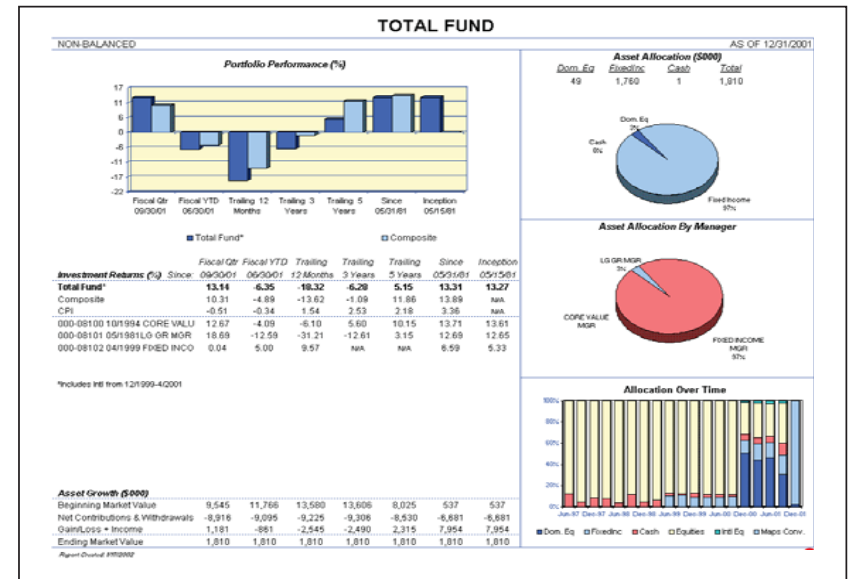
	1/1/99	1/1/00	1/1/01
Large Growth	20%	28%	14%
Large Value	20%	14%	18%
Small Growth	10%	24%	12%
Small Value	10%	12%	8%
International	15%	10%	12%
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### Non-Rebalanced Foundation



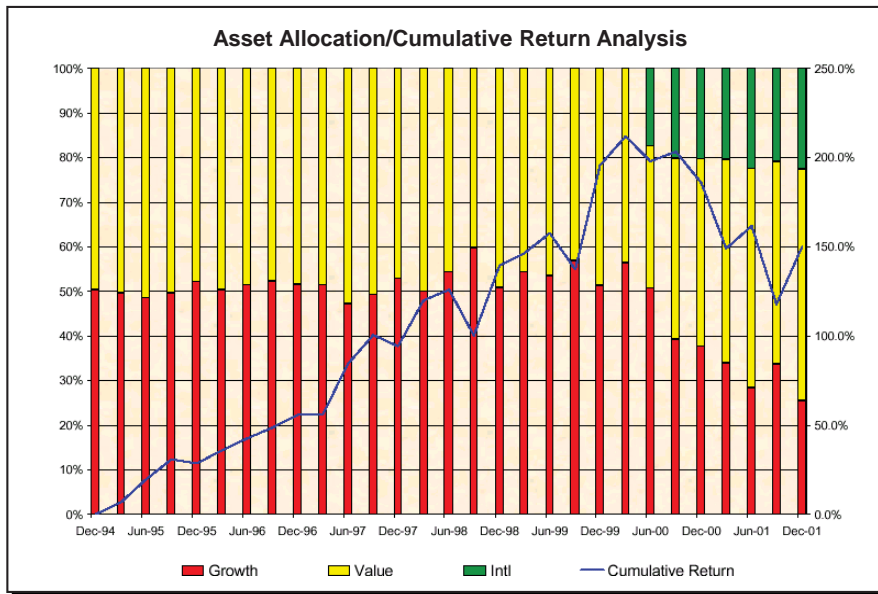
Source: Consulting Group

### Non-Rebalanced Foundation



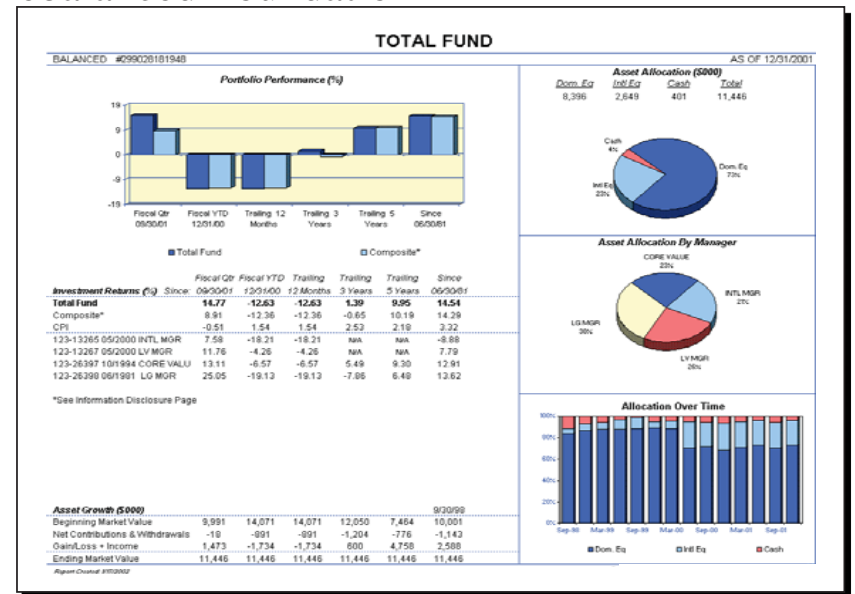
Source: Consulting Group

# Rebalanced Foundation



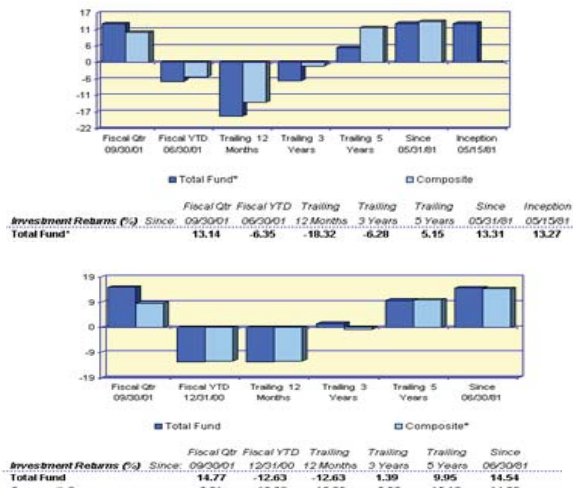
Source: Consulting Group

# Rebalanced Foundation



Source: Consulting Group

## Dramatic Difference in Performance Due Only to Rebalancing Asset Allocation



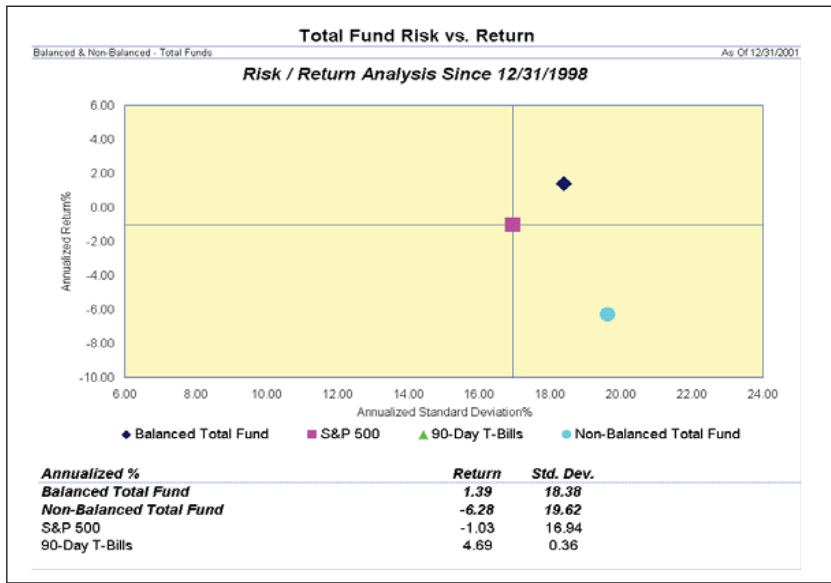
Source: Consulting Group

## Performance Difference

	Fiscal Quarter	Trailing 12 Months	Trailing 3 Years	Trailing 5 Years	Since 5/81
<b>Non-Rebalanced</b>	13.14%	-18.32%	-6.28%	5.15%	13.27%
<b>Rebalanced</b>	14.77%	-12.63%	1.39%	9.95%	14.54%
<b>Difference</b>	1.63%	5.69%	7.67%	4.80%	1.27%

Source: Consulting Group

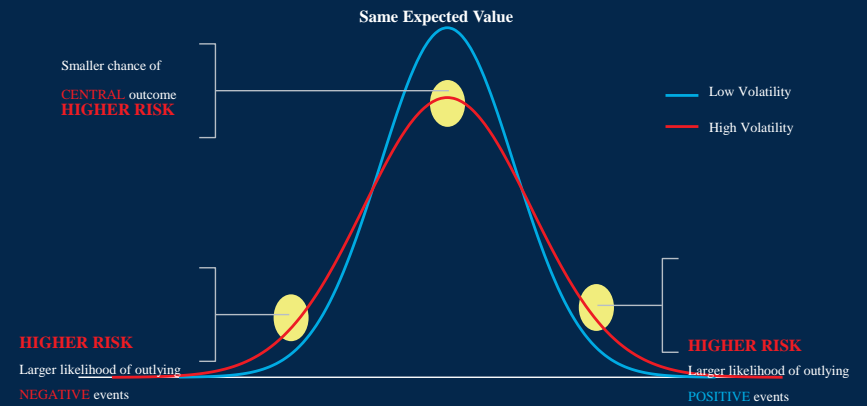
# Rebalanced vs Non-Rebalanced



Source: Consulting Group

## Risk in Simple Terms

Risk is uncertainty: The variety of events that can occur instead of the expected event

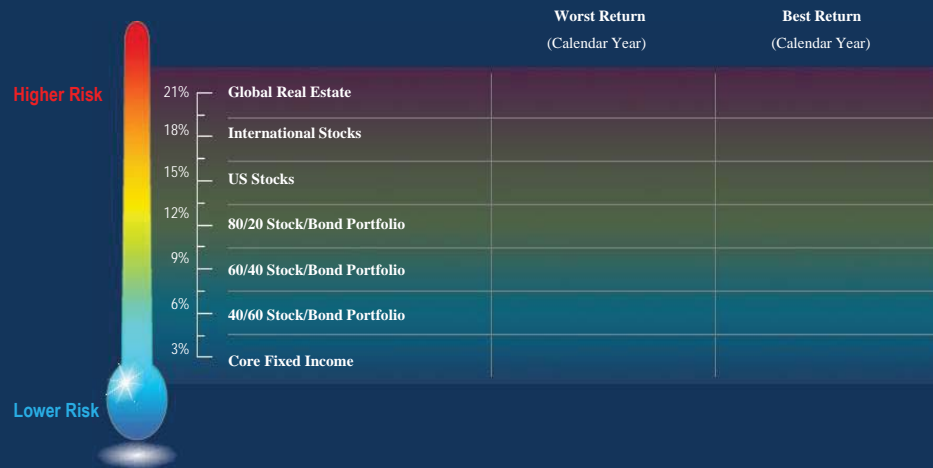


Given similar expected outcomes, we believe you should prefer those offering lower risk – especially if you are averse to negative outcomes!

Shown for illustrative purposes only. Source: GSAM SAS Portfolio Strategy, May 2015.

## The Risk Thermometer: Standard Deviation in Context

Matching standard deviation levels to familiar investments



Source: GSAM, Bloomberg. Ten year period spanning 2005-2014 encompasses a full market cycle with both periods of stability and significant market turmoil. Annualized Monthly Rolling Standard Deviation from 2005 until 2014 of hypothetical portfolios composed of the following assets: Global Real Estate is composed 54% US Real Estate, represented by the FTSE NAREIT Composite Index, and 46% International Real Estate, represented by the FTSE EPRA/NAREIT Developed Real Estate ex-US Index. International Stocks are represented by the MSCI EAFE. US Stocks are represented by the S&P 500. 80/20 Portfolio is represented by 80% US Stocks and 20% Investment Grade Bonds. 60/40 Portfolio is represented by 60% US Stocks and 40% Investment Grade Bonds. 40/60 Portfolio is represented by 40% US Stocks and 60% Investment Grade Bonds. Core Fixed Income is represented by the Barclays Capital Aggregate Bond Index. Please see the Appendix for index definitions. Shown for illustrative purposes only. There is no guarantee these long-term historical standard deviations will hold going forward. Diversification does not protect an investor from market risk and does not ensure a profit.

## The Risk Thermometer: Standard Deviation in Context

Matching standard deviation levels to familiar investments



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## Quantifying the Potential Benefits of Risk Reduction

Investors readily grasp the benefits of improved returns...  
what about lowering risk?

Lowering risk in isolation, while maintaining returns, has the potential to confer the following benefits to portfolios.

1

Improved certainty of outcomes

2

Improved Portfolio experience, through fewer Jeopardizing events

3

Improved portfolio longevity for portfolios making distributions

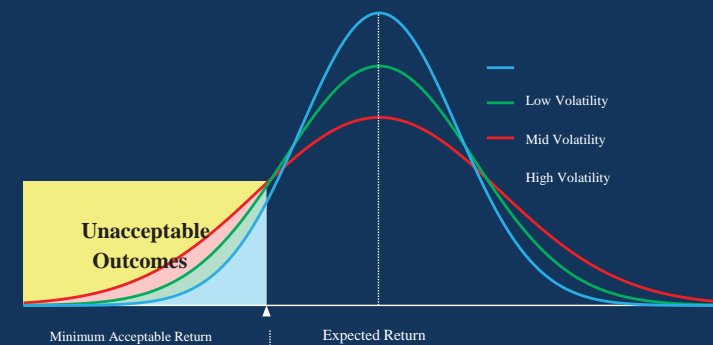
Portfolio construction tools are the means to achieve these potential benefits.

The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk.

## Potential Benefit #1: Improved Certainty of Outcomes

Reducing the likelihood of failure is a major reason that diversification is important

Hypothetical Illustrative Distribution



How often do portfolio returns fall short of "minimal acceptable returns"?

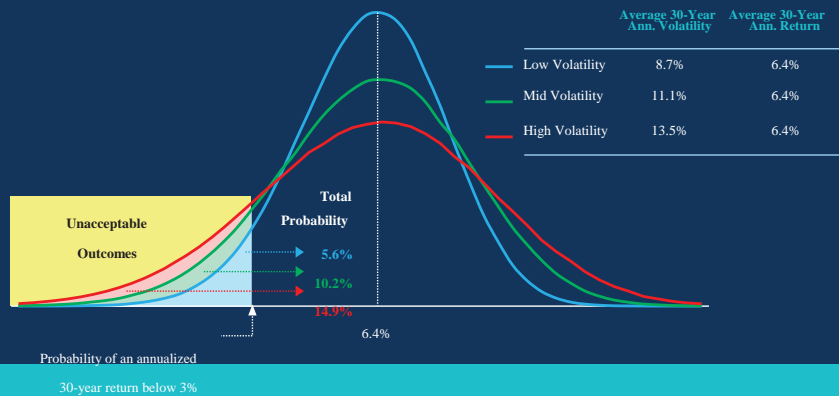
Shown for illustrative purposes only. Source: GSAM SAS/Portfolio Strategy, May 2015. Volatility is defined as the standard deviation of portfolio returns. Failing to achieve "minimal acceptable returns" refer to returns that fall short of client expectations.

## Potential Benefit #1: Improved Certainty of Outcomes

Minimum acceptable return example

Hypothetical failure definition: 30-year annualized returns below 3%

Using 1 million (1MM) scenarios across three portfolios



Higher risk portfolios have higher chances of failing to meet client objectives.

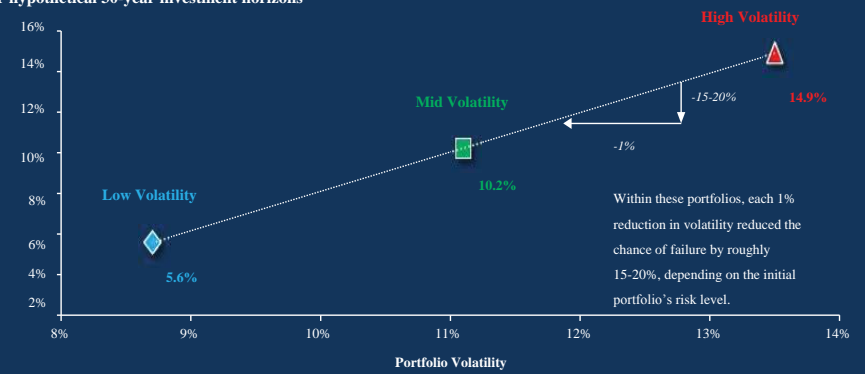
Shown for illustrative purposes only. Source: GSAM SAS Portfolio Strategy, May 2015. "Low Volatility" portfolio is composed of 55% Global Equity and 45% Global Fixed Income. "Mid Volatility" portfolio is composed of 70% Global Equity and 30% Global Fixed Income. "High Volatility" portfolio is composed of 85% Global Equity and 15% Global Fixed Income. Global Equity is represented by the MSCI World Gross Return, Global Aggregate Fixed Income is represented by the Barclays Global Aggregate Total Return Index Value Hedged USD. Distributions reflect one million repetitions of hypothetical 30-year monthly returns, randomly sampled from monthly data from Jan 1997 to Dec 2014. Failing to achieve "minimal acceptable returns" refer to returns that fall short of client expectations. In this case, 3% was used as the minimum acceptable outcome. Past performance does not guarantee future results, which may vary.

## Potential Benefit #1: Improved Certainty of Outcomes

Lower volatility portfolios have a lower probability of an unacceptable outcome

Probability of failure: Achieving annualized returns below 3%

Over hypothetical 30-year investment horizons



We can use portfolio construction methods to intentionally build less risky portfolios.

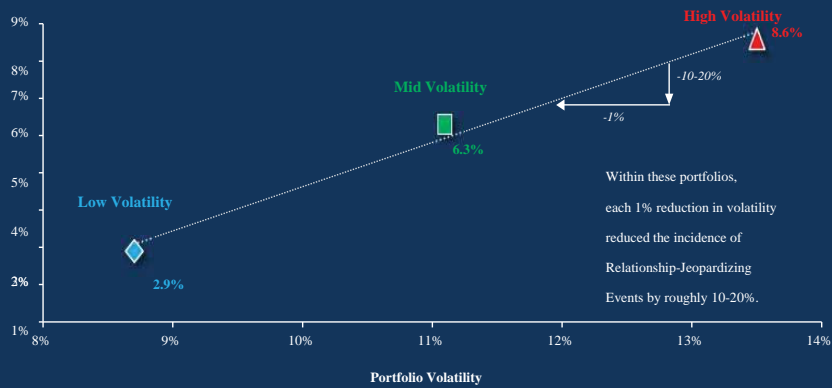
Shown for illustrative purposes only. Source: GSAM SAS Portfolio Strategy, May 2015. "Low Volatility", "Mid Volatility", and "High Volatility" portfolios composed as defined on slide 7. This illustration does not reflect the performance of any GSAM product and is being shown for informational purposes only. Past performance does not guarantee future results, which may vary.



## Potential Benefit #2: Improved Risk Experience

Lower volatility portfolios have a lower frequency of “Jeopardizing Events”

Frequency of monthly losses greater than 5%



We can use portfolio construction methods to intentionally build less risky portfolios.

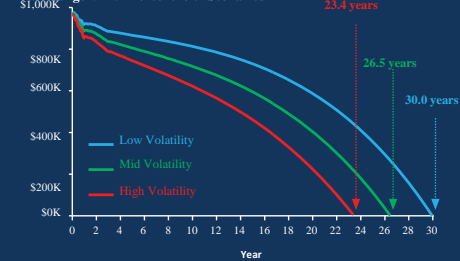
Shown for illustrative purposes only. Source: GSAM SAS/Portfolio Strategy, May 2015. “Low Volatility”, “Mid Volatility”, and “High Volatility” portfolios composed as defined on slide 7. This illustration does not reflect the performance of any GSAM product and is being shown for informational purposes only. Past performance does not guarantee future results, which may vary.

## Potential Benefit #3: Improved Portfolio Longevity

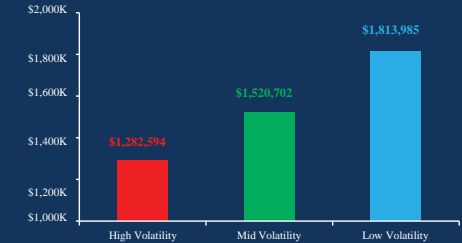
Reducing risk can help portfolios last longer or distribute more

Portfolio Starting Value	\$1,000,000
Year 1 Dollar Distribution	\$40,000
Assumed Inflation	2.7% (Historic 30-Year Inflation)

Last Longer: 17th Percentile of Scenarios



Distribute More: 17th Percentile of Scenarios



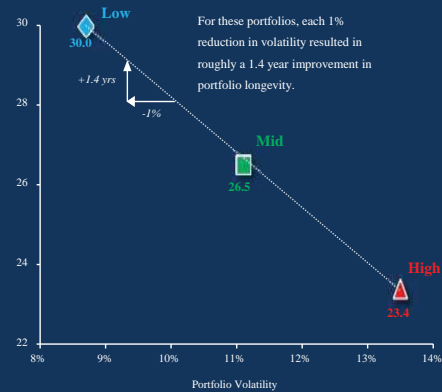
Source: GSAM SAS Portfolio Strategy, May 2015. Growth of and distributions from a \$1 million portfolio: A graphical measurement of a portfolio's gross return that simulates the performance of an initial investment of \$1MM over the given time period. The example provided does not reflect the deduction of investment advisory fees and expenses which would reduce an investor's return. Please be advised that since this example is calculated gross of fees and expenses the compounding effect of an investment manager's fees are not taken into consideration and the deduction of such fees would have a significant impact on the returns the greater the time period and as such the value of the \$1MM if calculated on a net basis, would be significantly lower than shown in this example. Dollar Distributions after Year 1 indexed to the specified inflation level. We acknowledge this simulation is not a perfect representation of future results, we are drawing repeatedly from 18 years of data (1997-2014) so results are subject to historical biases. As a result we also acknowledge that investors should not place emphasis on only median or bottom quartile outcomes, but instead should consider the distributions of potential outcomes to temper historical biases. The simulated returns were created with the benefit of hindsight using the percentage allocations shown on the previous pages. Simulated performance results do not reflect actual trading and have inherent limitations. Please see additional disclosures. Any changes will have an impact on the hypothetical historical performance results, which could be material. Hypothetical performance results have many inherent limitations and no representation is being made that any investor will, or is likely to achieve, performance similar to that shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved. “Low Volatility”, “Mid Volatility”, and “High Volatility”, portfolios composed as defined on slide 7. These illustrations do not reflect the performance of any GSAM product and are being shown for informational purposes only. Returns and volatilities for each portfolio represent the underlying indices blended at their respective weights. Past performance does not guarantee future results, which may vary.

## Potential Benefit #3: Improved Portfolio Longevity

Reducing risk can help portfolios last longer or distribute more

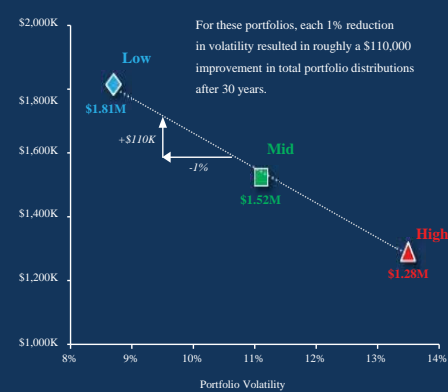
### Portfolio Longevity (in Years)

17th Percentile of Scenarios



### Total Portfolio Distributions

17th Percentile of Scenarios



We can use portfolio construction methods to intentionally build less risky portfolios.

Shown for illustrative purposes only. Source: GSAM SAS/Portfolio Strategy, May 2015. "Low Volatility", "Mid Volatility", and "High Volatility" portfolios composed as defined on slide 7. These illustrations do not reflect the performance of any GSAM product and are being shown for informational purposes only. Past performance does not guarantee future results, which may vary.

## Quantifying the Benefits of Risk Reduction

Investors readily grasp the benefits of improved returns...  
what about lowering risk?

Lowering risk in isolation, while maintaining returns, has the potential to confer the following benefits to portfolios, and business practices.

Each 1% reduction in portfolio risk can potentially result in:

- 1 A 15-20% lower chance of an unacceptable long-term outcome.
- 2 10-20% less-frequent incidents of jeopardizing events (RJE).
- 3 Improving the longevity of portfolios in the distribution phase by approximately 17 months during challenging environments, or increasing total portfolio distribution by over \$100K.

Portfolio construction tools may be the means to achieve these potential benefits.

Can Your Portfolio and Spending Policy Benefit From A Highly Diversified Portfolio?

College Endowments Have High Allocations to Alternative Investments

Figure 3.2 Asset Allocations\* for Fiscal Years 2012, 2013 and 2014

numbers in percent (%)	Total Institutions			Over \$1 Billion			\$501 Million-\$1 Billion			\$101-\$500 Million			\$51-\$100 Million			\$25-\$50 Million			Under \$25 Million		
	'12	'13	'14	'12	'13	'14	'12	'13	'14	'12	'13	'14	'12	'13	'14	'12	'13	'14	'12	'13	'14
	831	835	832	68	82	91	71	70	77	250	261	262	164	166	168	128	125	125	150	131	109
Domestic equities	15	16	17	12	13	13	18	20	20	25	27	27	31	33	31	35	36	38	39	43	43
Fixed income	11	10	9	9	8	8	12	11	10	16	15	14	22	20	18	24	22	19	29	26	26
International equities	16	18	19	15	17	18	17	19	20	18	19	21	18	20	21	16	17	18	14	14	14
Alternative strategies	54	53	51	61	59	57	48	45	44	36	34	33	24	23	24	19	20	18	11	11	10
Short-term securities/cash/other	4	3	4	3	3	4	5	5	6	5	5	5	5	4	6	6	5	7	7	6	7

\* dollar-weighted

Source: NACUBO Endowment Study 2014

## Portfolios with a Longer Time Horizon and Predictable Payouts – Is There a Better Option?

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- A broadly diversified portfolio can help mitigate systematic risk.
- A broadly diversified portfolio can reduce downside volatility.
- A broadly diversified portfolio can have better long term performance.
- Careful selection of asset managers in inefficient asset classes can add significant alpha.

### **Broadly Diversified Portfolio**

**30% Equity Blend**  
**10% Cambridge Private Equity Index**  
**5% Cambridge Venture Capital Index**  
**7.5% BC Agg Bond Index**  
**30% Hedge Fund Blend**  
**7.5% NCRIF Index**  
**5% Timberland Index**  
**5% Dow Jones AIG Commodity Index**

Diversified Equity Blend= 72% S & P 500, 14% R 2000, 14% EAFE

Diversified HFRI Blend= 55% HFRI Equity Hedge, 25% HFRI Event Driven, 15% HFRI Relative Value, 5% HFRI Macro

Dow Jones AIG Commodity Index starts in April 1991. The Reuters/Jefferies CRB Index is used as proxy in 1990 & 1991

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## Can Diversification Impact the Performance of My Foundation?

Highly Diversified Portfolios with Multiple Asset Classes that have Low Correlation To Each Other Can Lower the Volatility of a Portfolio.

Minimizing Downside Risk Can Allow a Portfolio to Rebound From a Higher Level after a Market Pullback.

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Zephyr StyleADVISOR

Zephyr StyleADVISOR: Morgan Stanley

Custom Table

July 1991 - December 2014: Summary Statistics

	Return	Standard Deviation	# of Down Periods	# of Up Periods	Maximum Drawdown	Up Capture vs. Market	Down Capture vs. Market
Barclays U.S. Aggregate	6.33%	3.93%	21	73	-3.87%	21.22%	-28.66%
Bloomberg Commodity Index	3.46%	16.20%	37	57	-54.75%	21.06%	9.71%
Cambridge Private Equity Fund Index	15.17%	10.23%	16	78	-25.13%	88.85%	24.44%
Cambridge US Venture Capital Index	16.49%	23.94%	21	73	-69.66%	96.37%	25.31%
Equity Blend	9.40%	16.11%	26	68	-46.68%	98.67%	101.48%
Hedge Fund Blend	11.13%	8.68%	18	76	-22.74%	67.74%	25.62%
NCREIF Property Index	8.01%	4.84%	14	80	-23.88%	31.39%	-23.57%
NCREIF Timbeland Index	10.86%	7.43%	6	88	-6.54%	42.40%	-32.44%
70% S&P 500 / 30% BC Aggregate	9.07%	10.93%	25	69	-32.34%	75.57%	64.29%
60% Diversified 40% BC Aggregate	8.59%	9.49%	26	68	-27.97%	66.99%	52.66%
Broadly Diversified Portfolio	10.65%	8.99%	17	77	-26.65%	71.06%	38.14%
S&P 500	9.79%	15.82%	26	68	-45.80%	100.00%	100.00%

Zephyr StyleADVISOR

Zephyr StyleADVISOR: Morgan Stanley

Manager vs Benchmark: Return

July 1991 - December 2014 (not annualized if less than 1 year)

	1 year	2 years	3 years	4 years	5 years	10 years	15 years	20 years	Analysis Period
Barclays U.S. Aggregate	5.97%	1.89%	2.66%	3.93%	4.45%	4.71%	5.70%	6.20%	6.33%
Bloomberg Commodity Index	-17.01%	-13.35%	-9.43%	-10.42%	-5.53%	-1.86%	2.73%	3.16%	3.46%
Cambridge Private Equity Fund Index	11.09%	16.11%	15.46%	14.42%	15.66%	13.57%	10.95%	14.96%	15.17%
Cambridge US Venture Capital Index	21.70%	24.67%	18.53%	17.15%	16.45%	10.34%	2.27%	16.17%	16.49%
Equity Blend	9.78%	20.36%	18.99%	13.71%	14.09%	7.32%	4.53%	9.25%	9.40%
Hedge Fund Blend	2.15%	6.95%	7.26%	3.89%	5.25%	5.17%	6.05%	9.89%	11.13%
NCREIF Property Index	11.81%	11.40%	11.11%	11.89%	12.13%	8.38%	8.89%	9.61%	8.01%
NCREIF Timbeland Index	10.48%	10.08%	9.30%	7.31%	5.88%	9.34%	7.47%	8.58%	10.86%
70% S&P 500 / 30% BC Aggregate	11.34%	16.20%	14.97%	12.21%	12.36%	7.13%	5.08%	9.13%	9.07%
60% Diversified 40% BC Aggregate	8.30%	12.82%	12.40%	10.06%	10.56%	6.74%	5.52%	8.51%	8.59%
Broadly Diversified Portfolio	6.68%	11.69%	11.30%	8.65%	9.57%	7.27%	6.35%	10.22%	10.65%
S&P 500	13.69%	22.68%	20.41%	15.55%	15.45%	7.67%	4.24%	9.85%	9.79%

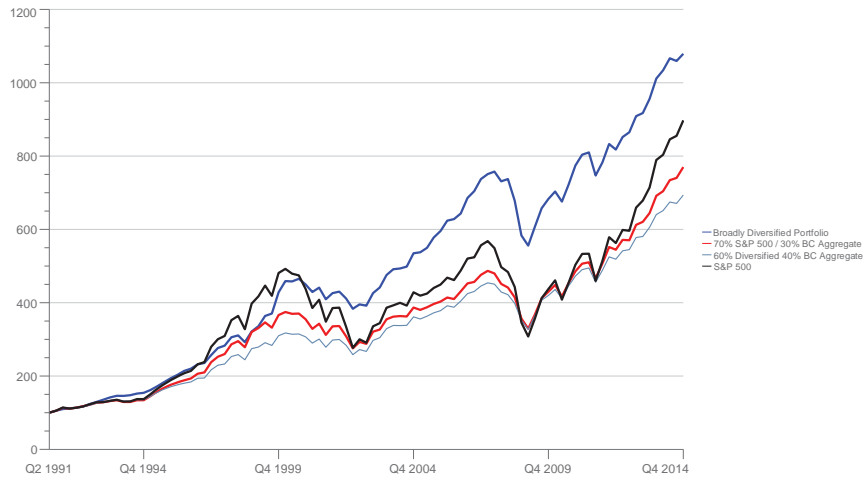
Zephyr StyleADVISOR										
	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Barclays U.S. Aggregate	5.97%	-2.02%	4.21%	7.84%	6.54%	5.93%	5.24%	6.97%	4.33%	2.43%
Bloomberg Commodity Index	-17.01%	-9.52%	-1.06%	-13.32%	16.83%	18.91%	-35.65%	16.23%	2.07%	21.36%
Cambridge Private Equity Fund Index	11.09%	21.34%	14.19%	11.35%	20.76%	13.36%	-22.59%	18.91%	28.69%	28.44%
Cambridge US Venture Capital Index	21.70%	27.72%	7.15%	13.11%	13.69%	2.71%	-16.05%	15.57%	17.24%	6.89%
Equity Blend	9.78%	31.96%	16.28%	-0.78%	15.66%	27.39%	-37.37%	5.27%	17.68%	6.08%
Hedge Fund Blend	2.15%	11.98%	7.90%	-5.61%	10.87%	23.83%	-22.74%	9.32%	12.54%	8.89%
NCREIF Property Index	11.81%	10.99%	10.54%	14.26%	13.11%	-16.86%	-6.46%	15.84%	16.59%	20.06%
NCREIF Timbeland Index	10.48%	9.68%	7.75%	1.58%	0.34%	4.32%	9.52%	18.43%	13.68%	19.35%
70% S&P 500 / 30% BC Aggregate	11.34%	21.28%	12.54%	4.33%	12.98%	20.49%	-25.66%	6.03%	12.29%	4.19%
60% Diversified 40% BC Aggregate	8.30%	17.52%	11.58%	3.32%	12.60%	19.16%	-21.84%	6.09%	12.30%	4.68%
Broadly Diversified Portfolio	6.68%	16.93%	10.53%	1.07%	13.34%	17.09%	-22.99%	10.49%	15.12%	11.35%
S&P 500	13.69%	32.39%	16.00%	2.11%	15.06%	26.46%	-37.00%	5.49%	15.79%	4.91%

Zephyr StyleADVISOR											
	# of Quarters		Average Return (%) vs. Market		Quarter (%)		1-Year (%)		Market Benchmark (%)		
	Up	Down	Up Market	Down Market	Best	Worst	Best	Worst	Up Capture	Down Capture	R-Squared
Barclays U.S. Aggregate	73	21	1.46	1.85	6.09	-2.87	18.48	-3.23	21.2	-28.7	2.95
Bloomberg Commodity Index	57	37	1.65	0.01	17.60	-30.04	41.56	-47.08	21.1	9.7	4.22
Cambridge Private Equity Fund Index	78	16	5.73	-1.52	17.80	-15.42	53.85	-23.45	88.9	24.4	55.56
Cambridge US Venture Capital Index	73	21	6.64	-1.25	84.06	-19.99	326.00	-47.72	96.4	25.3	18.27
Equity Blend	68	26	6.35	-7.22	20.51	-22.25	52.30	-39.13	98.7	101.5	98.44
Hedge Fund Blend	76	18	4.45	-1.64	14.43	-11.64	38.01	-22.74	67.7	25.6	62.60
NCREIF Property Index	80	14	2.14	1.55	5.43	-8.29	20.19	-22.11	31.4	-23.6	2.42
NCREIF Timbeland Index	88	6	2.90	2.08	22.34	-6.54	49.11	-5.44	42.4	-32.4	0.28
70% S&P 500 / 30% BC Aggregate	69	25	4.93	-4.43	15.01	-13.99	36.56	-27.01	75.6	64.3	98.87
60% Diversified 40% BC Aggregate	68	26	4.40	-3.59	12.45	-11.51	33.26	-23.76	67.0	52.7	96.38
Broadly Diversified Portfolio	77	17	4.64	-2.51	15.61	-13.97	36.70	-24.00	71.1	38.1	85.57
S&P 500	68	26	6.42	-7.12	21.30	-21.94	49.77	-38.09	100.0	100.0	100.00

Zephyr StyleADVISOR

Zephyr StyleADVISOR: Morgan Stanley

Manager Performance  
July 1991 - December 2014 (Single Computation)



Asset Allocation: 60% Diversified Equities/40% Barclays Aggregate								
5% Spending on Rolling 3 Year Average								
	Beginning Value	3 Year Avg.	Spending %	Spending \$	% ROR	Portfolio Gain/(Loss)	Change in Value	Ending Value
1988	\$ 35,000,000				14.89%			
1989	\$ 40,600,000				21.76%			
1990	\$ 50,000,000	\$ 41,866,667	5%	\$ 2,093,333	-1.28%	\$ (640,000)	\$ (2,733,333)	\$ 47,266,667
1991	\$ 47,266,667	\$ 45,955,556	5%	\$ 2,297,778	24.47%	\$ 11,566,153	\$ 9,268,376	\$ 56,535,042
1992	\$ 56,535,042	\$ 51,267,236	5%	\$ 2,563,362	6.83%	\$ 3,861,343	\$ 1,297,982	\$ 57,833,024
1993	\$ 57,833,024	\$ 53,878,244	5%	\$ 2,693,912	12.51%	\$ 7,234,911	\$ 4,540,999	\$ 62,374,023
1994	\$ 62,374,023	\$ 58,914,030	5%	\$ 2,945,701	-0.05%	\$ (31,187)	\$ (2,976,888)	\$ 59,397,134
1995	\$ 59,397,134	\$ 59,868,060	5%	\$ 2,993,403	26.74%	\$ 15,882,794	\$ 12,889,391	\$ 72,286,525
1996	\$ 72,286,525	\$ 64,685,894	5%	\$ 3,234,295	13.04%	\$ 9,426,163	\$ 6,191,868	\$ 78,478,393
1997	\$ 78,478,393	\$ 70,054,018	5%	\$ 3,502,701	20.10%	\$ 15,774,157	\$ 12,271,456	\$ 90,749,849
1998	\$ 90,749,849	\$ 80,504,923	5%	\$ 4,025,246	17.94%	\$ 16,280,523	\$ 12,255,277	\$ 103,005,126
1999	\$ 103,005,126	\$ 90,744,456	5%	\$ 4,537,223	12.83%	\$ 13,215,558	\$ 8,678,335	\$ 111,683,461
2000	\$ 111,683,461	\$ 101,812,812	5%	\$ 5,090,641	-0.98%	\$ (1,094,498)	\$ (6,185,139)	\$ 105,498,323
2001	\$ 105,498,323	\$ 106,728,970	5%	\$ 5,336,449	-2.86%	\$ (3,017,252)	\$ (8,353,701)	\$ 97,144,622
2002	\$ 97,144,622	\$ 104,775,469	5%	\$ 5,238,773	-8.70%	\$ (8,451,582)	\$ (13,690,356)	\$ 83,454,267
2003	\$ 83,454,267	\$ 95,365,737	5%	\$ 4,768,287	20.96%	\$ 17,492,014	\$ 12,723,727	\$ 96,177,994
2004	\$ 96,177,994	\$ 92,258,961	5%	\$ 4,612,948	9.78%	\$ 9,406,208	\$ 4,793,260	\$ 100,971,254
2005	\$ 100,971,254	\$ 93,534,505	5%	\$ 4,676,725	4.68%	\$ 4,725,455	\$ 48,729	\$ 101,019,983
2006	\$ 101,019,983	\$ 99,389,744	5%	\$ 4,969,487	12.30%	\$ 12,425,458	\$ 7,455,971	\$ 108,475,954
2007	\$ 108,475,954	\$ 103,489,064	5%	\$ 5,174,453	6.09%	\$ 6,606,186	\$ 1,431,732	\$ 109,907,686
2008	\$ 109,907,686	\$ 106,467,874	5%	\$ 5,323,394	-21.84%	\$ (24,003,839)	\$ (29,327,232)	\$ 80,580,454
2009	\$ 80,580,454	\$ 99,654,698	5%	\$ 4,982,735	19.16%	\$ 15,439,215	\$ 10,456,480	\$ 91,036,934
2010	\$ 91,036,934	\$ 93,841,691	5%	\$ 4,692,085	12.60%	\$ 11,470,654	\$ 6,778,569	\$ 97,815,503
2011	\$ 97,815,503	\$ 89,810,964	5%	\$ 4,490,548	3.32%	\$ 3,247,475	\$ (1,243,073)	\$ 96,572,430
2012	\$ 96,572,430	\$ 95,141,622	5%	\$ 4,757,081	11.58%	\$ 11,183,087	\$ 6,426,006	\$ 102,998,436
2013	\$ 102,998,436	\$ 99,128,789	5%	\$ 4,956,439	17.52%	\$ 18,045,326	\$ 13,088,886	\$ 116,087,322
2014	\$ 116,087,322	\$ 105,219,396	5%	\$ 5,260,970	8.30%	\$ 9,635,248	\$ 4,374,278	\$ 120,461,600
				\$ 105,217,969				
12/31/2000 Value vs. 12/31/2014 Value								\$ 14,963,278
2014 Spending vs. 2001 Spending								\$ (75,479)
Maximum Drawdown in Value (2000-2009)								\$ 31,103,007
Maximum Drawdown in Spending (FY 2001-FY 2014)								\$ (75,479)

Asset Allocation: Broadly Diversified Portfolio								
5% Spending no Rolling 3 Year Average								
	Beginning Value	3 Year Avg.	Spending %	Spending \$	% ROR	Portfolio Gain/(Loss)	Change in Value	Ending Value
1988	\$ 35,000,000							
1989	\$ 40,600,000							
1990	\$ 50,000,000	\$ 41,866,667	5%	\$ 2,093,333	2.83%	\$ 1,415,000	N/A	\$ 49,321,667
1991	\$ 49,321,667	\$ 46,640,556	5%	\$ 2,332,028	23.33%	\$ 11,506,745	\$ 9,174,717	\$ 58,496,384
1992	\$ 58,496,384	\$ 52,606,017	5%	\$ 2,630,301	12.75%	\$ 7,458,289	\$ 4,827,988	\$ 63,324,372
1993	\$ 63,324,372	\$ 57,047,474	5%	\$ 2,852,374	18.38%	\$ 11,639,020	\$ 8,786,646	\$ 72,111,018
1994	\$ 72,111,018	\$ 64,643,924	5%	\$ 3,232,196	5.61%	\$ 4,045,428	\$ 813,232	\$ 72,924,250
1995	\$ 72,924,250	\$ 69,453,213	5%	\$ 3,472,661	26.13%	\$ 19,055,106	\$ 15,582,446	\$ 88,506,695
1996	\$ 88,506,695	\$ 77,847,321	5%	\$ 3,892,366	19.78%	\$ 17,506,624	\$ 13,614,258	\$ 102,120,954
1997	\$ 102,120,954	\$ 87,850,633	5%	\$ 4,392,532	22.09%	\$ 22,558,519	\$ 18,165,987	\$ 120,286,941
1998	\$ 120,286,941	\$ 103,638,196	5%	\$ 5,181,910	13.77%	\$ 16,563,512	\$ 11,381,602	\$ 131,668,542
1999	\$ 131,668,542	\$ 118,025,479	5%	\$ 5,901,274	38.18%	\$ 50,271,050	\$ 44,369,776	\$ 176,038,318
2000	\$ 176,038,318	\$ 142,664,600	5%	\$ 7,133,230	5.10%	\$ 8,977,954	\$ 1,844,724	\$ 177,883,042
2001	\$ 177,883,042	\$ 161,863,301	5%	\$ 8,093,165	-5.11%	\$ (9,089,823)	\$ (17,182,988)	\$ 160,700,054
2002	\$ 160,700,054	\$ 171,540,471	5%	\$ 8,577,024	-6.82%	\$ (10,959,744)	\$ (19,536,767)	\$ 141,163,286
2003	\$ 141,163,286	\$ 159,915,461	5%	\$ 7,995,773	20.45%	\$ 28,867,892	\$ 20,872,119	\$ 162,035,406
2004	\$ 162,035,406	\$ 154,632,915	5%	\$ 7,731,646	12.45%	\$ 20,173,408	\$ 12,441,762	\$ 174,477,168
2005	\$ 174,477,168	\$ 159,225,287	5%	\$ 7,961,264	11.39%	\$ 19,872,949	\$ 11,911,685	\$ 186,388,853
2006	\$ 186,388,853	\$ 174,300,475	5%	\$ 8,715,024	15.22%	\$ 28,368,383	\$ 19,653,360	\$ 206,042,212
2007	\$ 206,042,212	\$ 188,969,411	5%	\$ 9,448,471	10.60%	\$ 21,840,475	\$ 12,392,004	\$ 218,434,216
2008	\$ 218,434,216	\$ 203,621,761	5%	\$ 10,181,088	-22.42%	\$ (48,972,951)	\$ (59,154,039)	\$ 159,280,177
2009	\$ 159,280,177	\$ 194,585,535	5%	\$ 9,729,277	17.09%	\$ 27,220,982	\$ 17,491,705	\$ 176,771,883
2010	\$ 176,771,883	\$ 184,828,759	5%	\$ 9,241,438	13.34%	\$ 23,581,369	\$ 14,339,931	\$ 191,111,814
2011	\$ 191,111,814	\$ 175,721,291	5%	\$ 8,786,065	1.07%	\$ 2,044,896	\$ (6,741,168)	\$ 184,370,646
2012	\$ 184,370,646	\$ 184,084,781	5%	\$ 9,204,239	10.53%	\$ 19,414,229	\$ 10,209,990	\$ 194,580,636
2013	\$ 194,580,636	\$ 190,021,032	5%	\$ 9,501,052	16.93%	\$ 32,942,502	\$ 23,441,450	\$ 218,022,086
2014	\$ 218,022,086	\$ 198,991,122	5%	\$ 9,949,556	6.68%	\$ 14,563,875	\$ 4,614,319	\$ 222,636,405
				\$ 168,229,284				
12/31/2011 Value vs. 12/31/1999 Value								\$ 8,332,328
2011 Spending vs. 2001 Spending								\$ 692,900
Maximum Drawdown in Value (2007-2008)								\$ 59,154,039
Maximum Drawdown in Spending (FY 2008-FY 2011)								\$ 1,395,023

The Broadly Diversified Portfolio had a Lower Standard Deviation, More “Up” Periods and Fewer “Down” Periods

	Return	Standard Deviation	# of Up Periods	# of Down Periods	Maximum Drawdown	Up Capture vs. Market	Down Capture vs. Market
Broadly Diversified Portfolio	10.65%	8.99%	77	17	-26.65%	71.06%	38.14%
60% Equity/40% BC Agg	8.59%	9.49%	68	26	-27.97%	66.99%	52.66%
S&P 500	9.79%	15.82%	68	26	-45.80%	100.00%	100.00%



## The Broadly Diversified Portfolio had Better Long Term Returns than the Traditional 60%/40% Portfolio

	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years	15 Years	20 Years
<b>Broadly Diversified Portfolio</b>	6.68%	11.69%	11.30%	8.65%	9.57%	7.27%	6.35%	10.22%
<b>60% Diversified Portfolio/40% BC Aggregate</b>	8.30%	12.82%	12.40%	10.06%	10.56%	6.74%	5.52%	8.51%
<b>S&amp;P 500</b>	13.69%	22.68%	20.41%	15.55%	15.45%	7.67%	4.24%	9.85%

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## Rolling 3 Year Periods - Quarterly

4<sup>th</sup> Quarter 1992\* – 4<sup>th</sup> Quarter 2014

Total Periods = 85

ROR	Broadly Diversified Portfolio	S&P 500	60% S&P / 40% BC Agg
>8 %	69.9%	60.2%	59.0%
>5 %	74.4%	62.7%	71.1%
< 0 %	13.3%	22.9%	14.5%

\*Using data back to 1<sup>st</sup> Quarter of 1990

- The broadly diversified portfolio beat the target ROR of 8% in 69.9% of rolling three year periods, exceeded the spending rate return of 5% in 74.4% of periods and lost \$ in 13.3% of periods.
- The 100% S&P 500 and the 60/40 blended portfolio had a lower success rate in achieving the 8% target ROR and the spending rate return of 5%. Both lost \$ in more periods than the diversified portfolio.

Source: Graystone Consulting

Past performance is not necessarily indicative of future results.

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# Rolling 5 Year Periods - Quarterly

4<sup>th</sup> Quarter 1994\* - 4<sup>th</sup> Quarter 2014  
Total Periods = 77

ROR	Broadly Diversified Portfolio	S&P 500	60% S&P / 40% BC Agg
>8 %	54.7%	45.3%	45.3%
>5 %	77.3%	54.7%	60.0%
> 0 %	0.0%	24.0%	0.0%

\*Using data back to 1<sup>st</sup> Quarter of 1990

- The broadly diversified model achieved the target ROR of 8% in 54.7% of rolling five year periods, the spending rate return of 5% in 77.3% of periods and did not lose \$ in any five year time period.
- The 100% S&P 500 portfolio and the 60/40 blended portfolio had a lower success rate in achieving the 8% target ROR and the spending rate return of 5%. The S&P 500 lost \$ in 24% of rolling five year periods.

Source: Graystone Consulting

Past performance is not necessarily indicative of future results.

## Impact on Long-Term Portfolio Growth and Spending

### Summary

	Beginning Value	Ending Value	Total Spending	2001 Spending	2014 Spending
60% Diversified Equities/40% Bonds	\$50,000,000	\$120,461,600	\$105,217,969	\$5,336,449	\$5,260,970
Broadly Diversified Portfolio	\$50,000,000	\$222,636,405	\$168,229,284	\$8,093,165	\$9,949,284

### The Endowment Model is Not Broken

- The "Endowment Model" portfolio resulted in significantly higher ending value on 12/31/14, even after a massive drawdown in 2008 due to the credit crisis.
- The "Endowment Model" portfolio resulted in significantly higher cumulative spending for the period 1990-2014 and had higher projected spending for 2014 than in 2001, prior to the decade long bear market.

Source: Graystone Consulting

## Portfolios with a Longer Time Horizon and Predictable Payouts

- Can diversify broadly to perform more consistently over a long period of time.
- May have felt the dislocation of 2008, as did every model, they did not fare as poorly as traditional portfolios
- Because broad diversification protects better on the downside, the fund gives less back in negative markets.
- It can result in a higher total return.
- It provides for a steadier payout stream.
- Can still take advantage of “opportunistic” asset allocation after periods like 2008-2009 when High Quality assets are selling at distressed prices.

## Asset Class Inputs Explanatory Notes

### Sources for Simulated Data

**US Equity:** Russell 3000 Index for the time period 1990 – 2010

Shares represent an ownership, or equity, interest in a U.S. company. The value of equity securities may fluctuate in response to specific situations for each company, industry, market conditions and general economic environments.

**Non-US Equity:** MSCI World ex US Investible Market Index for the time period 1990 – 2010

Shares represent an ownership, or equity, interest in a non-U.S. company. The value of equity securities may fluctuate in response to specific situations for each company, industry, country, market conditions and general economic and political environments.

**EM Equity:** MSCI Emerging Markets Free Investible Markets Index for the time period 1990 – 2010

Shares represent an ownership, or equity, interest in a non-U.S. company. Investing in the securities of such companies and countries involves certain consideration not usually associated with investing in developed countries, including political and economic situations and instability, adverse diplomatic developments, price volatility, lack of liquidity and fluctuations in the currency exchange.

**US Municipal Bonds:** Barclays Capital U.S. Municipal Bond Index for the time period 1990 – 2010

Debt securities issued by a state, municipality, or county, in order to finance its capital expenditures. Municipal bonds are exempt from federal taxes and from most state and local taxes. There are two common types of municipal bonds: general obligation and revenue. General Obligation (GO) bonds are unsecured municipal bonds that are simply backed by the full faith and credit of the municipality. Some income may be subject to state and local taxes and to the federal alternative minimum tax. Capital gains, if any, are subject to tax.

**Inv. Grade Bonds:** Barclays Capital Global Aggregate Index (Hedged to USD) for the time period 1990 – 2010

Debt instruments issued by U.S. and non-U.S. government, corporate and municipal issuers that provide a return in the form of fixed periodic payments and eventual return of principle at maturity. Fixed income investments are advantageous in a time of low inflation, but do not protect investors in a time of rising inflation. Securities issues by foreign corporations or governments may be subject to market, economic, political or other conditions affecting the respective government, company, industry or country.

**High Yield Bonds:** Barclays Capital Global High Yield Index (Hedged to USD) for the time period 1990 – 2010

Bonds issued by companies without a long track record of sales or of questionable credit strength that are generally rated BB or lower. High yield bonds pay a higher yield than investment grade bonds to compensate for the higher risk.

## Asset Class Inputs Explanatory Notes

### Sources for Simulated Data

**EM Bonds:** JP Morgan Government Bond Index – Emerging Markets Global Diversified Composite (Unhedged) for the time period 1994 – 2010

Debt instruments issued by non-U.S. government and corporate issuers that provide a return in the form of fixed periodic payments and eventual return of principle at maturity. Fixed income investments are advantageous in a time of low inflation, but do not protect investors in a time of rising inflation. Securities issues by foreign corporations or governments may be subject to market, economic, political or other conditions affecting the respective government, company, industry or country.

**REITS:** FTSE EPRA NAREIT Global Total Return Index for the time period 1990 – 2010

A security that is usually traded like a stock on the major exchanges and invests in real estate directly, either through properties or mortgages. The risks of REIT investing are similar to those associated with direct investments in real estate: lack of liquidity, limited diversification and sensitivity to economic factors such as interest rate changes and market recessions.

**Commodities:** Dow Jones / UBS Commodity Total Return Index for the time period 1991 – 2010

Commodities are identifiable assets, such Precious Metals, Commodities, Oil and Gas interests, and Timber, as distinguished from a financial investment. The prices of real assets tend to fluctuate widely and in an unpredictable manner. Prices are affected by several factors including global supply and demand, investors' expectations with respect to the rate of inflation, currency exchange rates, interest rates, investment and trading activities of hedge funds and commodity funds, and global or regional political, economic or financial events and situations.

**TIPS:** Barclays Capital Global Inflation-Linked Bond Index (Hedged to USD) for the time period 1997 – 2010

A special type of Treasury note or bond that that adjusts principal and coupon payments to eliminate the effects of inflation. TIPS' coupon payments and underlying principal are automatically increased to compensate for inflation by tracking the consumer price index (CPI). While the real rate of return is guaranteed, TIPS generally offer a low return.

**Managed Futures:** Barclay BTop50 Index for the time period 1980 – 2010

A future is a financial contract that requires the sale of financial instruments or physical commodities for future delivery, usually on a commodity exchange. Managed futures accounts involve a high degree of risk, often engage in leveraging and other speculative investment practices that may increase the risk of investment loss, can be highly illiquid, are not required to provide periodic pricing or valuation information to investors, may involve complex tax structures and delays in distributing important tax information, are not subject to the same regulatory requirements as mutual funds, often charge high fees which may offset any trading profits, and in many cases the underlying investments are not transparent and are known only to the investment manager.

## Asset Class Inputs Explanatory Notes

### Sources for Simulated Data

**Hedge Funds:** HFRI Fund of Funds Composite Index for the time period 1990 – 2010

A private and unregistered investment pool that may employ sophisticated hedging and arbitrage techniques, using long and short positions, leverage and derivatives and investments in many markets. Hedge funds may involve a high degree of risk, often engage in leveraging and other speculative investment practices that may increase the risk of investment loss, can be highly illiquid, are not required to provide periodic pricing or valuation information to investors, may involve complex tax structures and delays in distributing important tax information, are not subject to the same regulatory requirements as mutual funds, often charge high fees which may offset any trading profits, and in many cases the underlying investments are not transparent and are known only to the investment manager.

**Private Real Estate:** NCREIF Townsend Fund Index for the time period 1988 – 2010

Real estate investments are subject to special risks, including interest rate and property value fluctuations, as well as risk related to general and economic conditions.

**Private Equity:** Venture Economics All Private Equity Index for the time period 1988 – June 2010

When equity capital is made available to companies or investors, but not quoted on a stock market. Private equity interests may be highly illiquid, involve a high degree of risk and be subject to transfer restrictions.

**Global Cash:** British Banker's Association 3-month USD LIBOR Index for the time period 1990 – 2010 (Note: Given recent capital market dislocations, only the strategic return estimate of 3.60% is based on the US 90-day Treasury Bill)

Treasury bills, certificates of deposit (CDs) and other short-term securities are called cash or cash equivalents. They earn money through interest, which is generally set at a guaranteed rate.

## Risks of Different Investments

Different security types and asset classes carry different risks of investment.

- **Small/Mid Caps U.S. Equity:** Investing in smaller companies involves greater risks not associated with investing in more established companies, such as business risk, significant stock price fluctuations and illiquidity.
- **International/Emerging Markets:** International investing entails greater risk, as well as greater potential rewards compared to U.S. investing. These risks include potential and economic uncertainties of foreign countries as well as the risk of currency fluctuations. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economics.
- **Fixed Income:** Fixed Income Securities are subject to interest rate risk, credit risk, prepayment risk, market risk, and reinvestment risk. Fixed Income Securities, if held to maturity, may provide a fixed rate of return and a fixed principal value. Fixed Income Securities prices fluctuate and when redeemed, may be worth more or less than their original cost.
- **High Yield Bonds:** High Yield Fixed Income Investments, also known as junk bonds, are considered speculative, involve greater risk of default and tend to be more volatile than investment grade fixed income securities.
- **Hedge Funds:** Hedge funds are suitable only for long-term, qualified investors. They are generally illiquid, not tax efficient, and have higher fees than many traditional investments. They may also be highly leveraged and engage in speculative investment techniques which can magnify the potential for investment loss or gain.
- **REITs:** REITs investing risks are similar to those associated with direct investments in real estate; lack of liquidity, limited diversification, and sensitivity to economic factors such as interest rate changes and market recessions.
- **Private Equity:** Private equity interests may be highly illiquid, involve a high degree of risk and be subject to transfer restrictions.
- **TIPS:** Because the return of TIPS is linked to inflation, TIPS may significantly underperform vs. fixed return treasuries in times of low inflation.
- **Managed Futures:** Managed futures investments are speculative, involve a high degree of risk, use significant leverage, are generally illiquid, have substantial charges, subject investors to conflicts of interest, and are suitable only for the risk capital portion of an investor's portfolio. Before investing in any partnership and in order to make an informed decision, investors should read the applicable prospectus and/or offering documents carefully for additional information, including charges, expenses and risks. Investors should read the prospectus and/or offering documents carefully for additional information, including charges, expenses and risks. Managed futures investments do not replace equities or bonds but rather may act as a complement in a well diversified portfolio.
- **Commodities:** Investing in commodities entails significant risks. Commodity prices may be affected by a variety of factors at any time, including but not limited to, (i) changes in supply and demand relationships, (ii) governmental programs and policies, (iii) national and international political and economic events, war and terrorist events, (iv) changes in interest and exchange rates, (v) trading activities in commodities and related contracts, (vi) pestilence, technological change and weather, and (vii) the price volatility of a commodity. In addition, the commodities markets are subject to temporary distortions or other disruptions due to various factors, including lack of liquidity, participation of speculators and government intervention.

## Glossary

**Annualized Return:** The annual rate of return that would yield the same overall return for a multi-year period as the actual return observed; or the cumulative return, when the time period is one year or less.

**Correlation:** Correlation is computed into what is known as the correlation coefficient, which ranges between -1 and +1. Perfect positive correlation (a correlation co-efficient of +1) implies that as one security moves, either up or down, the other security will move in lockstep, in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction the security that is perfectly negatively correlated will move by an equal amount in the opposite direction. If the correlation is 0, the movements of the securities is said to have no correlation, it is completely random. If one security moves up or down there is as good a chance that the other will move either up or down, the way in which they move is totally random.

**Investment Objective:** The financial goals pursued by an investor. Specific examples and definitions of investment objectives are below.

**Capital Preservation:** To seek to minimize the probability of loss of principal over the investment horizon of the portfolio relative to the market.

**Income:** To seek to generate current investment income in the form of interest and/or dividends.

**Income and Growth:** To seek to achieve a balance between current income returns and growth of principal.

**Growth:** To seek to achieve growth of principal over time with current income generation a secondary consideration.

**Liquidity:** To invest in securities that are readily marketable.

**Purchasing Power:** To seek returns in excess of the rate of inflation over the long-term investment horizon of the portfolio relative to the market.

**Portfolio:** The combination of assets held by an investor.

**Current Portfolio:** The combination of assets held in an investor's portfolio at the present time.

**Sample Portfolio:** The suggested combination of assets to be held in an investor's portfolio at some point in the future.

## Glossary

**Risk Profile:** An individual's willingness to trade off the risk of losing money in exchange for returns over time.

**Conservative:** Asset allocations may generally be expected to exhibit lower price volatility as measured by the standard deviations of annualized returns from the portfolio and generally seeks to generate a somewhat greater proportion of its returns from income as compared with capital gains.

**Moderate:** Asset allocation may generally be expected to exhibit moderate price volatility as measured by the standard deviations of annualized returns from the portfolio and generally seeks to generate a somewhat balanced proportion of its returns from income as well as from capital gains.

**Aggressive:** Asset allocation may generally be expected to exhibit higher price volatility as measured by the standard deviations of annualized returns from the portfolio and generally seeks to generate a somewhat lower proportion of its returns from income as compared with capital gains.

**Sharpe Ratio:** Developed by William F. Sharpe, this calculation measures a ratio of return to volatility. It is useful in comparing two portfolios or stocks in terms of risk-adjusted return. The higher the Sharpe Ratio, the more return for each unit of risk. It is calculated by first subtracting the risk free rate from the return of the portfolio, then dividing by the standard deviation of the portfolio. Using Sharpe ratios to compare and select among investment alternatives can be difficult because the measure of risk, portfolio standard deviation, penalizes portfolios for positive upside returns as much as the undesirable downside returns.

**Standard Deviation:** A statistical measure of the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. It is referred to as the square root of the variance. When returns are normally distributed, an individual return will fall within one standard deviation of the mean about two-thirds of the time.

For example, if a portfolio had an expected return of 5% and a standard deviation of 13%, then:

**One Standard Deviation:** 68% of the time, returns can be expected to fall between -8.0% and +18%

**Two Standard Deviations:** 95% of the time, returns can be expected to fall between -21% and +31%

Standard deviation is a useful historical measure of the variability of return earned by an investment portfolio. In performance measurement, it is generally assumed that a larger degree of dispersion implies that greater risk was taken to achieve the return.

**Time Horizon Greater than 10 Years:** Greater than ten years, this longer time frame generally allows the portfolio to endure the volatility of market cycles. Greater allocations to higher volatility/higher return asset classes may be employed in an attempt to enhance portfolio returns.

## Disclosures

These materials are provided for general informational and educational purposes based in part upon publically available information from sources believed to be reliable. While we have taken great care in the preparation of these materials, we cannot be responsible for clerical, computational, or other errors. While we have relied on sources we believe to be reliable, the values reflected in this report may differ from their reported values due to varying reporting methods and valuation methods used by custodians other than those affiliated with us. We cannot assure the accuracy of these reports, nor of the information provided to us and reflected in this report.

**Important: The projections or other information generated by the Strategic Asset Allocation Tool regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.**

Since the future cannot be forecast, actual results will vary from the information shown for the future, including estimates and assumptions. The results may vary with each use and over time. It is possible that these variations may be material. The degree of uncertainty normally increases with the length of the future period covered. As a result, Morgan Stanley Smith Barney cannot give any assurances that any estimates, assumptions or other aspects of the following analyses will prove correct. They are subject to actual known and unknown risks, uncertainties and other factors that could cause actual results to differ materially from those shown.

Asset allocation does not assure profit or protect against loss in declining financial markets. Certain assumptions may have been made in the analyses that have resulted in the estimated return contained herein. Any change in these assumptions may have a material impact on any estimated returns.

Many of the views and opinions contained herein regarding asset allocation were prepared by Morgan Stanley Smith Barney Asset Allocation Group and may differ materially from that of others at the Company. Nothing in this allocation is designed to constitute an individual investment plan which should only be devised after discussion with your consultant.

This Strategic Asset Allocation Tool may contain historical asset class return data and statistically generated data from 1972-2008 which are not used to forecast potential return but rather to identify relative patterns of behavior among asset classes which when put in different combinations assume various levels of risk.

With the exception of the Time Period Analysis, each analysis in this report contains simulations of performance. Hypothetical Performance is shown for illustration purposes only. Hypothetical Performance has inherent limitations and does not reflect actual performance, trading or decision making. The results vary and reflect material economic or market factors such as liquidity constraints or volatility, which have an important impact on decision making and actual performance.

## Disclosures

Past performance is no guarantee of future results. These materials do not constitute an offer to either buy or sell securities or to participate in any trading strategy.

Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustration purposes only and do not show the performance of any specific investment. Reference to an index does not imply that the portfolio will achieve return, volatility or other results similar to the index. The composition of an index may not reflect the manner in which a portfolio is constructed in relation to expected or achieved returns, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility, or tracking error target, all of which are subject to change over time.

Any allocation containing alternative investments should note that they are highly illiquid and are only suitable for investors willing to put capital at risk for an indefinite period of time. Alternative investments often engage in leverage and other speculative investment practices, may involve complex tax structures, typically have higher fees, and generally are not subject to the same regulatory requirements as traditional asset classes.

This report is not a financial plan and does not create an investment advisory relationship between you and your consultant. We are not your fiduciary either under the Employee Retirement Income Security Act of 1974 (ERISA) or the Internal Revenue Code of 1986, and any information in this report is not intended to form the primary basis for any investment decision by you, or an investment advice or recommendation for either ERISA or Internal Revenue Code purposes.

We may act in the capacity of a broker or that of an advisor. As your broker, we are not your fiduciary and our interests may not always be identical to yours. Please consult with your consultant to discuss our obligations to disclose to you any conflicts we may from time to time have and our duty to act in your best interest.

We may be paid both by you and by others who compensate us based on what you buy. Our compensation, including that of your consultant, may vary by product and over time.

We are not providing you with specific investment, legal, or tax advice. We strongly recommend that you consult your own legal and tax adviser to determine whether the analyses in these materials apply to your personal circumstances. Particular, legal, accounting and tax implications applicable to you, as well as margin requirements and transaction costs may significantly affect the structure discussed and we do not represent that the results indicated will be achieved by you. This material may not be used for the purpose of avoiding taxpayer penalties under either State or Federal tax laws.

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## Important Disclosures

To the extent the investments depicted herein represent international securities, you should be aware that there may be additional risks associated with international investing, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes, and differences in financial and accounting standards. These risks may be magnified in emerging markets. International investing may not be for everyone. Small capitalization companies may lack the financial resources, product diversification and competitive strengths of larger companies. In addition, the securities of small capitalization companies may not trade as readily as, and be subject to higher volatility than, those of larger, more established companies.

Bonds are subject to interest rate risk. When interest rates rise bond prices fall; generally the longer a bond's maturity, the more sensitive it is to this risk. Bonds may also be subject to call risk, which allows the issuer to redeem the debt, fully or partially, before the scheduled maturity date. Proceeds from sales prior to maturity may be more or less than originally invested due to changes in market conditions or changes in the credit quality of the issuer.

High Yield bonds are subject to additional risks such as increased risk of default and greater volatility because of the lower credit quality of the issues.

As further described in the offering documents, an investment in alternative investments can be highly illiquid, are speculative and not suitable for all investors. Investing in alternative investments is only intended for experienced and sophisticated investors who are willing to bear the high economic risks associated with such an investment. Investors should carefully review and consider potential risks before investing. Certain of these risks may include: loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices; lack of liquidity in that there may be no secondary market for the fund and none is expected to develop; volatility of returns; restrictions on transferring interests in the Fund; potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized; absence of information regarding valuations and pricing; complex tax structures and delays in tax reporting; less regulation and higher fees than mutual funds; and manager risk.

Individual funds will have specific risks related to their investment programs that will vary from fund to fund.

## Important Disclosures

Although the statements of fact and data in this report have been obtained from, and are based upon, sources that the Firm believes to be reliable, we do not guarantee their accuracy, and any such information may be incomplete or condensed. All opinions included in this report constitute the Firm's judgment as of the date of this report and are subject to change without notice. This report is for informational purposes only and is not intended as an offer or solicitation with respect to the purchase or sale of any security. Past performance is not a guarantee of future results.

Actual returns would be reduced by expenses that may include management fees and costs of transactions. Expected return and risk (standard deviation) calculations are based on historical data for periods indicated.

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Diversification and Rebalancing do not guarantee a profit or protect against a loss.



## Asset Allocation Models & Insurance Products Disclosures

### GLOBAL INVESTMENT COMMITTEE (GIC) ASSET ALLOCATION MODELS

The Asset Allocation Models are created by Morgan Stanley Wealth Management's GIC.

#### CLIENTS TO CONSIDER THEIR OWN INVESTMENT NEEDS

The GIC Asset Allocation Models are formulated based on general client characteristics such as investable assets and risk tolerance. This report is not intended to be a client-specific suitability analysis or recommendation, or offer to participate in any investment. Therefore, do not use this report as the sole basis for investment decisions.

Clients should consider all relevant information, including their existing portfolio, investment objectives, risk tolerance, liquidity needs and investment time horizon. Such a suitability determination may lead to asset allocation(s) results that are materially different from the asset allocation shown in this report. Clients should talk to their Financial Advisor about what would be a suitable asset allocation for them.

#### HYPOTHETICAL MODEL PERFORMANCE (GROSS)

Hypothetical model performance results do not reflect the investment or performance of an actual portfolio following a GIC Strategy, but simply reflect actual historical performance of selected indices on a real-time basis over the specified period of time representing the GIC's strategic and tactical allocations as of the date of this report. The past performance shown here is simulated performance based on benchmark indices, not investment results from an actual portfolio or actual trading. There can be large differences between hypothetical and actual performance results achieved by a particular asset allocation or trading strategy. Hypothetical performance results do not represent actual trading and are generally designed with the benefit of hindsight.

Actual performance results of accounts vary due to, for example, market factors (such as liquidity) and client-specific factors (such as investment vehicle selection, timing of contributions and withdrawals, restrictions and rebalancing schedules). Clients would not necessarily have obtained the performance results shown here if they had invested in accordance with any GIC Asset Allocation Model for the periods indicated.

Despite the limitations of hypothetical performance, these hypothetical performance results allow clients and Financial Advisors to obtain a sense of the risk/return trade-off of different asset allocation constructs. The hypothetical performance results in this report are calculated using the returns of benchmark indices for the asset classes, and not the returns of securities, fund or other investment products.

Performance of indices may be more or less volatile than any investment product. The risk of loss in value of a specific investment is not the same as the risk of loss in a broad market index. Therefore, the historical returns of an index will not be the same as the historical returns of a particular investment a client selects.

Models may contain allocations to Hedge Funds, Private Equity and Private Real Estate. The benchmark indices for these asset classes are not issued on a daily basis. When calculating model performance on a day for which no benchmark index data is issued, we have assumed straight line growth between the index levels issued before and after that date.

**Fees reduce the performance of actual accounts** None of the fees or other expenses (e.g. commissions, mark-ups, mark-downs, fees) associated with actual trading or accounts are reflected in the GIC Asset Allocation Models. The GIC Asset Allocation Models and any model performance included in this presentation are intended as educational materials. Were a client to use these models in connection with investing, any investment decisions made would be subject to transaction and other costs which, when compounded over a period of years, would decrease returns. Information regarding Morgan Stanley's standard advisory fees is available in the Form ADV Part 2, which is available at [www.morganstanley.com/adv](http://www.morganstanley.com/adv). The following hypothetical illustrates the compound effect fees have on investment returns: For example, if a portfolio's annual rate of return is 15% for 5 years and the account pays 50 basis points in fees per annum, the gross cumulative five-year return would be 101.3% and the five-year return net of fees would be 96.8%. Fees and/or expenses would apply to clients who invest in investments in an account based on these asset allocations, and would reduce clients' returns. The impact of fees and/or expenses can be material.

#### INSURANCE PRODUCTS AND ETF DISCLOSURES

Morgan Stanley Smith Barney LLC offers insurance products in conjunction with its licensed insurance agency affiliates.

An investment in an **exchange-traded fund** involves risks similar to those of investing in a broadly based portfolio of equity securities traded on an exchange in the relevant securities market, such as market fluctuations caused by such factors as economic and political developments, changes in interest rates and perceived trends in stock and bond prices.

**Variable annuities, mutual funds and ETFs are sold by prospectus only. The prospectus contains the investment objectives, risks, fees, charges and expenses, and other information regarding the variable annuity contract and the underlying investments, or the ETF, which should be considered carefully before investing. Prospectuses for both the variable annuity contract and the underlying investments, or the ETF, are available from your Financial Advisor. Please read the prospectus carefully before you invest.**

**Variable annuities** are long-term investments designed for retirement purposes and may be subject to market fluctuations, investment risk, and possible loss of principal. All guarantees, including optional benefits, are based on the financial strength and claims-paying ability of the issuing insurance company and do not apply to the underlying investment options.

Optional riders may not be able to be purchased in combination and are available at an additional cost. Some optional riders must be elected at time of purchase. Optional riders may be subject to specific limitations, restrictions, holding periods, costs, and expenses as specified by the insurance company in the annuity contract.

If you are investing in a **variable annuity** through a tax-advantaged retirement plan such as an IRA, you will get no additional tax advantage from the variable annuity. Under these circumstances, you should only consider buying a variable annuity because of its other features, such as lifetime income payments and death benefits protection.

Taxable distributions (and certain deemed distributions) are subject to ordinary income tax and, if taken prior to age 59½, may be subject to a 10% federal income tax penalty. Early withdrawals will reduce the death benefit and cash surrender value.

## Asset Class Risk Considerations

**For index definitions to the indices referenced in this report please visit the following:** <http://www.morganstanleyva.com/public/projectfiles/id.pdf>

**Equity securities** may fluctuate in response to news on companies, industries, market conditions and general economic environment.

**Investing in foreign markets** entails risks not typically associated with domestic markets, such as currency fluctuations and controls, restrictions on foreign investments, less governmental supervision and regulation, and the potential for political instability. These risks may be magnified in countries with **emerging markets** and **frontier markets**, since these countries may have relatively unstable governments and less established markets and economies.

**Investing in small- to medium-sized companies** entails special risks, such as limited product lines, markets and financial resources, and greater volatility than securities of larger, more established companies.

The value of **fixed income securities** will fluctuate and, upon a sale, may be worth more or less than their original cost or maturity value. Bonds are subject to interest rate risk, call risk, reinvestment risk, liquidity risk, and credit risk of the issuer.

**High yield bonds (bonds rated below investment grade)** may have speculative characteristics and present significant risks beyond those of other securities, including greater credit risk, price volatility, and limited liquidity in the secondary market. High yield bonds should comprise only a limited portion of a balanced portfolio.

Interest on **municipal bonds** is generally exempt from federal income tax; however, some bonds may be subject to the alternative minimum tax (AMT). Typically, state tax-exemption applies if securities are issued within one's state of residence and, if applicable, local tax-exemption applies if securities are issued within one's city of residence.

**Treasury Inflation Protection Securities' (TIPS)** coupon payments and underlying principal are automatically increased to compensate for inflation by tracking the consumer price index (CPI). While the real rate of return is guaranteed, TIPS tend to offer a low return. Because the return of TIPS is linked to inflation, TIPS may significantly underperform versus conventional U.S. Treasuries in times of low inflation.

**Ultrashort-term fixed income asset class** is comprised of fixed income securities with high quality, very short maturities. They are therefore subject to the risks associated with debt securities such as credit and interest rate risk.

**Alternative investments** may be either traditional alternative investment vehicles, such as hedge funds, fund of hedge funds, private equity, private real estate and managed futures or, non-traditional products such as mutual funds and exchange-traded funds that also seek alternative-like exposure but have significant differences from traditional alternative investments. The risks of traditional alternative investments may include: can be highly illiquid, speculative and not suitable for all investors, loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices, volatility of returns, restrictions on transferring interests in a fund, potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized, absence of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than open-end mutual funds, and risks associated with the operations, personnel and processes of the manager. Non-traditional alternative strategy products may employ various investment strategies and techniques for both hedging and more speculative purposes such as short-selling, leverage, derivatives and options, which can increase volatility and the risk of investment loss. **Master Limited Partnerships (MLPs)** Individual MLPs are publicly traded partnerships that have unique risks related to their structure. These include, but are not limited to, their reliance on the capital markets to fund growth, adverse ruling on the current tax treatment of distributions (typically mostly tax deferred), and commodity volume risk. The potential tax benefits from investing in MLPs depend on their being treated as partnerships for federal income tax purposes and, if the MLP is deemed to be a corporation, then its income would be subject to federal taxation at the entity level, reducing the amount of cash available for distribution to the fund which could result in a reduction of the fund's value. MLPs carry interest rate risk and may underperform in a rising interest rate environment. **Investing in commodities** entails significant risks. Commodity prices may be affected by a variety of factors at any time, including but not limited to, (i) changes in supply and demand relationships, (ii) governmental programs and policies, (iii) national and international political and economic events, war and terrorist events, (iv) changes in interest and exchange rates, (v) trading activities in commodities and related contracts, (vi) pestilence, technological change and weather, and (vii) the price volatility of a commodity. In addition, the commodities markets are subject to temporary distortions or other disruptions due to various factors, including lack of liquidity, participation of speculators and government intervention. **Physical precious metals** are non-regulated products. Precious metals are speculative investments, which may experience short-term and long term price volatility. The value of precious metals investments may fluctuate and may appreciate or decline, depending on market conditions. Unlike bonds and stocks, precious metals do not make interest or dividend payments. Therefore, precious metals may not be suitable for investors who require current income. Precious metals are commodities that should be safely stored, which may impose additional costs on the investor. **REITs** investing risks are similar to those associated with direct investments in real estate: property value fluctuations, lack of liquidity, limited diversification and sensitivity to economic factors such as interest rate changes and market recessions.

Risks of **private real estate** include: illiquidity, a long-term investment horizon with a limited or nonexistent secondary market, lack of transparency, volatility (risk of loss), and leverage.

Principal is returned on a monthly basis over the life of a **mortgage-backed security**. Principal prepayment can significantly affect the monthly income stream and the maturity of any type of MBS, including standard MBS, CMOs and Lottery Bonds.

**Asset-backed securities** generally decrease in value as a result of interest rate increases, but may benefit less than other fixed-income securities from declining interest rates, principally because of prepayments.

## Asset Class Risk Considerations (cont'd)

**Floating-rate securities** The initial interest rate on a floating-rate security may be lower than that of a fixed-rate security of the same maturity because investors expect to receive additional income due to future increases in the floating security's underlying reference rate. The reference rate could be an index or an interest rate. However, there can be no assurance that the reference rate will increase. Some floating-rate securities may be subject to call risk.

**Yields** are subject to change with economic conditions. Yield is only one factor that should be considered when making an investment decision.

**Credit ratings** are subject to change.

Companies paying **dividends** can reduce or cut payouts at any time.

**Asset allocation and diversification** do not assure a profit or protect against loss in declining financial markets.

The **indices** are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment.

The **indices selected by Morgan Stanley Wealth Management** to measure performance are representative of broad asset classes. Morgan Stanley Wealth Management retains the right to change representative indices at any time.

Because of their narrow focus, **sector investments** tend to be more volatile than investments that diversify across many sectors and companies.

**Growth investing** does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations.

**Value investing** does not guarantee a profit or eliminate risk. Not all companies whose stocks are considered to be value stocks are able to turn their business around or successfully employ corrective strategies which would result in stock prices that do not rise as initially expected.

**Rebalancing** does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy. Investors should consult with their tax advisor before implementing such a strategy.

**Duration**, the most commonly used measure of bond risk, quantifies the effect of changes in interest rates on the price of a bond or bond portfolio. The longer the duration, the more sensitive the bond or portfolio would be to changes in interest rates.

Besides the general risk of holding securities that may decline in value, **closed-end funds** may have additional risks related to declining market prices relative to net asset values (NAVs), active manager underperformance, and potential leverage. Some funds also invest in foreign securities, which may involve currency risk.

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