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## Guarding Against Tail Risk — Strategies for Institutional Investors

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The information contained in this document is current as of the date presented unless otherwise noted.

## What's Keeping Investors up at Night?



Report available for download on www.ssgainsight.com



Source: Economist Intelligence Unit 2012

### **Expectations of Tail Risk Events**

## What Do You Feel Will Be the Most Likely Cause of a Tail Event Occurring in the Markets in the Next 12 Months?



Source: Economist Intelligence Unit 2012

## What is Driving Changes in Risk Strategy?

# What Strategy/Strategies Did/Do You Have in Place Before the Global Financial Crisis/Now to Protect Against Tail Risk Events?



Source: Economist Intelligence Unit, as of July 2012

## What is Driving Changes in Risk Strategy?

# What strategies do you feel provide the most effective hedge against tail risk? (% respondents)

61%	55%	53%	50%	43%	39%	38%	37%
Diversification	Risk	Managed	Direct	Other	Managed	Single	Fund of
across	budgeting	volatility	hedging-	alternative	futures/CTA	strategy	hedge
traditional	techniques	equity	buying	allocation	allocation	hedge fund	fund
asset classes		strategies	puts/straight	(eg property		allocation	allocation
			guarantee	commodities)			

What strategies do you feel provide the best value hedge against tail risk? (% respondents)

53%	50%	47%	40%	39%	37%	29%	28%
Other	Diversification	Risk	Managed	Managed	Direct	Fund of	Single
alternative	across	budgeting	futures/CTA	volatility	hedging-	hedge fund	strategy
allocation	traditional	techniques	allocation	equity	buying	allocation	hedge
(eg property	asset classes			strategies	puts/straight		fund
commodities)					guarantee		allocation

### **Barriers to Tail Risk Strategies**

# Which Barriers Do You See Or Did You Have to Overcome in Allocating to Your Tail Risk Protection Strategy?



Source: Economist Intelligence Unit 2012

## Historical Drawdown — S&P 500<sup>®</sup> Index

#### S&P 500 Total Return Drawdown 1926–March 2012



Source: Zephyr StyleADVISOR, as of 31 March 2012

Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income. Investors cannot invest directly in an index. Standard & Poor's S&P 500 Index is a registered trademark of Standard & Poor's Financial Services LLC. Past performance is not a guarantee of future results.

## **Black Swans**

- The probability of significant negative losses is much higher in practice than theory suggests
- These significant negative returns are called "black swans"
- The left side of the histogram shows a "fat tail"



Source: SSgA, as of 31 October 2012. For illustrative purposes only.

## **Guarding Portfolios against Tail Risk**

#### General goals of tail risk management strategies

- Avoiding "fat tail events"
- Providing downside reduction/protection
- Participate in the upside if possible

#### Potential solutions for managing tail risk

- Managed Volatility Equity Strategies
- Absolute Return Strategies using TAA

#### High Beta Doesn't Necessarily Mean High Returns

#### Average Annualized Monthly Return versus Beta for Equal Weighted Portfolios Formed on Expected Beta (MSCI World Index Universe) January 1990 — December 2009



Beta

- Returns are expected to be linearly increasing with beta but appear flat or declining
- Low beta stocks have historically performed much better than expected
- High beta stocks have historically performed much worse than expected

STND-01

#### **Managed Volatility: Potential Performance Benefits**

#### Historical Drawdown January 1999 – December 2010



Sharpe Ratio: Rolling 36-Months January 1999 – December 2010



- Seeks downside protection
  - Substantial reduction in drawdowns
  - Max drawdown (simulation period):
    - Managed Volatility: -35%
    - MSCI World Index: -54%
- Seeks stronger Sharpe ratio
  - Better risk-adjusted performance

Source: SSqA

Simulation period: January 1999 – December 2010.

The simulated performance shown is not indicative of actual future performance, which could differ substantially.

Please see the Appendix for additional Simulation Disclosure.

The above information is considered supplemental to the GIPS<sup>®</sup> presentation for this Composite, which can be found in the Appendix or was previously presented. A GIPS<sup>®</sup> presentation is also available upon request.

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#### **Global Managed Volatility: Live Performance**

#### Gross annualized composite returns for the period ending June 30, 2012 (USD)

	VTD	2011	2010	2000	Oct-Dec	1 Voor	2 Vooro	Since	Standard	Volatility	Sharpe
		2011	2010	2009	2000	TTear	JTears	inception	Deviation	Reduction	Natio
Global Managed Volatility Composite	7.48%	2.34%	16.63%	14.60%	-16.15%	4.78%	14.42%	5.74%	15.11%	-32%	0.37
MSCI World Index	5.91	-5.54	11.76	29.99	-21.77	-4.98	10.97	3.48	22.23		0.15
Difference**	1.57	7.88	4.87	-15.39	5.63	9.76	3.44	2.26	-7.11		0.22



Global Managed Volatility

MSCI World Index

† Inception: 10/1/2008; Partial year performance not annualized.

\* Annualized standard deviation of monthly returns since inception.

\*\* The value added returns may show rounding differences.

The performance shown is of a composite created 01/01/09 consisting of all discretionary accounts using this investment strategy. There is no minimum account size required for inclusion in the composite. New funds or accounts are added to the composite upon the first full month of operation and closed funds or accounts are removed from the composite upon the last full month of operation. The above information is considered supplemental. A complete description of this composite as well as a complete presentation that complies with the requirements of the GIPS standards is provided in the Appendix or was previously presented. A GIPS presentation is also available upon request.

Past performance is no guarantee of future results. Performance returns for periods of less than one year are not annualized. The performance figures contained herein are provided on a gross of fees basis and do not reflect the deduction of advisory or other fees which could reduce the return. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars. The index returns are unmanaged and do not reflect the deduction of any fees or expenses. The index returns reflect all items of income,

gain and loss and the reinvestment of dividends and other income.

### **MRI Tracks Major Market Events**

**Market Regime** 

**Regime Aware Active Risk Budget 1** 



<sup>1</sup> Against cash, hence Active risk equals total risk <sup>2</sup> Approximate dates based on Gonzalez-Hermosillo, B., (2008) "Investors' Risk Appetite and Global Financial Market

Conditions," IMF Working Paper.

<sup>3</sup> Dates based on SSgA ISG Research

Source: SSgA Investment Solutions Group (ISG) Research

### **Drawdown Protection is Crucial**



#### Source: SSgA, FTSE, Barclays Capital

Strategy worst case loss = -5.7% 75 / 25 worst case loss = -13.8%

All returns are gross as at 19th February 2010 to 28th Septemberr2012. Data is at the date indicated, is subject to change and should not be relied upon as current thereafter. \*FTSE World Index - measured in local currency terms. Past performance is not a guarantee of future results.

Please see simulated disclosure note in the Disclosure section. The 75/ 25 Equity Bond mix refers to a simulated investment comprising 75% allocation to the FTSE World Index (local currency terms) and 25% allocation to the Barclays Capital Euro-Aggregate Treasury Index. **STATE STREET GLOBAL ADVISORS**.

### **MRI Results in Lower Volatility**



Source: SSgA/ Bloomberg Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. The index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income.

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