

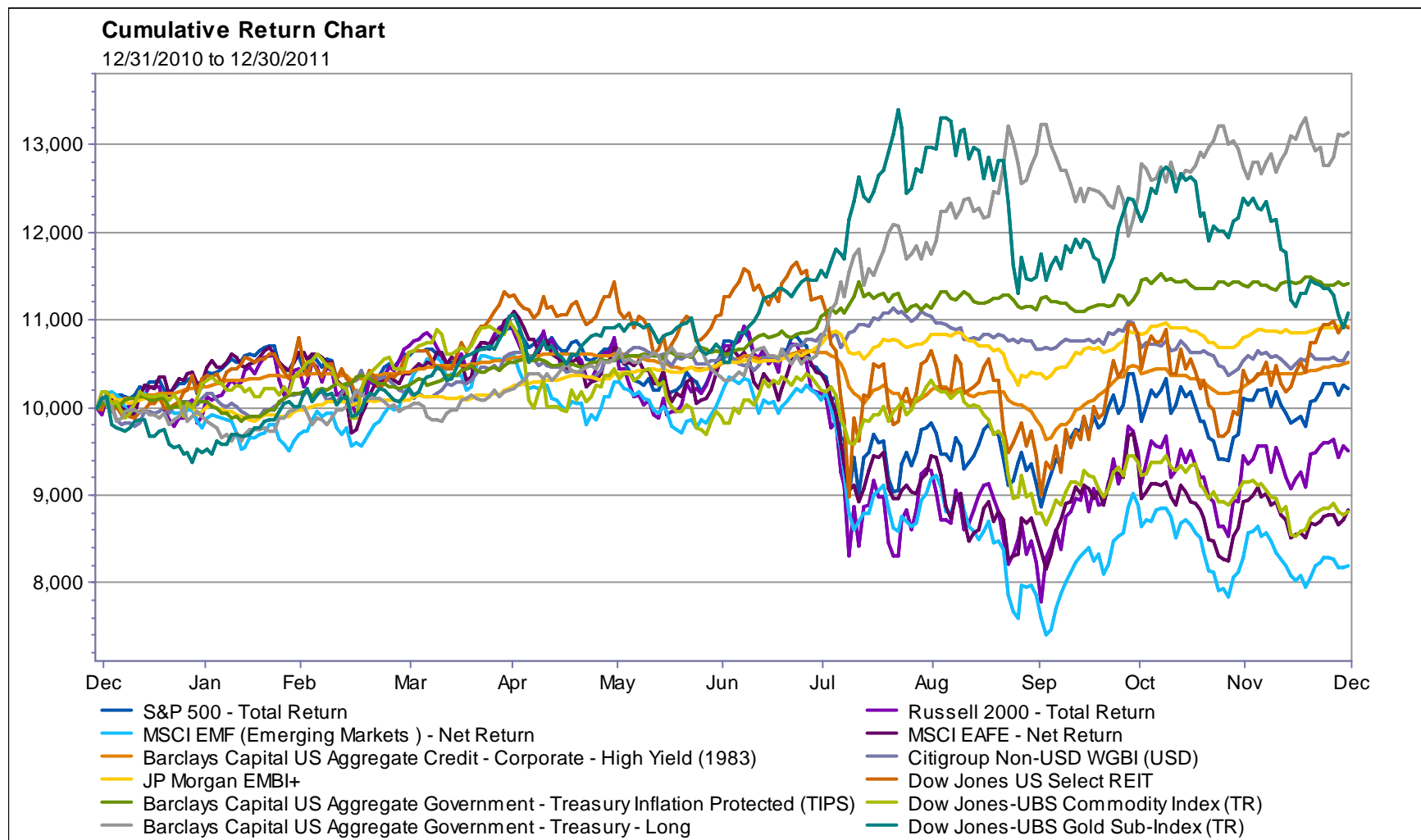
Trends in Asset Allocation

February 22, 2012

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CIO – Investment Solutions

2011 — Tale of Two Markets

2nd half saw marked increase in volatility that ebbed into year end

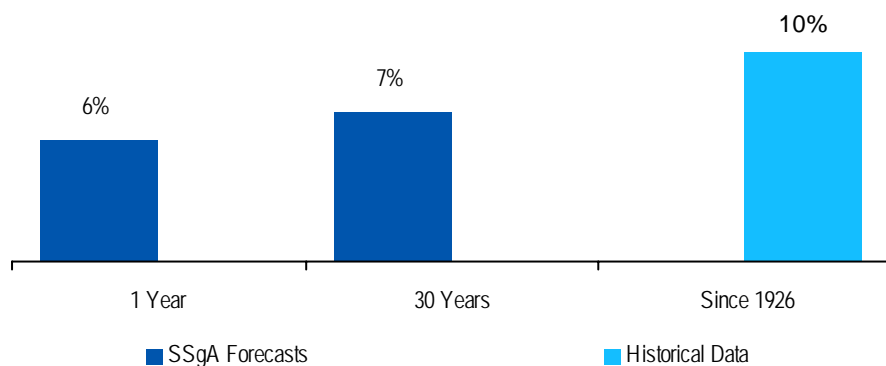


Source: Factset
Data as of December 31, 2011
Past performance is not a guarantee of future results.
Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income.

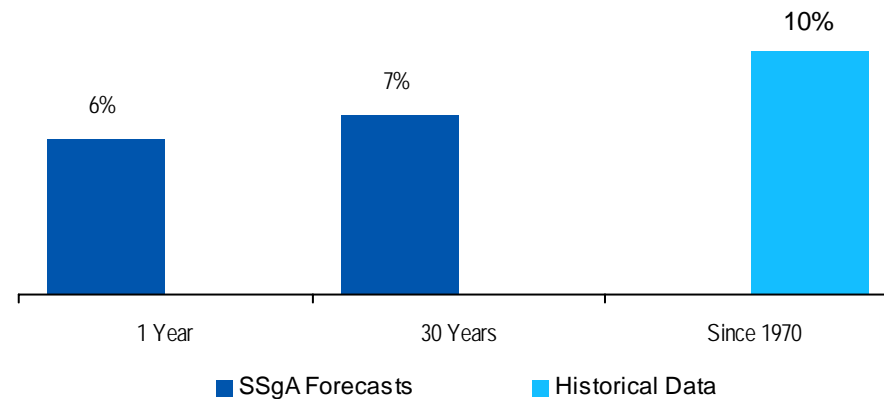
Low Return Environment

Our return forecasts indicate moderate return for 2012, below historical average

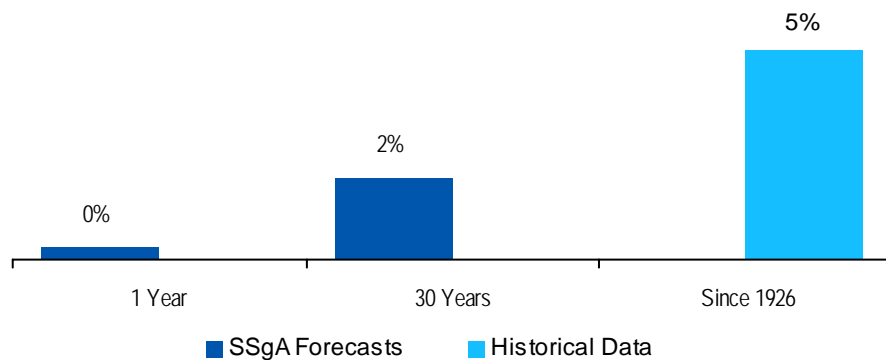
US Large Cap Equity, annualised return



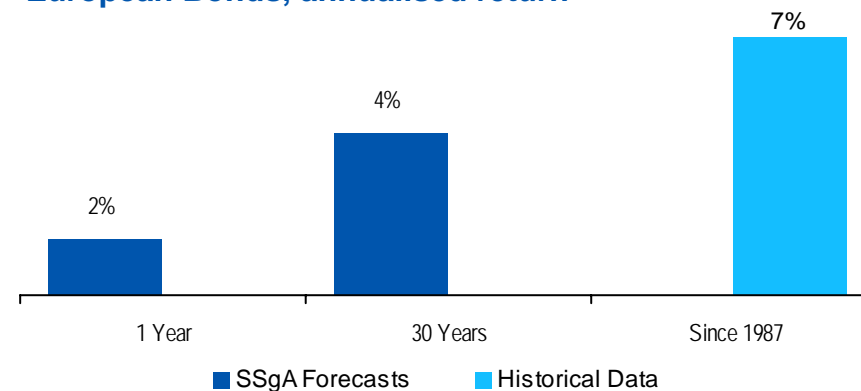
European Equity, annualised return



US Government Bonds, annualised return



European Bonds, annualised return



Source: SSgA, Multi Asset Class Solutions team as of December 31, 2011

Historical data as of December 31, 2011 from Morningstar Encorr.

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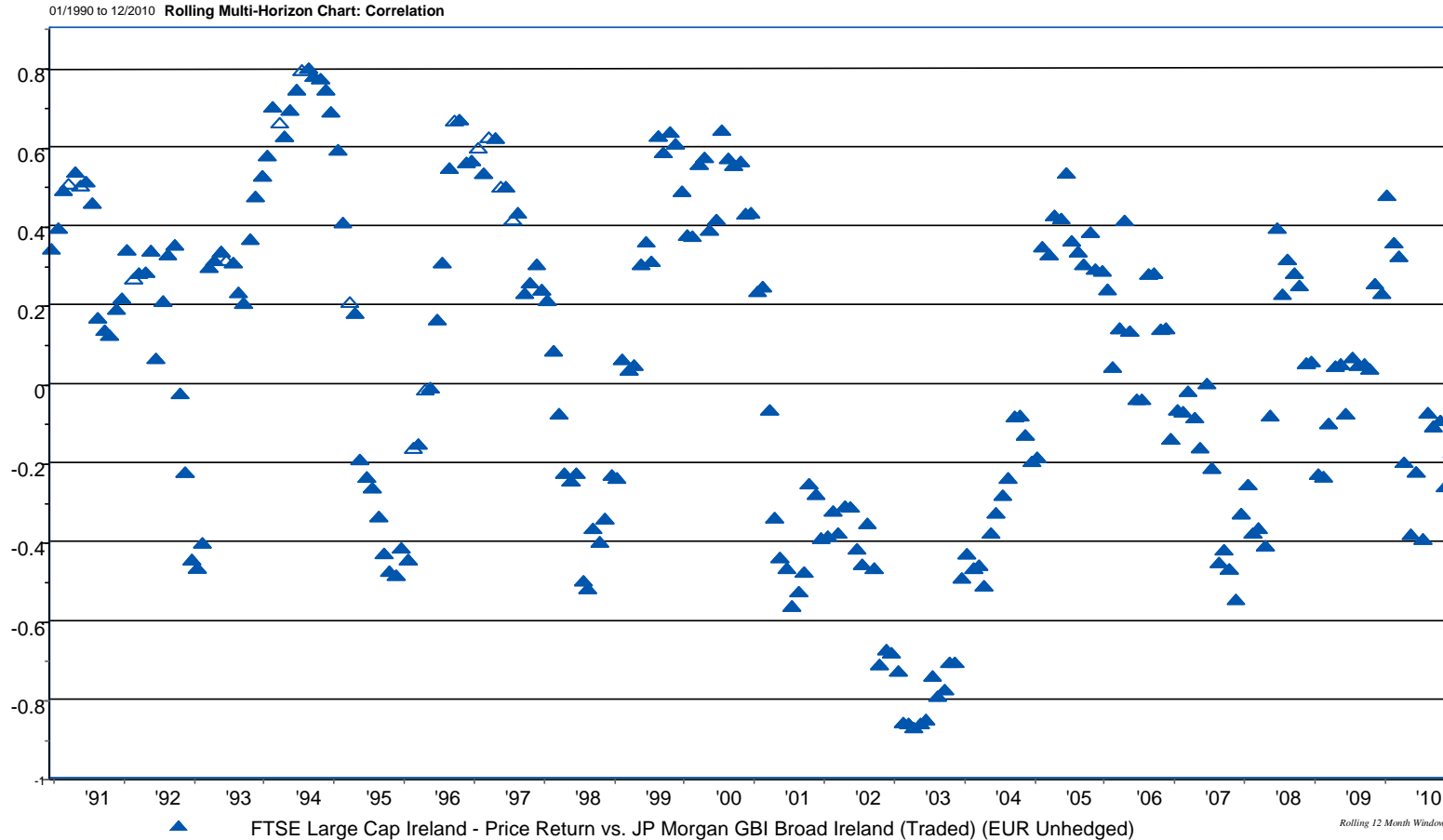
Trends in Asset Allocation

- Risk Management
 - How to limit downside and avoid left tail risk
 - Looking to deliver more consistent return distributions
 - Regulatory environment
 - Liability hedging
 - Can traditional portfolio modelling properly estimate downside risk?
- Living in a lower return world
 - Impact of de-risking and increased fixed income allocations
 - Lower overall estimates for capital markets
 - Can active management bridge the gap?
- Alternative view to portfolio allocation
 - Move away from asset classes and towards portfolio risks
 - Aligns goals for diversification to economic risk rather than a volatility estimate
 - No standard definition of the risks or what assets fit in each category
 - OK for more sophisticated plans that can customise
 - Difficult to apply an “off the shelf” approach for less sophisticated plans

Understand Dynamic Nature of Asset Class Correlations

Stocks and bonds are generally thought of as having low correlation

Rolling 12 Month Correlation – 1/1991 to 12/2010



Past performance is not a reliable indicator of future results. Source: FactSet Research Systems, May 2011

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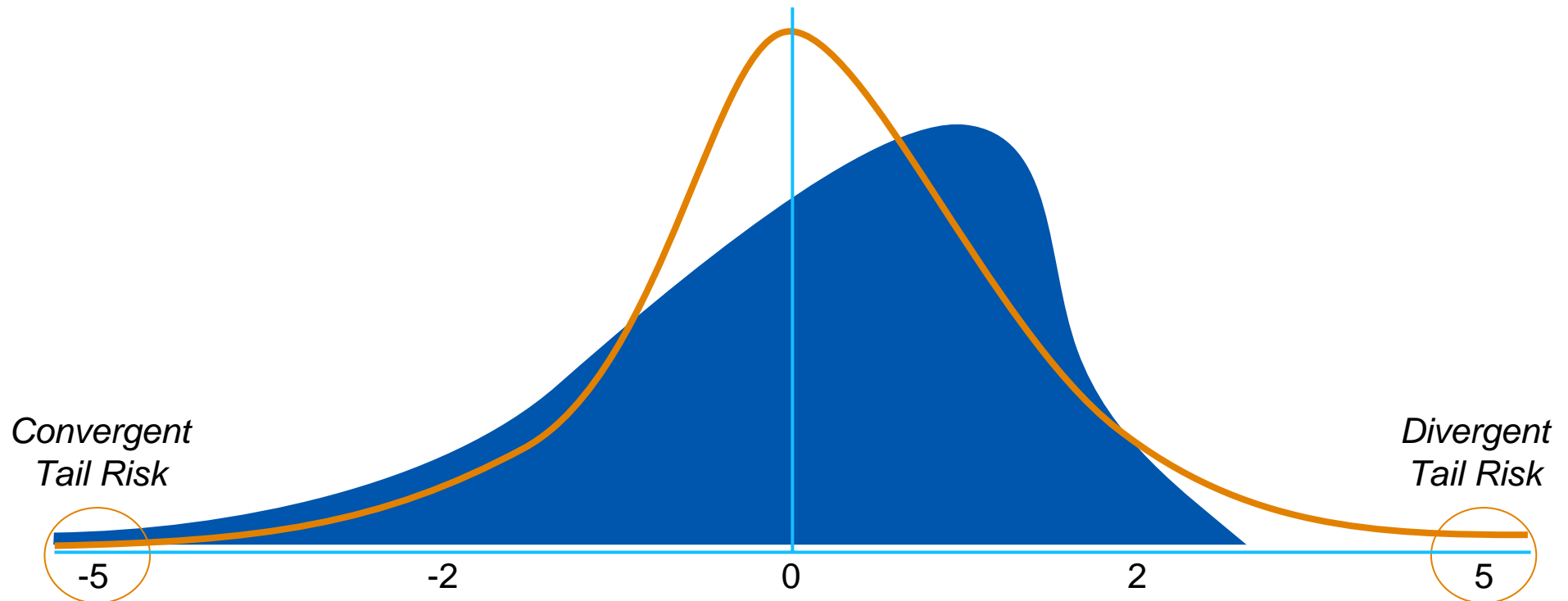
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A Fresh Look at Portfolio Allocation

- Reset expectation on the value of diversification
 - Historical correlations may not be the best guide
- Own assets that provide true diversification benefits
 - Global Equity
 - Real Assets
 - Alternatives
- Portfolios need meaningful allocations to diversifying asset classes
- Review manager style to blend convergent and divergent approaches
- Consider alternative portfolio construction using traditional asset classes
 - Managed Volatility
 - Dynamic Asset Allocation

Convergent versus Divergent

Histogram of monthly returns



Convergent Hedge Fund Strategies:

Strategies that tend to perform best during periods of relative calm in which the market processes all available information in an effort to determine assets that are overvalued and undervalued

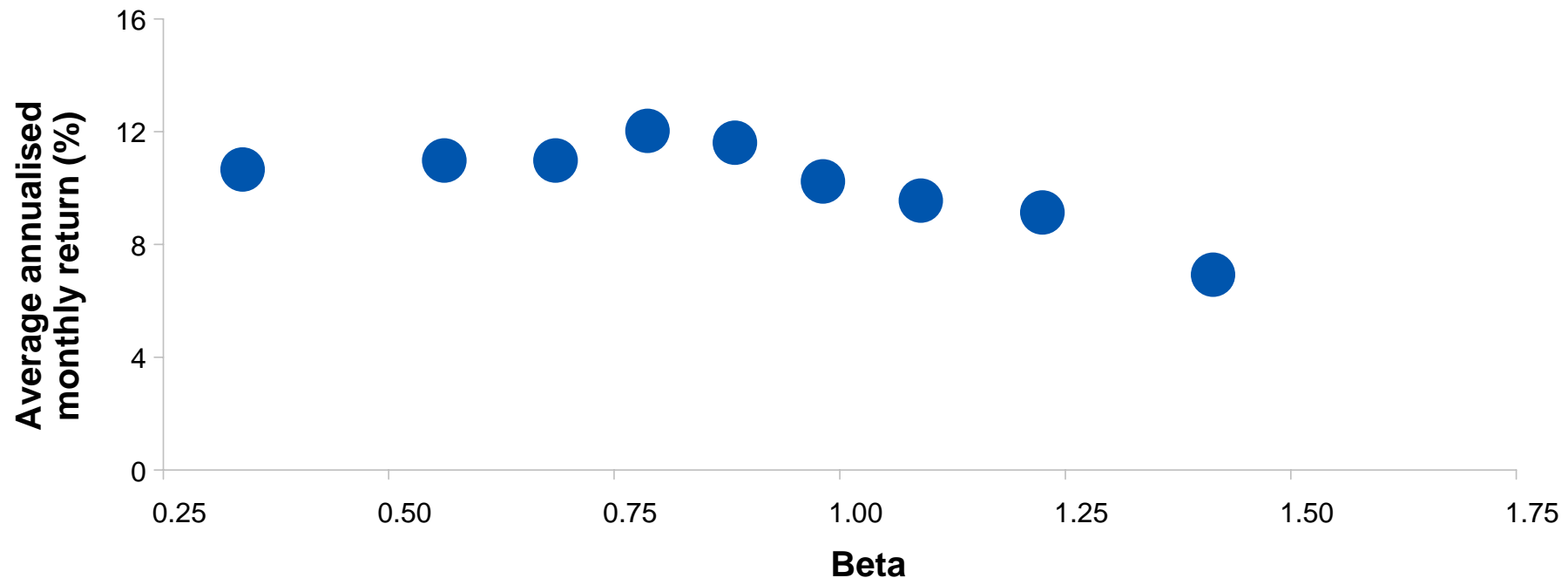
Divergent Hedge Fund Strategies:

Strategies that tend to perform best during periods of rising volatility and uncertainty, capitalising on serial price movement across many markets in a marketplace that temporarily ignores fundamental information

Does the Capital Asset Pricing Model Hold?

Average Annualised Monthly Return versus Beta for Equal Weighted Portfolios Formed on Expected Beta (Russell 3000® Universe)

January 1987 – December 2008



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

Source: SSgA

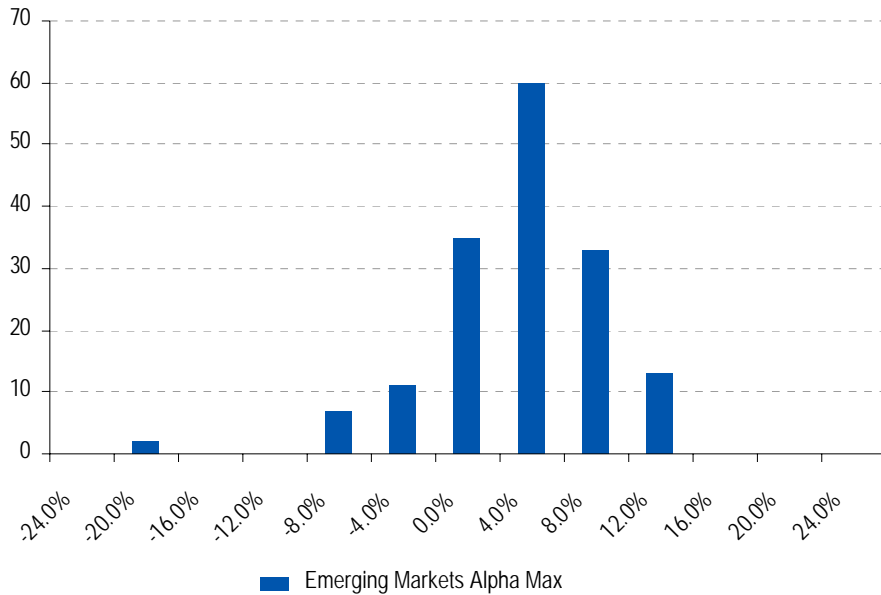
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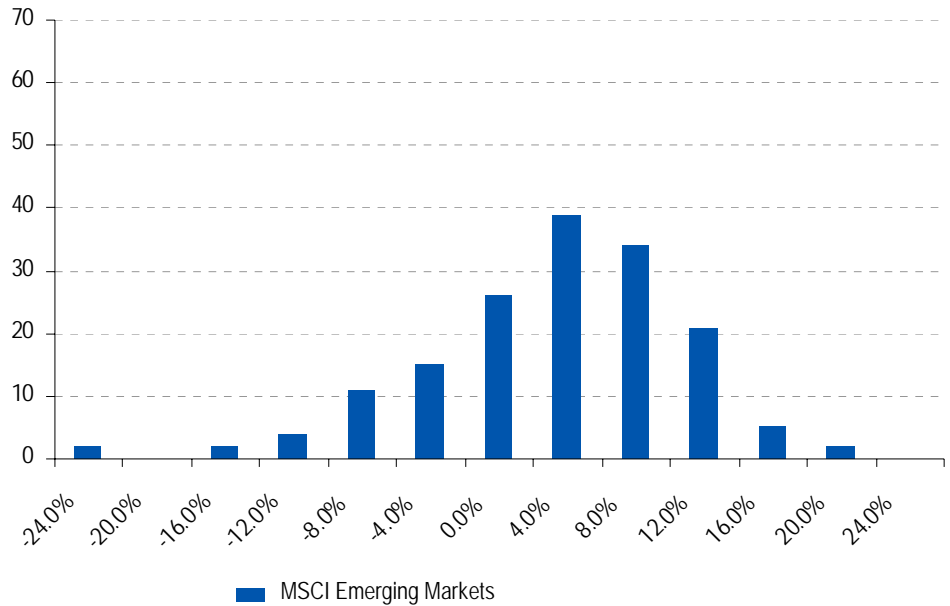
The model portfolio performance does not reflect actual trading and does not reflect the impact that material economic and market factors may have had on SSgA decision-making. The results shown were achieved by means of a mathematical formula. The model performance shown is not indicative of actual future performance, which could differ substantially.

Lower Beta Focus Smooths Return Distribution

Emerging Markets Alpha Max Returns Distribution



MSCI Emerging Markets Returns Distribution



Based on monthly simulation from February 1, 1999 to June 30, 2010.

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A Fresh Look at Portfolio Allocation: ALM Perspective

- Liability Based Bonds reduces funding volatility
 - However, surplus risk remains due to Equity Beta
- Shifting Equity Beta to Global Low Beta Strategy further reduces funding volatility
- Combination of Liability Based Bonds + Global Low Beta exhibits improved results
 - Lower funding volatility
 - Improved downside
 - Higher terminal funded status

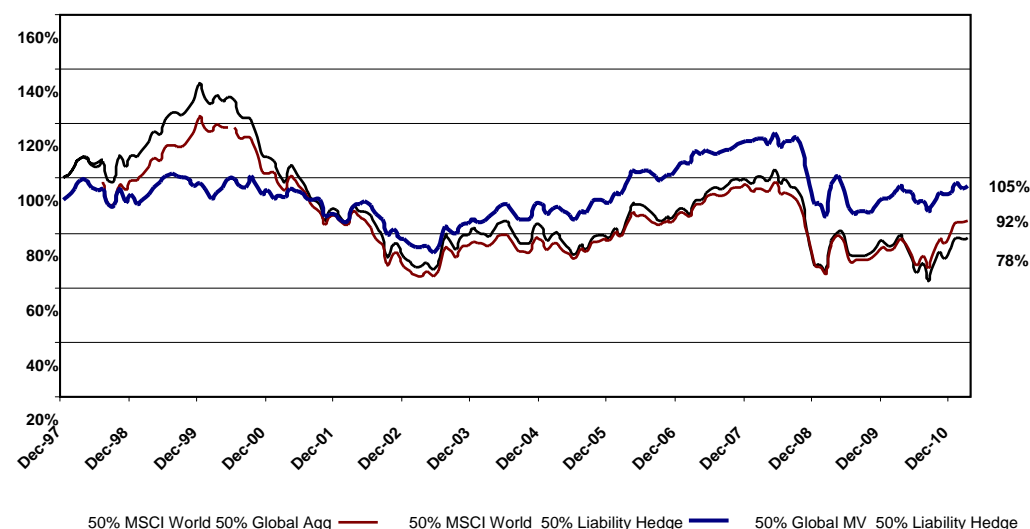
Sample Portfolio Mix

| | Base Case | Liability Based | Liability Based + Global Low Beta |
|------------------------|-----------|-----------------|-----------------------------------|
| Global Aggregate Bonds | 50% | 0% | 0% |
| Liability Based Bonds | 0% | 50% | 50% |
| MSCI World | 50% | 50% | 0% |
| Global Low Beta | 0% | 0% | 50% |

Asset – Liability Statistics

| | Base Case | Liability Based | Liability Based + Global Low Beta |
|--------------------------------|-----------|-----------------|-----------------------------------|
| Asset Volatility | 9.5% | 10.6% | 9.3% |
| Surplus Volatility | 17.4% | 16.0% | 9.7% |
| Correlation to World Equity | 95% | 91% | 59% |
| Correlation to Liability Index | 20% | 43% | 64% |
| Terminal Funded Status | 78% | 92% | 105% |
| Average Funded Status | 90% | 92% | 100% |
| Minimum Funded Status | 63% | 65% | 79% |

Historical Funding Ratio

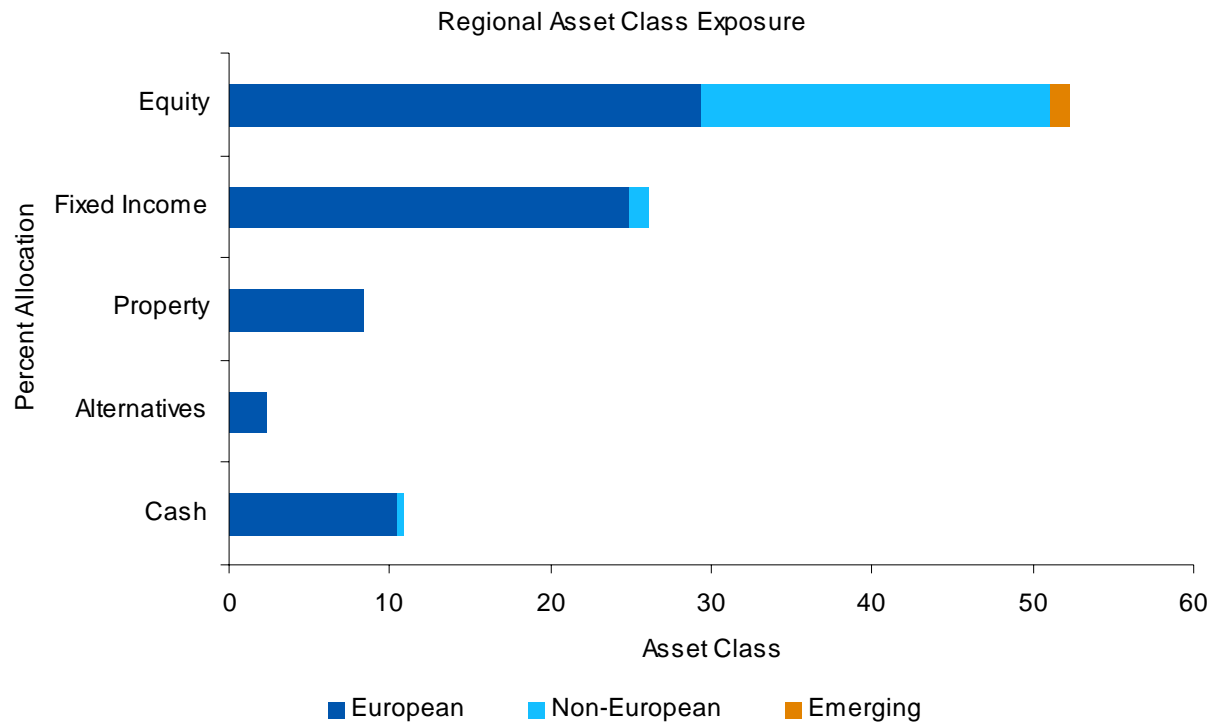


Based on monthly simulation from Dec 31, 1997 to March 31, 2011
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Opportunities Going Forward

- Focus on areas of market with the best potential for returns going forward
- Review for a meaningful allocation to global equity
 - Emerging Markets (Traditional and Frontier)
 - Global ex US Small Cap (Developed and Emerging)
 - Gain exposure to faster growing companies
- Dynamic Asset Allocation
 - Driven by changing circumstances of the investor
 - Proactive plan to change allocation as investors achieve certain milestones
 - Driven by changing market environment
 - Ability to assess overall asset mix relative to current market conditions
 - Potential to improve overall returns as well as reduce risk
 - Often diversified source of alpha relative to other strategies

Irish Pension Plan Regional Asset Class Allocations

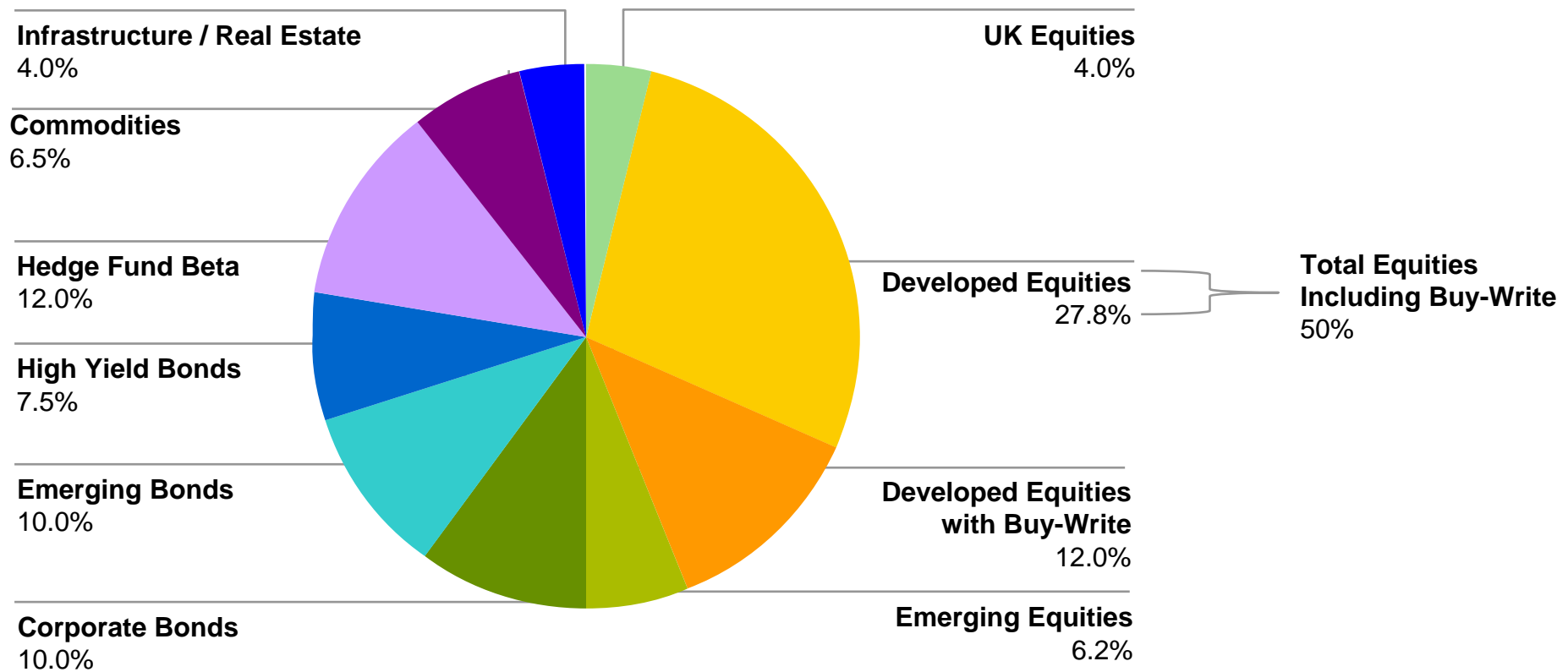


- Home country bias may dominate investor portfolios
 - Be aware of corollary risks associated with regional concentration
- Understand the diversification benefits across asset class and global regions
 - Long term benefits to exposure in emerging market asset classes
 - Alternative asset classes may offer portfolio diversification and increased risk adjusted returns

Building a Diversified Portfolio of Growth Assets

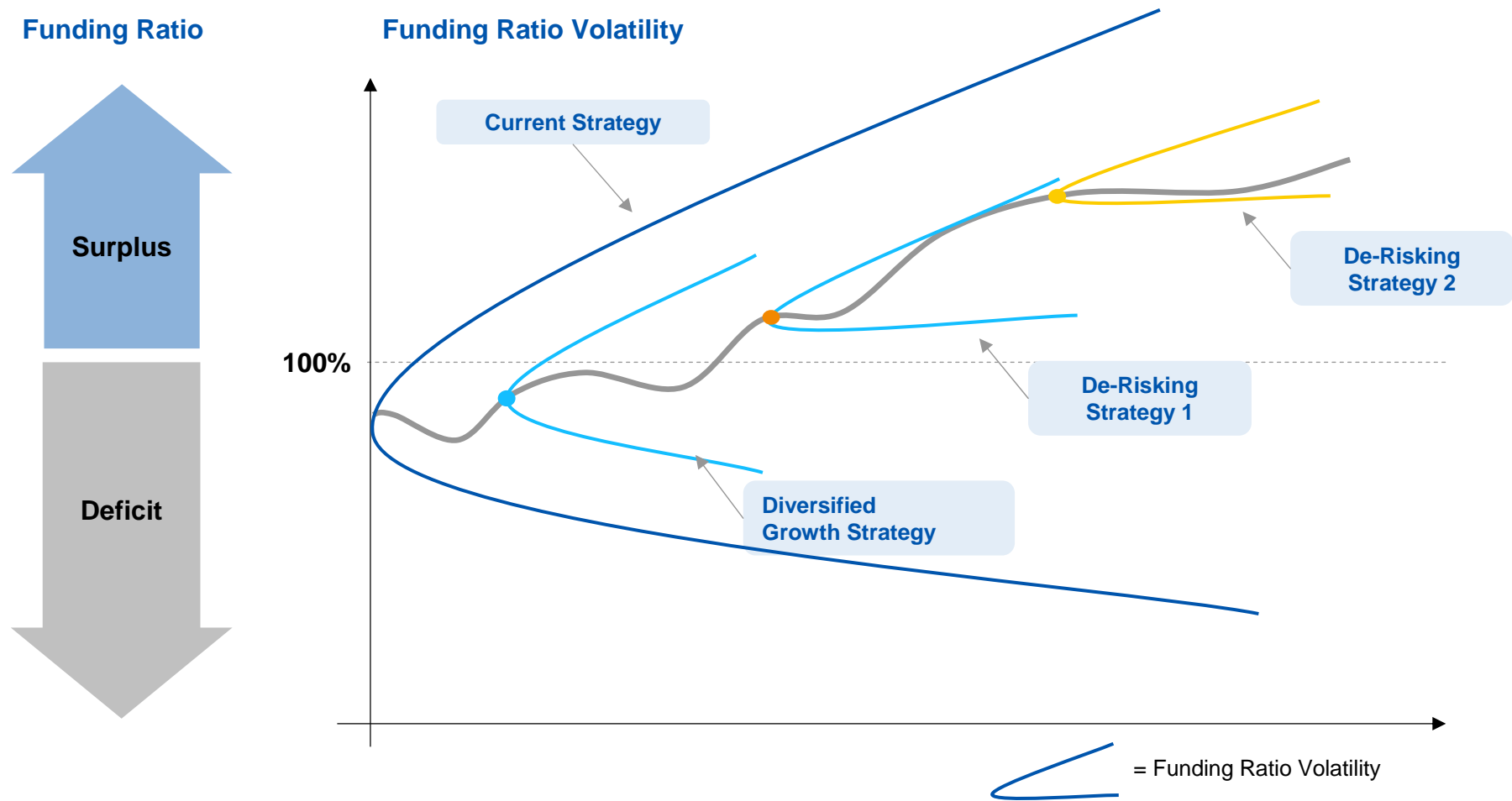
Diversify Portfolios to Reduce Expected Volatility

- Across asset classes
- Across global markets
- Across the capitalisation structure
- Consider currency hedging



Setting Dynamic De-Risking Thresholds for Pension Schemes

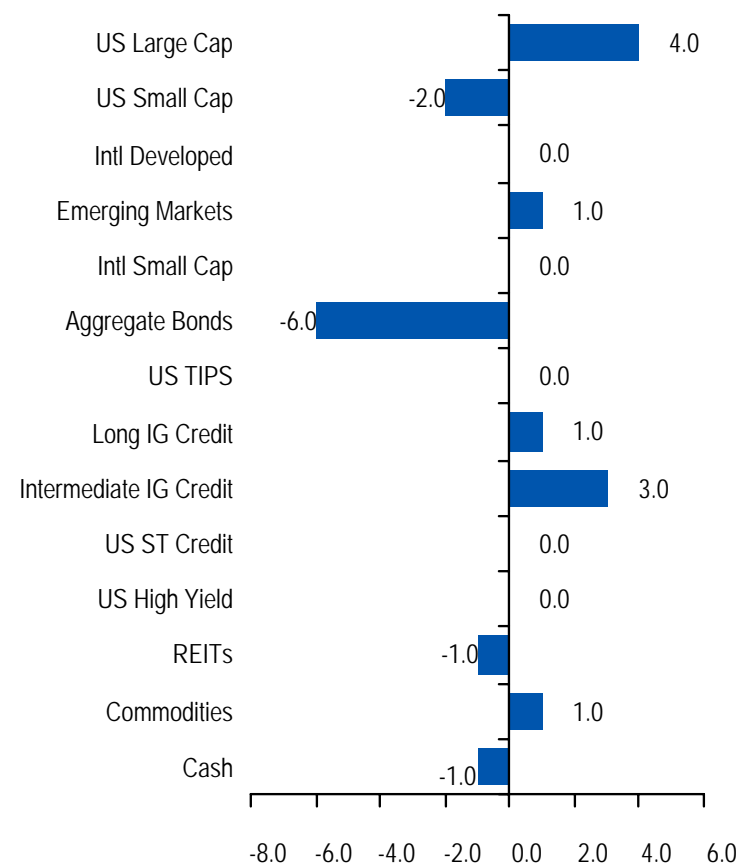
A Phased Dynamic Approach to De-risking



Tactical Positioning in the Current Environment (Q2 2011)

MACS Team Current Tactical Model Positions

- Global economic recovery appears sustainable, although expectations have been broadly tempered
- Developed equity markets have demonstrated notable outperformance relative to emerging markets thus far in 2011, but not without concerns
 - Lingering issues within European periphery amid potential debt restructuring
 - US “QE2” program to expire, unemployment remains low, home values test new bottoms
- Moderately biased positioning to risk assets
 - Overweight US and emerging equities as valuation appears attractive relative to bonds
 - Favor commodities with expectations of continued increase in global demand, supply concerns, and stimulative monetary policy supporting prices
- Shift within fixed income from high yield overweight to intermediate credit due to risk-yield trade-off
- Tactical Asset Allocation should continue to deliver added value as expected volatility among asset classes remains elevated along with potential for market dislocations



Source: SSgA, As of May 2011

Investing involves risks including the risk of loss of principal.

Generally, among asset classes stocks are more volatile than bonds or short-term instruments.

Tactical positioning is a method of diversification which positions assets among major investment categories.

This tool may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss.

Managing through Trustee Challenges

- Trustees need to take a different approach to risk
 - Adopt new approaches to controlling volatility
 - Diversification works over time, not all the time
- Have a clear objective and plan how to reach it
 - Consider non-traditional strategies to create optimal solutions to overall goals
- Balance need to control risk with the need to generate returns

Appendix: Important Disclosures

Emerging Markets Alpha Max Simulation Footnotes

Emerging Markets Alpha Max Performance:

Returns are simulated from February 1, 1999 to September 30, 2010 and assume 150bp transaction costs each way. Turnover was limited to approximately 60% annually (one-way), with monthly rebalancing.

The results shown do not represent the results of actual trading using client assets but were achieved by means of the retroactive application of a model that was designed with the benefit of hindsight. The simulated performance was compiled after the end of the period depicted and does not represent the actual investment decisions of the advisor. These results do not reflect the effect of material economic and market factors on decision making.

The simulated performance data is reported on a gross of fees basis, but net of administrative costs. Additional fees, such as the advisory fee, would reduce the return. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting return would be reduced from 61% to 54%. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in US dollars.

The simulated performance is not necessarily indicative of future performance, which could differ substantially. The benchmark used is the MSCI Emerging Markets Index, net return. Prior to January 2001, the benchmark is calculated on a gross basis, as MSCI did not furnish official net returns before 2001. Prior to January 2004, the index was known as the MSCI EM Free Index. 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. All trademarks are property of their respective owners.

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Not all products will be available to all investors, please contact SSgA for further information regarding this strategy.

The performance information should not be shown without these accompanying notes.

Emerging Markets Alpha Max Simulation Footnotes

Backtest Creation:

The testing methodology used the Barra GEM optimization model to generate historical portfolios. The data used was only that data which would have been available at the time when the historical portfolios were generated, not what is available now. These processes help to eliminate various forms of survivorship bias, both in terms of a “smarter model” and in terms of making decisions based on information that was not available at the time.

Monthly portfolios were created, and returns are the result of a buy and hold assumption on each of these portfolios. Transaction costs were assumed as stated above.

This Emerging Markets Managed Volatility process was backtested in March 2009.

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Investing in commodities entail significant risk and is not appropriate for all investors.

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Increase in real interest rates can cause the price of inflation-protected debt securities to decrease. Interest payments on inflation-protected debt securities can be unpredictable.

Investing in high yield fixed income securities, otherwise known as junk bonds is considered speculative and involves greater risk of loss of principal and interest than investing in investment grade fixed income securities.

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