

The GARP Risk Index

Third Quarter 2011

The GARP Risk Index

Key Findings

- The Risk Index surged nearly 6 points to 116.34 in Q3, surpassing its historical high reached in Q3 2010.
 - Severe market volatility in August and September sparked by heightened sensitivity to the European debt crisis, US fiscal policy concerns and bank counterparty liquidity risk across the European banking sector created a downward spiral in global market confidence.
 - Global economic uncertainty sparked renewed fear of a double-dip recession and a rise in risk perceptions associated with several underlying US macroeconomic indicators.
 - Looking ahead to Q4, Eurozone instability, global economic weakness and US monetary policy initiatives remain the issues of greatest concern.
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The GARP Risk Index: An Overview

Defining systemic risk

Systemic risk may be best summarized as an economic shock or event(s) that triggers a market dislocation, creating illiquidity and the potential for failure of one or more institutions while jeopardizing the integrity of the local or global financial system.

Tracking global perceptions

Harnessing the expertise and market perceptions of global risk managers, the GARP Risk Index provides an informed assessment of current US market conditions and the potential build-up (or otherwise) in system-wide risk in the US. The GARP Risk Index tracks current perceptions about eight fundamental market risk factors (see Appendix A for a description of each factor) capable of triggering a systemic risk crisis in the United States including:

- Health of the macro-economy
- Financial leverage
- Credit spreads
- Health of the US banking system
- US equity market valuations
- Overall traded market volatility
- Commodity prices
- Operational risk

The GARP Risk Index monitors current global perceptions of eight individual risk factors capable of triggering a systemic risk crisis in the United States.

Survey methodology

Between September 22 and October 7 Certified Financial Risk Managers (FRM®) and Energy Risk Professionals (ERP®) worldwide were asked to provide an assessment of the risk they currently associate with the eight fundamental market risk factors. Using a scale of 1 to 5 (1 - “Very Little Risk” and 5 - “Very Risky”), survey results were compiled to construct the GARP Risk Index, a scaled index based on risk-weighted average responses. Moreover, Certified FRMs and ERPs were asked to respond to several additional questions (see Appendix B) developed to add enhanced depth and color to the analysis including views about the coming quarter.

The fluid nature of current market events makes it important to look specifically at the date range of survey responses (September 22-October 7) for insights about the Q3 Risk Index. Global market confidence spiraled downward leading up to and during the survey period as the European debt crisis sparked counterparty liquidity fears across the European banking system and threatened to seize financial markets. In early October, Moody’s downgraded Italian sovereign debt (A2 from Aa2), following Standard and Poor’s mid-September downgrade (A from A+). The S&P 500 reached a 52 week low during the period, declining more than 9% between mid-September and early October while market volatility, measured by the CBOE Volatility Index (VIX), steadily increased. Market tension eased in early October when leaders announced agreement on a plan to protect Eurozone countries from a Greek default. US equity markets rallied on the news as the S&P 500 moved up 15% and volatility decreased significantly by the end of October.

GARP Risk Index up sharply, surpassing the historical high of Q3 2010

Market volatility, counterparty liquidity fears, financial system leverage, global economic uncertainty and rising credit spreads combined to shift global perceptions further out the risk spectrum in Q3 (see Chart 1-A).

The Risk Index surged as a result, reaching a historic high of 116.34, as illustrated in Chart 1-B.

Chart 1A | Total Response Distribution (3rd Quarter 2011)

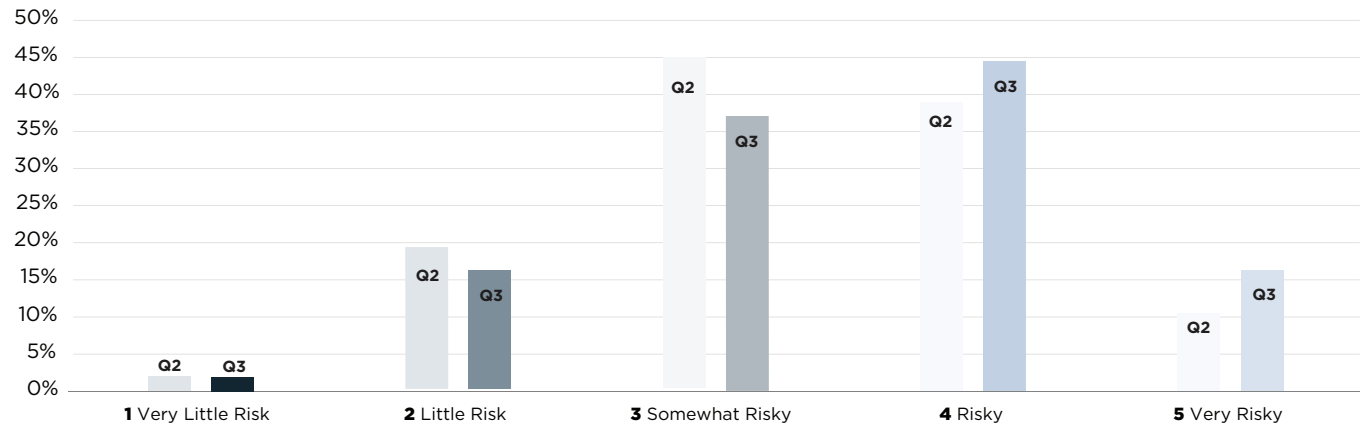
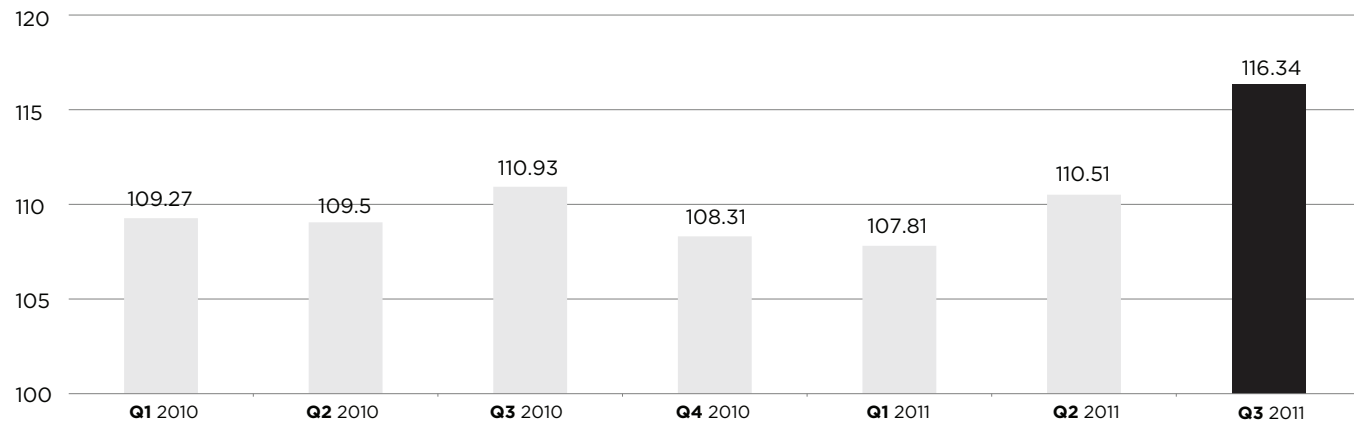


Chart 1B | GARP Risk Index Trends Since Inception



Global risk perceptions — a relative view

Chart 1-C illustrates country risk composites across eleven regions with the highest rate of participation in the survey. At 114, the US composite remains in line with the GARP Risk Index (116.34), and on par with Canada and India.

Chart 1-D illustrates the quarterly spread between country risk composites and the Risk Index throughout 2011. Based on this relationship concern about the potential build-up of systemic risk among risk managers domiciled in South Korea, Germany, and Hong Kong has become progressively higher throughout the year. Alternatively, perceptions of risk managers in Canada, the US, and India appear to be more sanguine. The China country risk composite has been consistently lower than the GARP Risk Index throughout 2011. It's possible that risk perceptions in China are influenced by an asymmetric flow of information within a financial market that is arguably less developed and less integrated with other global financial hubs. The large negative swing associated with Singapore-based risk managers appears to be an anomaly, likely due to a low response rate in Q3.

¹Responses from the eleven countries now contribute nearly 80% of all survey responses since inception.

Chart 1C | GARP Risk Index vs Country Risk Perceptions (3rd Quarter 2011)

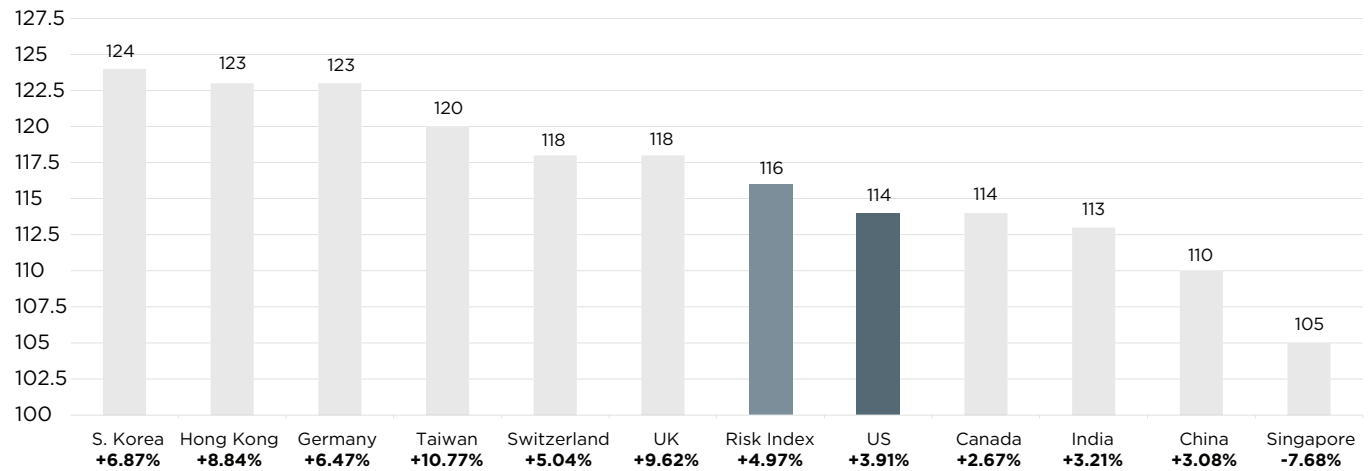
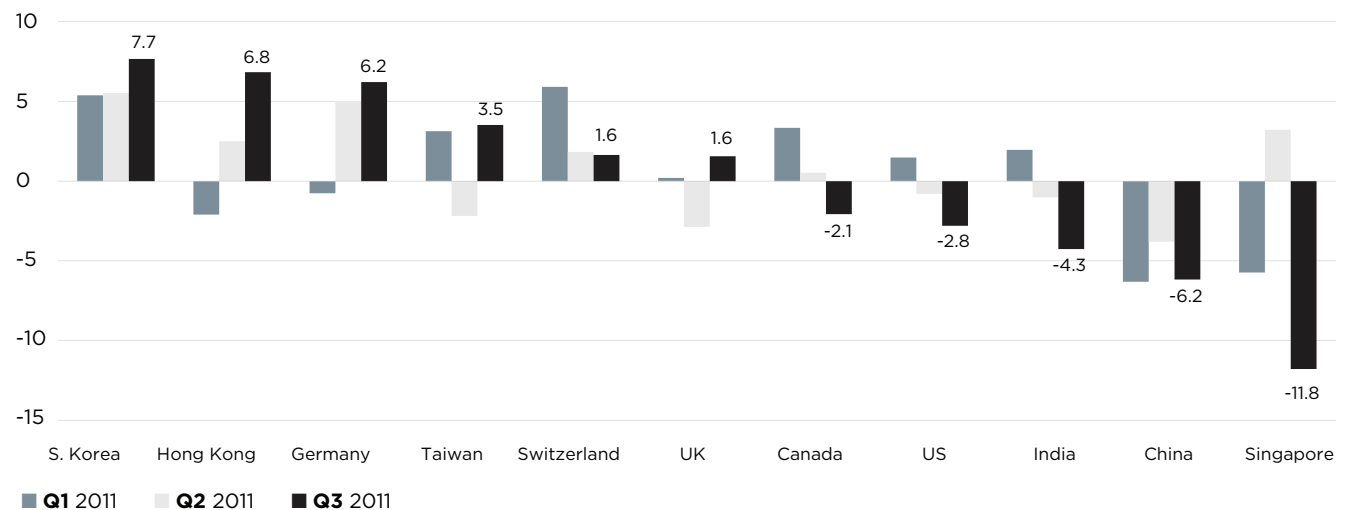


Chart 1D | Country Risk Composites Relative to GARP Risk Index (Quarterly Spreads)



Systemic risk composite continues to diverge from the GARP Risk Index

Survey respondents were separately asked to assess the potential for a US systemic risk event (the systemic risk composite) without specific consideration given to any of the eight individual market factors used to derive the Risk Index. Results indicate 13% of survey respondents migrated out the risk spectrum, to the two highest risk categories in Q3, driving the systemic risk composite up nearly 7 points to 122. Chart 2-A depicts the shift in the response distribution.

The Q3 divergence between the Systemic Risk Composite and GARP Risk Index is illustrated in Chart 2-B. The widening gap since Q1 seems to support the hypothesis that periods of higher market stress influence global risk managers to assess systemic risk potential with greater sensitivity relative to their assessment of individual market factors that in aggregate comprise the Risk Index.

Chart 2A | Overall Systemic Risk Assessment (3rd Quarter 2011)

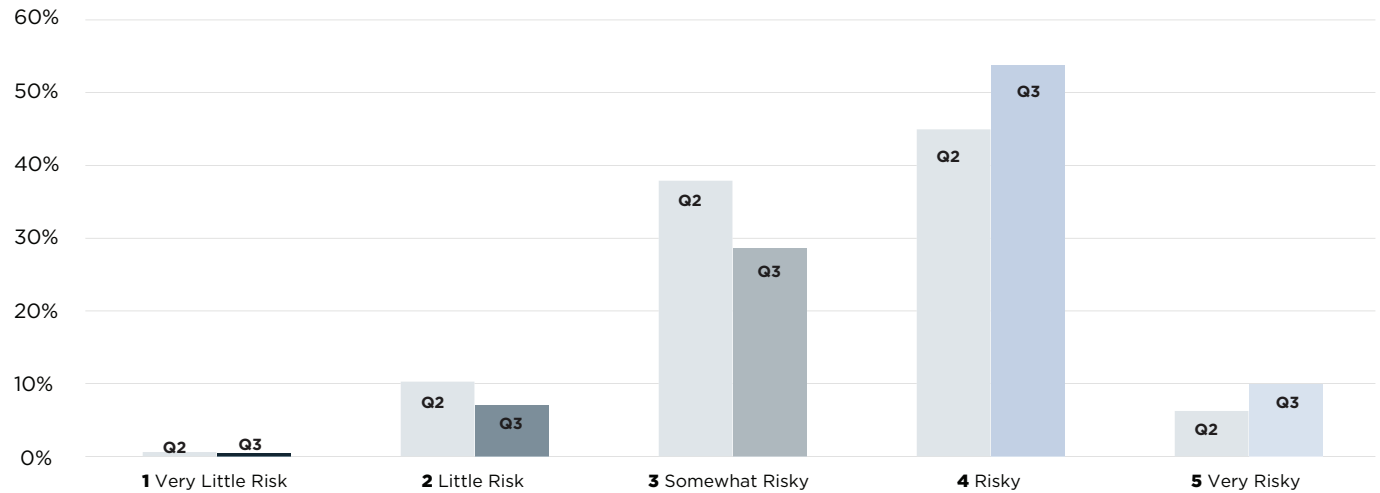
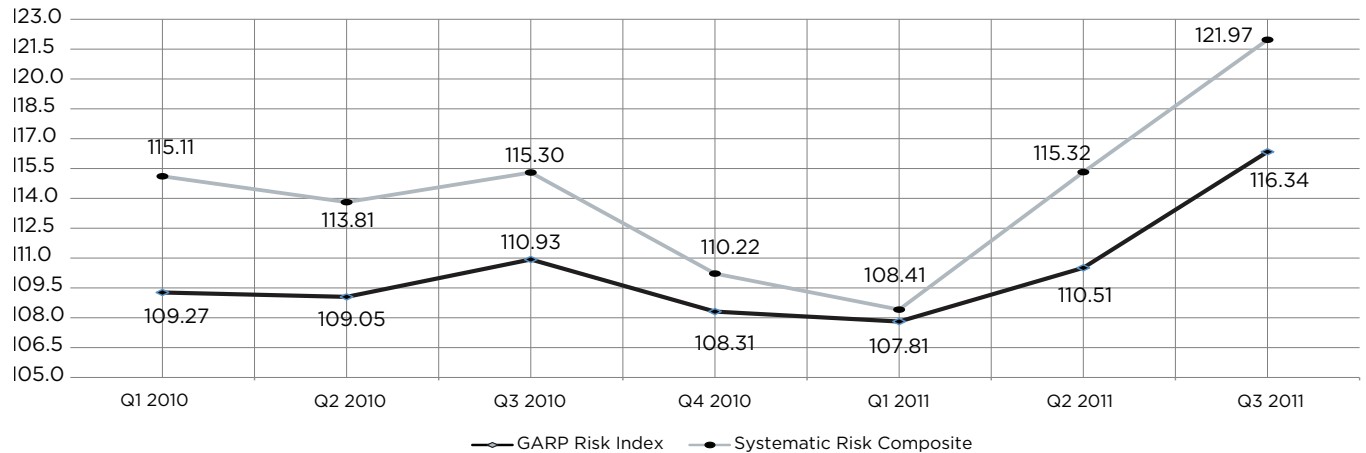


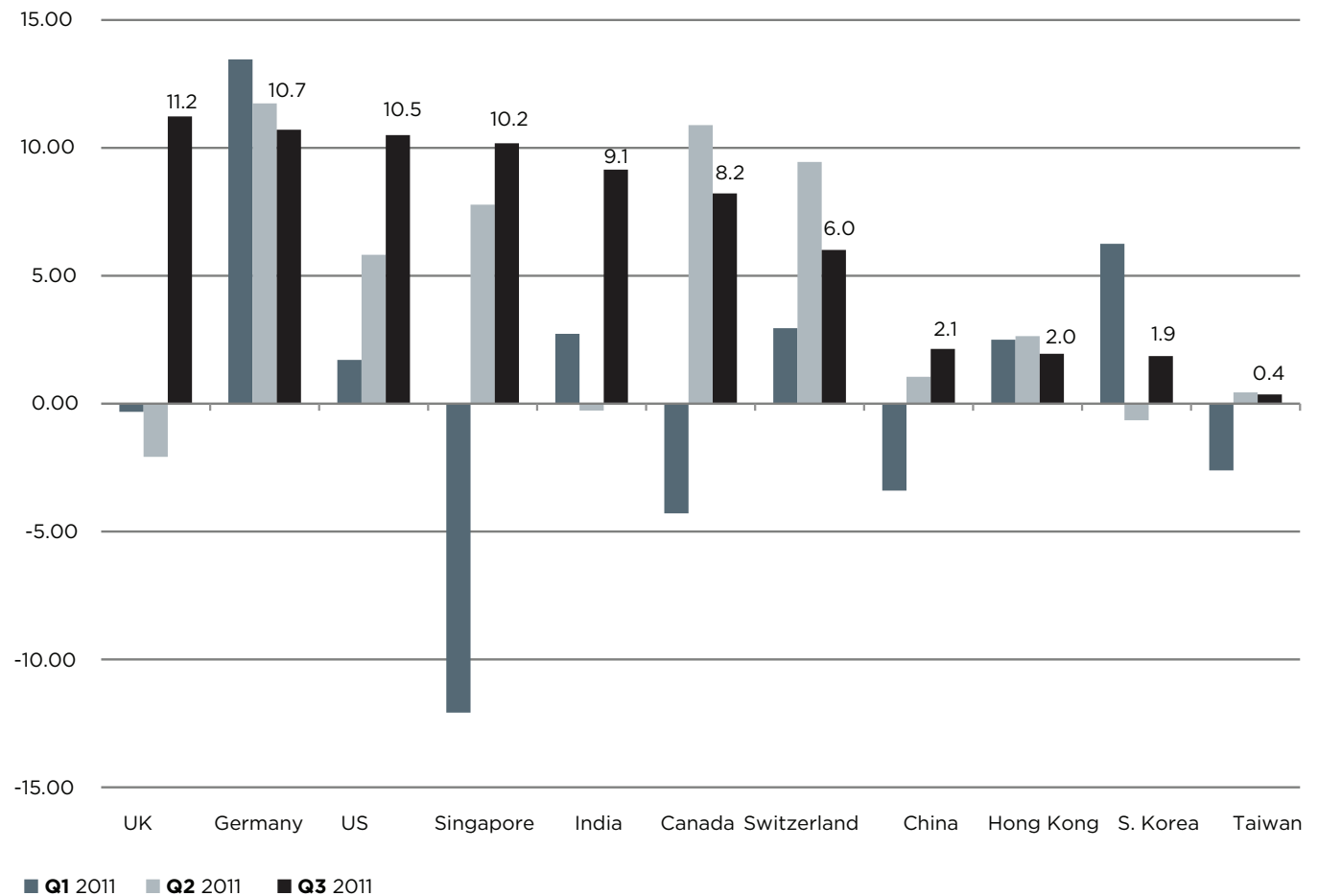
Chart 2B | GARP Risk Index vs. Systemic Risk Composite (Trends Since Inception)



Identifying geographic biases in the systemic risk composite

Geographic biases in the relationship between country and systemic risk composites are illustrated in Chart 2-C. Europe and North America based risk managers had the greatest impact on the divergence between the systemic risk composite and the GARP Risk Index, likely triggered by memories of the 2008 financial crisis and its impact on European and North American financial markets. Similarly, the strong Western banking culture in Singapore may explain the divergence between perceptions of Singapore-based risk managers relative to other Asian countries. A surge in the spread associated with responses from India-based risk managers is interesting and one worth tracking going forward.

Chart 2C | Searching for Geographic Behavioral Biases (Country Systemic vs. Country Risk Composite Spreads)



Volatility and operational risk market composites rise sharply in Q3

Charts 3-A and 3-B highlight changes in several market factors that all contributed to the increase in the Q3 Risk Index. The market volatility risk composite surged nearly 17%, while credit spreads, banking health and operational risk registered gains of more than 6% respectively. Meanwhile, risk associated with rising commodity prices declined significantly for the second consecutive quarter.

The market volatility risk composite moved sharply higher, up 17% in Q3. The period leading up to and including the survey date range coincided with increasing global tension about the debt crisis in Europe. The concomitant decline in market confidence spurred a surge in volatility, growing speculation of a global double-dip recession, and fear over counterparty liquidity risk and its impact on the integrity of the European financial system. At the same time, a large European based investment bank announced a USD 2 billion quarterly loss stemming from unauthorized trading activity, which likely had some influence on the 6% rise in the operational risk composite.

Chart 3A | Quarterly Change in Market Factor Composites (3rd Quarter 2011)

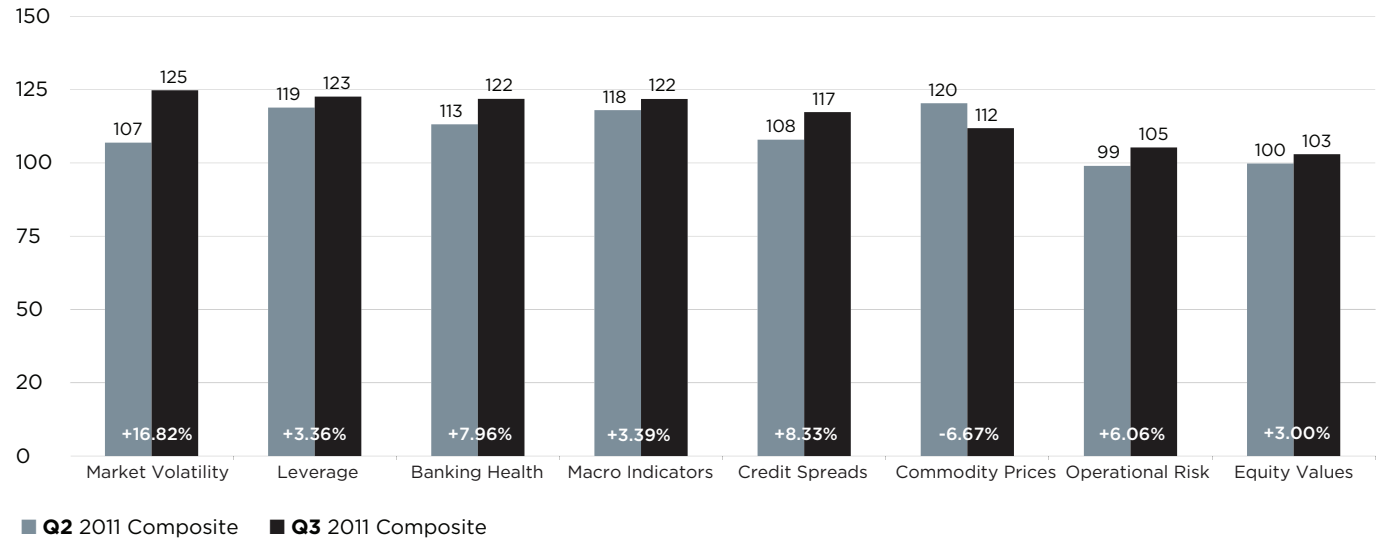
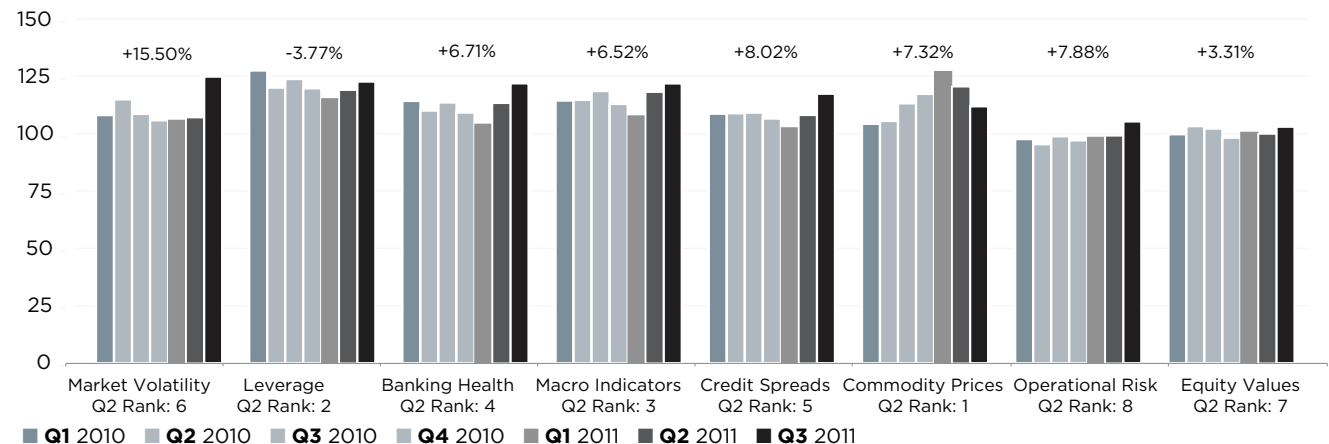


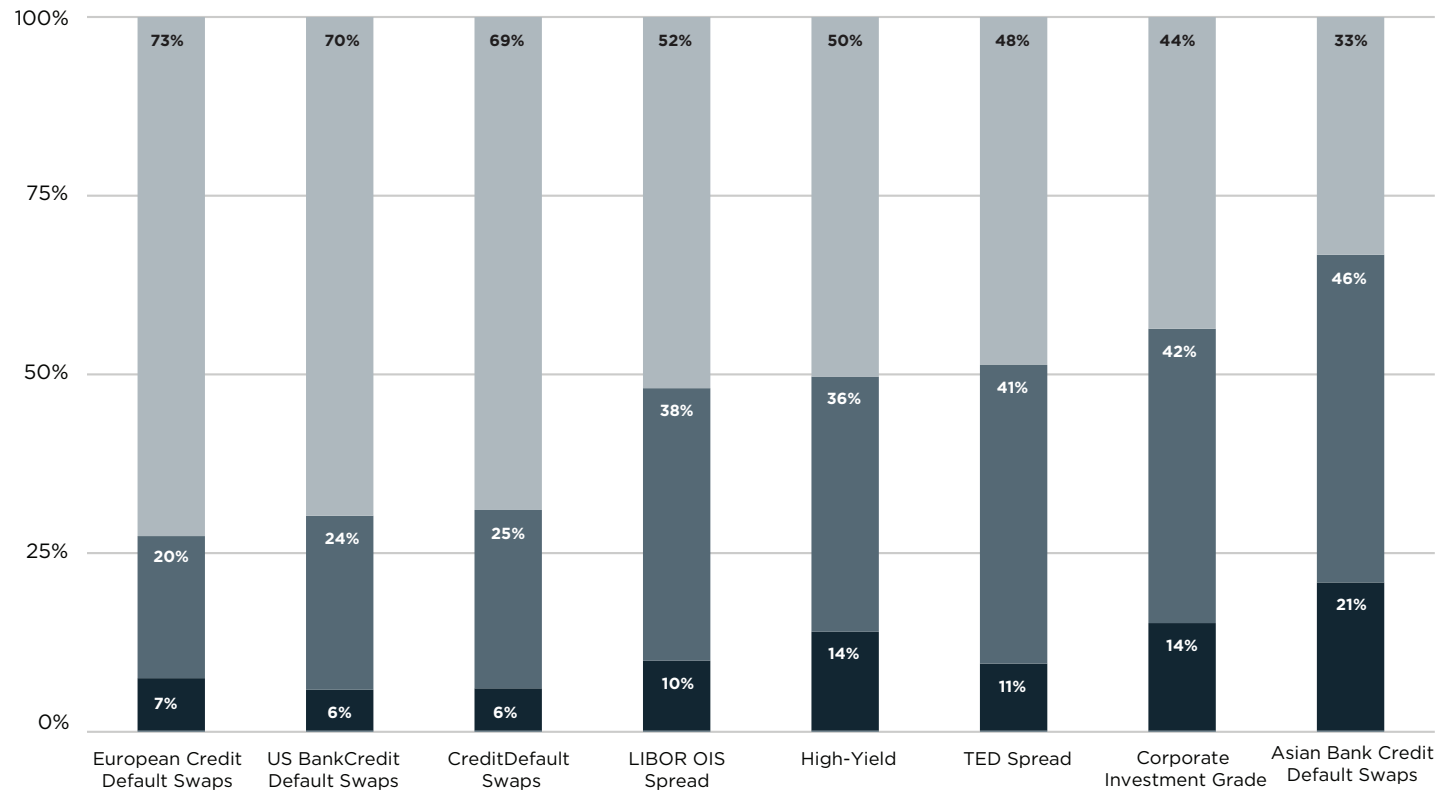
Chart 3B | Quarterly Market Factor Composites (Change Since Inception)



Credit spreads

Widening credit spreads are one indicator that confidence in the financial system is weakening, while potential for systematic risk may be on the rise. The Q3 credit spread market composite rose sharply in Q3, up more than 8%. Chart 4-A illustrates the distribution of the perceived risk associated with the widening of five specific credit spreads and interbank relationships (credit default, LIBOR OIS, high yield, TED spread and corporate investment grade). To add granularity, we asked respondents to provide feedback on the risk associated with credit default swaps on Asian, European and US banks. Not surprisingly, global risk managers were most sensitive to the widening spreads on European and US bank credit default swaps.

Chart 4A | Current Importance of US Credit and Interbank Spreads in Predicting US Systemic Risk (3rd Quarter 2011)



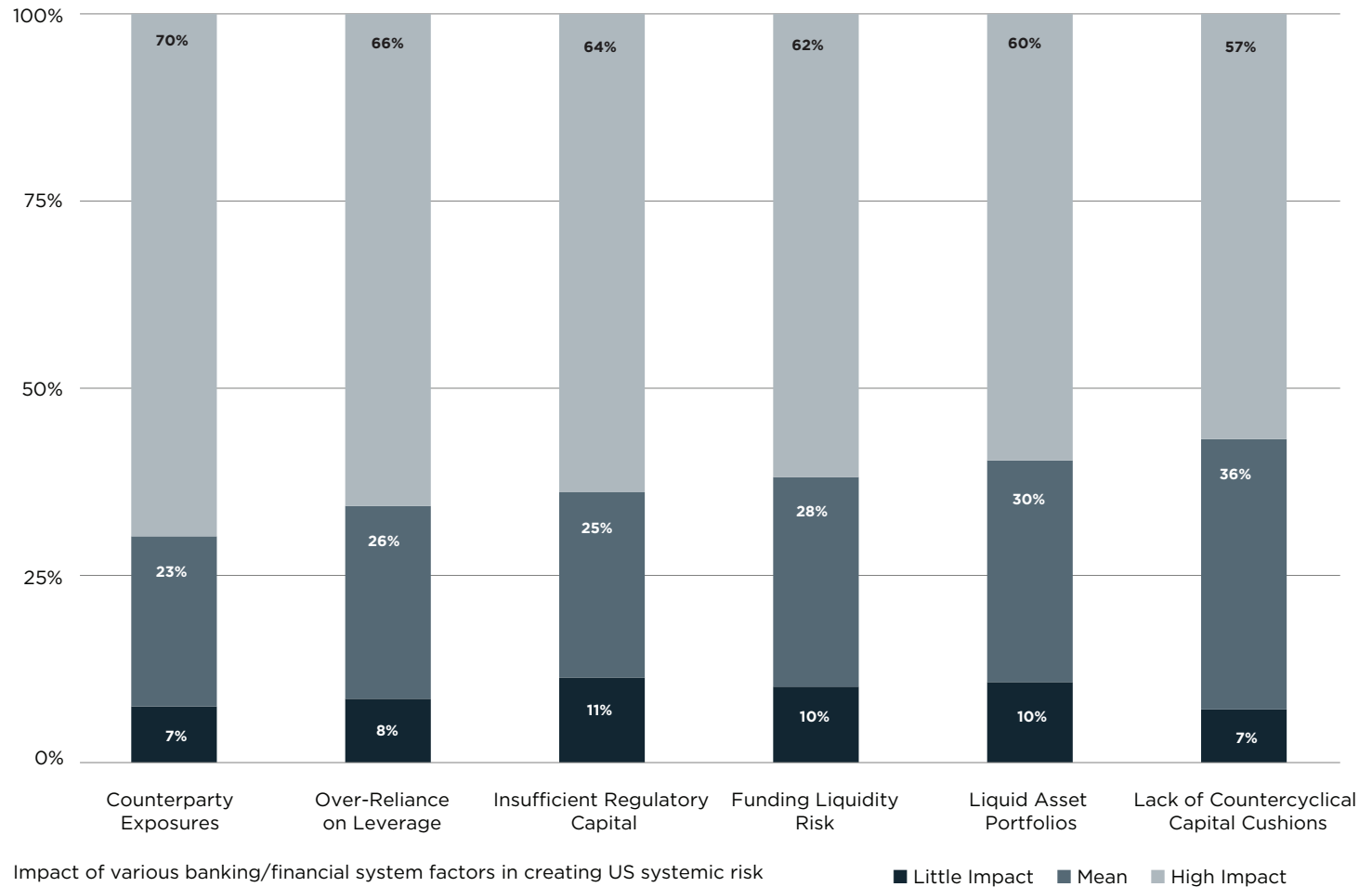
Importance of various US credit and interbank spreads in predicting US systemic risk

■ Low Predictive Value ■ Mean ■ High Predictive Value

Global counterparty risk, regulatory capital and liquidity risk seen as major threats to financial system

Confidence or trust in trading partners is necessary for deep, two-way market liquidity and is paramount to the orderly operation of global markets. Market confidence eroded leading up to and including the survey period, sparking a respective 12% and 10% increase in perceived risk associated with counterparty exposures and regulatory capital shortfalls. Chart 4-B illustrates the distribution of risk perceptions across all six financial system factors. A new factor in Q3, funding liquidity risk, garnered attention as risk managers reacted to the deterioration in global market confidence and its potential impact on short-term funding obligations and counterparty margin requirements, another likely contributor to the rise in the operational risk composite.

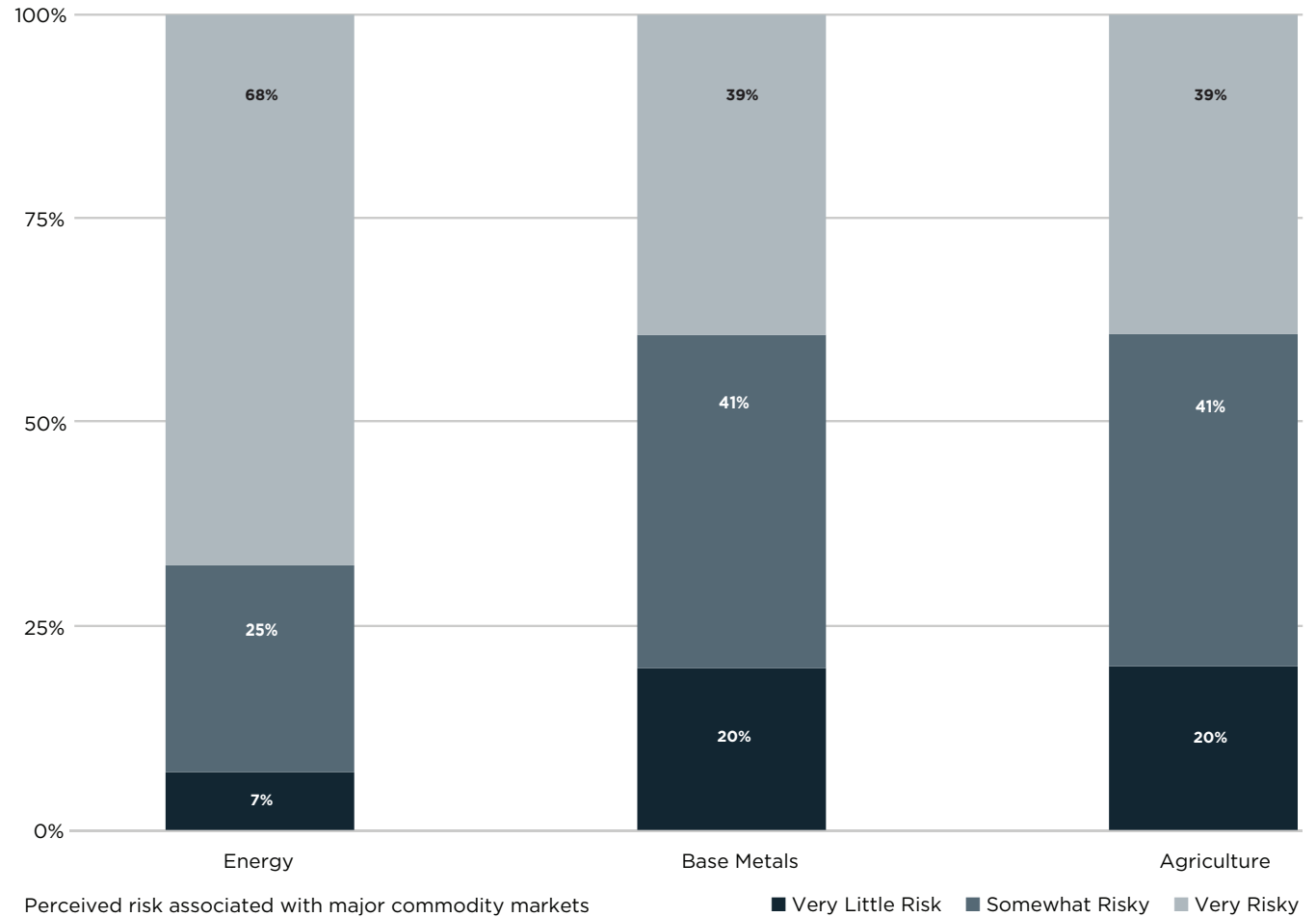
Chart 4B | Current Impact of Financial System Factors on US Systemic Risk (3rd Quarter 2011)



Commodity price risk

Expectations of a global double-dip recession escalated in tandem with market fear associated with the European debt crisis, forcing a re-evaluation of demand across most major commodity markets. The impact was reflected in survey results (see chart 4-C) that indicated perceptions of risk associated with energy and agriculture commodities steadily declined. In contrast, risk associated with base metal commodities fell marginally in Q3, likely reflecting the demand for gold as a hedge to protect against dollar weakness and global market instability.

Chart 4C | Riskiest Commodity Markets (3rd Quarter 2011)

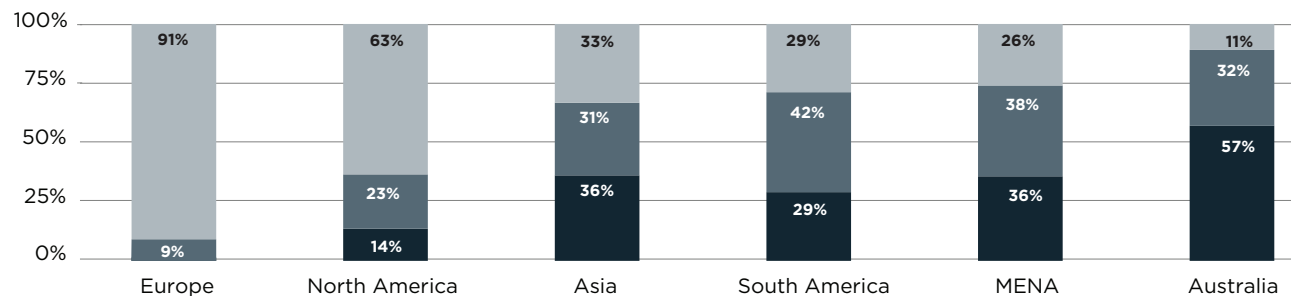


Current status of European debt crisis

The European sovereign debt crisis has eroded global market confidence since February 2010. After numerous downgrades and restructuring proposals, there continues to be no clear consensus for a resolution that will appease the conflicting economic objectives and political agendas of European leaders. Market volatility is largely influenced by global capital flows that closely follow the crisis, with risk on/risk off trades based largely on short term news from the Eurozone. Moody's (A1 from Aa2) and Standard and Poor's (AA- from AA+) respectively downgraded the sovereign debt of Spain in mid-October. Market confidence weakened throughout the first half of November, reversing the positive trend during the second half of October, as concern spread that efforts to quarantine Europe from Greek contagion would fail. More recently, fear of default on Italian and Spanish debt and questions about the long-term viability of the Euro has led to widespread selling of sovereign debt throughout Europe, driving financing costs higher and adding to pressure on the European Central Bank (ECB) to intervene.

Chart 4-D illustrates the severity of the problem; in Q3 more than 90% of global risk managers (a 27% increase in the response distribution) placed a high probability that the sovereign crisis in Europe will have a measurable impact on the integrity of the US financial system.

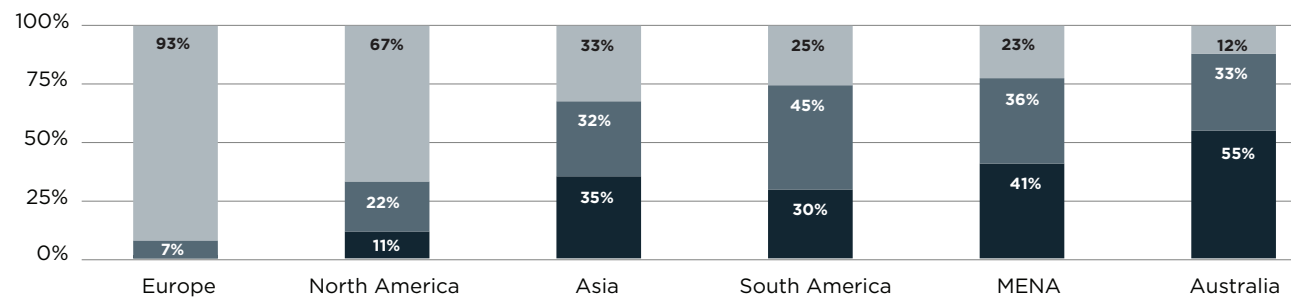
Chart 4D | Current Risk Associated with Sovereign Debt Crisis in Geographic Regions (3rd Quarter 2011)



Perceived probability of a local debt crisis creating a US systemic risk crisis in 2011

■ Low Probability ■ Mean ■ High Probability

Chart 4E | Impact of Banking Crisis on US Systemic Risk (3rd Quarter 2011)



Impact of geopolitical events in MENA on Systemic Risk

■ Little Influence ■ Some Influence ■ High Influence

Meanwhile, the European banking system has moved dangerously close to a full-blown liquidity crisis with no sign that the

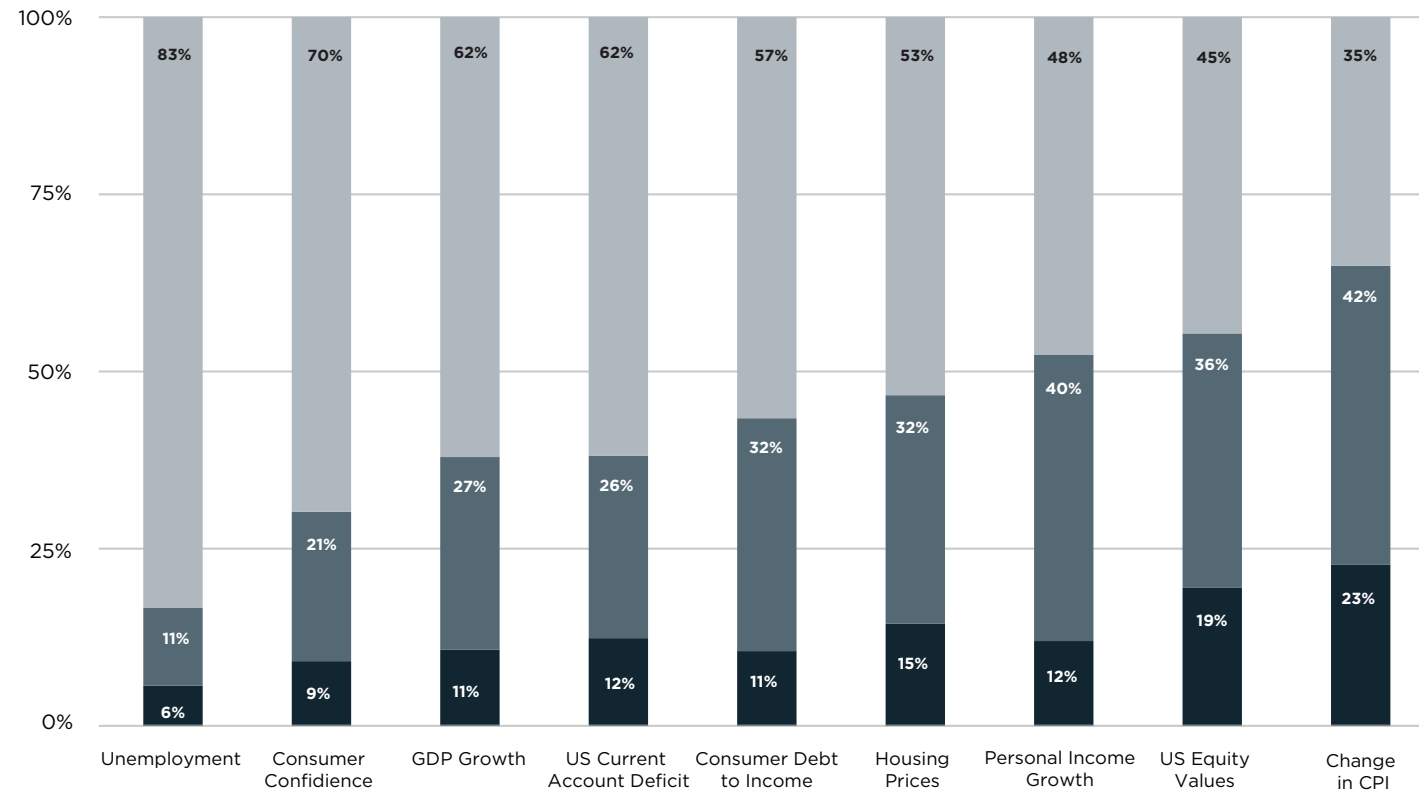
ECB will deviate from a policy of political independence to backstop the system. Chart 4-E illustrates the concern as more

than 92% of risk managers believe a crisis in the European banking system will have a significant impact on US systemic risk.

Macro indicators

The distribution of risk perceptions associated with macroeconomic factors is shown in Chart 4-F. An 8% increase in unemployment, 12% rise in consumer confidence, 16% surge in economic growth, and a 14% increase in risk associated with the ongoing US housing saga help explain the increase in the Q3 macroeconomic market composite.

Chart 4F | Current Influence of Macroeconomic Indicators on US Systemic Risk (3rd Quarter 2011)



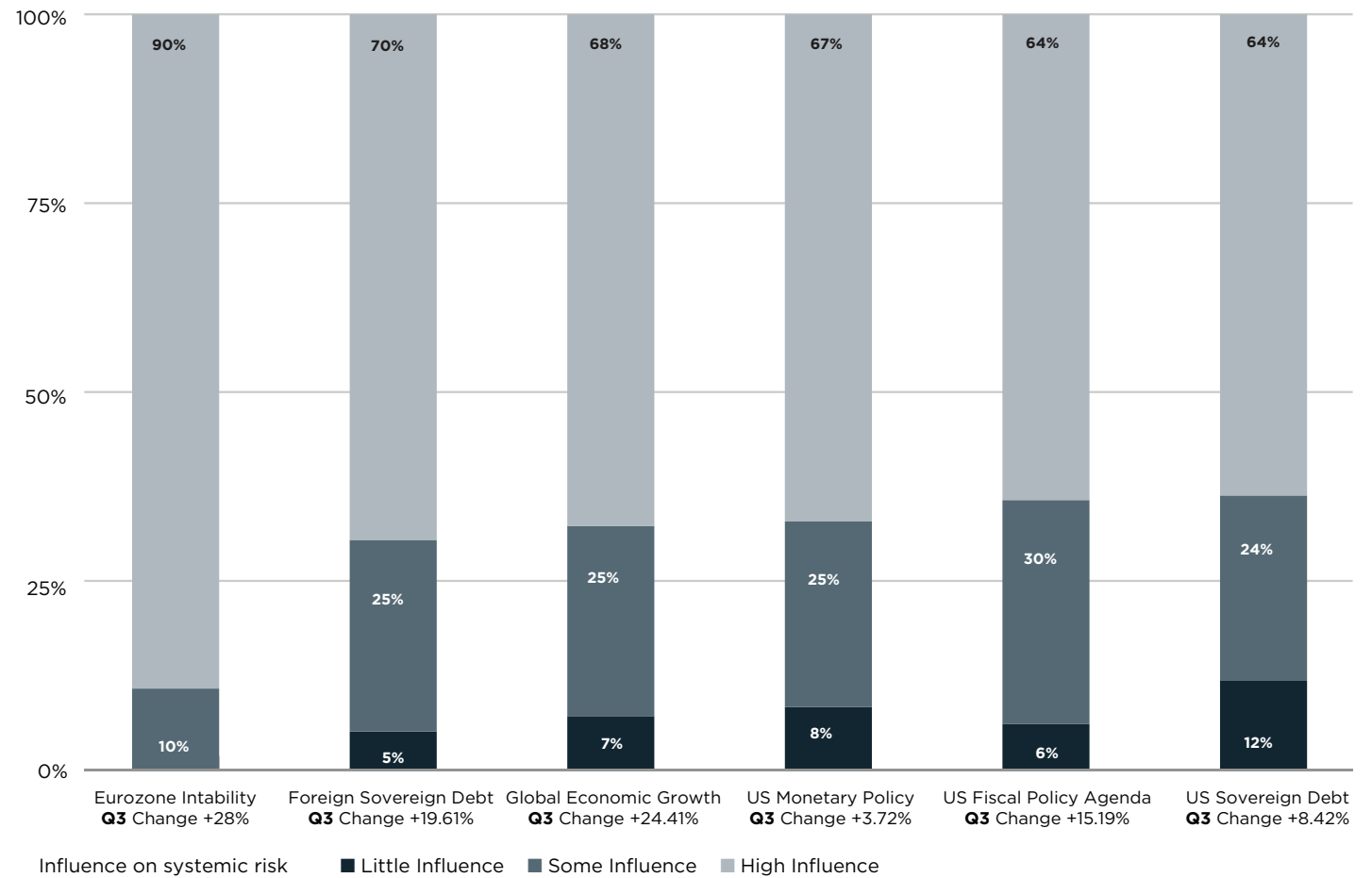
Impact of each factor is displayed from top to bottom based on perceived level of influence on US systemic risk

■ Weak Influence ■ Mean ■ Strong Influence

Factors influencing forward-looking risk perceptions

Now more than ever it's important to provide a look forward at the issues global risk managers are most concerned about. Chart 5 summarizes the factors identified as having the greatest potential to influence systemic risk in Q4, including the change from Q3.

Chart 5 | Forward-looking Perceptions About Systemic Risk Factors (4th Quarter and Beyond)



Appendix A

Survey of Market Factors

The following eight market factors were assessed by FRM holders from 62 countries to construct the GARP Risk Index:

Overall Health of the Economy	Rate the impact on risk to the US financial system of various leading, lagging and coincident US economic indicators.
Leverage in the Economy	Assess the potential impact on financial system risk in the US of total current economic leverage, including consumer and business credit.
Credit Spreads	Considering all current credit spreads, including corporate investment grade, high yield and credit default swap spreads and rate their effect on financial system risk in the US.
Health of Banking/ Financial System	Assess the current state of the US banking and financial system, including the influence of newly adopted and proposed regulations on financial system risk.
Equity Market Valuations	Indicate perceived risk to the US financial system of current equity market valuations measured across the major US equity indices.
Overall Traded Market Volatility	Considering volatility indicators across each major traded market including equities, fixed income, commodities and foreign exchange, and assess their overall impact on system wide risk in US financial markets.
Commodity Prices	Indicate the perceived risk to the US financial system of commodity valuations with particular focus on precious metal and energy markets.
Operations/Infrastructure/ Strategic Risk	Assess the influence on overall risk to the US financial system of current operational and infrastructure exposures, and strategic business objectives currently adopted by US financial institutions.
Overall Systemic Risk	Maintaining any or all of the above and any other consideration you might have, please rate your assessment of risk in the US financial markets today.

Appendix B

Survey of Additional Factors Impacting Systemic Risk

In our effort to develop a deeper understanding of the underlying factors you considered in your responses to the above questions please provide your assessment of the following.

I. Rate 1 to 5 (1 = very weak influence and 5 = very strong influence) the importance each of the following **US economic indicators currently have in predicting or influencing systemic risk in the **US**.**

- a. Unemployment •1 •2 •3 •4 •5
- b. US current account deficit •1 •2 •3 •4 •5
- c. Change in Consumer Price Index (CPI) •1 •2 •3 •4 •5
- d. GDP growth •1 •2 •3 •4 •5
- e. Ratio of consumer credit to personal income •1 •2 •3 •4 •5
- f. Personal income growth •1 •2 •3 •4 •5
- g. Housing prices •1 •2 •3 •4 •5
- h. Consumer confidence •1 •2 •3 •4 •5
- i. US equity values •1 •2 •3 •4 •5

II. Rate 1 to 5 (1 = very little risk and 5 = very high risk) tthe risk you currently associate with each of the following measures of leverage in the **US and their potential impact on systemic risk in the **US**.**

- a. Government debt/GDP •1 •2 •3 •4 •5
- b. Consumer debt/personal income •1 •2 •3 •4 •5
- c. Corporate debt/EBITDA •1 •2 •3 •4 •5

III. Rate 1 to 5 (1 = very little predictive value and 5 = very high predictive value) the importance each of the following credit and interbank spread relationships currently have in predicting systemic risk in the **US.**

- a. Corporate investment grade •1 •2 •3 •4 •5
- b. High-Yield •1 •2 •3 •4 •5
- c. Credit Default Swaps •1 •2 •3 •4 •5
- d. Asian Bank Credit Default Swaps •1 •2 •3 •4 •5
- e. European Bank Credit Default Swaps •1 •2 •3 •4 •5
- f. US Bank Credit Default Swaps •1 •2 •3 •4 •5
- g. TED Spread •1 •2 •3 •4 •5
- h. LIBOR OIS Spread •1 •2 •3 •4 •5

IV. Rate 1 to 5 (1 = very little impact and 5 = very high impact) the impact each of the following bank/financial system factors currently have in creating a potential “build-up” of systemic risk in the **US.**

- a. Insufficient regulatory capital •1 •2 •3 •4 •5
- b. Counterparty exposures •1 •2 •3 •4 •5
- c. Investment in illiquid asset portfolios •1 •2 •3 •4 •5
- d. Over-reliance on leverage •1 •2 •3 •4 •5
- e. Lack of countercyclical capital cushions •1 •2 •3 •4 •5
- f. Reliance on short-term financing — funding liquidity risk •1 •2 •3 •4 •5

V. Rate 1 to 5 (1 = very little risk and 5 = very high risk) the risk you currently associate with the following specific commodity markets and their potential impact on systemic risk in the **US.**

- a. Base metals •1 •2 •3 •4 •5
- b. Energy products •1 •2 •3 •4 •5
- c. Agriculture products •1 •2 •3 •4 •5

VI. Please rate 1 to 5 (1 = very little risk and 5 = very high risk) the level of risk you **currently associate with the following geographic regions and the likelihood a **local sovereign debt crisis** in each of these regions will impact systemic risk in the **US**.**

- a. Asia •1 •2 •3 •4 •5
- b. Australia •1 •2 •3 •4 •5
- c. Europe •1 •2 •3 •4 •5
- d. MENA (Middle East and North Africa) •1 •2 •3 •4 •5
- e. North America •1 •2 •3 •4 •5
- f. South America •1 •2 •3 •4 •5

VII. Please rate 1 to 5 (1 = very little risk and 5 = very high risk) the level of risk you **currently** associate with the following geographic regions and the likelihood a **local banking crisis** in each of these regions will impact systemic risk in the **US**.

- a. Asia •1 •2 •3 •4 •5
- b. Australia •1 •2 •3 •4 •5
- c. Europe •1 •2 •3 •4 •5
- d. MENA (Middle East and North Africa) •1 •2 •3 •4 •5
- e. North America •1 •2 •3 •4 •5
- f. South America •1 •2 •3 •4 •5

VIII. Looking forward to the Fourth Quarter and beyond please rate 1 to 5 (1 = very little concern and 5 = very high concern) the concern you and/or your firm currently associate with each of the following factors and their potential impact on a build-up of systemic risk in the US.

- a. Global economic growth (GDP) •1 •2 •3 •4 •5
- b. Value of the US Dollar •1 •2 •3 •4 •5
- c. Euro-zone instability •1 •2 •3 •4 •5
- d. Regulatory Implementation •1 •2 •3 •4 •5
- e. Asian market inflation •1 •2 •3 •4 •5
- f. European market inflation •1 •2 •3 •4 •5
- g. US Deflation •1 •2 •3 •4 •5
- h. Asian market deflation •1 •2 •3 •4 •5
- i. European market deflation •1 •2 •3 •4 •5
- j. US monetary policy (including “Quantitative Easing Program”) •1 •2 •3 •4 •5
- k. US sovereign debt •1 •2 •3 •4 •5
- l. US municipal debt •1 •2 •3 •4 •5
- m. Foreign sovereign debt •1 •2 •3 •4 •5
- n. US fiscal policy agenda •1 •2 •3 •4 •5
- o. Geopolitical risk •1 •2 •3 •4 •5
- p. Inadequate transparency in derivatives markets •1 •2 •3 •4 •5
- q. Cyber attacks (technology breaches) •1 •2 •3 •4 •5
- r. Operational Risk (Including Liquidity Risk) •1 •2 •3 •4 •5

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