The GARP Risk Index

First Quarter 2011

GARP | Global Association of Risk Professionals

The GARP Risk Index

Key Findings

- The Q1 GARP Risk Index was unchanged at 108, reflecting growing optimism about global market conditions despite ongoing structural imbalances in the US economy and abroad.
- Rising commodity prices have now surpassed leverage as the market factor of greatest concern.
- Weakness in US housing prices is a new macroeconomic factor to watch closely.
- US monetary policy and Eurozone instability remain the principal risk factors heading into Q2; geopolitical tension stemming from recent unrest in North Africa and the Middle East now also weighs heavily on the minds of global risk managers.

Contents

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

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.

Survey methodology

Each quarter Certified Financial Risk Manager (FRM®) and Energy Risk Professional (ERP®) holders worldwide are asked to provide their assessment, on a scale of 1 to 5 (1 – "Very Little Risk" and 5 – "Very Risky"), of the risk they currently associate with the eight market factors. Survey results are used to construct the GARP Risk Index, a scaled index based on the risk-weighted average responses for the eight market factors surveyed (refer to Appendix A for a description of each factor). Additional survey questions (refer to Appendix B) are developed to add enhanced depth and color to the quarterly analysis. In some cases, original questions are developed to help explain unique trends identified in a previous survey or gather additional information about current market developments.

Tracking global perceptions

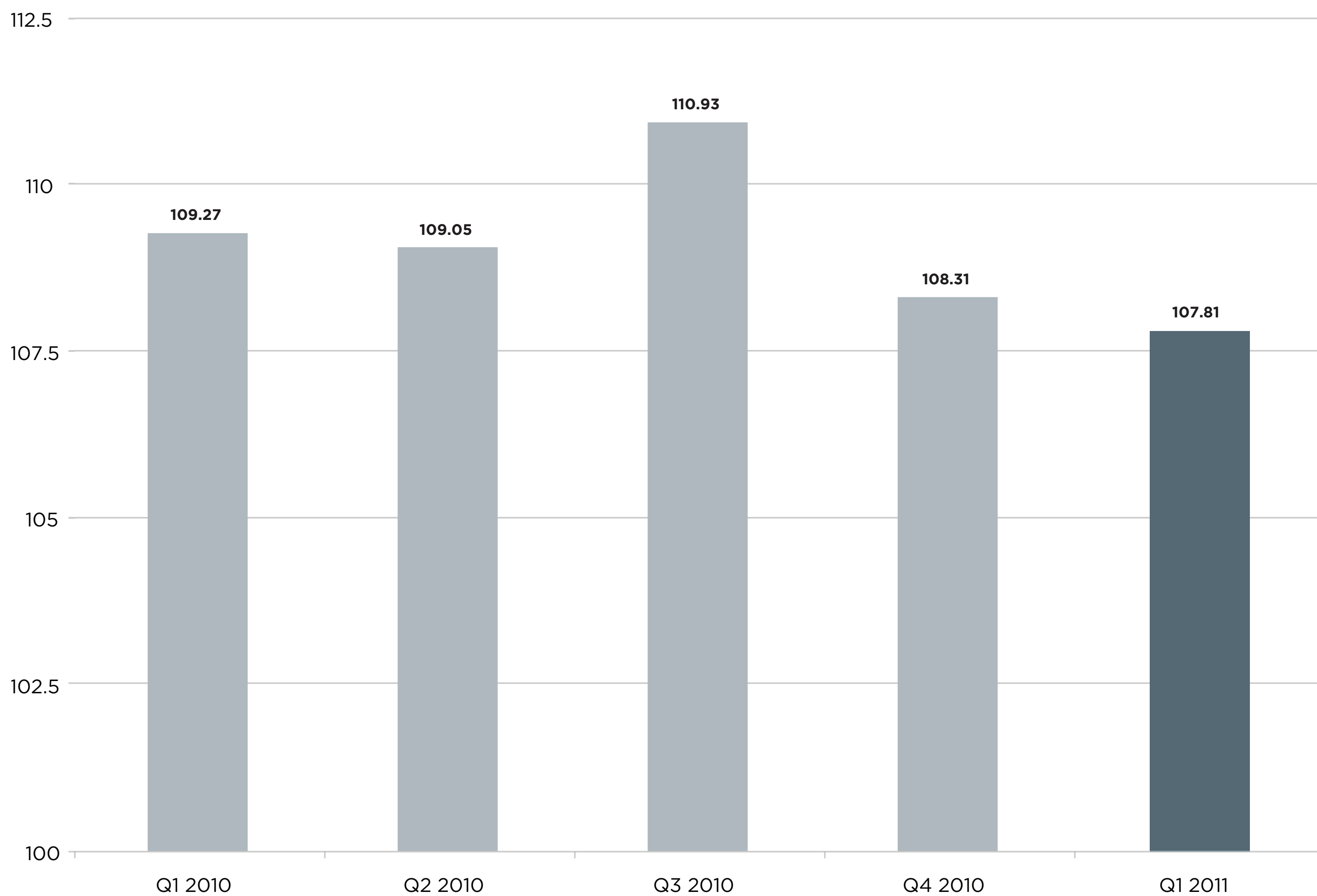
Harnessing the expertise and market perceptions of global risk managers, the GARP Risk Index provides an informed assessment of current US market conditions and the potential build-up (or otherwise) in system-wide risk in the US. The GARP Risk Index tracks current perceptions about eight individual risk factors 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

GARP Risk Index down slightly — reaches lowest reading since inception

The GARP Risk Index decreased a half point in Q1, has now reached a new low of 107.81 as illustrated in Chart 1-A.

Chart 1A | GARP Risk Index Trends Since Inception



Global risk perceptions — a relative view

Chart 1-B relates the GARP Risk Index to risk perceptions across eleven countries with the highest active participation[1] in the risk survey. The US country risk composite of 109.29 is only slightly higher than the GARP Risk Index (107.81), suggesting perceptions of US-based risk managers are consistent with a majority of their global counterparts. One interesting observation is the large gap between Singapore (102.08) and China (101.5) with the other participating countries.

We drilled down a bit further to determine if this was simply an anomaly or suggestive of an ongoing trend. Chart 1-C illustrates the average GARP Risk Index since inception relative to average composite country scores. While it appears the Q1 difference between Singapore and other countries was indeed an anomaly, risk perceptions in China have on average been well below those of other regions. Moreover, there has been a consistent gap between Hong Kong and Taiwan relative to China. It's possible that risk managers in Hong Kong and Taiwan, where financial markets are more developed and information flow arguably more open, are better prepared to assess current US market conditions. Alternatively, the Chinese assessment of US market risk may simply be influenced by perceived economic strength at home.

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

Chart 1B | GARP Risk Index vs Country Risk Perceptions (1st Quarter 2011)

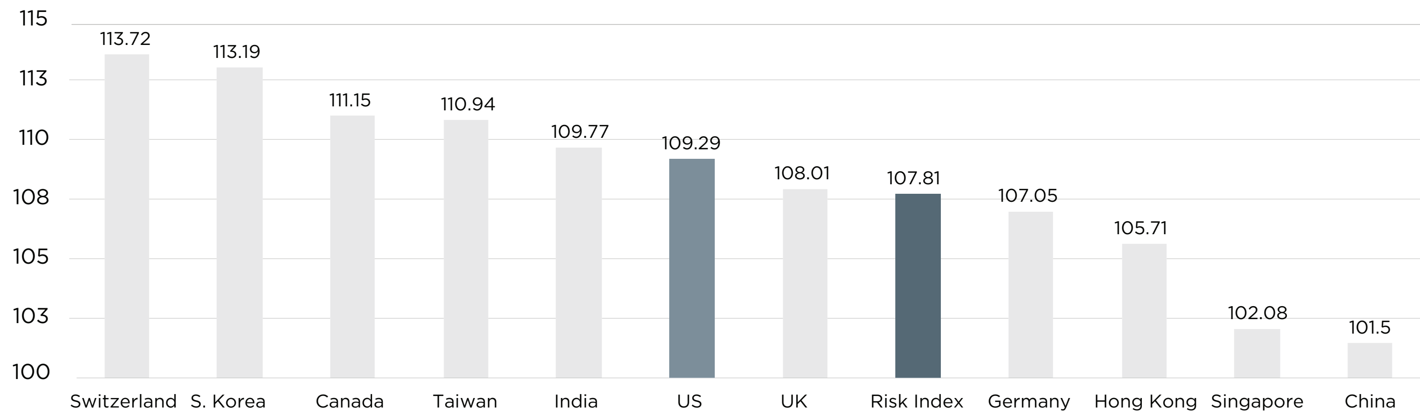
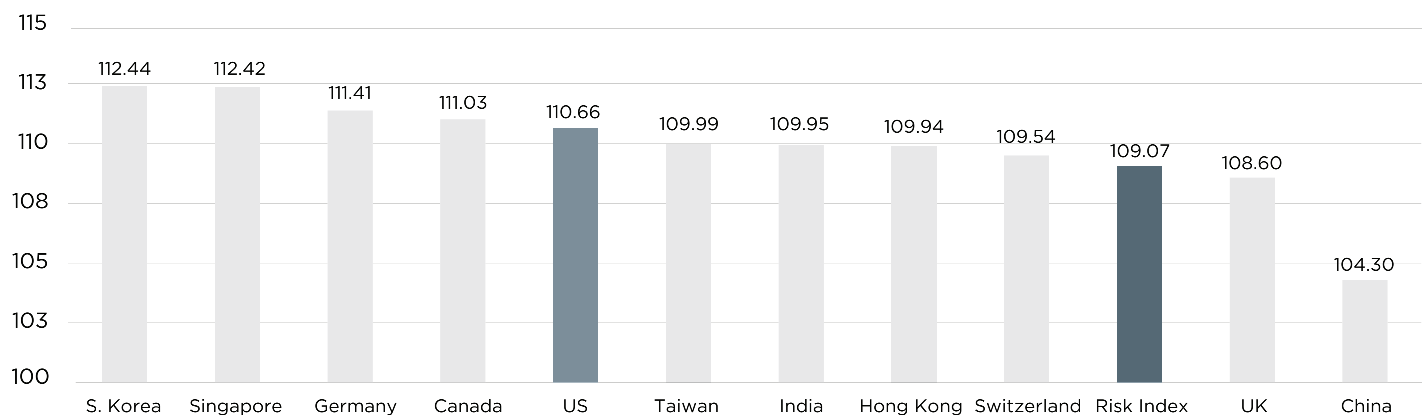


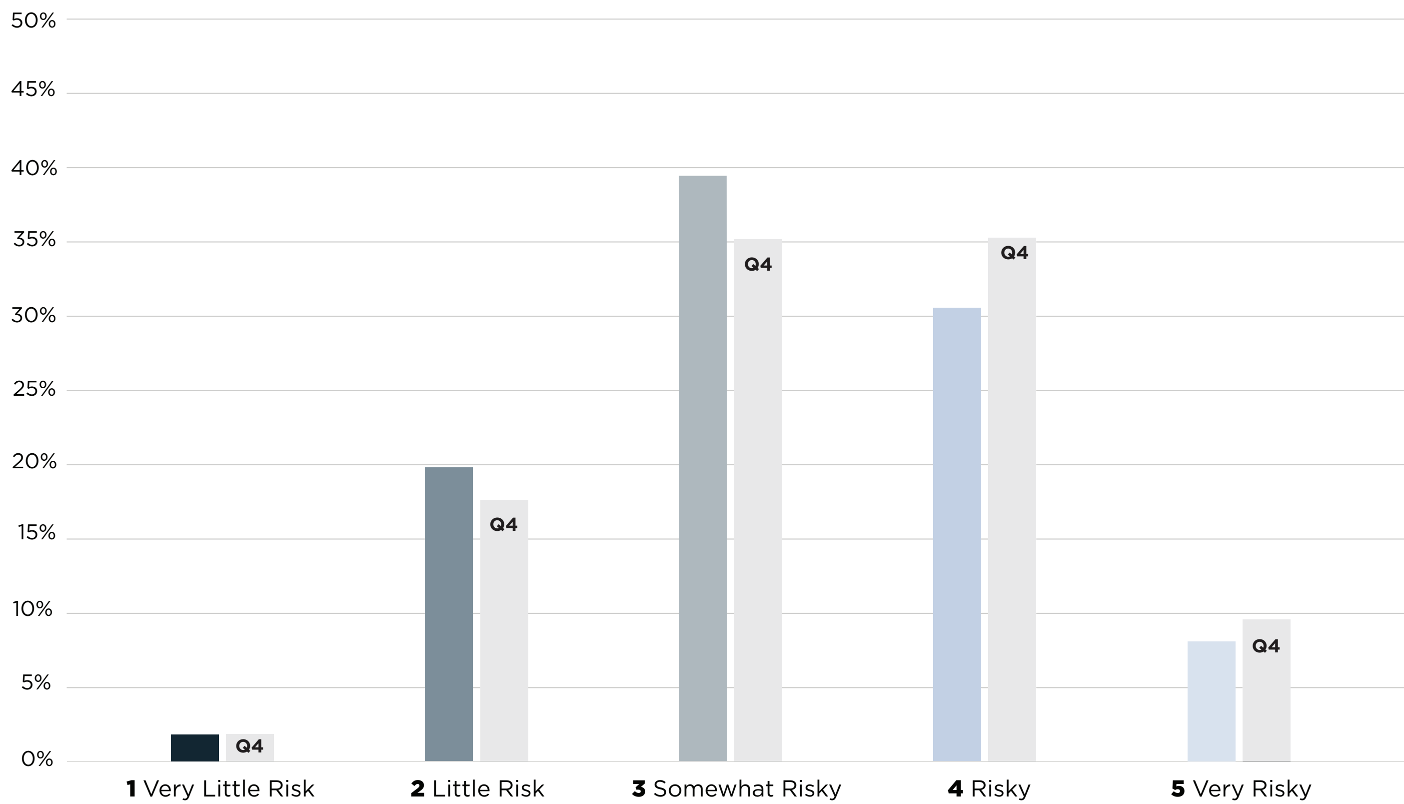
Chart 1C | GARP Risk Index vs Country Risk Perceptions Averages Since Inception



Total response distribution

The aggregate response distribution for all factors is illustrated in Chart 2, which depicts the further migration from high to lower risk attribution for all eight market factors.

Chart 2 | Total Response Distribution (1st Quarter 2011)



Systemic risk assessment improves as GARP Risk Index and systemic risk converge

Risk migration was even more pronounced in Chart 3, which depicts the shift in perceptions associated with systemic risk specifically. Nearly 15% of survey respondents migrated from the two riskiest categories in Q1.

This shift in sentiment contributed to an additional 2% point decrease in the systemic risk composite (108 vs. 110 in Q4) and further convergence between the GARP Risk Index and systemic risk composite illustrated in Chart 4.

Chart 3 | Overall Systemic Risk Assessment (1st Quarter 2011)

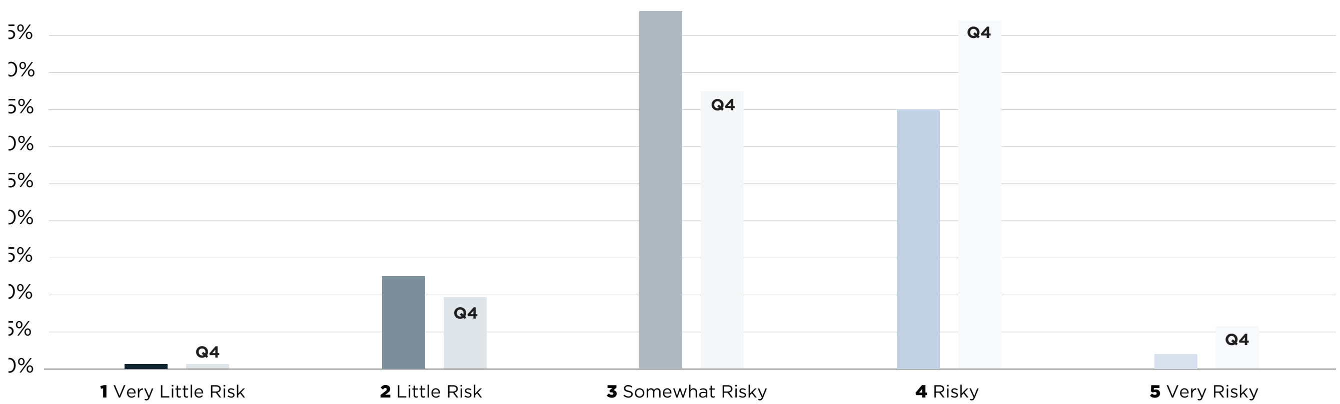
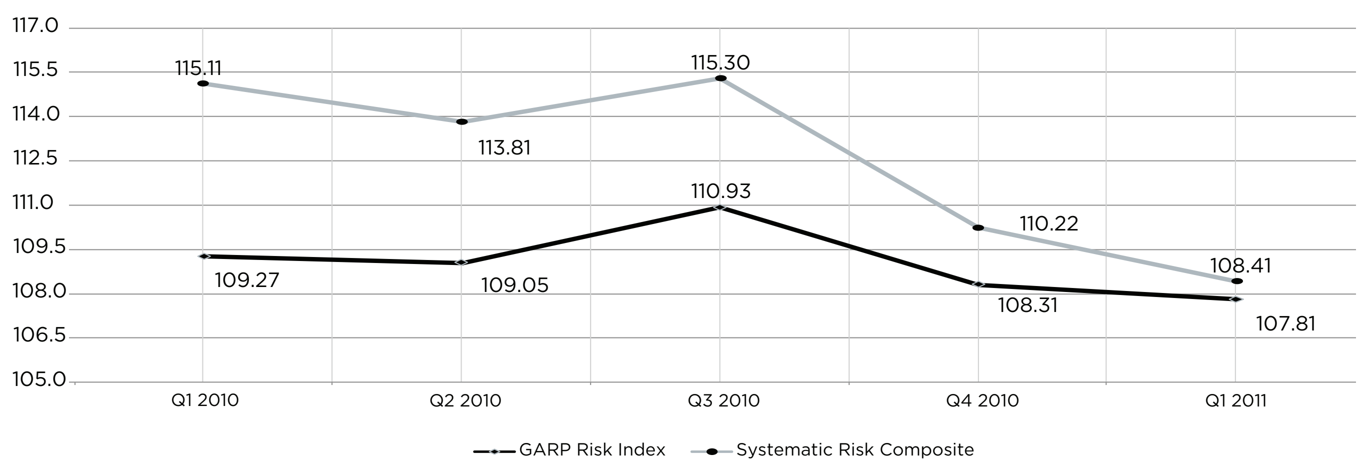


Chart 4 | GARP Risk Index vs. Systemic Risk Composite (1st Quarter 2011)



Signs of improvement — but proceed with caution

With the exception of commodities, there has been a steady decline or relative flattening in risk perceptions across the eight market factors since inception (see Chart 5). This trend continued in Q1 as illustrated in Chart 6. The assessment of risk attributable to commodities was again the outlier, evidenced by the 8.5% quarterly increase in the commodity factor composite. The commodity risk composite is now up 22% since inception, highlighting the growing influence of this volatile asset class on the overall Risk Index. Excluding commodities the GARP Risk Index would register 105.03. If both commodities and financial leverage are excluded, the Index would decrease to 103.32.

Despite what appears to be growing optimism, there continues to be a number of structural imbalances in the US economy and abroad that could significantly impact many of the market risk factors identified. The following issues in particular lead us to remain a bit apprehensive:

- US dollar weakness
- Stagnation in many US housing markets
- Economic growth that appears to rely heavily on non-OECD demand (e.g. China, India, Brazil, etc.)
- European sovereign debt instability
- Geopolitical tensions in the Middle East and North Africa

Chart 5 | Quarterly Changes in Market Factor Composites (1st Quarter 2011)

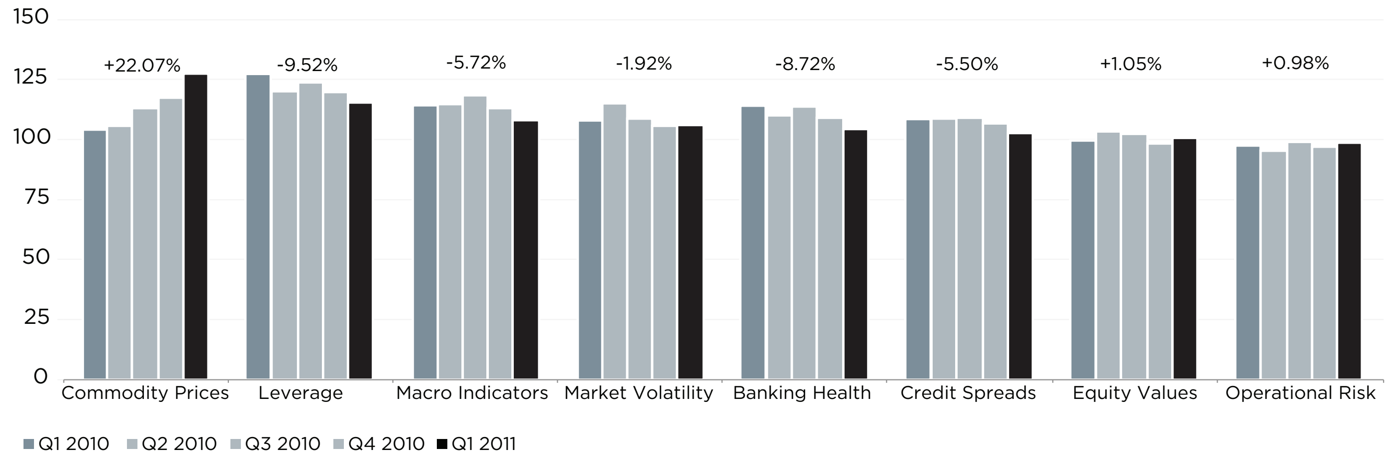
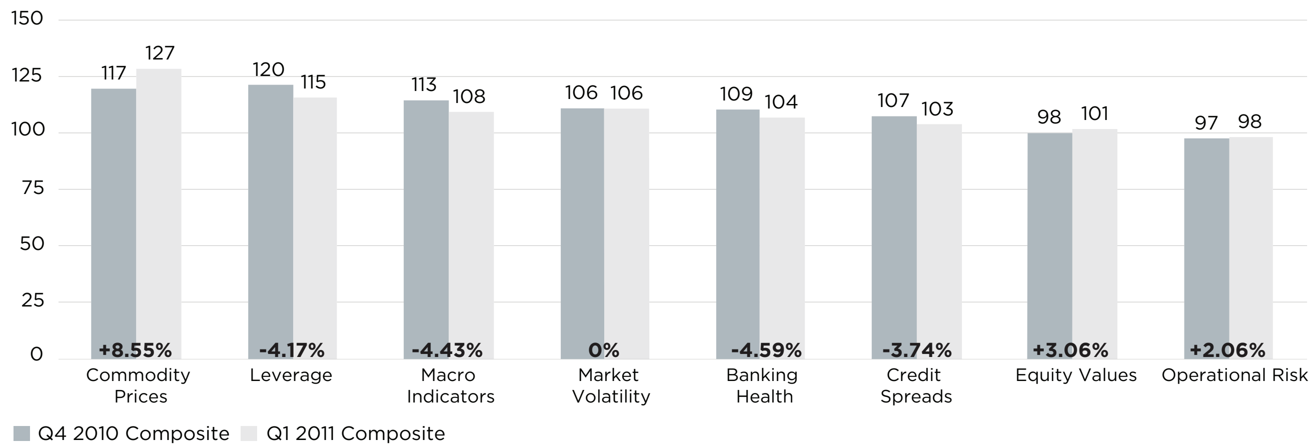


Chart 6 | Quarterly Change in Market Factor Composites (1st Quarter 2011)

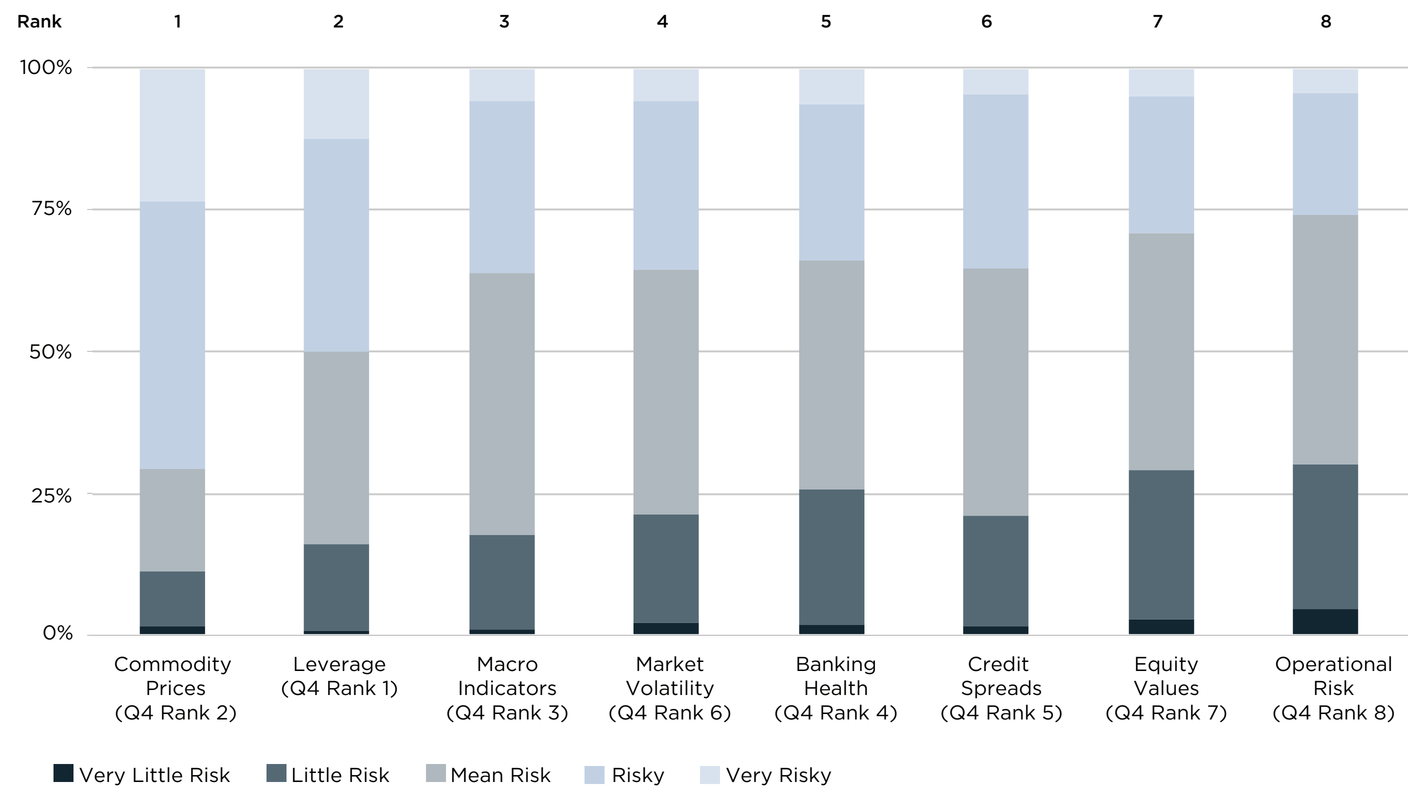


Commodities surpass leverage as the most risky; volatility may be misleading

Chart 7 is a summary of the distribution of risk perceptions across all market factors in Q1 along with their respective Q4 rankings. The steady rise in anxiety over commodity prices continued in Q1. More than 71% of risk managers in Q1 now consider commodities to be "risky" or "very risky" (i.e. a 4 or 5 on the risk scale). Leverage is now the only other factor for which at least half of survey respondents rated its potential impact on US systemic risk in the two highest risk categories. This is down from 58% in Q4 and 64% in Q3. The steady decline in risk attributed to leverage is a positive development and perhaps recognition that the benefits of financial deleveraging, albeit a slow process, are being strongly considered in the appraisal for US systemic risk.

There were slight shifts in the rankings (and perceptions) associated with market volatility, banking health and credit spreads; macro indicators, market volatility, banking health and credit spreads now all have virtually identical risk attribution profiles. The shift from 6 to 4 in the ranking of market volatility is noteworthy. It appears global risk managers may now be re-focusing on volatility and its underlying market impact despite a benign quarterly change in the CBOE Volatility Index (VIX). The VIX closed at 17.9 at the end of Q1 which was essentially flat to the close on December 31, 2010 (17.75). Upon closer inspection, events in the Middle East and North Africa and the March 11 earthquake in Japan created a brief intra-quarter rise in the VIX before quickly retreating. This seems to suggest that markets have become a bit complacent recently, especially in light of what appears to be much global uncertainty.

Chart 7 | Response Distribution Across the Risk Factors (1st Quarter 2011)

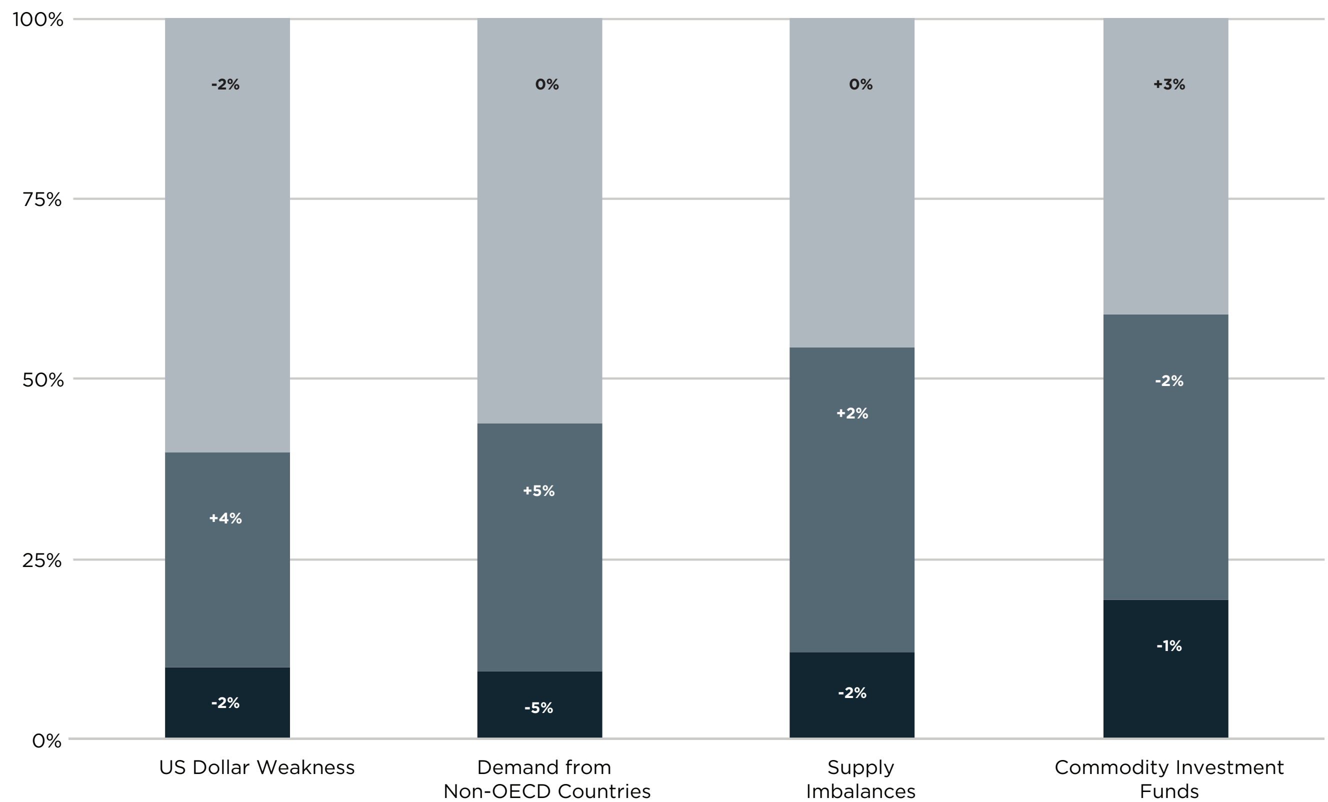


Commodity prices

The rise in risk perceptions tied to commodities continues to be the most interesting trend in the risk survey. A number of fundamental factors can be attributed to rising commodity prices. The marginal increase in global demand for all commodities, primarily from China, India and other non-OECD countries in the wake of the "Great Recession," has undoubtedly had a significant impact on global food and energy prices in the past 12 to 18 months.

Deterioration in the US dollar has also helped drive commodities higher. Precious metals in particular have surged on concern that current US monetary policy will continue to suppress the US dollar's value and create inflation that could potentially stifle economic growth. Chart 8 illustrates the quarterly shift in perceptions associated with four key drivers of commodity prices.

Chart 8 | Key Drivers of Commodity Prices (1st Quarter 2011)



Perceived influence associated with key commodity price drivers

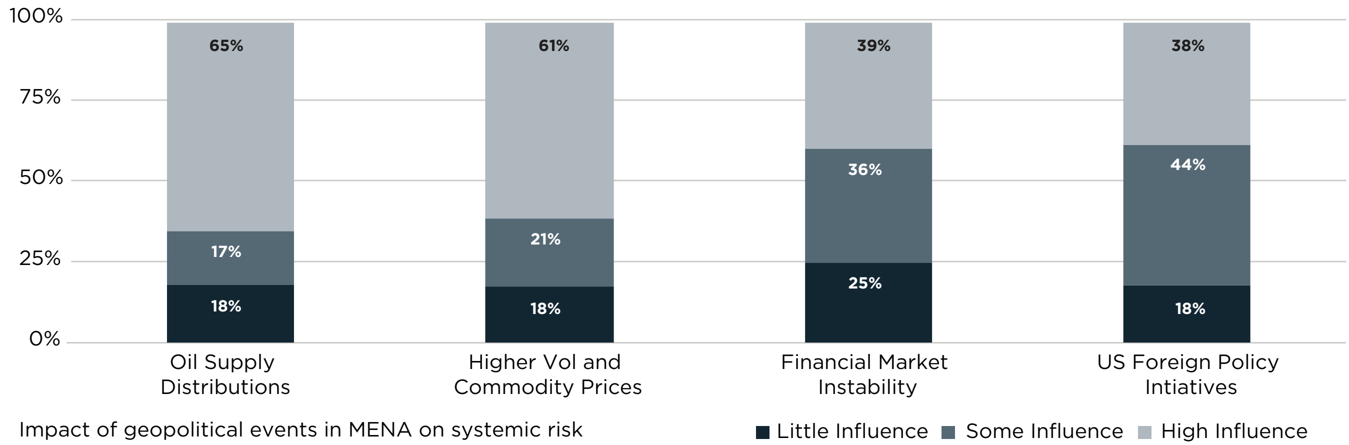
■ Little Influence ■ Some Influence ■ High Influence

Commodity prices

Recently, political unrest throughout the Middle East and North Africa has created market uncertainty. Concern that tensions in the region might result in a 1970's style oil supply shock has driven global crude oil prices and intra-quarter volatility higher. The direct impact of geopolitical risk is difficult to quantify as its potential influence can be felt across a number of direct and indirect market factors. We specifically asked for feedback in a related survey question in an attempt to gauge perceptions about the recent events in MENA and their potential impact on US systemic risk. Chart 9 summarizes the distribution of risk associated with four specific factors which clearly highlight the perceived impact on commodities.

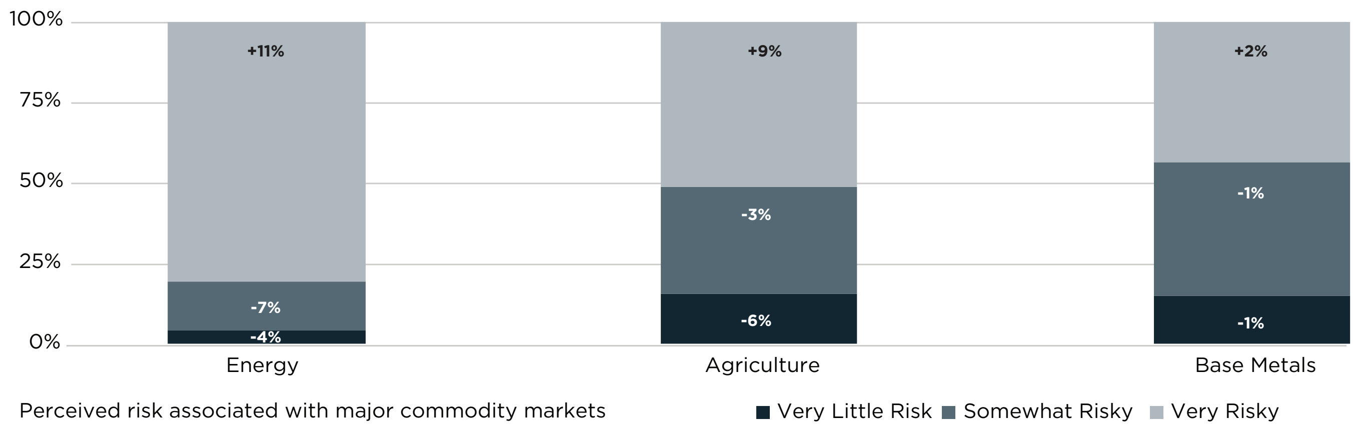
Given this backdrop it is not surprising that apprehension around energy commodities has increased significantly in Q1. More than 80% of risk managers now rank energy commodities in the highest risk category, a quarterly increase of more than 11%. Risk perceptions associated with agricultural commodities rose sharply as well. Chart 10 highlights the changing profile of perceived risk associated with energy, agriculture and base metal commodity markets respectively.

Chart 9 | Impact of Geopolitical Unrest in MENA on US Systemic Risk (1st Quarter 2011)



Impact of geopolitical events in MENA on systemic risk

Chart 10 | Riskiest Commodity Markets (1st Quarter 2011)

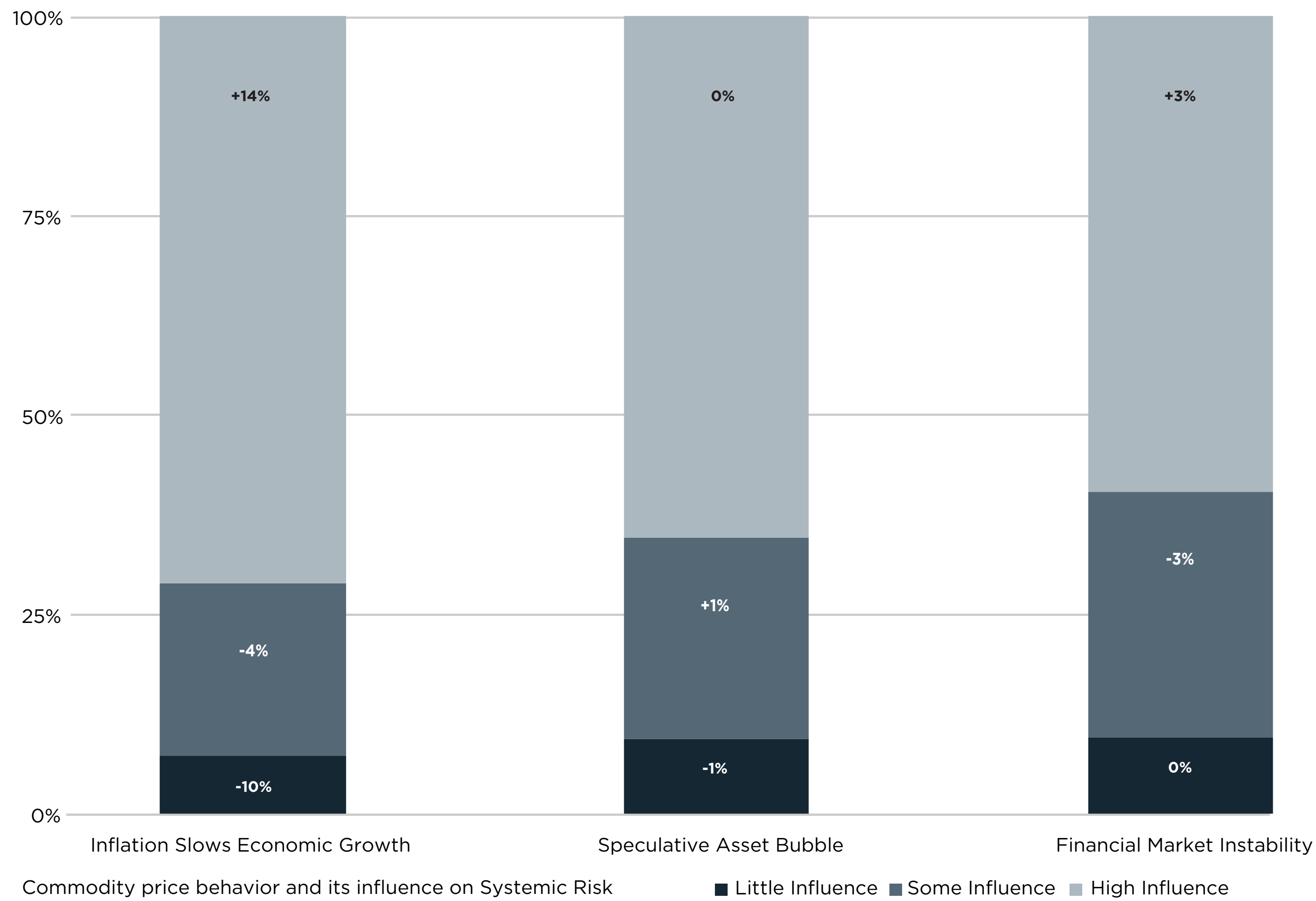


Perceived risk associated with major commodity markets

Commodity prices

Chart 11 provides a snapshot of the quarterly shift in perceptions surrounding the influence of commodity price behavior on US systemic risk. The impact of inflation caused by higher commodity prices is now considered the greatest threat, followed closely by concern that a commodity asset bubble has now been created. We wonder if the exchange trading limits recently imposed by the CME Group on a number of major commodity indices is the beginning of a global re-evaluation of risk across all commodities. It certainly appears to be the case, judging by the sharp sell-off in commodities and a more than 10 point jump in the CBOE petroleum volatility index (OVX) on May 5.

Chart 11 | Impact of Commodity Prices on Systemic Risk (1st Quarter 2011)

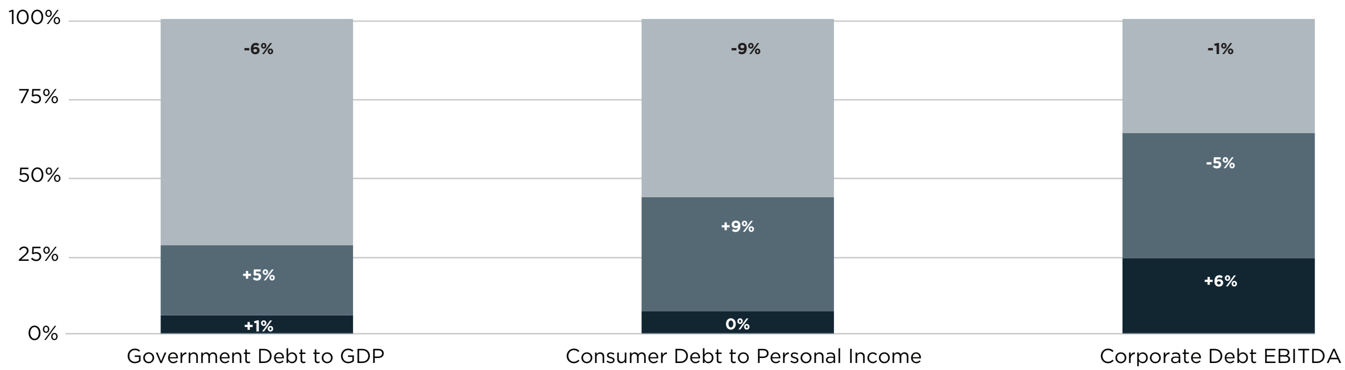


Financial leverage — sovereign debt worries drag on

Sovereign debt worries remain a leading cause of concern among risk managers (see Chart 12). This is not surprising given the lack of resolution to the European debt crisis that appears to be worsening. In early April, Portugal became the third Eurozone country (after Greece and Ireland) to request financial assistance to repay maturing debt obligations. This followed a Fitch downgrade of Portuguese government debt from AA to AA- in late March. More recently, on May 9 Standard and Poor's issued a downgrade of long-term Greek government debt to B from BB-, while Moody's downgraded Greece to Caa1 from B1 on June 1. Add to this the impact of the March 11 earthquake and tsunami on Japan's tenuous economic condition and the US government debt burden which is now equivalent to roughly 90% of GDP, and growing.

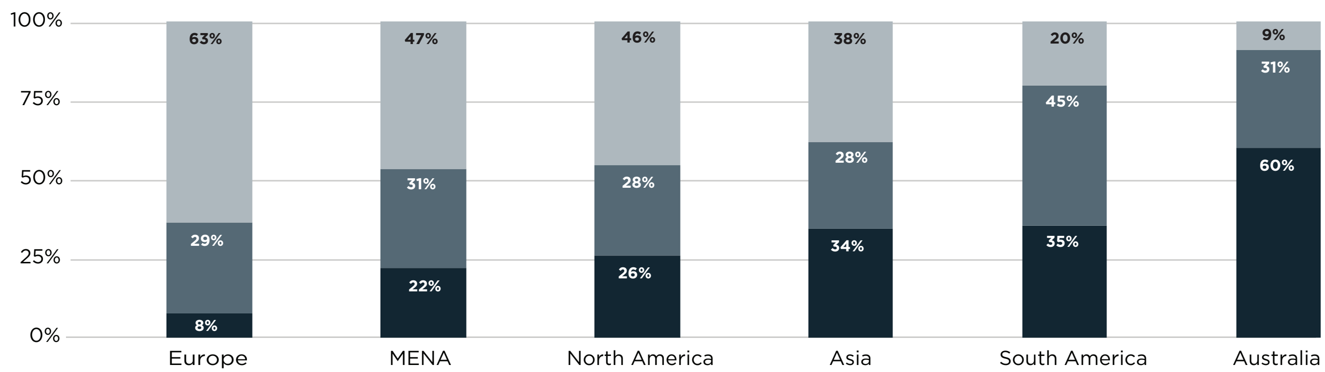
It's not clear exactly how a foreign sovereign debt crisis might directly impact the US but we do get a glimpse of the regions of most concern in Chart 13. 63% of risk managers surveyed were of the view that a European debt crisis would have a high probability of creating systemic risk event in the US. Unfortunately, without strong economic growth or politically unpopular fiscal policies, it's difficult to imagine any significant improvement or an end to government bailouts in the region.

Chart 12 | Current Influence of Leverage on Sytemic Risk (1st Quarter 2011)



Perceived risk of leverage on the potential build-up of US systematic risk

Chart 13 | Current Risk Associated with Debt Crisis in Geographic Regions (1st Quarter 2011)

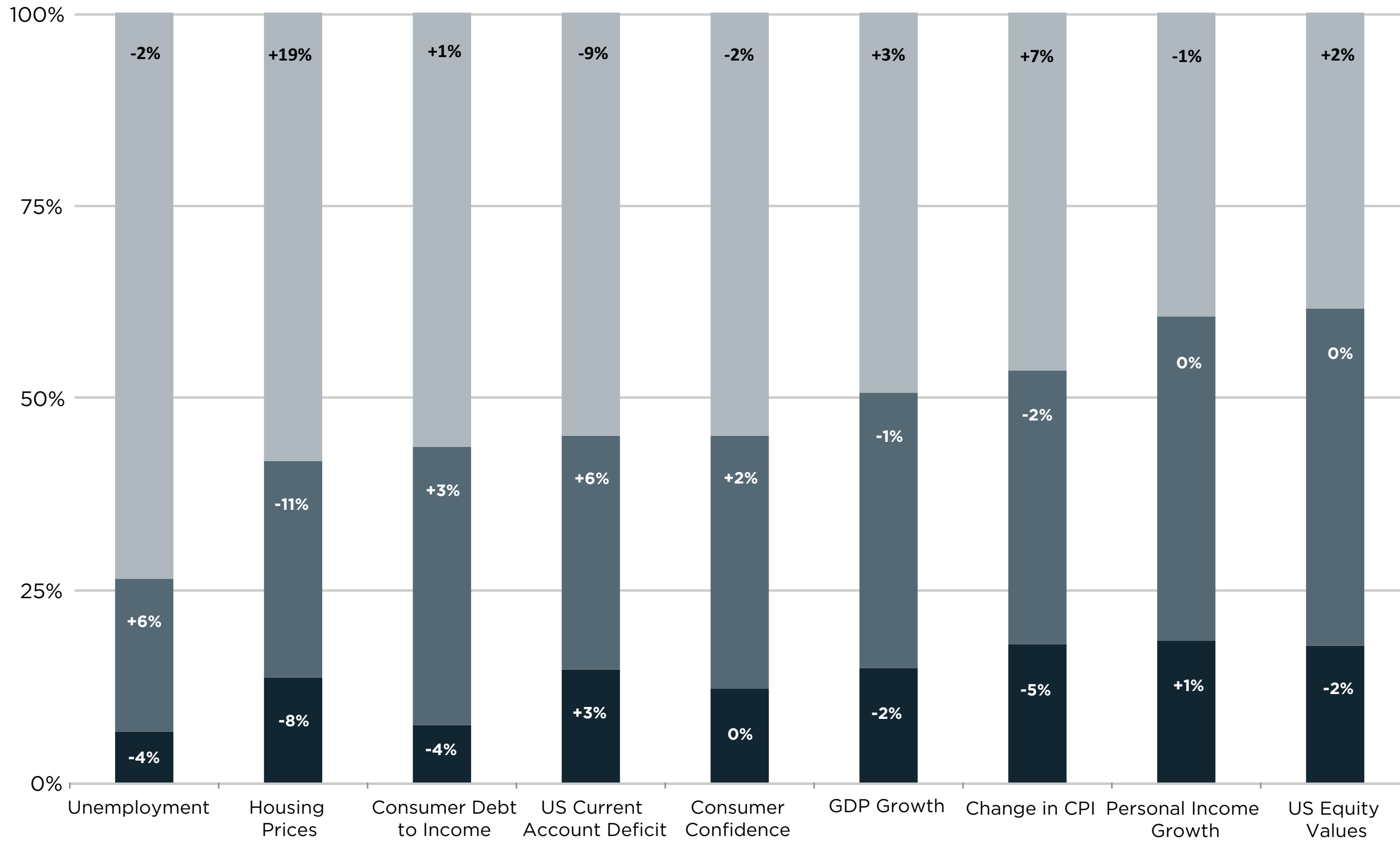


Perceived probability of a local debt crisis creating a US systemic risk crisis in 2011

Macro indicators

Chart 14 depicts the shift in risk perceptions associated with nine fundamental macro-economic indicators, providing further evidence of the improvement in global perceptions about the US economy. While most trends were positive, there were two negative developments worth noting. A 7% increase (39% to 46%) in respondents expressing significant concern about inflation, a response we assume is highly correlated with rising commodity prices. More interesting is the 19% increase (39% to 58%) in respondents who expressed concern that falling US home values will have a strong influence on systemic risk. The "housing impact" has been discussed for some time, with many experts of the view that a foreclosure overhang will be a major obstacle to long-term market recovery. Some have also speculated that the expiration of the home buyer tax incentives last year would be the impetus for a double dip decline in the US housing market. Two recently published housing price surveys appear to confirm these fears. In early May zillow.com reported that US home prices in some areas decreased 3% in Q1, the steepest quarterly drop in more than two years. Moreover, data from the S&P/Case-Shiller Home-Price Indices released May 31 indicated that US national home prices fell 4.2% during Q1 with a 5.1% annual decline since Q1 2010. Based on this metric US home prices nationwide are now reportedly at levels last seen in 2002.

Chart 14 | Influence of Current Macroeconomic Indicators on US Systemic Risk (1st 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

US banking system and credit spreads remain stable for now

There was little change in the perceptions of factors directly associated with the US banking system and credit spreads respectively (see Charts 15 and 16). These are not surprising results and are consistent with the return to profitability across the banking sector and the general stabilization of credit spreads and market liquidity across most major credit markets.

Chart 15 | Current Impact of Financial System Factors on US Systemic Risk (1st Quarter 2011)

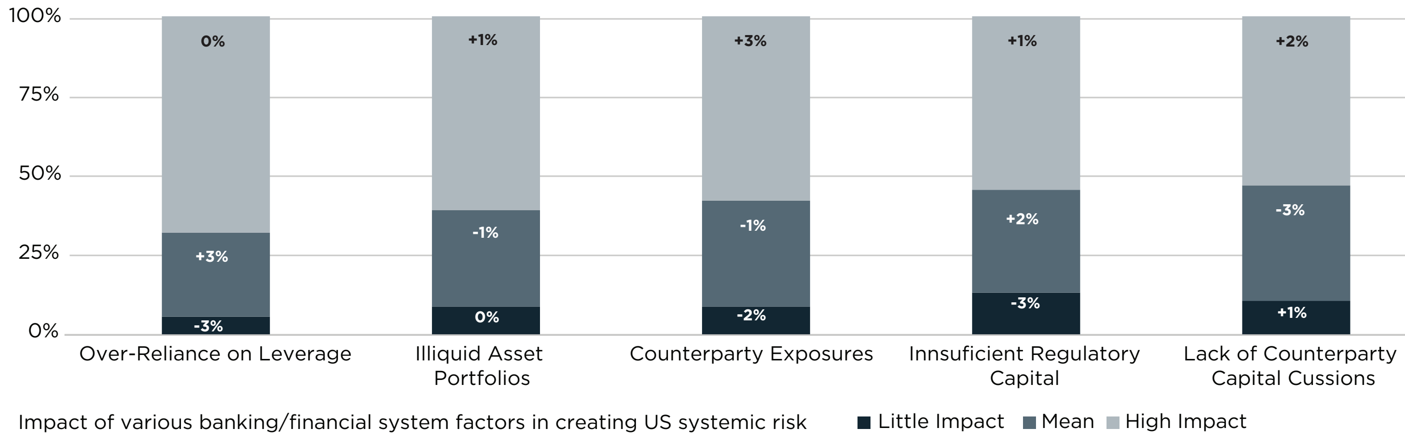
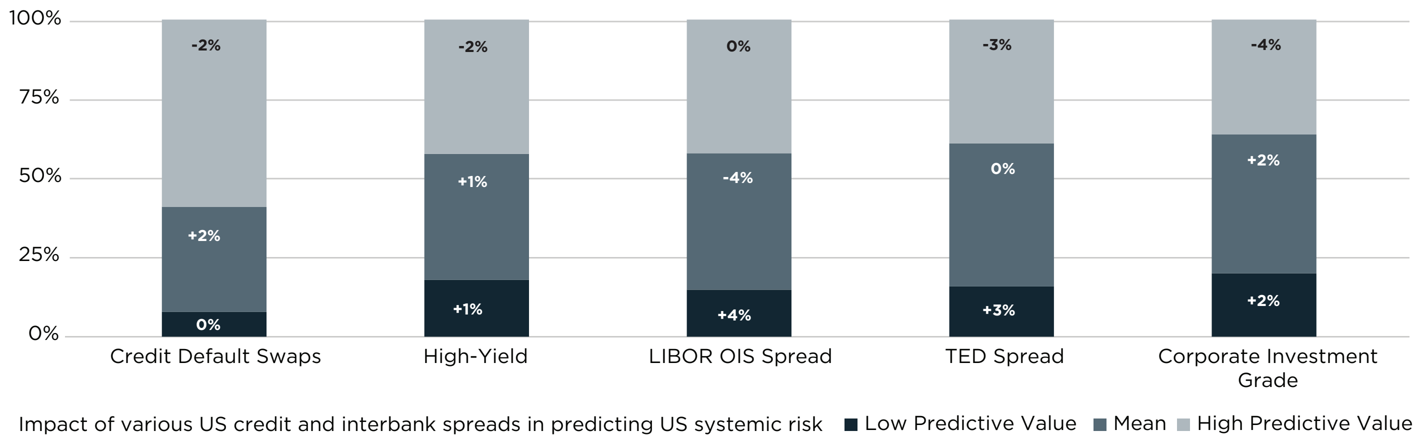


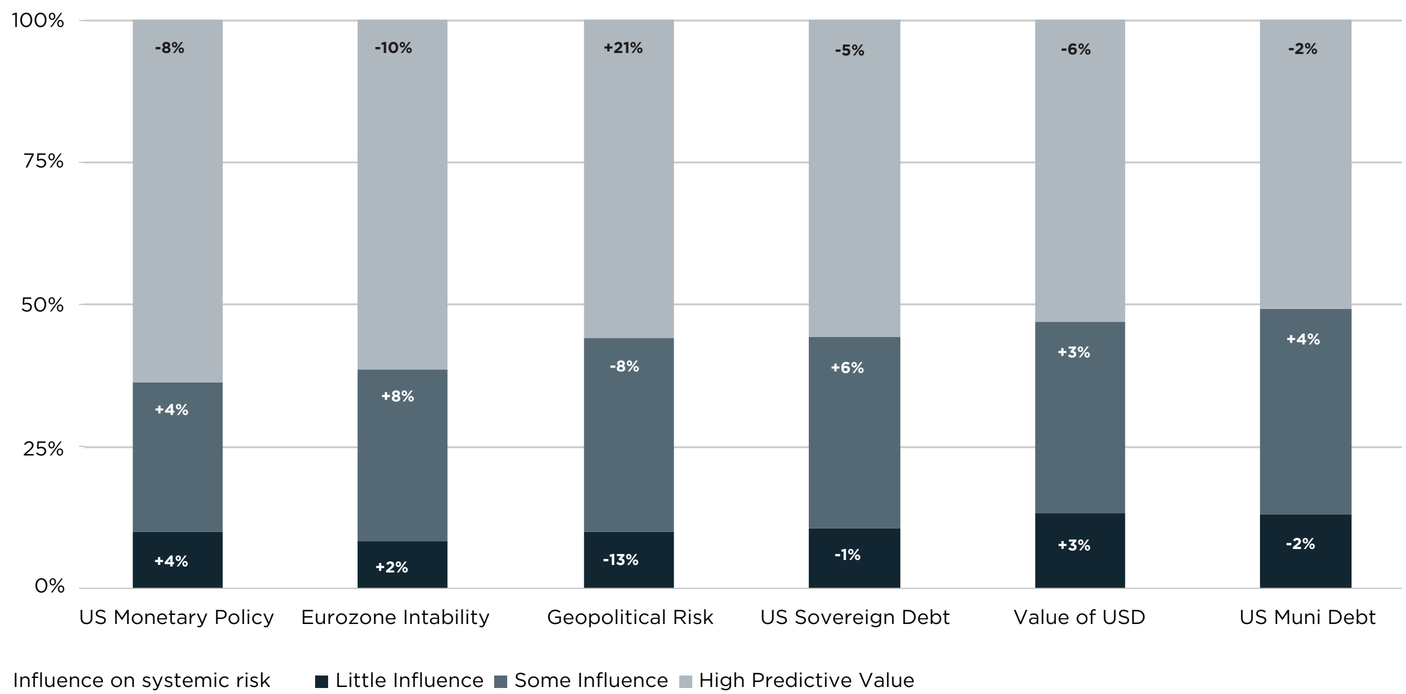
Chart 16 | Current Importance of US Credit and Interbank Spreads in Predicting US Systemic Risk (1st Quarter 2011)



What factors most concern global risk managers?

Chart 17 summarizes the global risk factors identified as having the greatest potential to impact systemic risk in the coming quarter. Results depicted below represent the shifts in risk perceptions relative to those summarized in Table 1 of the Q4 Risk Index. US monetary policy was identified as the leading risk factor in the minds of many global risk managers. This not surprising considering the degree of speculation over the merits and risks associated with the handling of US monetary policy, in particular the launch of the Federal Reserve's second major quantitative easing (QE2) program late last year. It has been widely debated that QE2, and its impact on US dollar weakness (which coincidently is the fifth-ranked factor below), has been a major driving force behind the rise in global commodities. As noted previously the European sovereign debt crisis is far from a resolution. Global risk managers responding to the Q1 risk survey seem to agree, ranking it a close second to US monetary policy. Concern about geopolitical risk surged, registering a 21% increase in respondents who now consider its potential influence on systemic risk to be very high on the heels of recent events in the Middle East and North Africa. Concern about US municipal debt eased a bit, a view that appears to be reinforced by the flow of investment capital back into the US municipal bond market during Q1 as fear of wide-spread defaults wane and record low issuance volume provides price support.

Chart 17 | Forward-Looking Perceptions about Systemic Risk Factors (1st Quarter 2011)



Appendix A

Survey of Market Factors

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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

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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 US systemic risk.

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) the risk you currently associate with each of the following measures of leverage in the US and their potential impact on systemic risk.

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 US 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. TED spread	•1	•2	•3	•4	•5
e. 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

V. Rate 1 to 5 (1 = very weak influence and 5 = very strong influence) the influence each of the following factors currently have in creating a potential build-up of systemic risk in the US.

a. Regulatory uncertainty/implementation	•1	•2	•3	•4	•5
b. Global sovereign risk – "debt crisis"	•1	•2	•3	•4	•5
c. Insufficient risk management practices	•1	•2	•3	•4	•5
d. US domestic policy agenda	•1	•2	•3	•4	•5

VI. Rate 1 to 5 (1 = very little risk and 5 = very high risk) the risk you associate with the following potential effects of rising commodity prices and their impact on systemic risk in the US.

a. Inflation	•1	•2	•3	•4	•5
b. Greater market volatility	•1	•2	•3	•4	•5
c. Over speculation (asset bubble)	•1	•2	•3	•4	•5

VII. Rate 1 to 5 (1 = very weak influence and 5 = very strong influence) the influence each of the following factors currently have on commodity price risk and its potential impact on systemic risk in the US.

a. US Dollar weakness	•1	•2	•3	•4	•5
b. Emerging market growth (demand)	•1	•2	•3	•4	•5
c. Supply imbalances (including impact of government subsidy programs)	•1	•2	•3	•4	•5
d. Commodity based investment funds (e.g., growth in Commodity ETFs)	•1	•2	•3	•4	•5

VIII. Rate 1 to 5 (1 = very little risk and 5 = very high risk) the risk you 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. Agricultural products	•1	•2	•3	•4	•5

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

a. Global economic growth (GDP)	•1	•2	•3	•4	•5
b. Value of the US Dollar	•1	•2	•3	•4	•5
c. Eurozone 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

X. **Please rate 1 to 5 (1 = very little risk and 5 = very high risk) the level of risk you associate with the following geographic regions and the likelihood a local 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

XI. **Given recent events in the Middle East and North Africa please rate 1 to 5 (1 = very high risk and 5 = very low risk) the level of risk you associate with each of the following affects of global geopolitical risk and their impact on systemic risk in the US.**

a. Financial market instability	•1	•2	•3	•4	•5
b. Increased volatility and higher commodity prices	•1	•2	•3	•4	•5
c. Oil supply disruptions	•1	•2	•3	•4	•5
d. US foreign policy initiatives	•1	•2	•3	•4	•5

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