The Future of Risk Forecasting

The shortcomings of risk management and risk forecasting provide important lessons—namely, that a firm’s leadership needs to make risk a priority and a key part of strategic decision making.

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Why were the assumptions and outputs of risk models that now seem unrealistic not challenged more robustly? Why was funding risk apparently managed poorly, despite being necessary for a smoothly functioning bank?

Politicians, regulators, and shareholders are now asking bank boards of directors and senior managers these uncomfortable questions. As banks scramble to perform postmortem examinations of precisely what went wrong with their approaches to risk management, a number of key lessons are emerging.

Some deficiencies in risk forecasting during the crisis can be characterized as a “failure of imagination” by risk managers. They just did not recognize how bad things could get. Perhaps most can sympathize with this very human error. Just a few years ago, crude oil reaching $50 per barrel or the volatility index (VIX) hitting 40 would have been viewed as extreme scenarios. Yet in July 2008, oil was trading at around $147 per barrel, and by the fourth quarter the VIX was above 80.

The current environment, in which we have witnessed unprecedented levels of volatility and correlation, has laid bare the causal linkages between market, credit, liquidity, and other kinds of risks. For example, there have been several instances of bank-specific liquidity concerns creating a perception of heightened bank-specific credit risk concerns, which in turn prompted systemic counterparty risk issues.

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Stress tests and scenario analyses were supposed to prepare banks for weathering such crises. But these and other risk-forecasting tools were deficient in a variety of ways. Moreover, it has become clear that coming up with the “right answer” in terms of a risk forecast is only half the battle. Risk managers also must have a direct line to senior management in order to offer advice or warnings. And this leads us to the first key lesson:

1. Build a strong risk management culture. Prior to the financial crisis, it was commonplace for business leaders to view the risk management function as performing a compliance role while also providing periodic updates of some key risk characteristics of their activities. In broad terms, a change in corporate risk culture is needed so that risk management is viewed as an integral part of decision making throughout an organization. Steps that may need to be taken include the following:

- Ensure that chief risk officers (CROs) and the risk function are in the loop. Risk managers must be actively involved
Implementing risk-based financial forecasts that link capital/liquidity adequacy to changes in macroeconomic conditions is a powerful way to develop an understanding of funding risk.

2 Use a panoply of risk forecasting/management tools and know the limitations of each. Relying too much on any one risk forecasting tool is dangerous because all of them have their limitations. Value at risk (VaR), stress testing, and scenario analysis all have important roles to play, but they should always be used in combination.

• Do not rely too much on VaR. The strengths and limitations of VaR have been widely discussed for the better part of a decade. VaR describes a group of models that measure the parameters of risk in a portfolio over short time spans under normal market conditions. In the past, when volatility was low, many firms were lulled into a false sense of security by the low absolute level of VaR. When VaR began to creep up, and perhaps VaR exceptions increased a little, firms rationalized this change as not terribly significant given VaR’s low absolute level. Clearly, if firms had focused on the emergent trend in VaR rather than its low absolute level, they might have arrived at different conclusions about their risk.

• Understand assumptions and communicate them. A fundamental problem with a number of risk forecasting tools is an implicit or explicit reliance on historical data. Going forward, all volatility and correlation assumptions must be made clear to everyone who uses the outputs of risk forecasts. In times of crisis, volatility and correlation typically rise dramatically.

• Don’t forget the simple measures. Amid all the sophisticated risk measurement tools that have grown in popularity, simple classical measures have fallen out of favor. Recent experience begs the question of how many firms closely monitored straightforward risk measures, such as concentration and outright notional exposure, and imposed the associated limits.

3 Find ways to better manage the risks beyond market risk. While sophisticated tools to forecast and manage market risk are routinely deployed at financial institutions, the same cannot necessarily be said for other types of risk.

• Liquidity and funding risk. In some ways, liquidity risk was not regarded as a bona fide class of risk prior to the current crisis. Risk managers typically delegated responsibility for its management to treasury groups and asset/liability committees—functions that, in many organizations, were not equipped to manage or monitor this risk in a sophisticated way. Implementing risk-based financial forecasts that link capital/liquidity adequacy to changes in macroeconomic conditions is a powerful way to develop an understanding of funding risk. It also has become clear that explicit responsibility for liquidity risk management needs to be established and linked to other areas of risk management. This should be part of a broader effort to integrate risk measures across risk types and businesses and to elevate risk’s importance. Theoretical recognition that market, credit, operational, and liquidity risk must be measured and managed in an integrated fashion is not enough. It must be followed up with practical action to do so. With a risk-aware culture in place, there should be a heightened level of discussion about risk at all levels. And with a firm-wide perspective, the dialogue can become much more meaningful and impactful. Funding frailties exposed during the current crisis should be addressed immediately. Here are some ways to do so:

  – Ensure that funding sources and cash reserves are diverse and in place.
  – Review the funding and liquidity relationships and commitments between parent companies and subsidiaries.
  – Understand the contingency calls on cash.
  – Review the contract language in significant contingent funding sources such as revolving credit facilities. Any breach of loan covenants in this environment can be extremely dangerous, both in terms of finding replacement financing on favorable terms and from a reputation risk perspective.
Counterparty credit risk. While it was certainly modeled, measured, and managed to a much greater extent than liquidity risk, counterparty credit risk suffered from an image problem similar to that of liquidity risk; it was seen as something of an abstract potential problem. The failure of major derivative counterparties during the past 18 months has ended such complacency. Traditional measures of credit risk exposure tend to be static, short-term calculations based on notional amounts. Recent experience demonstrates that measures used to examine the sensitivity of credit exposures to market rates, such as potential future exposure (PFE), may offer a more informative and useful framework for analysis. PFE gauges counterparty credit risk by measuring current trades against possible future market prices. In less turbulent times, complacency may have crept in and firms tended to accept incomplete and inaccurate snapshots of risk. In more volatile times, the fragility of this “it’s good enough” attitude has been exposed. Truly informed decision making is possible only when risk information is completely accurate.

4 Move toward a true enterprise-wide risk management paradigm. Banks have found that systemic concerns about credit risk can unsettle previously stable sources of funding. What starts off as one form of risk can quickly transform into another. Without an ability to measure and manage different kinds of risk consistently in an integrated framework, a bank cannot hope to have an accurate picture of its risk profile. Fortunately, many banks are beginning to build enterprise-wide risk management frameworks in tandem with improving the various categories of risk management on an individual basis.

5 Improve stress testing and scenario analyses. Stress testing is supposed to give banks an idea of their exposures in extreme circumstances. Clearly, for many institutions, stress testing leading up to the current crisis was deficient. Stresses applied were not severe enough and, in the absence of a risk-aware culture, were viewed as regulatory-compliance exercises bearing little relation to the actual business activity of banks. Given that the attitude of senior management toward stress testing is now changing for the better, stress tests can be improved in various ways:

• Use a variety of extreme stresses. Historical, risk-manager-defined, rules-based, correlated, random, and arbitrary “shocks” should all be considered.

• Recognize that single-period stress tests are of limited use. Multi-period, linked stress tests are a much more realistic representation of how crises typically unfold. They also facilitate the incorporation of systemic transmission and feedback effects.

• Adopt reverse stress testing. Instead of simply picking risk parameters to stress and then seeing how they affect exposure, executives should take the opposite view. Posit a loss that could cause a bank to fail and work backward to understand the kinds of events and exposures that could prompt this outcome. This approach not only can help conquer the “failure of imagination,” but it also can be an effective way to increase interaction between risk management and senior management.

The current discussion around how risk forecasting and risk management need to change could prompt a sense of déjà vu among market participants who recall the aftermath of the implosion of Long-Term Capital Management and the Asian crisis of 1998. But those challenges did spur improvements in risk management practices, and the severity and systemic nature of today’s crisis surely will bring further improvements. Supervisors and shareholders demand nothing less. For example, the Basel Committee on Banking Supervision and the U.K. Financial Services Authority already have begun the regulatory push to improve best practices in stress testing and liquidity risk management.¹

For organizations to truly benefit from improvements to techniques and processes, risk management must become a priority for all senior leaders and board members and a core component of strategic decision making. If this occurs, perhaps the next time a risk manager raises a red flag about a booming new security, a culture of openness will ensure that his or her concerns are taken seriously and that a true dialogue begins. ♦

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Note
1. See, for example, Basel Committee on Banking Supervision, “Principles for Sound Liquidity Risk Management and Supervision” (September 2008) and “Principles for Sound Stress Testing Practices and Supervision” (January 2009); and the U.K. Financial Services Authority, “Stress and Scenario Testing” (December 2008).