

Risk had been mispriced, but by how much? Who was vulnerable? Would the markets and the economy overshoot or return to a more sustainable relationship? Financial market participants did not know the value of assets, the financial health of counterparties, or the likelihood that they themselves would be subject to unexpected hits to their capital or liquidity, for example, from ostensibly off-balance-sheet entities. The result was a hoarding of capital and liquidity, a sharp increase in risk premiums, and a generalized flight to liquidity and safety that only gathered momentum as instabilities in the economy and financial markets fed off each other.

The characteristics of the networks and the instruments accentuated the uncertainty. The instruments and the relationships among the institutions had become much more complex and opaque. The complexity of the instruments meant that investors did not understand the risk characteristics of the assets they were buying; among other problems, they relied on credit rating agencies for due diligence. The complexity of the networks meant that participants did not understand how reliant they had become on a few large core institutions and how those institutions were entwined with each other in very complex ways; when vulnerabilities started to become evident, market participants became worried about who their counterparties were exposed to. In sum, financiers were taking on more risks than they would like to, and in many respects they did not understand or were unaware that they were doing so.

This reasoning suggests that policy actions to treat underlying causes should address the causes of risk mispricing and should attempt to reduce uncertainty. One approach to attend to both is through greater transparency of

- *Instruments*--for example, by creating simpler structures that are easier to look through to evaluate, and by making the underlying credit extensions more visible; and, as a complement, by having clearer and more robust credit ratings.
- *Institutions*--by enhancing financial disclosures to report more detail on financial institutions' asset holdings and their value. Defining "value" is very difficult, and the appropriate value of any given asset may depend on the use of the information. But the publication of the results of the capital assessments of US banks last month showed how additional information about the risks and vulnerabilities of financial institutions--however imprecisely measured--can reduce uncertainty and promote financial stability.
- *Markets*--by reporting market aggregates on position-taking that would help market participants and policymakers alike monitor the buildup of risk exposures within the financial system.
- *Networks and interrelationships*--for example, by using central counterparties (CCPs). The presence of such counterparties solves an information problem, since market participants would only have to worry about the solvency of the CCP and not each other. CCPs may make it easier for market participants to more willingly absorb the other's sales during a period of deleveraging. But CCPs do concentrate risk, so they need especially robust risk-management systems.

In addition, to reduce uncertainty in response to a shock, we need to strengthen those increasingly critical institutions at the core of the system. Because of their systemic importance, they must be held to higher capital, liquidity, and risk-management standards. Moreover, resolution authority for systemically important institutions needs to be clearly delineated ahead of time, so their failure will be orderly and the authorities can choose who will bear the cost without the uncertainty and delay involved in bankruptcy.

The mispricing of risk and the resulting uncertainty also reflected skewed incentives. Attempting to encourage appropriate pricing of risk at the level of the bank through capital standards may be too blunt an instrument on its own to restrain bank risk-taking, since those standards can never be tuned so finely that traders will not find positions for which risk is