



The Perfect Storm

Olivier Blanchard's view of the underlying causes of the crisis

The IMF's Chief Economist explained in a November 2008 lecture how a crisis that began in mortgage-backed securities turned into the worst recession since the 1930s.

FOR A TIME after the start of the financial crisis, its effects on real activity appeared limited, but this did not last. Lower housing prices, lower stock prices—triggered initially by the decreased stock market value of financial institutions—higher risk premiums, and credit rationing started taking their toll in the second half of 2007. In the fall of 2008, however, the effect suddenly became much more pronounced. Concern that the financial crisis was worsening, and might lead to another Great Depression, led to a sharp decrease in stock prices and to a dramatic fall in consumer and corporate confidence around the world.

This happened as a result of a buildup during the preceding good times of underlying conditions that helped shape the crisis, plus the triggering of amplification mechanisms that dramatically boosted its impact.

Blanchard identified two related, but distinct, mechanisms: first, the sale of assets to satisfy liquidity runs by investors and, second, the sale of assets to reestablish capital ratios. Together with the initial conditions, these mechanisms helped create the worst global recession since the 1930s.

Four initial conditions

The trigger for the crisis was the decline in housing prices in the United States. But the initial losses from the subprime crisis were not huge in comparison with a measure such as U.S. stock market capitalization and were greatly overshadowed by subsequent world

stock market declines (see chart). However, over the years, the stage was being set for a much larger crisis. Blanchard cited four preconditions: the underestimation of risk contained in newly issued assets; the opacity of the derived securities on the balance sheets of financial institutions; the interconnection of financial institutions, both within and across countries; and the high degree of leverage of the financial system as a whole.

Assets were created, bought, and sold that appeared much less risky than they truly were. With the expectation of stable or rising housing prices, most subprime mortgages appeared relatively riskless: the value of a mortgage might be high relative to the price of a house, but that imbalance would slowly disappear over time as prices increased. In retrospect, the fallacy of this proposition was in its premise: if housing prices actually declined, many mortgages would exceed the value of the house, leading to defaults and foreclosures. Why did the people who took on these mortgages, and the institutions that held them, so underestimate the true risk? Many explanations have been given, and many potential culprits have been named. Each of these explanations contains a grain of truth, but only a grain.

Blanchard said he believed that the fundamental explanation is more general. History teaches that benign economic environments often lead to credit booms and to the creation of marginal assets and the issuance of marginal loans. Borrowers and lenders look at recent historical distributions of returns and become more optimistic, indeed too optimistic, about future returns. The environment was benign in the 2000s in most of the world, with sustained growth and low interest rates. And, looking in particular at U.S. housing prices, both borrowers and lenders could point to the fact that housing prices had increased every year since 1991, and had done so even during the recession of 2001.

Securitization led to complex and hard-to-value assets on the balance sheets of financial institutions. Securitization had started much earlier, but ramped up in the past decade. In mid-2008, more than 60 percent of all U.S. mortgages were

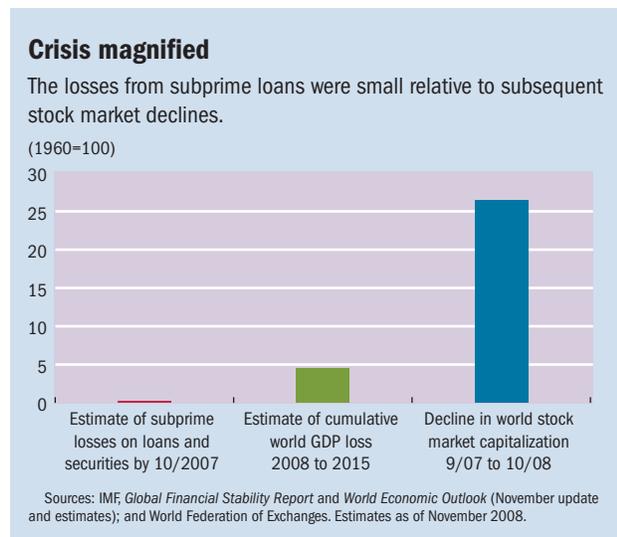
securitized—pooled to form mortgage-backed securities—and the income streams from these securities were separated (“tranching”) to offer riskier flows to some investors and less risky flows to others.

Why did securitization take off in such a way? Because it was, and still is, a major improvement in risk allocation and a fundamentally healthy development. Indeed, looking across countries before the crisis, many (including Blanchard) concluded that the U.S. economy would withstand a decrease in housing prices better than most economies: the shock would be absorbed by a large set of investors, rather than by just a few financial institutions, and thus would be much easier to absorb. This argument ignored two aspects that turned out to be important. The first was that, with complexity, came opacity. Although it was possible to assess the value of simple mortgage pools, it was harder to assess the value of the derived tranching securities, and even harder to assess the value of the securities derived from tranches of derived securities. Thus, worries about the original mortgages translated into a large degree of uncertainty about the value of the derived securities. And, in that environment, the fact that the securities were held by a large set of financial institutions implied that this considerable uncertainty affected a large number of balance sheets in the economy.

Securitization and globalization led to increasing interconnection of financial institutions, both within and across countries. One of the early stories of the crisis was the surprisingly large exposure of some regional German banks to U.S. subprime loans. But the reality goes far beyond this one example. Foreign claims by banks from the five major advanced economies increased from \$6.3 trillion in 2000 to \$22 trillion by June 2008. In mid-2008, claims by these banks on emerging market countries alone exceeded \$4 trillion. Think of what this implies if, for any reason, those banks decided to cut back their foreign exposure, as is happening now.

Leverage increased within the financial system. The final key initial condition was the increase in leverage. Financial institutions financed their portfolios with less and less capital, thus increasing the rate of return on that capital. What were the underlying reasons? Certainly optimism and the underestimation of risk were at play. Another important factor was the number of regulatory holes. Banks were allowed to reduce their capital requirement by moving assets off their balance sheets in so-called structured investment vehicles. In 2006, the value of the off-balance-sheet assets of Citigroup, \$2.1 trillion—exceeded the value of the assets on the balance sheet, \$1.8 trillion. The problem went far beyond banks. For example, at the end of 2006, “monoline insurers,” which insured a particular risk—such as default on municipal bonds—and operated outside the perimeter of regulation, had capital equal to \$34 billion to back insurance claims against assets valued at more than \$3 trillion.

The implications of high leverage for the crisis were straightforward. If, for any reason, the value of the assets became lower and more uncertain, then the higher the



leverage, the higher the probability that capital would be wiped out and institutions would become insolvent. And this is exactly what happened.

How the crisis was amplified

The larger crisis is the result of two mechanisms that amplified the initial crisis: the inability of some banks to finance themselves and the effects of capital adequacy requirements for banks.

The first amplification mechanism is the modern version of bank runs. In traditional bank runs during the Great Depression, it was the depositors who took their money out of the banks. Two changes have taken place since then. First, in most countries, depositors are for the most part insured, so they have little incentive to run to the bank. And banks and other financial institutions finance themselves largely in money markets, through short-term “wholesale funding.”

Modern runs are no longer literal runs: what happens is institutions perceived to be at risk can no longer finance themselves on the money markets. The result is the same as in the old bank runs: faced with a decrease in their ability to borrow, institutions have to sell assets. To the extent that this is a macroeconomic phenomenon, there may be few deep-pocket investors willing to buy assets. If, in addition, the value of the assets is especially difficult for outside investors to assess, the assets are likely to sell at “fire-sale prices,” prices below the expected present value of the payments on the asset. This, in turn, implies that the sale of the assets by one institution further contributes to a decrease in the value of all similar assets, not only on the seller’s balance sheet, but on the balance sheets of all the institutions that hold these assets. This, in turn, reduces their capital, forcing them to sell assets, and so on.

The amplification mechanism is at work, and it is easy to see how the size of the amplification is determined by initial conditions: to the extent that the assets are more opaque and thus difficult to value, the increase in uncertainty will be larger, leading to a higher perceived risk of solvency, and thus to a higher probability of runs. For the same reasons, finding outside investors to buy these assets will be more difficult, and the fire-sale discount will be larger. To the extent that securitization leads to exposure of a larger set of institutions, more institutions will be at risk of a run. And finally, to the extent that institutions are more leveraged, that is, have less capital relative to assets to start with, the probability of insolvency will rise, again increasing the probability of runs. As has been seen, all these factors were very much in evidence at the start of the crisis, which is why this amplification mechanism has been particularly strong.

The second amplification mechanism comes from financial institutions’ need to maintain an adequate capital ratio. Faced with a decrease in the value of their assets, and thus lower capital, financial institutions need to improve their capital ratio, either to satisfy regulatory requirements or to

satisfy investors that they are taking measures to decrease the risk of insolvency. In principle, they then have a choice. They can either get additional funds from outside investors or deleverage, decreasing the size of their balance sheets by selling some of their assets or reducing their lending. In a macroeconomic crisis, finding additional private capital is likely to be difficult, for the reasons cited earlier: there may be few deep-pocket investors willing to put up funds. And to the extent that the assets held by the financial institutions are difficult to value, investors will

be reluctant to put their funds in institutions that hold them. In that situation, the only option for these institutions is to sell some of their assets. The same mechanism then goes into effect: the sale of assets leads to fire-sale prices, affecting the balance sheets of all the institutions that hold them, leading to further sales, and so on. And, again, opacity, connectedness, and leverage all imply more amplification.

The two mechanisms are distinct. Theoretically, runs can happen even in the absence of any initial decrease in the value of assets. This is the well-known multiplicity of equilibria: if funding stops, assets must be liquidated at fire-sale prices, justifying the stop in funding in the first place. But runs are more likely, the higher the doubts about the value of the assets. Theoretically, firms may want to take measures to reestablish their capital ratio, even if they have no short-term funding problem and do not face runs.

The two mechanisms interact, however, in many ways. A financial institution subject to a run may, instead of selling assets, cut credit to another financial institution, which may in turn be forced to sell assets. One of the channels through which the crisis has moved from advanced economies to emerging market economies has been through cuts in credit lines from financial institutions in advanced economies to their foreign subsidiaries, forcing them in turn to sell assets or cut credit to domestic borrowers.

In short, underestimation of risk, opacity, interconnection, and leverage, all combined to create the perfect (financial) storm. After Blanchard gave this lecture, other amplification mechanisms further combined to transform the financial turmoil into an even bigger macroeconomic storm. ■

Reference:

Blanchard, Olivier, 2008, *The Crisis: Basic Mechanisms and Appropriate Policies* (Munich: Center for Economic Studies).

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