Commentary: Financial Crises and Economic Activity

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This is an interesting paper. In a nutshell, the authors look at past financial crises to draw out implications for what is likely to happen today. Overall, the end product is a very useful reference and deserves a place alongside important exercises of this vein, including the seminal work in this area by Reinhart and Rogoff (2009).

There are two principal findings relevant to the current events: First, at the heart of any financial crisis is a banking crisis; and most of the time a banking crisis is associated with a significant contraction in output. Second, the current crisis is largely unique. That is, there is not much regularity in previous financial crises that appears readily applicable to predicting how the current crisis will play out.

Both these conclusions can be illustrated by examining a statistical model that the authors use to predict the length of the current recession for an economy like the U.S.

$$L = (6.03) + (5.84) \cdot A - (0.93) \cdot \Delta Y_{-1} + (0.28) \cdot D + \varepsilon_t$$

where: $L \equiv$ length of recession (quarters); $A \equiv$ dummy variable, = 1 if a public asset management company is set up, = 0 otherwise; $\Delta Y_{-1} \equiv$ lagged GDP growth; $D \equiv$ deficit as percent of GDP at crisis beginning. On the left-hand side is recession length in quarters. On the

right are the set of variables that have proved useful for predicting the length of earlier crises and are relevant to the U.S.

Two points to note: First, only a handful of variables are relevant. This illustrates the author's point that there is not much regularity in previous crises relevant to the current crisis. Second, the most important indicators of recession length are the first two factors on the right. The first is the constant, which basically indicates that if a country has experienced a bank crisis, before accounting for any other factors, we can expect a recession that will last on average 6 quarters. The second is a dummy variable that indicates that if the situation was so bad that the country set up a public asset management company, the recession can be expected to last on average another 6 quarters.

If we take the estimated model and then plug in the U.S. data, we get the prediction that the U.S. recession should last roughly 10 quarters.

$$10 \approx (6.03) + (5.84) \cdot 1 - (0.93) \cdot (2.8) + (0.28) \cdot (2.6)$$

As the authors are careful to state, however, there is enormous uncertainty associated with this forecast. Nonetheless, it's both interesting and remarkable that the point estimate appears to coincide with what's happening today.

But reporters take note! Interpret this forecasting model with care. The authors are not arguing that setting up public asset management will prolong a recession by 6 quarters. As the authors are clear to state, reverse causality is work; governments are likely to set up AMCs, the worse the financial crisis. (This is much like using information on whether people have opened their umbrellas to predict rainfall during a day—even though umbrella-opening is a good predictor, it does not mean that closing umbrellas will halt the rain.) Let me add that the constant term could also reflect a degree of reverse causality: Banking crises may affect output, but they are also affected by output.

What all this suggests is that we ultimately need to bring in economic modeling to sort out causality. In particular, it's the view of many people in this room, including myself, that the public asset management activities by the Fed, acting both alone and in concert with the

Treasury, were critical in shortening the duration of the economic contraction. This is an issue that scholars will be sorting out for years, and ultimately doing so will require new economic modelling.

Another lesson from the authors work is that, given the absence of regular patterns in the data, detailed case studies of individual episodes of financial crises are warranted. With this in mind, I would like to turn to the recent U.S. experience.

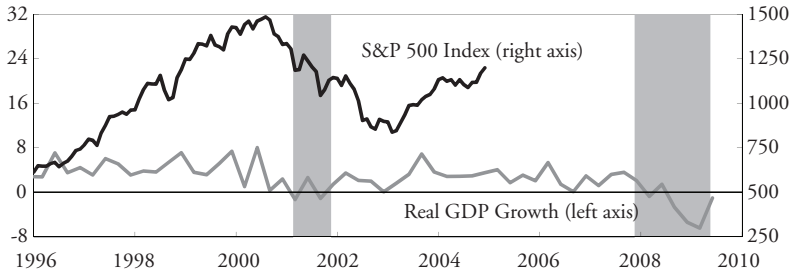
The first point I would like to emphasize is that the U.S. experience illustrates very clearly the finding that a financial crisis becomes disruptive only once it becomes a commercial banking crisis. Much of the popular discussion, however, emphasizes the boom and bust in asset prices. While bursting asset-price bubbles may be a necessary condition for a crisis, they are not sufficient.

The U.S. experience over the last decade offers a nice natural experiment. As we all know, there have been two bubble-bursting episodes: the equity price collapse early in the decade and, more recently, the housing price collapse. Chart 1 illustrates each of these episodes, along with the growth of GDP. As the picture clearly shows, the downturn following the equity price collapse was quite mild. Importantly, the price collapse did not induce any unusual degree of financial distress. It was more a symptom of the downturn, as opposed to a causal factor. Of course, just the opposite happened following the housing price collapse.

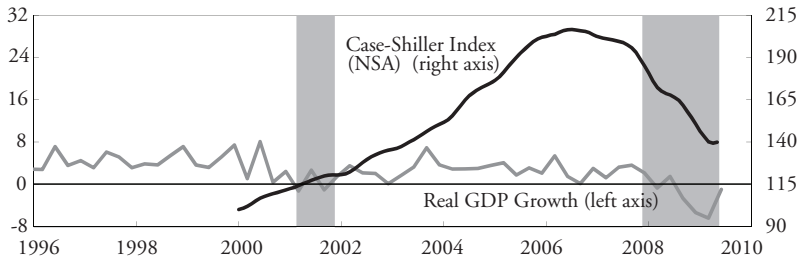
What accounts for the difference? Here I borrow from a set of observations made recently by Alan Blinder. For a bubble collapse to have disruptive effects, it must hit a sector that is not only vital to the economy but is also highly leveraged, so that the collapse in asset prices has a magnified effect on borrower balance sheets. In addition, the commercial banking system must be exposed. The equity price collapse met neither of these criteria: The Nasdaq firms that bore the brunt of the collapse were mainly equity financed. Commercial banks were well-capitalized and not heavily exposed. By contrast, as we all know, the housing price collapse hit hard both highly leveraged households and highly leveraged financial institutions. Commercial banks were exposed partly due to direct holdings of mortgage-backed

Chart 1

S&P 500 Index vs. Real GDP Growth



Case-Shiller Home Price Index vs. Real GDP Growth



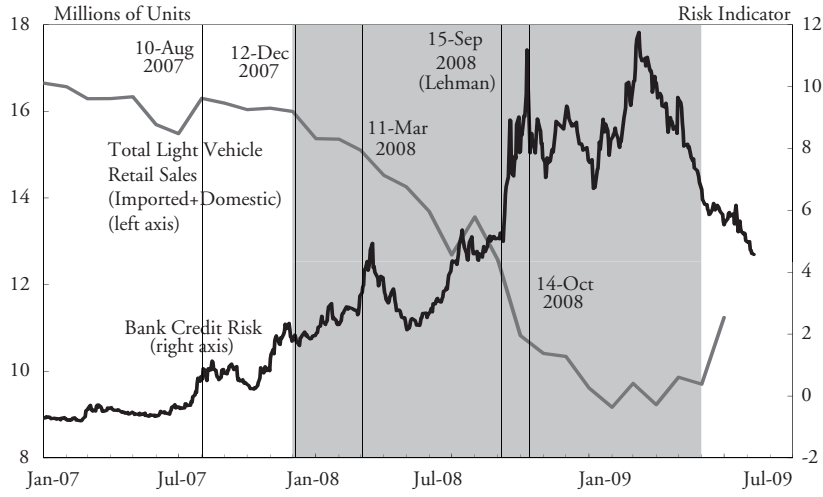
securities and also partly due to implicit commitments to absorb back securitized assets that had been sold off earlier and also explicit commitments to honor credit lines.

Why are commercial banks so vital, especially in an economy like the U.S. where many other kinds of significant financial institutions exist? What both the recent and historical evidence suggest is that commercial banks serve as a lender-of-second-to-last-resort in a financial crisis. When credit dries up on the open market, borrowers come quickly to banks. Banks serve this function either by offering explicit prearranged credit lines or simply by having the expertise to make loans on short notice.

In the recent episode, ultimately the deteriorating health of commercial banks choked off a vital artery for private credit flows, which in turn precipitated the sharp downturn. Here it is instructive to examine Charts 2 and 3, which plot a measure of financial distress at commercial banks over the crisis against two different measures of private spending. The distress measure, constructed by the Federal Reserve Bank of New York, is an index of various credit costs that banks face,

Chart 2

Bank Credit Risk vs. Auto Sales

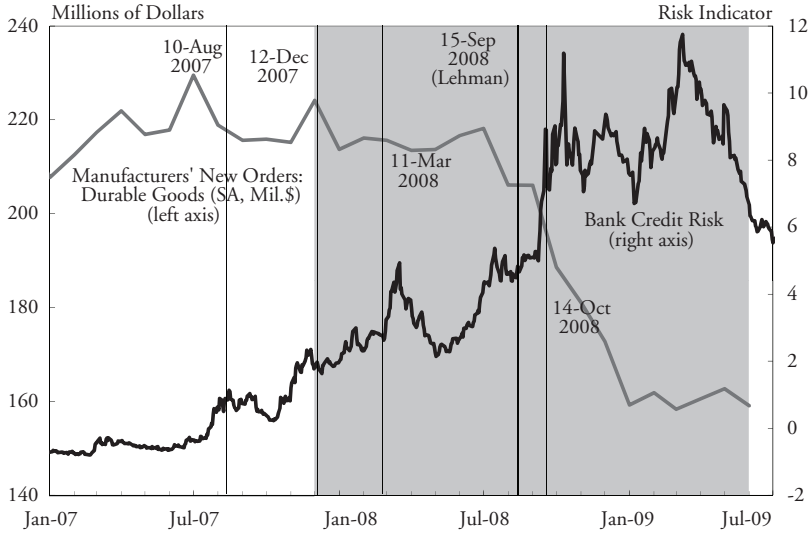


including Libor spreads, corporate debt spreads and so on. It can be viewed as an indicator of how the crisis is affecting the cost of credit that flows through commercial banks. Note that the index increases steadily following the subprime crisis and then jumps up sharply in the wake of the Lehman collapse. This behavior of the index lines up well with that other measure of the tightness of bank credit.

Against the bank distress indicator, I plot auto sales, a highly credit-sensitive expenditure. Observe first that auto sales move inversely with the distress indicator. Most striking is the period just after Lehman, where there is a sharp increase in auto sales in conjunction with a mirror-image increase in the distress indicator. Lest there is any doubt that a credit crunch was at work, the direct evidence from auto loans at this time indicates a dramatic tightening of terms that lines up well with the distress indicator.

The next chart looks at new durable goods orders by nonfinancial firms. Following the Lehman collapse, there is a dramatic drop. Some of this undoubtedly reflects the decline in auto sales. However, I believe a credit mechanism is at work here as well. Nonfinancial firms rely heavily on commercial banks for working capital finance either directly or indirectly by using backup credit lines to secure commercial

Chart 3
Bank Credit Risk vs. Durable Goods Orders



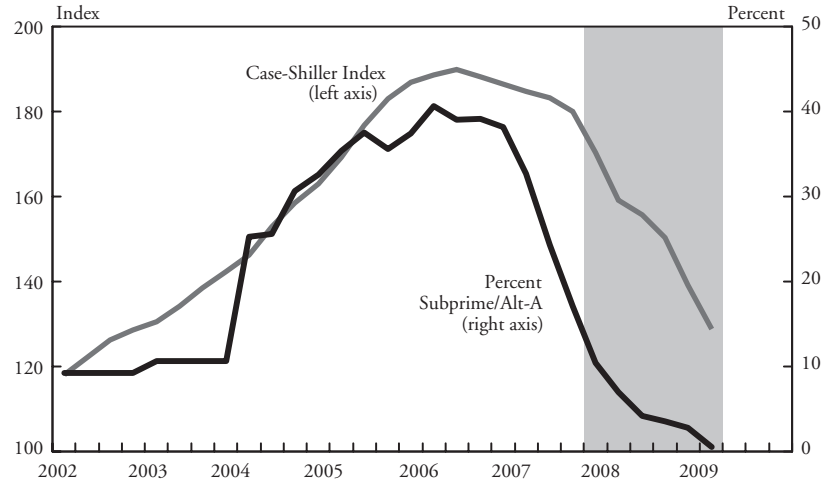
banking. The drying-up of this liquidity mechanism was undoubtedly a factor inducing these firms to scale back.

Finally, let me conclude with a few thoughts on how the commercial banking system evolved into such a vulnerable situation. The popular press has cited two potential policy failures. The first candidate, and the one that has probably received the most attention in the press, is the Fed's decision to keep interest rates very low over the 2003-2005 period. The second, which has received less attention, but which I think may be the far more important consideration, involves a failure of regulation.

There are three aspects to the regulatory failure hypothesis. The first involved permitting the general relaxation of standards in mortgage lending, which led to the growth of the subprime market. The second was a failure to adjust the regulatory system to account for the explosive growth of the shadow banking system, which accommodated the growth in subprime lending by holding securitized subprime mortgages. The third was a failure to address too-big-to-fail, which had the effect of encouraging large, systemically important

Chart 4

Case–Shiller Index and Subprime/Alt-A Mortgages



Note: "Percent subprime/Alt-A" represents percent of first-lien mortgages originated in the quarter that fall into one of the two categories.

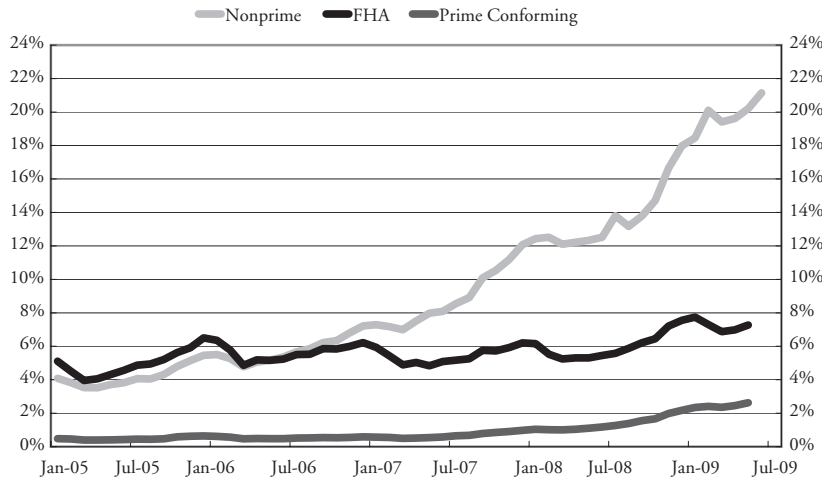
financial institutions to not fully internalize the risks associated with leveraged holdings of securitized mortgages.

To get a sense of the magnitude of the overall relaxation of lending standards over this period, Chart 4 plots the share of non-prime loans in new mortgages. The share increased from 7 percent in 2001 to roughly 40 percent in 2006 at the housing price peak. It's hard to believe that housing prices would have reached the peaks they did or that the financial system would have been exposed as it was in the absence of this growth in non-prime lending.

Indeed, Chart 5 confirms that it was a dramatic jump in the delinquency rates on subprime loans that accounted for the first wave of losses on mortgage lending.

Some have suggested that it was the low interest rate period 2003-2005 that encouraged excessive risk-taking. I don't buy the argument. Throughout history, leverage booms have occurred when interest rates have not been unusually low. The 1980s witnessed both the junk bond explosion and the boom in leveraged commercial real estate finance that ultimately precipitated a commercial banking crisis. Short-term interest rates were not unusually low over this period.

Chart 5
60+-Day Delinquency Rates by Loan Type



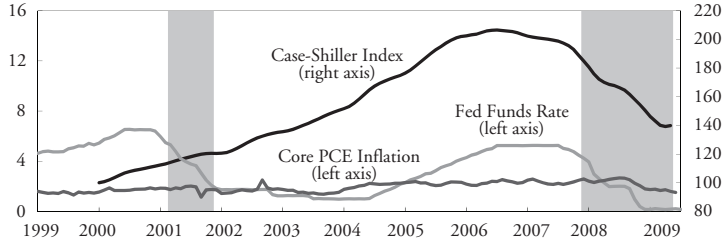
Finally, is it really the case that the housing bubble mainly reflected a failure to follow a Taylor rule in 2003-2005, as John Taylor argued at this conference several years ago? The problem I have with this argument is that bubbles have occurred even in the case where short-term interest rates did approximately conform to Taylor. Such was the case with the equity bubble. Short-term interest rates in the mid-90s were not unusual by the Taylor rule metric.

The same can be said of the U.K. housing bubble, which is plotted in the bottom panel of Chart 6. The U.K. bubble was similar in magnitude to the U.S., but note that the policy rate remained in the vicinity of 400 basis points during 2003-2005, and was roughly in accord with what a Taylor rule would have predicted.

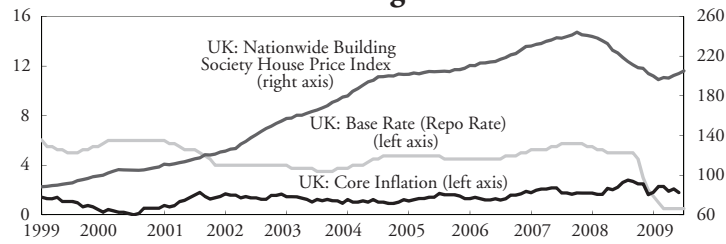
I do agree that it is an open question as to what might have happened had the Fed followed an alternative interest rate path during this period. But two points. First, based on the U.K. evidence, to arrest the housing bubble, the Fed would have had to raise the fed funds rate by considerably more than 250 basis points. The effects on the real economy would then have been non-trivial. Second, and I think more significant, had we not had the regulatory lapses that

Chart 6

U.S. Housing Bubble



U.K. Housing Bubble



permitted subprime lending, the shadow banking system and too-big-to-fail, it's hard to believe the crisis would have played out as it did. My guess is that the downturn would have looked more like one following an equity price collapse than the one that has actually played out.

In conclusion, the authors have written a terrific paper that documents plainly the disruptive effect of commercial banking crises. The recent U.S. experience is playing out in a way that is consistent with their evidence. In this spirit, to avoid repeat of history, there is now an urgent need to readjust the regulatory framework so as to ensure the commercial banking system is not unduly exposed to risk in the way it was in the recent crisis.

Reference

Reinhart, Carmen, and Kenneth Rogoff, 2009, *This Time Is Different: Eight Centuries of Financial Folly.*