Ben S Bernanke: The Supervisory Capital Assessment Program

Speech by Mr Ben S Bernanke, Chairman of the Board of Governors of the US Federal Reserve System, at the Federal Reserve Bank of Atlanta 2009 Financial Markets Conference, Jekyll Island, Georgia, 11 May 2009.

The original speech, which contains various links to the documents mentioned, can be found on the US Federal Reserve System's website.

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My remarks this evening will focus on the Supervisory Capital Assessment Program, popularly known as the banking stress test. The federal bank regulatory agencies began the assessment program in late February and concluded their review with the release of the results just last Thursday. This initiative involved an unprecedented, simultaneous supervisory review of the 19 largest bank holding companies in the United States. Its objective was to ensure that these institutions have sufficient financial strength to absorb losses and to remain strongly capitalized, even in an economic environment more severe than currently anticipated. A well-capitalized banking system is essential for the revival of the credit flows that will underpin a sustainable economic recovery.

Objectives of Supervisory Capital Assessment Program

As you know, the abrupt end of the credit boom in 2007 has had widespread financial and economic ramifications, including a sharp slowdown in global economic activity and the imposition of substantial losses on banks and other financial institutions. Economic and financial weaknesses have fed on each other, as a declining economy has exacerbated credit losses and the resulting pressure on banks and other financial institutions has constrained the availability of new credit.

A number of significant steps have been taken to restore confidence in the nation's financial institutions, including a substantial expansion of guarantees for bank liabilities by the Federal Deposit Insurance Corporation (FDIC), injections of capital by the Treasury in many institutions both large and small, and Federal Reserve programs to provide liquidity to financial institutions and support the normalization of key credit markets. These efforts averted serious threats to global financial stability last fall and have contributed to gradual improvement in key credit markets, though many markets remain stressed.

These steps, however, did not fully address market concerns over the depletion of bank capital caused by write-downs and increased reserving for potential losses. At the beginning of this episode, bank losses were focused in a few asset classes, such as subprime mortgages and certain complex credit products. Today, following the significant weakening in the global economy that began last fall, concerns have shifted to more-traditional credit risks, including rising delinquencies on prime as well as subprime mortgages, unpaid credit card and auto loans, worsening conditions in commercial real estate markets, and increased rates of corporate bankruptcy.

The loss of confidence we have seen in some banking institutions has arisen not only because market participants expect the future loss rates on many banking assets to be high, but because they also perceive the range of uncertainty surrounding estimated loss rates as being unusually wide. The capital assessment program was designed to reduce this uncertainty by conducting a stringent, forward-looking assessment of prospective losses at major banking organizations. The objective was to identify the extent to which each of the 19 firms is vulnerable today to a weaker-than-expected economy in the future, and to measure how much of an additional capital buffer, if any, each firm would need to establish now to withstand the potential losses in more-adverse economic conditions.

To make this assessment, we began by stipulating a hypothetical, adverse economic scenario, under which growth, unemployment, and house-price outcomes were assumed to be more unfavorable than those implied by the consensus of private-sector forecasters. Using this hypothetical adverse scenario, examiners were asked to estimate the range of possible losses that our largest and most important banking organizations could experience over the next two to three years, as well as the resources, such as earnings and reserves, that those organizations would have available to offset those losses. It is important to note that this was not a solvency test. After including capital previously provided by the Treasury, all of these banking organizations currently have capital well in excess of the minimum stated capital requirements of the supervisors. Instead, the purpose of the exercise was to determine the size of the capital cushion that each organization would need to remain well capitalized and still be able to lend – even in an economic scenario more severe than expected.

We have now learned through this process that, if the economy were to track the more adverse scenario, additional losses at the 19 firms during 2009 and 2010 could total about $600 billion. After taking account of potential resources to absorb those losses, including expected revenues, reserves, and existing capital cushions, we determined that 10 of the 19 institutions will require, collectively, common or contingent common equity of $185 billion to ensure adequate capital cushions. Of this amount, the equivalent of $110 billion has already been raised or is contractually committed to be in place, or to a lesser degree reflects first-quarter pre-provision earnings above those assumed in the initial supervisory estimates. Consequently, the remaining common equity buffer that must be raised is $75 billion. The firms that are determined to need an additional capital buffer will have 30 days to develop a capital plan to be approved by their supervisors and six months to implement that plan. We have strongly encouraged institutions requiring additional capital to obtain it through private means, including, for example, new equity issues, conversions, exchange offers, or sales of businesses or other assets. To ensure that all of these firms can build the needed capital cushions, however, the Treasury has made a firm commitment to provide contingent common equity, in the form of mandatory convertible preferred stock, as a bridge to obtaining private capital in the future. Banking organizations will also have the option to exchange their existing preferred stock, issued under Treasury's earlier Capital Purchase Program, for the new contingent common equity. The Treasury has indicated that it expects that any such exchange will be either accompanied or preceded by new capital raises or the conversion of private capital securities into common equity.

Process and methodology

To properly understand the results of the capital assessment program, it is helpful to understand the process that produced the results. All U.S.-owned bank holding companies with year-end 2008 assets exceeding $100 billion were required to participate in the program. These 19 firms collectively hold two-thirds of the assets and more than one-half of the loans in the U.S. banking system, supporting a very significant portion of credit intermediation in the United States. The assessment process can perhaps best be characterized as a simultaneous examination of 19 large bank holding companies that addressed all major categories of assets as well as revenue expectations.

The assessment was a resource-intensive undertaking, involving extraordinary efforts by more than 150 examiners and analysts from the Federal Reserve, the Office of the Comptroller of the Currency (OCC), and the FDIC. These staff members conducted a detailed, firm-specific analysis over a 10-week period. Their efforts were aided by access to data and management available only to bank supervisors. The supervisors also incorporated statistical tools and quantitative models in their evaluation of each firm's data to facilitate comparative analysis across the 19 firms.

The analysis was a comprehensive one, which included an exhaustive review of loan portfolios, investment securities, trading positions, and off-balance sheet commitments. Typically, supervisory examinations focus on individual business lines or asset classes at a single firm. In this case, we simultaneously reviewed all of the major portfolios and business lines at each of the 19 firms, making unprecedented efforts to achieve methodological consistency across firms, portfolios, and supervisors.

Through it all, we tried to be as transparent as possible. The assumptions, processes, and results of the capital assessment program have been communicated in detail, taking into account legitimate supervisory and firm confidentiality concerns. We released a white paper on April 24 describing the process and methodology.[1] On May 6, we provided more information on the measures used to size the required capital buffer, as well as a preview of the information that would be disclosed.[2] The final release of results, this past Thursday, May 7, included the supervisory-determined indicative loss rates that were used in evaluating firm submissions, and, most importantly, aggregate and firm-specific estimates for losses, loss rates, resources to absorb losses, and the resulting capital buffer needs.[3]

Finally, as I have noted, the assessment was forward-looking. To project losses and offsetting resources two to three years in the future under the adverse scenario, we analyzed the historical relationships of losses and earnings to macroeconomic conditions and other determinants, and we dug deeply into cross-firm differences in portfolio compositions and vulnerabilities.

The process began in earnest in early March when each firm submitted its estimate of losses and earnings over a two-year scenario, under two alternative assumed paths for the U.S. economy. The baseline scenario reflected the consensus expectation for the economy among professional forecasters as of February 2009, and the more adverse scenario incorporated the possibility that the recession could be more severe than the consensus expectation and that house prices could fall even more sharply.

Although we began the process by asking the firms to submit their own estimates of expected losses and revenues, we by no means accepted these submissions uncritically. Senior supervisors and on-site examiners evaluated the firms' estimates to identify methodological weaknesses, missing information, over-optimistic assumptions, and other problems. Examiners had detailed conversations with bank managers, which led to numerous corrections to and modifications of the firms' submissions, including sensitivity analyses based on alternative assumptions.

As a second step, supervisors made judgmental adjustments to the firms' loss and revenue estimates. This process used both firm-specific and comparative analyses. For example, supervisors sometimes disagreed with the technical assumptions underlying a firm's loss forecast. In these cases, they adjusted the loss rates based on sensitivity analyses performed by the firm, results from other firms, and the supervisors' own expert judgments.

Third, the supervisors' judgmental assessments were supplemented by objective, model-based estimates for losses and revenues that could be applied on a consistent basis across firms. For example, we used statistical models to estimate residential mortgage losses at

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[1] See Board of Governors of the Federal Reserve System (2009), "The Supervisory Capital Assessment Program: Design and Implementation," white paper (Washington: Board of Governors, April 24).

[2] See Board of Governors of the Federal Reserve System (2009), "Joint Statement by Secretary of the Treasury Timothy F. Geithner, Chairman of the Board of Governors of the Federal Reserve System Ben S. Bernanke, Chairman of the Federal Deposit Insurance Corporation Sheila Bair, and Comptroller of the Currency John C. Dugan: The Treasury Capital Assistance Program and the Supervisory Capital Assessment Program," joint press release, May 6.

[3] See Board of Governors of the Federal Reserve System (2009), The Supervisory Capital Assessment Program: Overview of Results (Washington: Board of Governors, May 7).

firms based on loan data submitted by the firms as part of the exercise. Each participating institution was asked to supply detailed information, in a standardized format, about the composition of its residential real estate portfolios, including breakdowns by type of product, loan-to-value ratio, FICO score, year of origination, and so on. These data allowed supervisors to consistently estimate potential future losses across firms using a variety of independently constructed models. Some of these models were already in use to monitor risk as part of the ongoing supervisory oversight process, while others were developed or refined specifically for the capital assessment exercise.

Similarly, to assess firms' revenue projections for 2009 and 2010, the agencies examined the components of expected revenue in detail, compared the projections to historical results, and cross-checked the underlying assumptions with projections of portfolio growth, funding costs, and the like. The agencies also used more-formal statistical analyses to develop firm-by-firm forecasts that would reflect the historical relationship between revenues and macroeconomic conditions, thereby enabling them to assess which components were less likely to be sustainable in a weaker economy. Information from all of these sources was incorporated into the final revenue projections. Finally, the supervisors systematically incorporated all of these inputs into loss, revenue, and reserve estimates for each institution.

Determining the size of the capital buffer

A key question in this assessment was the appropriate size of the capital buffers that these firms would be required to hold, as well as the quality of those buffers. Recall that our analysis of the firms' financial conditions focused not on current capital levels alone but also on how capital levels might evolve over a two-year horizon, assuming a more adverse economic environment than currently anticipated. In other words, the assessment was not a forecast of expected outcomes but rather a "what-if" exercise, intended to help supervisors gauge the capital buffers needed to keep banks well capitalized and able to lend across a range of economic scenarios.

In judging the needed buffer, we understood that no single measure of capital adequacy is universally accepted or would guarantee a return of market confidence. Fortunately, our existing capital framework is well understood and addresses the key concerns that have been voiced by the market. Under our existing standards, banks are considered "well capitalized" with Tier 1 capital at 6 percent of risk-weighted assets. Using that benchmark in the context of bank holding companies, we sized the capital buffer so that each of the 19 companies would be expected to meet that threshold at year-end 2010 if the losses and revenues implied by the adverse case were realized.

In addition, common equity ratios in various guises are viewed by stockholders, bondholders, and counterparties as key measures of solvency, because common equity provides superior loss absorption and greater financial flexibility than other forms of capital. Because of these attributes of common equity, our bank holding company capital rules require that voting common stockholders' equity make up the dominant portion of Tier 1 capital elements. In the context of the assessment program, we have structured the required capital buffer to ensure that, under the adverse scenario, each of the 19 firms would have a minimum 4 percent Tier 1 Common ratio at year-end 2010. (Tier 1 Common is simply common equity subject to the same deductions from capital as are required when determining Tier 1 capital – for example, deducting goodwill.) Importantly, the "6-4" metric used to size the appropriate capital buffer does not represent a new capital standard and is not expected necessarily to be maintained on an ongoing basis. Going forward, with the required initial buffer in place, supervisors will work with banks and bank holding companies to ensure that capital levels are appropriate for the level of risk in banks' portfolios and in the economic environment.

Evaluating the results

Projecting credit losses in an uncertain economic environment is difficult, to say the least, but the intensive, painstaking nature of this process gives us confidence in our results. In particular, we believe that our estimates of needed capital buffers are appropriately conservative. Notably, a comparison to historical loss rates shows that the loss estimates we obtained significantly exceed those experienced in past recessions. The estimated two-year cumulative losses on total loans under the more adverse scenario averaged 9.1 percent across the 19 participating bank holding companies. This two-year rate is higher than any two-year period dating back to 1920, including the historical peak loss years of the 1930s. In particular, estimated loss rates for mortgage and consumer credit are high, reflecting the combination of high unemployment and steep declines in house prices that were specified in the more adverse scenario.

Still, it is useful to know whether our estimates are consistent with what has been found by others. Two studies released within the last few weeks essentially bracketed the supervisory estimate. The International Monetary Fund estimated lifetime losses that would imply a loan loss rate for U.S. banking firms of about 8 percent in a stressed scenario.[4] One of the major rating agencies estimated an annual loan loss rate of about 4-3/4 percent in a stress scenario for the next two years.[5] More broadly, our informal survey of the results of a considerable number of private-sector studies and analyst reports published over the past several months generally placed our projected loss rates for key portfolios near the midpoints of the ranges of these independent estimates.

When making comparisons, it should be kept in mind that studies differed in the ways that losses were estimated and reported. Four particular sources of differences are notable.

First, studies differed in the time frames over which losses were calculated. Some outside reports included cumulative losses from the beginning of the financial crisis in mid-2007, and others included projections of losses over the lifetimes of currently held loans and securities. Our estimates are for potential losses in 2009 and 2010 and, indirectly, for 2011, through the estimate of the end-2010 loan loss reserve. Our estimates do not include the sizable losses that have already been recognized by the 19 banks – about $325 billion of loans and securities in the last six months of 2007 and in 2008 – because they are already reflected in the firms' balance sheets. Moreover, while we exclude losses beyond 2011, this limit would only be material for sizing the capital buffer if those losses were expected to substantially exceed pre-provision earnings after 2011, an outcome that we do not expect.

Second, a few private-sector estimates implicitly or explicitly assumed mark-to-market or liquidation prices for loans, which effectively incorporate a substantial liquidity discount in today's market. However, because banks are portfolio lenders with core deposit funding and the ability to hold loans to maturity, our estimated valuations are based on projected cash flow credit losses related to a borrower's failure to meet its obligation, not a liquidation value.

Third, some private-sector studies may not have taken into account the markdowns in asset valuations that occurred in the context of acquisitions of other firms. In particular, in the course of acquisitions by the 19 bank holding companies in 2008, the value of troubled loans was written down by almost $65 billion.[6] These potential losses should only be realized once and thus are excluded from our estimates of prospective losses for 2009 and 2010. Of course, we took full account of these writedowns in our sizing of required capital buffers.

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4 International Monetary Fund (2009), Global Financial Stability Report: Responding to the Financial Crisis and Measuring Systemic Risks (Washington: IMF, April).

5 Standard and Poor (2009), "What Stress Tests Reveal about U.S. Banks Capital Needs," May 1.

6 Purchase accounting adjustments were recognized for Capital One Financial Corporation, JPMorgan Chase & Co., PNC Financial Services Group, Inc., and Wells Fargo & Company.

Fourth, in contrast to some outside estimates, estimated losses for the capital assessment program are for the 19 firms, not the entire banking system. Moreover, numerous adjustments were necessary to reflect particular facts and circumstances at these firms. That level of analysis simply has not been done – nor could it be done – by outside observers without the level of access available to supervisors.

Despite the care and rigor of this process, I would be the first to acknowledge that any loss forecast is inherently uncertain. The assessment program did not address some risks that institutions still need to consider in their own internal stress tests, such as operational, liquidity, and reputational risks. For all 19 firms, and particularly those with trading and investment banking businesses, those risks are important and will need to be monitored by both the firms and the supervisors. Ideally, the stress tests used in the assessment program should be part of a broader palette of internal stress tests conducted by firms; indeed, we do not intend that the capital assessments should be taken as all that those firms need to do.

A principal goal of the capital assessment process is to help increase confidence in the banking system. In particular, if it helps reduce uncertainty among investors regarding future losses and capital needs, and thereby improves the banking system's access to private capital, one of the key objectives of the program will have been achieved. It will be some time before we can evaluate the success of the program on this criterion. However, the initial indications are encouraging. Each of the 10 banks requiring an additional capital buffer has pledged to have the necessary buffer in place by the November 9 deadline. Many of the banks are well ahead in finding private-sector options for increasing their common equity, and several have announced plans for new equity issues. In another positive sign, several have announced plans to issue long-term debt not guaranteed by the FDIC.

Lessons from the assessment program for the supervisory process

We've learned important lessons in the capital assessment process that will inform our supervisory efforts in the future. Notably, the process of comprehensively evaluating 19 major firms represented an important step forward in consolidated supervision, as it gave us insights into the challenges posed in understanding risks and exposures across complex organizations.

The cross-firm aspects of the assessment program were also instructive from a supervisory point of view. As I have mentioned, unlike traditional examinations focused on individual banks, the assessment process specifically incorporated cross-firm and aggregate analyses of a set of firms that constitute a majority of the banking system. This approach allowed a broader analysis of risks than is possible within the traditional supervisory focus on individual institutions. Supervisors evaluated loss rates for similar portfolios using consistent data and metrics, allowing them to identify outliers and more effectively evaluate the quality of individual firm estimates. The process was an iterative one, with both the firms and supervisors conducting sensitivity analyses around key assumptions.

The federal bank regulators – the Federal Reserve, OCC, and FDIC – cooperated extensively throughout this process, from the design to the implementation. In addition, within each agency, many resources across a range of skills were brought to bear. For example, quantitative experts supported examiners by incorporating statistical tools to facilitate benchmarking across institutions and to develop consistent loss estimates.

We learned from this effort that it is not a simple matter to simultaneously evaluate the consolidated risks for two-thirds of the assets in the U.S. banking system, using a common forward-looking framework and common metrics. But it was an enlightening exercise that will improve the toolkit we use to help ensure the safety and soundness not just of individual firms, but of the financial system more broadly.

Conclusion

In summary, the Supervisory Capital Assessment Program is an important element of broader and ongoing efforts by the Federal Reserve, other federal bank regulators, and the Treasury to ensure that our banking system has sufficient resources to navigate a challenging economic downturn. A collateral benefit is that many lessons of the exercise can be used to improve our supervisory processes. In particular, the supervisory capital assessment has demonstrated the benefits of using cross-firm, cross-portfolio information and the simultaneous review of a number of major firms to develop a more complete and fine-grained view of the health of the banking system.

Whether the objectives of the assessment program were achieved will only be known over time. We hope that in two or three years we will be able to reflect on the banking system's return to health with a sharply diminished reliance on government capital. More immediately, we hope and expect that the public and investors will take considerable comfort from the fact that our largest financial institutions have been evaluated in a comprehensive and rigorous fashion; and that they will, as a consequence, be required to have a capital buffer adequate to weather future losses and to supply needed credit to our economy – even if the economic downturn is more severe than is currently anticipated.