



November 2006

A Bridge Too Far: The Basel II Bank Capital Accord

By Peter J. Wallison

The international bank capital accord proposal known as Basel II is a statistical and probabilistic effort to replicate what the market would do if government regulation had not interfered with market discipline. The proposal has many flaws, and a recent test suggested that it would reduce bank capital requirements substantially below current U.S. levels. In other areas, formulas and mathematical models have failed to represent the real world accurately; there is little reason to believe that a model of how the market might assess bank risk would be any more successful. A leverage ratio seems essential, at least as a stopgap measure, but a better idea would be to use a special kind of subordinated debt to discover the market's perception of a bank's risk position.

If banks were not backed by the government in various ways, their required capital would be set by the market, as is the case for every other business. The capital of any business serves many purposes, but for bank depositors and other creditors it provides a cushion against default. In the absence of government support, depositors and other creditors would assess the risks associated with a bank's portfolio, management, policies, and operations, and establish a price—an interest rate—at which the bank would be able to attract deposits and other credit. If the interest rate were too high for the bank to compete with other banks, it would be required to increase its capital to a level that would provide a sufficient cushion against default to assure creditors and lower the risk premium embedded in the interest rate they are demanding.

Government support changes all this. In the United States, government support for banks includes the administration of a deposit insurance system,¹ bank access to the Federal Reserve's resources as lender of last resort, and the exclusive right of banks to participate in the Fed-subsidized payment system. These government-granted privileges bring government regulation, and the privileges

and the regulation together distort the market's perception of banks. Unlike ordinary business entities, subject to the vicissitudes of economic conditions and bad management, banks are perceived to be safer and less likely to default because of their connection to and regulation by the government. The result is a weakening of market discipline—the wariness that creditors generally show when providing financial resources to borrowers. In practical terms, this means that bank depositors demand lower-capital cushions from banks than they would if banks were not government-supported and regulated.

In the absence of effective market discipline, the government must protect itself from the conditions it has created through its support of banks. In particular, it must require banks to hold more capital than the market—now relying on the government's regulation—may demand. The government's interest in keeping bank capital strong comes from its desire to reduce the likelihood of bank failure, which may cause economic disruption, losses to the Fed through its market stabilization activities, and the weakening of other banks when the government raises bank insurance premiums because of losses to the deposit insurance fund. An example of the stakes for the government in setting these capital levels is the significant losses it and the economy suffered in the late 1980s and early 1990s, when

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both the banking and savings and loan (S&L) industries suffered a huge number of failures; neither banks nor S&Ls had been required by regulators to hold enough capital to survive the high inflation period of the late 1970s—a major change in economic conditions.

Without much help from market discipline, the government's challenge is to set capital requirements at a level that replicates what the market would require in the absence of government intervention. That capital level would provide enough cushion to minimize failures while simultaneously maintaining the competitiveness of individual banks. This is a tall order, and as has been illustrated by the huge number of bank failures in years past, it is an art—not a science. This is important because it is the belief that the setting of bank capital requirements can be done scientifically—or at least according to a statistical or probabilistic formula—that underlies some of the objections to Basel II.

Basel II and Bank Capital Requirements

Basel II took its name from the work of the Basel Committee on Banking Supervision—a conference of the bank supervisors of most developed countries—which meets under the auspices of the Bank for International Settlements in Basel, Switzerland. What began in the 1970s as an information-sharing process developed over time into consultation about how to create a level playing field for banks that were competing globally and how to replicate the capital levels that the market would require of banks in the absence of government intervention.

Out of this grew Basel I, the system of bank capital requirements now in force globally. The distinguishing feature of Basel I was its adoption of the concept of risk-based capital—capital levels that are related to the risk that a bank is taking. For example, a bank investing only in U.S. government securities is taking on less risk than a bank making commercial loans. In the absence of government regulation, the market would make a distinction between these two banks, requiring of the former less capital than the latter. Basel I, then, sought to inject an element of risk sensitivity into the process of estimating the appropriate level of bank capitalization. It did this by dividing bank assets into a number of different categories—including government bonds, mortgages, and commercial loans—and assigning risk weights to each. Government bonds, the

least risky of these, were assigned zero risk weight. In other words, a bank would not have to hold any capital against the possibility of its failure because of losses in its government bond portfolio. On the other hand, corporate debt was assigned a 100 percent risk weight, meaning that the bank would have to carry the maximum amount of required capital against its holdings of commercial loans. The constituents of capital were also defined so that a bank's risk-adjusted capital level could be determined by dividing its capital level by its risk-weighted assets.

Basel I was an effort to improve upon previous methods of setting capital requirements for banks, which relied on seemingly arbitrary capital levels intuited by regulators. It reflected a recognition that if the market were setting the capital level for a bank, it would take account of the bank's risk profile, requiring, as noted above, more capital from a bank that was taking high risks than from one that was not. But Basel I had its flaws: in many ways it was just as arbitrary as the previous methods. For one, the supervisors settled on 8 percent risk-based capital as adequate capitalization for all portfolios. It was still an arbitrarily selected number, despite being somewhat sensitized to risk. But there were also conceptual deficiencies involving arbitrary choices by the Basel supervisors. All corporate debt was lumped into a single category of 100 percent risk-weight, which did not take account of the difference between the credit-worthiness of corporate borrowers—some of which had AAA ratings, while others were weaker. Also, assigning a zero risk-weight to all government debt did not adequately distinguish among the financial strengths of various governments, and the lower risk weight for mortgages than for corporate debt tended to shift investment in the direction of mortgages.

One element stood out. Because of the zero risk weight of government debt, it was possible for a bank that invested only in government bonds to carry no capital at all. This made no sense, since banks face many risks other than credit risks. Interest rate risk, operational risk, and market risk are some of the more prominent risks that would require banks to hold capital if the market were setting the level. Accordingly, the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) required that U.S. banks also meet a "leverage ratio" test in addition to Basel I. The leverage ratio—equity capital divided by total assets—was simple, did not rely on risk-weighting of assets, and assured that all banks held at least some capital.

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But the deficiencies of Basel I were so obvious that revisions were necessary, and in 1999 the Basel Committee proposed a different method of linking bank risk with bank capital requirements. This proposal, which became known as Basel II, relied on a more nuanced method for assessing risk—again in an effort to replicate what the market would do without the distorting influence of government regulation. Since Basel II was first proposed, there have been many changes, as the Basel Committee took comments from supervisors, banks, and other commentators, modifying its original proposal.

Since 1999, the Basel II proposal has evolved into what is now called the “internal ratings-based” (IRB) approach, which uses the internal risk assessments of the banks themselves to assess the risks of borrower default and thus attempts to establish an appropriate level of capital. A further refinement, known as the advanced IRB approach, relies even more heavily on the internal rating systems of the large internationally active banks. As explained by the Basel Committee, under the basic IRB approach “institutions . . . will be allowed to determine borrowers’ probabilities of default,” while under the advanced IRB approach banks “will also be permitted to rely on their own estimates of loss given default and exposure at default on an exposure-by-exposure basis.”² These bank-defined values are then “converted into risk weights and regulatory capital requirements by means of risk-weight formulas specified by the Basel Committee.”³

The Basel Committee, accordingly, places a great deal of reliance on banks’ own estimates of the risks associated with particular exposures. For example, in a 2006 speech at the Risk Capital Forum in Paris, Federal Reserve governor Susan Schmidt Bies noted: “Basel II is based on many of the economic capital practices of the most sophisticated banks and therefore brings minimum regulatory capital requirements closer to the capital generated by banks’ internal models.”⁴

According to the Basel Committee, the capital requirements generated by its formulas are calibrated to permit some level of bank default, but at a low probability:

The IRB approach adopted for Basel II focuses on the frequency of bank insolvencies arising from credit losses that supervisors are willing to accept.

By means of a stochastic credit portfolio model, it is possible to estimate the amount of loss which will be exceeded with a small pre-defined probability. This probability can be considered the probability of bank insolvency. Capital is set to ensure that unexpected losses will exceed this level of capital with only this very low, fixed probability.⁵

Because it relies on statistical probabilities and other sophisticated measures, the Basel II system is now too complex for smaller institutions, which generally do not have these internal risk-assessment mechanisms. There is thus general agreement that smaller U.S. institutions will not be required to comply with Basel II, instead continuing to use Basel I with some additional refinements. This raises competitive

questions that will not be addressed in this *Financial Services Outlook*, but which have substantial political implications. Small- and medium-sized banks that will not use the Basel II IRB approach are concerned that larger institutions using this method will be able to reduce their capital levels and thus compete more effectively.⁶

Real World Complexity, Statistical Deficiency

A process that establishes bank capital requirements by using both the internal risk assessments of the banks themselves and statistical formulas developed by the Basel Committee has a number of inherent problems. For one, the Basel formulas for estimating the probable size of unexpected losses may be inaccurate and give the wrong result, even if a bank’s own estimates of risk are correct when plugged into the Basel formulas. In addition, bank estimates of the risk associated with particular exposures may be wrong, along with estimates of loss given default and exposure at default—all important elements of the process of determining the appropriate capital level for an individual bank under the advanced IRB approach.

Furthermore, the Basel formulas do not take into account a bank’s portfolio as a whole; they operate solely by adding up the assessments of each individual exposure and thus do not consider concentration risk.⁷ Finally, since the Basel formulas for the probable size of unexpected losses depend ultimately on the banks’ estimates of the

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risks associated with individual exposures, there can be wide variations in the outcomes of the Basel formulas for individual banks. This is worrisome because the capital level required of individual banks has important supervisory consequences and competitive effects. There are incentives for banks to adjust their inputs so as to achieve desirable competitive and supervisory outcomes.

Difficulties of this kind are beginning to show up in test runs of the IRB approach. In the Fourth Quantitative Impact Study, the results of which were made available in 2005, there were major reductions in capital from current requirements for the twenty-six banks that participated. According to FDIC figures, these reductions were 15.5 percent on a weighted-average basis, with a median reduction of 26.3 percent. The tier 1 (basically equity) requirement showed a weighted-average reduction of 21.8 percent and a 30.8 percent median reduction. These numbers seemed to shock the U.S. supervisors, although if the whole IRB approach is valid, the formulas could spit out reductions in capital. But analysis of the results showed that banks were making widely different estimates of the risk weight to be attached to the same exposures. Clearly, if the largest internationally active banks are assigning widely different risks to the same category of exposures, this calls into question the idea that the “economic capital practices of the most sophisticated banks” have developed to the point where they can be relied upon to generate consistent inputs to the formulas of the IRB approach—even assuming that those formulas are correct.

This raises an important issue. Formulas are only efforts to model or replicate what happens in the real world. Many decisions are made on the basis of formulas: models that project economic growth, budget deficits, and now, famously, global warming. All of them depend on how well they correspond to the complex flows and feedbacks that make up reality. The models that predicted the U.S. budget deficit were recently shown to be wildly off target, projecting a deficit of approximately \$420 billion in fiscal year 2006, when it actually turned out to be \$248 billion—a \$172 billion miss. The reason, apparently, was a failure to predict tax revenues correctly, and this after generations of economists have been adjusting their models to take account of the effect of changes in tax policy.

It seems highly unlikely under these circumstances that a formula for setting bank capital will be correct the first

time it is used, or maybe even at any reasonable time in the future. The real world is more complex than any formula can ever reproduce. Unlike the models that predict tax revenues, the Basel formulas and the bank inputs to them have not been tested in real-world conditions. The last prolonged downturn in banking and credit markets occurred in the early 1990s, and the U.S. economy has changed substantially since then. If predictions of tax revenues were significantly wrong after years of data on tax changes, what could be expected from formulas about bank failure? This reality was addressed by the Shadow Financial Regulatory Committee in a 2001 statement on the Basel Committee’s proposal as it stood at that time: “Given the current imperfect state of knowledge about risk measurement, the ever expanding variety of financial instruments and risks, and the innovative nature of financial markets, it is impossible to specify a single formula that would provide a credible and robust measure of capital adequacy.”⁸

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To compensate for Basel II’s deficiencies, U.S. regulators (under Congressional pressure) have decided to keep the leverage ratio as an element of the capital tests that would be applied to banks even if Basel II is ultimately adopted. This seems sensible. The leverage ratio—tier 1 capital divided by total assets—is not a formula, nor is it risk-based; it is simply a measurement of the size of the ultimate capital cushion that a bank has available in the event of severe losses. It is an important fail-safe measure because it will become the binding element of the capital requirements for banks using Basel II if their risk-based capital levels—as measured by the IRB approach—fall too low. In a sense, no harm can come from the deficiencies of Basel II as long as the leverage ratio—at its current level—remains in place.

It is important, however, to understand how the risk-based capital requirements of Basel II and the leverage ratio interplay with the requirements of prompt corrective action and the closure rules for failing banks that are part of FDICIA. Under FDICIA, U.S. banks must meet three capital tests: total capital as a percentage of risk-based assets, tier 1 capital as a percentage of risk-based assets, and the leverage ratio. If a bank fails to meet any of these tests, its supervisor can apply increasingly stringent limits on its operations as its capital level declines. If, despite these strictures, it becomes critically undercapitalized, it can be closed. The purpose of this arrangement, known as prompt corrective action, is to assure that

failing banks are closed *before* they become insolvent. The United States is the only country that has these three separate requirements. The leverage ratio, as noted above, becomes a fail-safe mechanism only if the Basel II system allows bank capital to fall substantially. But under FDICIA, the bank supervisors have the authority to adjust the leverage ratio. If Basel II is ultimately adopted, the supervisors will be under pressure from banks to lower the leverage ratio (now 4 percent for banks adequately capitalized and 5 percent for banks well-capitalized) so that it does not vitiate the advantages they will gain from lower capital ratios. This could turn out to be a struggle between the larger U.S. banks and those in Congress and elsewhere opposed either to weakening capital requirements for banks or to providing the large banks with what some may consider competitive advantages vis-à-vis the smaller U.S. banks.

An Alternative to Basel II

The animating principle of Basel I and II was sound: there ought to be some correspondence between the capital requirements of banks and the risks they are taking. This is what the market would assess if there were no government intervention in the banking business. Basel II, however, does not seem adequate to its task. The foregoing discussion focuses on only one part of Basel II, the most conceptually developed segment, known as pillar 1. But there are many other risks that banks face, including interest rate risk, concentration risk, and liquidity risk. They are supposed to be covered in what is called pillar 2, which provides a great deal of supervisory discretion to add additional capital for these risks and others unidentified. One must wonder what has been achieved if we find supervisors adding some arbitrary capital requirements for risks that are common to the business of banking but are left unaddressed by pillar 1. Finally, pillar 3 calls for more transparency in internal bank data, which the Basel Committee believes will be useful to supervisors and helpful to the market in assessing bank risk.

This last element is the most interesting. It suggests an entirely different way of assessing bank risk, and one that is more comprehensive than Basel II. As stated at the outset of this *Financial Services Outlook*, the reason that bank capital is not set effectively by the market is that government intervention in the business of banking reduces market discipline. Basel II attempts to overcome this problem through statistical and probabilistic formulas, but a better approach would be to create a class of at-risk claimants who will demand data from banks about their risks, and set interest rates for bank debt that will provide a signal

for supervisors if a bank's capital level is too low. Such a system does not rely on statistical formulas to replicate market discipline but on the diversified decision-making processes of the capital market.

The most effective way to achieve this objective would be through requiring the banks that would otherwise be eligible for the IRB approach to issue a special kind of subordinated debt, as proposed by the Shadow Financial Regulatory Committee in 2000.⁹ This debt would have the following characteristics:

- It would be subordinated to all liabilities of the bank and could not be insured by any government agency, backed by any credit enhancement device, collateralized, or converted into equity. As an extra measure, the FDIC and other government agencies could be prohibited by law from providing any financial assistance to the holders of the debt, either as part of a "too-big-to-fail" bailout or a least-cost resolution of the bank.
- It would count as tier 1 capital to the same extent as equity, but in order to qualify for this purpose, the subordinated debt would be required to have at least one year remaining until maturity and would have to be equal to no less than 2 percent of the bank's assets. It could not be redeemed by the bank, but could be exchanged for a new issue of subordinated debt with substantially the same terms other than its interest rate.
- It would contain a covenant permitting the issuing bank, at the request of its supervisor, to withhold the payment of interest and principal if the issuing bank's capital should fall below a specified percentage of its assets. Such withholding would become mandatory if the bank's capital were to decline further.
- It would be sold in arm's-length transactions to parties unrelated to the bank or its holding company.

Subordinated debt with these properties would go a long way toward providing bank supervisors with a market-based signal about bank risk-taking that is roughly equivalent to what the market would do in the absence of government intervention in the business of banking. It would also have other salutary effects. In order to lower the interest rate on its subordinated debt, a bank would have incentives to take two important steps. First, it would have

to increase its equity capital to the optimal level necessary to reassure the holders of its subordinated debt, thus replicating to some extent how a bank would have to respond to its depositors and other creditors in the absence of government intervention. Second, it would be obligated to disclose information about its risks in sufficient detail to satisfy its subordinated-debt holders, its supervisors, and the market generally.

A subordinated-debt requirement could also be integrated into the prompt corrective action and early closure regimen required in FDICIA. Thus, if the price on a bank's subordinated debt falls to junk levels, the bank could be treated as undercapitalized under FDICIA, no matter what its actual capital level. This would bring into play some of the regulatory restrictions on operations that are required for prompt corrective action. FDIC insurance premiums could be raised and an examination required.

Instead of trying to establish a level of bank capital based on formulas that replicate market discipline, the yield on the subordinated debt bought and sold in the market will tell supervisors how the market views the full range of a particular bank's risk-taking, and could be used to restrain bank risk-taking directly by integrating a subordinated-debt requirement directly into FDICIA's prompt correction action regimen. In this connection, it is important to note again that pillar 1 of Basel II only covers credit and market risks. The assessment of other risks is left to pillar 2, but with no conceptual basis on which the supervisor can set the supplementary capital necessary to address other important risks. The market-based signal provided by subordinated debt will offer to supervisors an otherwise unobtainable, comprehensive signal about bank risk-taking.

Conclusion

In developing both Basel I and II, the bank supervisors have tried to relate bank capital to the risks banks are taking. That is what market discipline would do in the absence of the distorting effect of government intervention in the banking business. However, the Basel II initiative falters on the fact that—at least on current knowledge about the economy and banking—no formula or model is going to be effective in replicating what the market would do. In that sense, it is a bridge too far. As a result, if Basel II is to go into effect, it must be accompanied by an effective leverage ratio requirement that will prevent bank capital from falling too low. However, in order to achieve the original Basel vision of capital related to actual bank

risks, a subordinated-debt requirement appears to be a sensible and realistic approach.

AEI research assistant Daniel Geary and editorial assistant Evan Sparks worked with Mr. Wallison to edit and produce this Financial Services Outlook.

Notes

1. Since the adoption of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991, it is no longer correct to describe the U.S. deposit insurance system as government-backed or as a government insurance system. FDICIA gave the FDIC the authority to tax all insured banks whenever the deposit insurance fund declines below a certain level. Therefore, the capital of the banking system—not U.S. taxpayers—stands behind the FDIC's obligations.

2. Basel Committee on Banking Supervision [BCBS], *An Explanatory Note on the Basel II IRB Risk Weight Functions* (Basel: Bank for International Settlements, 2005), 1, available at www.bis.org/bcbs/irbriskweight.htm (accessed November 3, 2006).

3. *Ibid.*

4. Susan Schmidt Bies, "Addressing Challenges Raised by Basel II Implementation" (remarks, Risk Capital Forum, Paris, July 4, 2006), available at www.federalreserve.gov/BOARDDOCS/SPEECHES/2006/20060704/default.htm (accessed November 3, 2006).

5. BCBS, *An Explanatory Note*, 2–3.

6. See R. Alton Gilbert, "Keep the Leverage Ratio for Large Banks to Limit the Competitive Effects of Implementing Basel II Capital Requirements," *Networks Financial Institute Policy Brief*, January 2006, available at www.isunetworks.org/pdfs/profiles/2006-PB-01_Gilbert.pdf (accessed November 3, 2006).

7. The BCBS notes: "The model should be portfolio invariant, i.e. the capital required for any given loan should only depend on the risk of that loan and must not depend on the portfolio it is added to. This characteristic has been deemed vital in order to make the new IRB framework applicable to a wider range of countries and institutions. Taking into account the actual portfolio composition when determining capital for each loan—as is done in more advanced credit portfolio models—would have been a too complex task for most banks and supervisors alike." (BCBS, *An Explanatory Note*, 4.)

8. Shadow Financial Regulatory Committee [SFRIC], *The Basel Committee's Revised Capital Accord Proposal*, Statement No. 169, February 26, 2001, available at www.aei.org/publication16362/.

9. SFRIC, *Reforming Bank Capital Regulation* (Washington, DC: AEI Press, 2000), available through www.aei.org/book215/.