The recent “stress test” the federal government conducted on the nation’s biggest banks was an attempt to ascertain whether those depositor institutions could withstand a market downturn. This new form of bank examination was meant to quell some of the uncertainty among investors about the value of the assets the banks were holding on their balance sheets as well as whether these banks had enough capital on hand to keep them standing in the wake of an extended economic storm. Banks can finance their operations through the interest payments made by borrowers.) When a bank borrows money to fund its operations, this creates a liability that can cause the bank to fail if it cannot meet its repayment obligations. On the other hand, the revenue generated by a stock sale is considered “capital” since it can be used to pay off depositors or bondholders if necessary. Thus, the larger the portion of the bank’s operations that are financed by capital funds, the more losses the bank can absorb. Measuring how much capital a bank has on hand relative to its assets has become an important function of the bank regulatory system. The main regulators of the U.S. banking system — the Federal Deposit Insurance Corporation, the Federal Reserve, and the Office of the Comptroller of the Currency — have routinely examined banks for years to measure the adequacy of their capital cushions, among other things. One of the metrics by which this adequacy is measured is a capital-to-assets ratio. This ratio might sound like a simple concept to operationalize, the proper role for the ratio in regulatory policy is far from settled. In addition, current events have raised questions regarding the old assumptions about how best to define a bank’s capital cushion.

A Brief History
The numeric standards that the current capital adequacy requirements are based on are relatively new. Before the 1980s, bank supervisors did not average a speed-up of their capital requirement on a bank. Instead, through most of the country’s history, an institution’s solvency was based largely on an examiner’s judgment. Supervisors had the freedom to take a look at each bank individually and use formal and informal measures and their knowledge of each bank’s circumstances to form their views. Rigid adherence to something as quantitative like a capital ratio was still widely perceived to discourage a more comprehensive and thoughtful analysis of a bank’s potential solvency in the face of an economic shock. For instance, the American Bankers Associations 1954 “Statement of Principles” explicitly rejected the use of ratios as a centerpiece of bank supervision. Even as late as 1978, the FDIC’s Manual of Examination Policies — the rulebook for that agency’s bank auditors — instructed their examiners to use capital ratios as only “a first approach” to assessing capital and capital’s ability to withstand adversity. A low capital ratio by itself is no more conclusive of a bank’s weakness than a high ratio is of its invulnerability.

This was a sustainable strategy for bank examiners from the 1940s through the early 1970s. Bank failures were few in number and in scope during that time. The dollar-weighted capital requirement on the banking industry remained healthy also, ranging from 6 percent to 8 percent between 1930 and 1970. The high-inflation environment of the mid-to-late 1970s led to high interest rates that severely weakened large banks and the savings and loan (S&L) industry. In 1981, the federal regulators introduced an explicit capital ratio requirement for the first time. It consisted of a “leverage ratio” of primary capital (mainly the amount of stockholder equity) to average total assets (an average of aggregate assets over a set time period, usually two years). Congress furthered the push by passing the Federal Deposit Insurance Act of 1989 (FDICIA). The legislation ushered in a common definition of uniform capital requirements for all bank regulatory agencies nationwide.

In 1985, under the auspices of ILSA, the standard mandated capital ratio for banks converged on 5 percent or was using at a leverage ratio of 3 percent was declared unsound and was required to comply with federal enforcement actions. By 1986, however, regulators began to realize that the ratio failed to differentiate between different sorts of risks on the bank’s balance sheets. The simple ratio, by definition, ranked all assets as being equally likely to maintain their value. But during the 1980s, financial markets were becoming vastly more international in scope and innovations in financial products were introducing a new element of risk into bank holdings. Besides, many banks were beginning to move away from lower-yielding liquid assets while also experimenting with “off-balance-sheet” activities that would allow them to make certain higher-yield (but riskier) investments. Under the old rules, they didn’t have to increase the size of their capital cushion as a result.

The Basel Accord and U.S. Policy
In the summer of 1988, central bank governors from the 10 biggest economies (also called the Group of Ten, or G-10) met in the town of Basel, Switzerland, to approve an agreement called Basel I — that would set the approach that bank regulators would take for the next 18 years. The first big result of the accord was to redefine the way regulators in each participating country measure capital adequacy. They needed a way to minimize the potential cost to taxpayers of the government’s deposit insurance guarantees by heading off a potential bank collapse while a bank still had a positive, but low, capital ratio.

The Rise of Basel II
Soon, a variety of inherent flaws in Basel I’s treatment of capital became apparent. First, the relationship between assets’ actual revealed default risk and their risk weights proved to be less reliable than had been thought. For instance, all bonds issued by countries that were members of the Organization for Economic Cooperation and Development (OECD) were given the same weight even though, during the 1990s, some countries experienced a significant increase in default risk. Second, the Basel methodology was too crude. It simply summed the risk weights to construct a measure of overall capital risk, but that is a poor proxy for actual risk. Doing so does not take into account the overall portfolio risk of the bank and the formula made no room for management calculated the capital-to-asset result. The standard would require banks to hold capital (Tier 1 plus Tier 2) that consisted of 8 percent of their newly defined risk-weighted assets. Coincidentally, the year after the original Basel Accord was agreed upon and the standards began to be adopted by a number of countries — over 100 by the year 2001 — the United States witnessed the largest number of bank failures since the Great Depression. More than 350 FDIC-insured banks failed in 1989. The concern among policymakers at the time was about “regulatory forbearance” — in other words, the act of looking the other way when a regulator discovered that a bank might be in jeopardy of collapsing. Analysts of the period often point out that bank regulators were aware of many of the warning signs and the losses from the S&L crisis of the 1980s were made worse than they might have been. “The consequent increased pressure to forbear from managers and owners in the industry, unchecked by an offsetting increased pressure to facilitate early closure, may have led to changes in favor of such policies in the 1980s,” write economists Randall Kroszner of the University of Chicago and Philip Strahan of Boston College in a 1998 paper. (Kroszner subsequently served as a Governor at the Federal Reserve Board.)

Partly in response to this concern, Congress passed the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991. It created a set of categories to classify the capitalization of a bank: A bank was “well capitalized” if it had a risk-weighted capital ratio of 10 percent or more. It was “adequately capitalized” at 8 percent or more. Below 8 percent was considered “undercapitalized.” The law mandated “prompt corrective action” by regulators to shut down banks that were considered undercapitalized and failed to meet other criteria. The purpose was to minimize the potential cost to taxpayers of the government’s deposit insurance guarantees by heading off a potential bank collapse while a bank still had a positive, but low, capital ratio.
Bank Capital Ratios Have Risen Since the 1980s

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Bank Capital Ratios Isolated from Risk-Weighted Assets

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital-to-Risk-Weighted Assets Ratio</th>
</tr>
</thead>
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<tr>
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<td>8%</td>
</tr>
<tr>
<td>1990</td>
<td>10%</td>
</tr>
<tr>
<td>2000</td>
<td>12%</td>
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The Basel Accords and bank risk

The recent “stress test” the federal government conducted on the nation’s biggest banks was an attempt to ascertain whether those depository institutions could withstand a market downturn. This new form of bank examination was meant to quell some of the uncertainty among investors about the value of the assets the banks were holding on their balance sheets as well as whether these banks had enough capital on hand to keep them standing in the wake of an extended economic storm.

Banks can finance their operations through the interest payments made by borrowers. When a bank borrows money to fund its operations, this creates a liability that can cause the bank to fail if it cannot meet its repayment obligations. On the other hand, the revenue generated by a stock sale is considered “capital” since it can be used to pay off depositors or bondholders if necessary. Thus, the larger the portion of the bank’s operations that are financed by capital funds, the more losses the bank can absorb.

Measuring how much capital a bank has on hand relative to its assets has become an important function of the bank regulatory system. The main regulators of the U.S. banking system—the Federal Reserve System, the Federal Deposit Insurance Corporation, the Federal Reserve, and the Office of the Comptroller of the Currency—have routinely examined banks for their ability to weather the adequacy of their capital cushions among other things.

One of the metrics by which this adequacy is measured is a capital-to-assets ratio. While this might sound like a simple concept to operationalize, the proper role for the ratio in regulatory policy is far from settled. In addition, current events have raised questions regarding the old assumptions about how best to define a bank’s capital cushion.

A Brief History

The numeric standards that the current capital adequacy requirements are based on are relatively new. Before the 1980s, bank supervisors did not measure capital requirements on a bank. Instead, through most of the country’s history, an institution’s solvency was based largely on an examiner’s judgment. Supervisors had the freedom to take a look at each bank individually and use formal and informal measures and their knowledge of each bank’s circumstances to form their views.

Rigid adherence to something quantitative like a capital ratio was still widely perceived to discourage a more comprehensive and thoughtful analysis of a bank’s potential solvency in the face of an economic shock. For instance, the American Bankers Associations 1954 “Statement of Principles” explicitly rejected the use of ratios as a centerpiece of bank supervision. Even as late as 1978, the FDIC, Manual of Examination Policies—the rulebook for that agency’s bank auditors— instructed their examiners to use capital ratios as only “a first step” toward assessing a bank’s capital and its withstand adversity. A low capital ratio by itself is no more conclusive of a bank’s weakness than a high ratio is of its invulnerability.

This was a sustainable strategy for bank examiners from the 1940s through the early 1970s. Bank failures were few in number and in scope during that time. The dollar-weighted ratio failed to differentiate between different sorts of risks on the bank’s balance sheets. The simple ratio, by definition, ranked all assets as being equally likely to maintain their value. But during the 1980s, financial markets were becoming vastly more international in scope and innovations in financial products were introducing a new element of risk into bank holdings. Besides, many banks were beginning to move away from lower-yielding liquid assets while also experimenting with “off-balance-sheet” activities that would allow them to make certain higher-yield (but riskier) investments. Under the old rules, they didn’t have to increase the size of their capital cushion as a result.

The Basel Accord and U.S. Policy

In the summer of 1988, central bank governors from the 10 biggest economies (also called the Group of Ten, or G-10) met in the town of Basel, Switzerland, to agree upon an approach that bank regulators would take for the next 18 years. The first big result of the accord was to redefine the way regulators in each participating country measure capital requirements. Tier 1 consists of a bank’s capital in the form of common stockholders’ equity. Tier 2 includes preferred stock that resembles equity in some form but other forms of capital, such as a “hybrid” equity instrument that’s equally preferred stock that resembles equity in some form but also maintains a liability claim on the bank in the event of bankruptcy.

The next step was to break away from a simplistic, uniform approach to capital ratios and instead create a series of risk categories into which the assets of a bank can be sub-divided. When this exercise was designed for the banking industry remained healthy also, ranging from 6 percent to 8 percent between 1990 and 1970. The high-inflation environment of the mid- to late-1970s led to high inter-

regional differences in the risk of defaults among these countries. The Organization for Economic Cooperation and Development (OECD) and non-OECD countries.

Second, the Basel methodology was too crude. It simply summed the risk weights to construct a measure of overall capital risk, but that is a poor proxy for actual risk. Doing so does not take into account the overall portfolio risk of the bank and the formula made no room for management of uniform capital requirements for all bank regulatory agencies.

In 1985, under the auspices of ILSA, the Basel Accord mandated capital ratio for banks converged on 8 percent of total assets. One reason for this was to create a leverage ratio of 1 percent was declared unsound and was required to comply with federal enforcement actions.

By 1986, however, regulators began to realize that the ratio failed to differentiate between different sorts of risks on the bank’s balance sheets. The simple ratio, by definition, ranked all assets as being equally likely to maintain their value. The regulators experiment with “off-balance-sheet” activities that would allow them to make certain higher-yield (but riskier) investments. Under the old rules, they didn’t have to increase the size of their capital cushion as a result.

The Basel Accord and the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991. It created a set of categories to classify the capitalization of a bank. A bank was “well-capitalized” if it had a risk-weighted capital ratio of 10 percent or more. It was “adequately capitalized” at 8 percent or more. Below 8 percent was considered “under-capitalized.” The law mandated “prompt corrective action” by regulators to shut down banks that were considered undercapitalized and failed to meet other criteria. The purposes of such actions were to minimize the potential cost to taxpayers of the government’s deposit insurance guarantees by heading off a potential bank collapse while a bank still had a positive, but low, capital ratio.

The Rise of Basel II

Soon, a variety of inherent flows in Basel I’s treatment of capital became apparent. First, the relationship between assets’ actual revealed default risk and their risk weights proved to be less reliable than had been thought. For instance, all bonds issued by governments were categorized in a “100 percent” risk weight, the so-called “neutral bucket.” Given that the Organization for Economic Cooperation and Development (OECD) were given the same weight even though doing so might have downplayed the very real differences in the risk of defaults among these countries or, conversely, possibly overstated the difference in default risks between OECD and non-OECD countries.

Second, the Basel methodology was too crude. It simply summed the risk weights to construct a measure of overall capital risk, but that is a poor proxy for actual risk. Doing so does not take into account the overall portfolio risk of the bank and the formula made no room for management...
to create an incentive for banks to be as honest as possible is have to lowball their capital requirement estimates. One way Reserve about how to overcome the incentive a bank would of the science of risk management. It has become apparent this issue’s cover story on page 14.) “Big Three” ratings agencies, which could be considered a suffi-
ten. Yet it's likely that a proposal to allow a lowering of capital requirements would be met with skepticism today. As the economic downturn unfolds, the debate about the market-based regulatory approach gains momentum. The best way to integrate market-based mechanisms will continue. Bank regulation, by its nature, is often backward-looking, designing for yesterday’s changes. But a good financial market needs to evolve as new risks and innovations emerge. Some critics question whether the attempts to continually modify capital standards can ever keep up.

Instead, the search for a market-based mechanism continues. One way to control risk more directly is to approach the risk of a bank's portfolio using a combination of capital and correspondent capital buffer. If the bank's losses exceed the declared maximum, the bank would lose a fine on the bank.

A criticism of the precommitment approach centers on the ability and willingness of a regulator to assess fines. For the time being, a credible threat must be large enough to deter action by shareholders. But if the fines are not big enough to reduce a bank's soundness, a regulator might feel compelled, if he believed the shock to be temporary, to avoid assessing fines altogether. If the fines are not large enough to cause a portion of the bonds will mature regularly, a subordinated debt requirement on banks would force those banks to prove themselves in the credit markets on a regular basis.

A criticism of the subordinated debt proposal suggests that a secondary market for the asset may not emerge. The amount of debt outstanding, particularly for a small bank, might be too small for the market to be robust. Also, because the proposal relies on the assumption that the bondholders are relatively risk averse, they may be unsocially sensitive to new information and rush to redeem the debt before hearing isolated pieces of bad economic news.

Another criticism of the subordinated debt is that polit-
ical realities might make it a less effective tool at controlling risk. In a world of deposit insurance and central govern-
ments capable of committing to not bail out failing banks, the upside of risk privatized — by allowing the bank's stockholders to keep the profits of successful gambles on the risks of an economic shock, and the risks to reputation in the marketplace. Critics argue that a real market-based mechanism that does not rely almost solely on credit ratings agencies or mathematical models would be better suited to managing not just the capital ratios of a bank but also these other intangible risk factors that influence the government to ensure that the bank’s debtors don’t suffer. This creates an incentive for banks to make even riskier investments than they would be willing to take if they were not constrained by the implicit or explicit insurance guarantee, and the debt price would not necessarily yield valuable information about a bank’s level of risk.

An additional reason to approach the question from the other end by limiting the net return a bank can make and thereby limit its incentive to take too much risk is that the current regulatory approach to bank risk is a oneway regulator can make high-yield, potentially risky investments. There are also political economy issues. Bank
critics of the Basel standards have pointed out that each round of changes has yet to address a key conceptual problem. Banks face a variety of risks that cannot be captured by a simple ratio. There is no attention paid to the risks of a heavy concentration of a bank’s balance sheet in a certain sort of investment. And a ratio has no way to gauge the risks of poor management, the risks of an economic shock, and the risks to reputation in the marketplace.

One proposal is to require large banks to hold a certain portion of their assets in long-term subordinated debt. This form of debt would be unsecured — meaning it has no claim to a federal guarantee — and would have a maturity of more than a year. The term “subordinated” means that the holders of these bonds are in line for repayment after the holders of senior debt. Yet it remains an open question whether the spirit of the Basel II standards will survive intact. The Basel committee responded to the new financial innovations after September 11, 2001, with a series of new financial markets in a November 2008 press release that recognized the “fundamental weaknesses” of Basel II and proposed a goal of modifying the standards once again by the end of 2009.

Readings


strategies that could reduce that overall risk. A bank portfolio can indeed be more or less risky than the mere sum of its parts might indicate because of the correlation among assets. Third, the broad categories were lumped together, and assigned a single weight to a variety of assets that in reality exist in a range of risk profiles. A loan to a startup company, for instance, was treated the same as one to an established Fortune 500 company. As such, banks investing in the same asset class in either sector would have to hold the identical mandatory capital set aside. This creates an incentive for a bank to invest in high-yielding assets in the risky end of the spectrum without having to make a correspondingly expanded amount of capital cushion. This sort of activity could over time increase the overall risk of a bank's portfolio although it would still meet Basel I standards.

In January of 2002, a second set of Basel standards was called Basel II — attempted to remedy these problems. (The implementation by the Federal Reserve began in the fall of 2006.) The first big change altered the risk weight. By using the ratings issued by credit rating agencies like Standard and Poor's and Moody's to determine the potential risk of default, Basel II set up a system by which assets within each broad "risk bucket" could be further classified.

The second big change was a new method by which risk profiles could be measured. Instead of forcing all banks to abide by the specific numeric standards set forth in Basel II, currency-based. In place of the top-down, the "internal ratings based" approach — available only to sophisticated banks with the resources and knowledge to develop an internal rating with a mathematical model — allowed some banks to estimate the necessary size of their own capital cushion.

Both changes were aimed at answering the critics who stated that while the standards did integrate and market-based mechanisms for evaluating risk. Yet these changes seem to have proven flawed as well. The grades used to determine the internal rating with a mathematical model — allowed some banks to estimate the necessary size of their own capital cushion.

Not that the risk weights did not integrate some market-based mechanisms for evaluating risk. Yet these changes seem to have proven flawed as well. The grades used to determine the internal rating with a mathematical model — allowed some banks to estimate the necessary size of their own capital cushion.

New Basel guidelines required banks to hold a certain portion of their assets in long-term subordinated debt. This form of debt would be uninsured — meaning it has no claim to a federal guarantee — and would have a maturity of more than a year. The term "subordinated" means that the holders of these bonds are in line for repayment only after other creditors have been paid.

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Critics argue that a real market-based mechanism that does not rely almost solely on credit rating agencies or mathematical models would be better suited to managing not just the capital ratios of a bank but also these other intangible risks. However, banks claim that the government lends the small banks don't suffer. This creates an incentive for banks to make even riskier investments than they would without the safety net. The price of bank debt will be influenced by the implicit or explicit insurance guarantee, and the debt price would not necessarily yield accurate information about a bank's level of risk.

One proposal is to require large banks to hold a certain portion of their assets in long-term subordinated debt. This form of debt would be uninsured — meaning it has no claim to a federal guarantee — and would have a maturity of more than a year. The term "subordinated" means that the holders of these bonds are in line for repayment only after other creditors have been paid.

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Moreover, capital ratios are quite firmly embedded in U.S. law now. Yet it remains an open question whether the spirit of the Basel II standards will sustain itself. The Basel II approach responded to the lack of financial innovations after 1993, and the best way to integrate market-based mechanisms will continue to evolve. Bank regulation, by its nature, is often backward looking, adjusting to new financial innovations after the fact. The Basel II approach responded to the lack of financial innovations after 1993, and the best way to integrate market-based mechanisms will continue to evolve. Bank regulation, by its nature, is often backward looking, adjusting to new financial innovations after the fact. The Basel II approach responded to the lack of financial innovations after 1993, and the best way to integrate market-based mechanisms will continue to evolve. Bank regulation, by its nature, is often backward looking, adjusting to new financial innovations after the fact. The Basel II approach responded to the lack of financial innovations after 1993, and the best way to integrate market-based mechanisms will continue to evolve. Bank regulation, by its nature, is often backward looking, adjusting to new financial innovations after the fact. The Basel II approach responded to the lack of financial innovations after 1993, and the best way to integrate market-based mechanisms will continue to evolve.