

SMM

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SPECIAL ISSUE ON CAPITAL

Getting a Grip on Capital

by Lawrence J. White



CAPITAL IS SOUNDLESS, ODORLESS, TASTELESS, IMPERCEPTIBLE TO THE TOUCH. IT CAN BE HERE TODAY and gone tomorrow. It holds none of the tangibility or permanence of a barrel of oil or a bushel of wheat. At its most fundamental, it is just a numerical calculation based on a set of arbitrary accounting rules.

Yet an adequate amount of capital is vital to the financial health of all corporations. Capital holds additional significance for financial institutions subject to government regulation. To understand capital is to understand the essence of the safety-and-soundness regulation of financial intermediaries such as banks, thrifts, and Freddie Mac and Fannie Mae.

What's It All About?

A simple balance sheet provides a good starting point for understanding capital. *Exhibit 1* (see page 54) depicts a stylized balance sheet of a healthy bank.

The assets of the institution consist of its outstanding loans. Liabilities include the deposits that the bank has accepted from and owes to its depositors. The bank uses the funds on deposit to make the loans that become its assets. The difference between the value of the assets and the value of the liabilities constitutes the institution's net worth, or capital.

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The simple exercise of subtraction illustrated in *Exhibit 1* reveals one important dimension of capital: *When expressed as net worth, capital represents the owners' stake in an enterprise.*

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If the bank in Exhibit 1 liquidates its assets and pays back its depositors, then \$8 in capital (\$100 – \$92) remains for the owners, representing their equity stake in the institution. For illustrative purposes, references to balance-sheet figures are stated in **market-value** terms. For a discussion of the problems associated with the standard accounting practice of reporting figures at **book value**, see “Regulating Capital: Getting It Right,” page 58.

Suppose, however, that the value of the bank’s assets declines by 8 percent. Perhaps, for example, interest rates go up, causing the bank’s loans, which are repaying at a lower interest rate, to become less valuable. The second balance sheet, *Exhibit 2*, portrays the bank after it hits this patch of market turbulence. The value of its assets, worth \$100 before, drops to \$92, while the amount owed to depositors remains unchanged at \$92.

Virtually overnight, \$8 in asset value has disappeared. The owners have lost all of their equity, leaving the bank depleted of capital. Depositors, however, still can be repaid in full if the bank is liquidated at this point, revealing a second purpose of capital: *Capital serves as a buffer to protect depositors or other creditors against the consequences of a decrease in the value of a company’s assets.*

The higher the firm’s capital, the more able a firm is to repay

**EXHIBIT 1:
Healthy Bank Balance Sheet**

Assets	Liabilities
\$100 (loans)	\$92 (deposits)
	\$ 8 (net worth or capital)

**EXHIBIT 2:
Undercapitalized Bank Balance Sheet**

Assets	Liabilities
\$92 (loans)	\$92 (deposits)
	\$ 0 (net worth or capital)

its debts and, thus, the greater the protection to those with funds on loan to the company.

Assessing Owner Motivations

A market reversal is not the only dynamic capable of forcing a bank into an undercapitalized position. Owners face a wide variety of investment options with different associated risks. More risky investments generally carry a higher expected return but bring with them the increased probability of extinguishing a bank’s capital and pushing the bank into insolvency.

Consider what happens, for example, if the bank owners in Exhibit 2 decide they want to recoup their \$8 by making a new bet. To do so, they replace the bank’s assets previously invested in U.S. Treasury bonds—loans made to the government that are

virtually risk free in terms of principal and interest repayment—with riskier junk bonds—noninvestment-grade loans to corporations. These particular junk bonds stand an equal chance of increasing in value by \$8 or decreasing in value by \$6. A favorable outcome would make the owners whole again, in that asset value would return to \$100 (\$92 + \$8) and reinstate the bank’s capital at \$8 (\$100 – \$92). If the junk bond’s rating is downgraded, however, the value of the bonds and, therefore, the value of the bank’s assets, would drop, as *Exhibit 3* illustrates, to \$86 (\$92 – \$6), sending the bank into insolvency (a net worth of –\$6).

The owners, though still smarting from losing the initial \$8 capital they brought to the table, probably would find the prospect of this \$6 capital shortfall much less disturbing. That’s because corporations in the United States operate under the regime of limited liability, whereby owners’ losses legally cannot exceed their investment. (In the case of a sole proprietorship or a partnership, the owners must cover a shortfall up to the limits of personal bankruptcy.) As a result, what started out as a favorable bet for the owners—even if they lose \$6 half of the time, they still come out ahead by winning \$8 the remaining 50 percent of the time—becomes a spectacularly favorable bet for them—they lose

nothing half the time and come out ahead by \$8 the rest of the time. That leaves the depositors, unless protected by **deposit insurance**, to absorb the \$6 loss in some apportioned manner.

The lesson here is that owners generally take risks because riskier investments provide a higher expected return. Moreover, owners with limited liability may take extra risks because, at least to some extent, they are gambling with someone else's money. Fortunately for the depositors, capital acts as a countervailing force under either scenario. The more money owners have invested in an institution, the more the owners stand to lose from the downside of any risk taking. That, essentially, points to a third function of capital: *Capital is a deterrent to excessive risk taking by owners.*

What's more, capital provides an incentive for owners to exercise more care and become more knowledgeable about their operations because they stand to lose more from reckless or ill-advised behavior.

Improving the Imperfect

Private-sector investors who regularly buy corporate debt—thereby becoming lenders to corporate borrowers—are well aware of the need to keep a close eye on the capital levels of borrowers. The companies borrowing these funds fully expect such scrutiny. To protect

**EXHIBIT 3:
Insolvent Bank Balance Sheet**

Assets	Liabilities
\$86 (loans)	\$92 (deposits)
	-\$ 6 (net worth or capital)

their interests, private-sector creditors attempt to avoid defaults, bankruptcies and subsequent lender losses through the use of lending agreements and bond covenants. These restrictions are built around the principles of monitoring the financial circumstances of borrowers, limiting borrower activities that might jeopardize repayment and recognizing the importance of preserving borrower net worth.

Why, then, is government regulation needed for depository institutions? In a sense, government regulation performs the equivalent functions of the private-sector covenants between lender and borrower. Arguably, individuals—in their roles as depositors—are not well positioned to negotiate terms to protect the “loan” of their funds to a bank. For starters, depositors are not likely to know much about a bank's finances. How many depositors can describe the finances of their bank, even in the simple terms of Exhibits 1, 2 and 3? As an additional complication, the amount of money on deposit in a bank may ebb and flow, perhaps prompting

a similar concern among depositors as to their exposure to potential shortfalls.

Further, a large proportion of bank deposits are payable on demand, which is what depositors expect. As a consequence of this liquidity, if depositors become nervous about the solvency of a bank—particularly if their apprehensions are further compounded by an imperfect understanding of the bank's financial situation—they are likely to rush to withdraw their funds. Even well-informed depositors likewise may race to cash in their deposits at an apparently healthy bank, fearing that other depositor withdrawals may impair their own liquidity. These well-informed depositors know that even a healthy bank's assets—that is, its loans—almost always are less liquid than its deposit liabilities. The simultaneous withdrawal of depositor funds may prove contagious; witness the bank runs that accompanied the Great Depression. In today's world of burgeoning electronic banking, any future bank runs most likely will happen silently and far more rapidly.

Governments long have understood the particular problems posed by imperfectly informed depositors that engender the special, somewhat fragile nature of depository institutions. For example, Congress introduced federal deposit insurance in 1933 to

eliminate the depositor runs that had occurred during the preceding Great Depression years. The concept was patterned after the guarantee offered to depositors in state-chartered institutions when the state of New York began this country's first deposit-insurance program in 1829. The idea in 1933 was to reassure depositors that up to \$2,500 of their money was safe in the event that a bank was liquidated. That promise continues to this day, although it now applies to amounts of up to \$100,000 per insured depositor account. With the development of deposit insurance, the government shifted the ultimate burden of bank-insolvency losses from depositors to the country's taxpayers, who stand as the ultimate source of payment for claims against the deposit-insurance funds.

More broadly, government today strives to ensure the safety and soundness of banks and thrifts by placing restrictions on the activities, ownership and management of these institutions. In that capacity, government plays a supervisory role, regularly dispatching examiners to see that these institutions comply with the restrictions. In that same vein, government seeks to ensure the financial robustness of Freddie Mac and Fannie Mae (see "Enter Freddie Mac and Fannie Mae," page 59).

Hypothetical Investment Advice

To delve more deeply into the notion of capital, imagine that government regulation ceases to exist, prompting a bank's depositors to hire an investment banking firm for advice. Specifically, the depositors want to know what they, as lenders to the bank, should know or do to protect themselves.

Surely, the investment banking firm would advise the depositors to study the bank's balance sheet and financial performance, the character of the bank's owners and managers and the nature of the bank's activities. It would tell the depositors about the primacy of capital—that is, the important role that an adequate level of capital plays in mitigating damage to depositors from risky bank operations.

At the same time, the investment banking firm would

remind them that raising capital is more expensive than paying the interest on debt, namely the depositors' funds. Understandably, the bank's stockholding owners would demand greater compensation for the capital at risk because they stand first in line to absorb company losses. In other words, the owners would pocket no dividends, see no return on their equity investment and watch as their equity is slowly eaten away before debtholders lose a dime. The depositors, then, always face a trade-off: More capital, relative to assets, means greater safety but reduced interest income for them.

Further, the investment banker would point out that the riskiness of the bank's operations can fluctuate significantly, depending on the nature of the bank's activities and the type of lending in which it is engaged. The investment banker would pass along a checklist of critical information to gather about the bank's business dealings—with whom, where, when, in what currency, with what safeguards and with what **hedging** activities. The amount of capital necessary to provide an adequate buffer against these factors would vary accordingly. Of course, the investment advisor would clue in the depositors to any **portfolio effects**, whereby the combination of two separate activities can yield a lower overall risk than is true for the individual activities.

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After reminding depositors that capital is just the numerical difference between the value of the bank's assets and the value of their deposit liabilities, the investment banking firm would counsel going beyond the reported accounting value of those assets in order to determine their market value. After all, the prices that those assets can command at sale matter most to depositors if the bank begins to falter.

Beyond that, depositors would learn about the need to measure a bank's capital and otherwise monitor its activities and operations on a frequent basis because the financial circumstances of a bank can change quickly. Depositors would find out that they need strong covenants limiting the activities of the bank's owners and managers to those commensurate with the depositors' expectations and risk tolerances. Finally, depositors would discover that they should look for higher capital levels when their monitoring is practiced infrequently and their covenants are weak. Those precautions, the investment counselor would advise, give the depositors an opportunity to intervene early and decisively if the financial health of the bank—and, thus, the value of their deposits—begins to slip.

The strides made in the use of capital as a mechanism both to soften financial blows and to deter risk taking are a credit to the supervisory system.

Back to the Real World

Banking regulation, of course, does exist. Banking regulators and deposit insurers do stand in for depositors, freeing depositors of the need to seek professional guidance to protect their interests. Happily, the regulatory community, in recent years, has anticipated—and heeded—at least some of the advice that an investment banking firm would dispense.

Bank regulators now have intensified their focus both on capital as a buffer and on the need to take **prompt corrective action**, intervening early when bank troubles mount. These improvements are no accident. In the late 1970s and early 1980s, the once straightforward

businesses of banking and mortgage lending grew increasingly unpredictable. The era of stable interest rates came to an end, and regulatory caps on interest rates were eliminated. Simultaneously, bank supervision slackened, setting the stage for the savings-and-loan debacle and the 1982–1992 wave of commercial-bank insolvencies. Responding to that wake-up call, government regulators became tougher and smarter. Capital at that point emerged as a prominent feature of safety-and-soundness regulation.

The strides made in the use of capital as a mechanism both to soften financial blows to depositors and to deter risk taking among owners are a credit to the supervisory system. Yet, much more remains that can and should be done. **SMM**

Regulating Capital: Getting It Right

Bank regulators serve as the first-line protectors of depositors and, by extension, the deposit-insurance funds. In fact, now that federal deposit insurance covers three-quarters of commercial-bank deposits and more than 90 percent of savings-institution deposits, most depositors do not worry about the financial health of their banks. Despite this hard-earned and well-deserved trust, much more work awaits the regulatory community in three important respects.

First, bank regulators must embrace **market-value** reporting, at least for purposes of determining a bank's capital. The **generally accepted accounting principles** (GAAP) now in use simply are not adequate. Fundamentally backward-looking and cost-based, GAAP practices are too slow to register *downward* movements in the values of assets—and thus in the levels of capital. Market-value information is crucial if capital is to cushion depositors or the deposit-insurance fund against financial reversals.

Although regulators often are privy to a bank ledger's true values, that does not mean they can intervene effectively. Unfortunately, many corrective actions that bank regulators can take—whether formal or informal—are tied to the **book value** of capital levels reported by the bank. At a recent Federal Deposit Insurance Corp. conference devoted to uncovering the lessons regulators should learn from the turbulent 1980s, one theme recurred: Even when bank regulators knew that a bank was sliding downhill, they were precluded from acting more aggressively because the institution's reported capital appeared adequate. The 1991 demise of the Bank of New England is one case in point. Also, even Charles Keating's Lincoln Savings & Loan looked healthy until shortly before it imploded in 1989.

As long as the regulatory covenants continue to be expressed in terms of reported capital, the regulatory community must make every effort to employ current market values in the reports and in the capital calculations that follow.

Second, bank regulators must receive this market-value information more frequently than the quarterly schedule currently observed. A bank's financial troubles easily can develop within the 90 days separating today's formal reporting periods. Immediate goal: weekly reporting. Next target: daily reporting, which is the norm for investment-banking companies. Ultimate objective in this digital age: continuous, real-time reporting, even for the smallest banks. Of course, more frequent reporting comes at a cost, but the benefits surely outweigh the added expense, even today. Moreover, those costs undoubtedly will continue to fall in the wake of inevitable advances in telecommunications and data processing.

Third, regulators should ensure that capital levels are adequate for a reasonable range of future likelihoods. Capital requirements must be forward-looking, given that today's assets will be affected by tomorrow's events. After all, \$100 in newly issued 30-day Treasury bills and \$100 in newly issued 10-year bonds assigned a B rating by a private rating agency are both worth \$100 today. Twenty-four hours later—or even a Wall Street moment later—they may be worth very different amounts. Today's required capital levels should reflect tomorrow's possibilities.

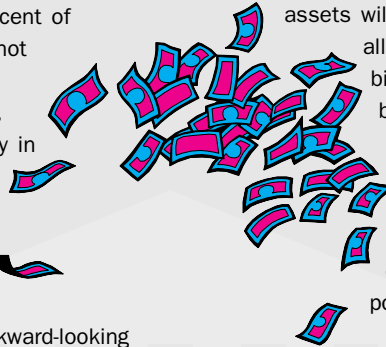
The Basle-inspired default-risk capital requirements, though a modest step in the right direction, are far too coarse and neglectful of **portfolio effects** to remain serviceable. The introduction of **interest-rate-risk** requirements and other risk regulations will help, but this piecemeal approach can backfire.

Instead, the regulatory community should embrace forward-looking, all-encompassing **stress tests** or **value-at-risk** measures (see “Enough Is Enough: A Timely Look at Financial-Soundness Measures,” page 28). A stress-test approach can gauge an institution's ability to remain solvent under a range of worst-case scenarios, including a repeat of the Great Depression of the 1930s, a return of the double-digit inflation of the late 1970s and early 1980s, a severe regional recession or a sustained collapse of overseas markets and exchange rates. A value-at-risk measure focuses on the amount of capital a company would need to cover the worst losses expected to occur on rare occasions. Armed with this information, regulators can calibrate the capital requirements—and risk-based deposit-insurance premiums—to ensure a high probability of the institution's survival under adverse conditions.

A Favorable Alignment of the Stars

Today's prosperous times present a golden opportunity—both politically and economically—for Congress and bank regulators to develop and implement regulatory improvements. Virtually all banks are financially healthy. Even though their owners and managers will bristle at the list of regulatory reforms, the banks can live with them. This was not the case in 1990 or 1991, when banks were reeling from real-estate defaults and other losses. Any major changes in reporting or stress-test requirements back then would have threatened their nominal solvency.

In sum, today, when it isn't raining, is the best time to fix the roof.—**Lawrence J. White**



Enter Freddie Mac and Fannie Mae

Like banks, the two government-sponsored players in the secondary mortgage market must hold capital. Similarly, Freddie Mac and Fannie Mae must answer to a government regulator as to the adequacy of their capital. Their government supervisory agency seeks, just as the banking regulators do, to buffer taxpayers from the indirect financial **risk** posed by the pair and to discourage any excessive risk-taking that otherwise might tempt the firms.

Not surprisingly, then, the fundamentals of capital and the surrounding issues that apply to banks also apply to Freddie Mac and Fannie Mae, but with a few wrinkles. To analyze how these principles pertain to the two companies, it is easiest to separate the firms' activities into two camps, mortgage investments and **mortgage-backed securities**.

In the investment mode, the pair's assets consist of the mortgages and mortgage securities they buy and opt to hold in their internal portfolios to generate interest income. Their liabilities arise from obligations to repay the creditors who purchase the debt issued by the pair to fund their portfolio purchasing activities.

As mortgage-securities issuers, Freddie Mac and Fannie Mae receive **guarantee fees** as compensation for taking the default risk and guaranteeing the payment of principal and interest on the securities the firms issue. The companies collect their guarantee fees—a fixed portion of the monthly interest payments made by the borrowers—before forwarding the principal and remaining interest to the investors in the mortgage securities.

For mortgage-investment business, then, the debtholders play the same role for Freddie Mac and Fannie Mae as the depositors do for banks; both groups supply the funds necessary for the firms to carry out their business affairs. With respect to the securities-issuance line, it is the mortgage-securities investors that serve in the funding capacity.

Plunging housing prices—together with soaring unemployment or an exceptionally large interest-rate increase—constitute the main threats to the financial well-being of Freddie Mac and Fannie Mae. In principle, either scenario could trigger an unsustainable number of mortgage-borrower defaults, draining the companies of the revenue produced by both the investment and the securitization lines of business.

In such an event, the two firms' stockholding owners would bear the brunt of the losses, sacrificing their capital investment until it is exhausted and bankruptcy ensues. Quite likely, then, the courts would order a sale to liquidate the companies' assets. If the liquidation proceeds were to fall short of the money owed to the debtholders, then those losses would become the debtholders' to absorb. The mortgage-securities holders, however, would have to look to the mortgage collateral to satisfy their claims.

Unlike other private-sector corporate investors, however, these debtholders are more likely to ask the federal government to cover their losses, even though the government has explicitly disavowed any such responsibility. In fact, stock-offering circulars produced by Freddie Mac, for instance, clearly state that any debts owed by the company to its creditors "are obligations of Freddie Mac only and not those of the United States or any agency or instrumentality of the United States other than Freddie Mac." (Fannie Mae offering circulars also contain language to that effect.) Despite such admonishments, many investors are willing to bet that the companies benefit from an implicit guarantee that the federal government will repay creditors in the event either firm cannot (see "Stressing Performance: Evaluating the Capital Adequacy of Freddie Mac and Fannie Mae," page 47). That, of course, would make taxpayers the ultimate risk holders, just as they are for federally insured depositories.

When it comes to regulation, the government has taken a different approach to keeping an eye on Freddie Mac and Fannie Mae. Currently, Freddie Mac and Fannie Mae must meet **minimum capital standards** set by ratios that echo the banks' capital requirements but differ in scope. Soon the pair will be bound by a **stress test**—now in development by their regulator—which will take a more dynamic measure of their capital adequacy. Nevertheless, the companies are subject to the same type of examination process as the banks, with government inspectors monitoring their books and operations for signs of unsafe or unsound practices.—**Lawrence J. White**

