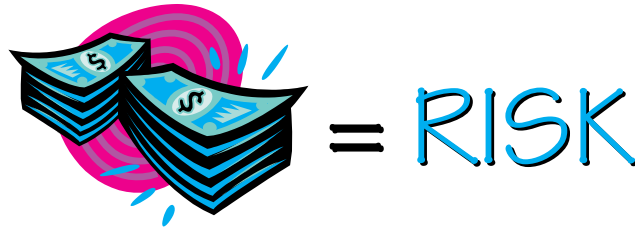


Equal Capital for Equal Risk

THE SAFETY GARB WORN BY A hockey goalie is easily distinguishable from the well-padded equipment enveloping a football linebacker, yet both sets of gear provide similar protection against the same type of hard body blows.

The U.S. housing-finance system would stand to benefit if its government safety-and-soundness regulators realigned the industry's mandatory capital cushions to reflect the same sporting principle—one that recognizes comparability while acknowledging differences. At the moment, the capital-adequacy precautions required of the mortgage industry's competitors vary widely, but not in ways linked very closely to differences among the firms' risks.

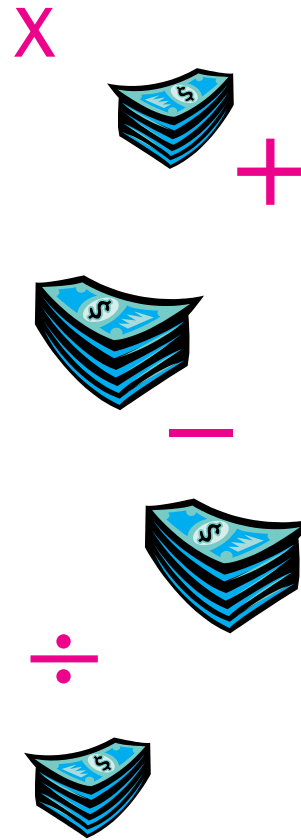
The fundamental reason for making regulated firms hold minimum levels of capital is to offset the incentive for taking ever-greater risks that could lead to higher profits but likewise could increase the probability of failure. That is, capital levels are regulated to limit the financial losses potentially borne by society when firms fail. Toting up the financial tab that the taxpaying public might be expected to shoulder can get complicated. For instance, it could include the costs of market disruption and restitution made



to some of the firm's depositors or debtors (see "Why Care About Capital, Anyway?" page 3).

Nevertheless, these costs can be expressed as the probability of failure multiplied by the expected loss due to failure, keeping two things in mind. First, some institutions pay deposit-insurance premiums that partially offset the costs of failure. Second, the failure costs of some major financial institutions are considerably higher than those of other companies. A more workable and equitable regulatory approach to capital adequacy, then, would entail a standard of equal capital for equal risks. That, of course, would require measuring risk in terms of the probabilities of failure, with perhaps some adjustment made for relative failure costs.

Be aware, though, that the amount of capital safeguarding an institution matters little if the resiliency of that cushion—meaning, the ability of the capital to absorb losses—is found wanting. Put another way, both quantity and quality matter in



by Amy Crews Cutts and Robert Van Order

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the measurement of capital adequacy (see “All Capital Is Not Created Equal,” page 18).

Who’s Who and What’s What

At least a half-dozen regulatory agencies play some role in

ensuring that the residential-mortgage industry keeps its financial house in order (*Exhibit 1*), covering players that participate as originators, investors or risk-brokers, or in some combined capacity. A

primary charge of each oversight body is to set regulatory capital rules for these institutions. Inevitably, the capital standards assigned to competing players are closely scrutinized because of the business-risk similarities among

EXHIBIT 1: Agencies Regulating the Safety and Soundness of Housing-Finance Participants

Office of Federal Housing Enterprise Oversight (OFHEO)

Oversees the country’s two privately owned but Congressionally chartered secondary-mortgage-market firms, Freddie Mac and Fannie Mae. Holds firms to minimum capital and critical capital ratios relative to assets. In the future, will add risk-based capital requirements established through stress testing.

Office of Thrift Supervision (OTS)

Serves as primary federal financial regulator for approximately 1,200 federal- and state-chartered thrifts. Requires thrifts to comply with a ratio-driven, risk-based capital standard and an unadjusted ratio of capital to assets.

Federal Deposit Insurance Corporation (FDIC)

Possesses discretionary examination powers over any thrift or bank insured by the two federal deposit-insurance funds it administers. Also liquidates or sells failed, insured depository institutions that are delivered into its receivership by a primary regulator. Further, acts as the primary federal regulator for approximately 6,300 state-chartered banks that do not belong to the Federal Reserve System to ensure they meet the same capital standards to which other federally regulated banks are held (see Note).

Federal Reserve System (Fed)

As primary regulator for bank-holding companies, indirectly influences many of the large state and national banks owned by such entities. Also oversees nearly 1,000 state-chartered banks that opt to become Reserve System members to borrow short-term funds at the Fed’s discount rate. Ensures these

firms meet the same capital standards to which other federally regulated banks are held (see Note).

Office of the Comptroller of the Currency (OCC)

Currently supervises approximately 3,000 nationally chartered banks to ensure they meet the same capital standards to which other federally regulated banks are held (see Note).

Federal Housing Finance Board (FHFB)

Oversees the government-sponsored Federal Home Loan Bank System of 12 regional banks that provides low-cost loans to approximately 6,500 thrift, commercial-bank and insurance company members to make residential mortgages or to invest in mortgage-backed securities. Ensures that the capital of the 12 banks is equal to at least one-twentieth of their consolidated debt.

National Credit Union Administration (NCUA)

Supervises nearly 7,000 federally insured credit unions and more than 4,000 state-chartered credit unions that elect federal deposit insurance. Statutorily, the agency is unable to hold its firms to capital rules comparable to those imposed on other regulated mortgage lenders, although it can conduct on-site examinations and evaluate some components of capital adequacy. Pending Congressional legislation would enable it to establish clearly defined capital rules.

State Regulatory Agencies

Ensures the financial soundness of state banks, state thrifts and other state financial institutions through a variety of methods. Coordinates on-site examinations with the corresponding federal agencies.

Note: The current regulatory framework’s overlap and lack of uniformity has taken shape over two centuries of significant financial events, including money shortages, uniform currency concerns, bank and thrift failures and structural corporate changes. The three federal bank regulators—the FDIC, the Fed and the OCC—hold their institutions to a ratio-driven, risk-based capital standard and an unadjusted ratio of capital to assets. They also qualify large institutions for alternative requirements on trading-account activities that set capital charge for market risk by banks’ own internal value-at-risk models.

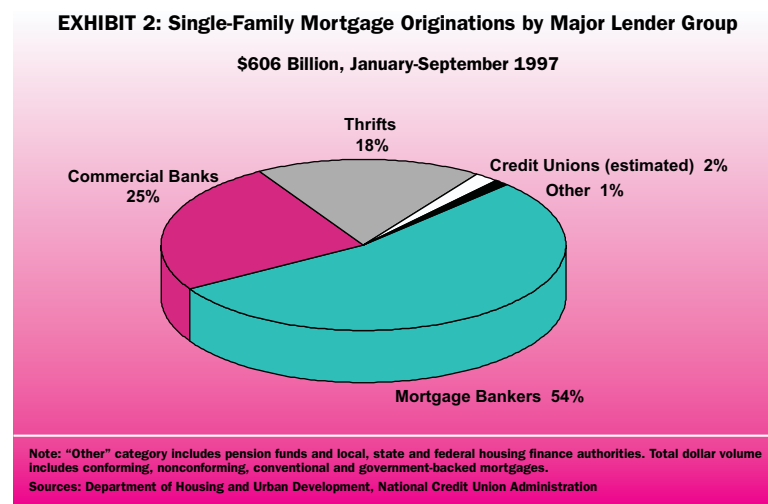
Source: Freddie Mac

the organizations. Yet, the scope of these standards varies by agency.

Some regulators must contend with overlapping jurisdictions. The federally chartered portion of the commercial banking industry, for instance, reports directly to one federal regulator (the Office of the Comptroller of the Currency), is subject to additional oversight by a second regulator (the Federal Deposit Insurance Corp.) and is indirectly influenced by a third (the Federal Reserve System).

The regulatory agencies also differ in terms of the narrowness of their focus, as determined by the number of housing-finance system functions performed by their regulatees. The Federal Housing Finance Board, for example, must stay abreast of issues related to mortgage funding, which is the primary focus of the Federal Home Loan Bank System.

Depository regulators, on the other hand, oversee not only the mortgage-related originator and investor functions of thrifts and commercial banks, but also their business pursuits outside the housing-finance arena. The other business pursuits of commercial banks are particularly noteworthy because they represent the majority of the business conducted by these institutions. The banks account for one-quarter of the country's single-family mortgage originations by dollar volume and likewise hold



The combined mortgage-origination volume generated by lender groups overseen by a federal financial-soundness regulator represents 43 percent of the single-family market. The lion's share, at 54 percent, comes from the relatively unregulated mortgage-banking sector.

one-quarter of all residential mortgages as investments. Yet, the interest earned in 1997 from these mortgage-related ventures accounted for only 16 percent of the commercial-banking industry's total income, generated from activities both on and off the balance sheet.

In yet another variation, the Office of Federal Housing Enterprise Oversight, besides keeping an eye on the mortgage-investment portfolios of Freddie Mac and Fannie Mae, also pays attention to the mortgage-backed securities the two companies issue. As risk brokers, Freddie Mac and Fannie Mae transfer the **interest-rate risk** associated with mortgages to pension funds, life insurance companies and other mortgage security investors but retain the **default risk**. This

means the two companies are liable to investors if the mortgages backing the securities default.

What's more, some parts of the housing-finance system, like the mortgage-banking sector, operate free of any financial-safety regulation other than nominally at the state level. In the case of the mortgage bankers, however, the current system gets it right. Even though mortgage bankers originate more than half of the country's mortgages (*Exhibit 2*), these deal-makers are exposed to very little interest-rate or default risk. Typically, mortgage bankers do not originate a mortgage until they identify a borrower and a lender they can bring together at the closing table, or soon thereafter.

Credit unions also conduct business with very little safety-and-soundness supervision, but that may change. The National Credit Union Administration currently is not authorized to hold these institutions to the same type of capital rules imposed on other regulated mortgage lenders. The agency does, however, conduct on-site examinations and evaluate credit unions along more general lines that touch upon quantitative assessments and qualitative judgments of capital adequacy. A bill now pending in Congress would expand the credit union regulator's authority in several areas, including the power to establish clearly defined capital rules.

Not surprisingly, the resulting unevenness in regulatory standards and enforcement—along with the quickly changing business lines of today's regulated firms—produces inconsistent levels of capital that vary by institution type. Nonetheless, the nature of the risk exposures and the compensating **hedge strategies** employed by each industry segment lead to important institutional differences affecting the probability of failure that a consistent regulatory system should recognize.

The answer, though, does not lie in applying the same capital rules to every institution but in applying the same principles to each. For instance, some companies can and do operate

Basing regulatory capital on book-value ratios penalizes low-risk firms while failing to inoculate high-risk firms against failure.

very safely at lower capital levels than those required of others because their risks are smaller (see “No Fair! Their Capital's Lower Than Mine,” page 22).

The Way Things Oughta Be: Tailoring Capital to Real Risk

Much of today's capital regulation of the housing-finance industry revolves around a standard expressed as a minimum capital ratio. However, it is equally correct to think of this one-size-fits-all rule as a maximum debt-to-equity ratio, which characterizes a firm's maximum leverage level.

The extent to which a company is leveraged depends on the amount of capital it holds in relation to its assets or liabilities: the higher the capital, the less the leverage. All else being equal, a low-leveraged firm is better

positioned to withstand financial risk than a high-leveraged one. Much of the time, of course, all else is not equal. As a result, comparisons based on the leverage ratios of different institutions obscure each firm's true degree of risk when asset-liability profiles differ.

What's more, basing regulatory capital on **book-value** ratios rather than on **market-value** ratios, and using the same maximum leverage ratio for all institutions—even when broad adjustments are made for risk—penalizes low-risk firms while failing to inoculate high-risk firms against failure. Alternatively, regulators could determine capital adequacy by a performance-based risk measure, such as a **stress test** or a **value-at-risk** approach. Under such a system, all firms would receive even-handed regulatory treatment while operating at comparable levels of safety (see “Enough Is Enough: A Timely Look at Financial-Soundness Measures,” page 28).

A firm's probability of insolvency depends on the interplay between capital and debt in combination with the business risks it takes. The more debt a firm holds for every dollar of capital—meaning, the more highly it is leveraged—the greater the firm's probability of insolvency. Likewise, a firm's chances of failure rise as business risk increases and its capital remains constant. That is, the

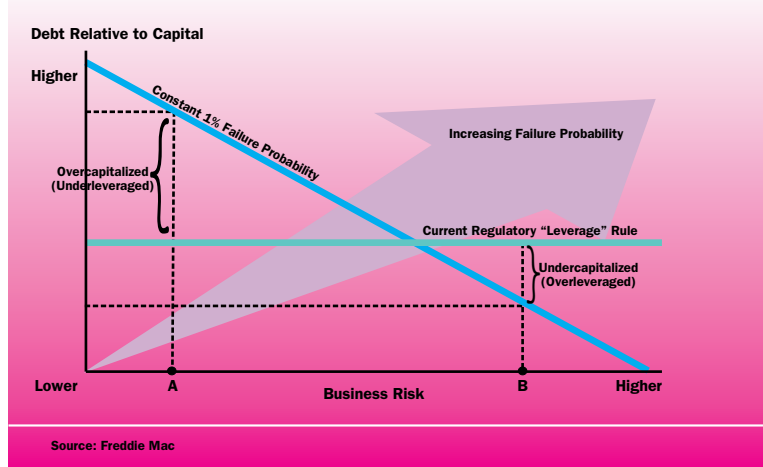
overall uncertainty surrounding the company's future earnings is shaped by the company's interest-rate risk, default risk and all other perils it assumes on an actual or a contingent basis, as well as by efforts to hedge those risks.

A firm with low business risk, as denoted by Point A in Exhibit 3, could afford to hold considerably less capital than required by regulation yet keep its probability of failure to a prudent level of, perhaps, 1 percent. That means the company is overcapitalized by the difference between the diagonal line labeled "constant failure probability" and the fixed line labeled "current regulatory 'leverage' rule." In other words, the firm could leverage itself substantially more and still achieve the balance between debt and capital that it must maintain to limit the company's probability of failure to 1 percent.

Similarly, a firm with a high level of business risk, signified by Point B in Exhibit 3, is operating at a failure rate higher than the targeted 1-percent maximum, despite its compliance with current regulations. To achieve the same standard of financial prudence, the undercapitalized company would need to cut back on its leverage (reduce debt), change its risk profile (sell or hedge risky assets) or raise its capital (sell additional stock or retain more earnings).

The bond market employs a version of the risk-as-metric practice based on private credit

EXHIBIT 3: Relationship of Failure Probability to Capital, Debt & Business Risk



A firm that takes on a low level of business risk pays the price of overcapitalization for complying with a fixed measure of capital adequacy that does not differentiate by relative risk. A firm engaging in riskier business activities exposes itself to a greater probability of failure under the same capital-adequacy rule. Matching capital levels to risk equalizes the probability of failure across all firms. (For illustration purposes, the capital-adequacy axis was drawn to represent different levels of leverage, which is an inverse expression of the more commonly used capital-to-assets nomenclature.)

ratings. When companies borrow by issuing debt securities to finance their business activities, most potential investors first explore how likely the issuing firm is to repay this obligation. This typically entails gathering information from investment analysts, rating agencies and the firm itself. As the level of risk rises, creditors typically demand higher yields on their investments or higher levels of capital or both.

In search of an accurate risk-measurement model, housing-finance regulators might be tempted to adopt the approach taken by Wall Street's private

credit-rating agencies. Moody's Investors Service and Standard & Poor's Ratings Services, for instance, use sophisticated measures to evaluate the relative default risks among the bonds issued by mortgage-insurance companies and mortgage-money conduits. Private credit ratings can serve to reinforce regulatory decisions about capital. However, these evaluations are not transparent enough to serve as the sole measures of regulatory capital adequacy because much about them is based on the private judgments of rating companies, whose reasoning is invisible to others.

Who Knows Best?

The interests of regulators and regulatees may conflict on occasion, but sometimes there are similarities and sometimes there are ways to align otherwise conflicting interests.

Acting in their own financial interests, companies themselves have developed sound reasons for holding capital that go beyond the desire to make smaller interest payments to bondholders. For instance, many companies have established a valuable market franchise from which shareholders and management can profit only by remaining in business. These firms are well aware of the vital role capital can play in keeping the franchise alive when times are tough. In fact, some institutions operate at capital levels well in excess of their regulatory capital floors, as dictated by their own views of prudent capital management and operation (see “Wanted: Bank Regulators Who Act More Like the Market,” page 6).

Both a well-capitalized and well-managed regulatee and its regulator can agree that the firm’s capital level needs to rise when it wants to take on more risk. A thinly capitalized institution, however, may try to increase risk in a go-for-broke fashion and argue against the need to further supplement its capital. In the early 1980s, many faltering thrifts embarked on just such a gamble for resurrection, taking on high levels of risk without correspon-

Capital alone provides no guarantee against an institution’s failure; it can only lower the odds.

dingly increasing their capital. Yet many of those firms did so without overstepping their regulatory capital limits, as defined by simple leverage ratios. In fact, the volatile investment selections they made required no more capital than the less-risky paths they could have chosen instead.

Many big, well-capitalized and well-managed firms do a much better job of measuring risks than do their regulatory analysts, who come to the task lacking important information available only to those on the inside. Larger, more technically advanced institutions, for instance, are quantifying risk statistically by asset type and product line then allocating capital to each asset or line of business. Banking regulators have begun to recognize that there is no incentive for firms to take

imprudent risks when their **economic capital** is measured with precision and when they have an important stake in survival. Consequently, these regulatory agencies are working to align possibly conflicting interests by moving the banking industry toward self-regulation. These experiments not only attempt to reduce the incentives for assuming risks without sufficient capital but also may create a more equitable application of regulatory oversight (see “New Capital Rule Signals Supervisory Shift,” page 24).

Not by Capital Alone

Capital alone provides no guarantee against an institution’s failure; it can only lower the odds. Many commercial banks, after all, headed into 1929 with two to three times the regulatory capital minimums but could not survive the Great Depression. Fortunately, capital is not the only means by which a regulatory agency can enforce safe play (see “How Do I Regulate Thee? Let Me Count the Ways,” opposite page).

Regulators could do away with capital standards altogether if they could keep a company under constant watch then, at the moment the firm’s **marked-to-market** net worth hits zero, force its stockholders to recapitalize or close shop. The probability of failure might prove larger, but the societal cost of failure would be nil. Such ruthless regulation is

impossible given the high cost of around-the-clock monitoring and the difficulty in valuing the illiquid assets of housing-finance institutions. However, the more vigilant the regulation, the less capital per unit of risk is needed. That is, two institutions with the same risk may require different capital levels if one faces more frequent regulatory scrutiny.

Rising to the Challenge

While other regulatory functions can reinforce or augment efforts to maintain a safe and sound housing-finance system, the role of capital remains critical.

Achieving the most desirable results through capital regulation depends upon understanding the concept of an equal-capital-for-equal-risk standard. This approach will pay off by rewarding firms that are the most efficient and deterring those that exploit the weaknesses in the regulatory structure by engaging in undercapitalized risky behaviors.

By emphasizing performance rather than a prescriptive list of attributes, regulators can serve the housing-finance system in much the same way each sports conference specifies the safety-gear designs that are most appropriate to the nature of the game and the position played. **SMM**

How Do I Regulate Thee? Let Me Count the Ways

Capital thresholds represent but one arrow in a regulator's safety-and-soundness quiver.

A new thrift or bank player cannot enter a regulated depository industry until it is approved and licensed by a government supervisor. The chartering agency typically restricts entry or limits transfers of ownership to companies meeting minimum net-worth criteria and management-expertise standards.

Every regulator responsible for the soundness of the housing-finance system makes periodic checks to ascertain the degree of risk bound up in a firm's current strategy. On a quarterly basis, these regulatory agencies collect and monitor detailed data drawn from a firm's balance sheet and income-expense report.

Regulators also wade directly into the action through on-site examinations. From this vantage point, regulators can assess capital conditions, evaluate a firm's general financial health and ensure compliance with relevant laws. Examinations also provide a way to root out the management and operational risks that tend to defy other means of identification. Several large institutions have taken major and unexpected hits due to the activities of a few persons acting outside of their companies' policies, as the exploits of rogue currency traders have made clear. Barings Bank of London went out of business in 1997 because bank managers did not spot a long series of losing trades by a single employee. The losses wiped out about \$1 billion of market capital. The firm's share price dropped to zero, and bondholders received only five cents on the dollar when the company was liquidated.

When a regulatory violation of the capital standard occurs, the government supervisor is obliged to take **prompt corrective action** to minimize potential losses and the risk of insolvency. To move the company out of the danger zone, the regulator might insist that the firm restrict its activities, order it to suspend stock dividend payments or require it to raise more capital.

If an institution's condition is bad enough, the regulatory agency can appoint a **conservator**, an outside entity that will try to nurse the firm back to health.

The most drastic action available to a regulator is to declare an institution insolvent and place it in **receivership**. The appointed receiver, oftentimes the Federal Deposit Insurance Corp., then sells off the institution's assets to the highest bidders. Alternatively, a regulator can engineer the institution's sale or push for a merger while it is still solvent. This transfer of power frequently is orchestrated over a weekend or some other brief period. The company then reopens under the auspices of the acquiring firm and possibly under a new name.—**Amy Crews Cutts**