

Capital Adequacy at Commercial Banks

By Karlyn Mitchell

Growing competition among financial institutions combined with sharp swings in economic activity has put tremendous strains on commercial banks in recent years. In the early 1970s, greater volatility in financial markets forced banks to develop more sophisticated portfolio management strategies to maintain profitability. Starting in the late 1970s, financial market deregulation added to the strain on banks by quickening the pace of change in the financial services industry. By 1980, banks with loans to U.S. farmers and Latin American countries had suffered declines in loan quality. In 1982 and again in 1983, record numbers of banks failed as the effects of severe economic recession lingered.

These events have reopened the issue of capital adequacy at commercial banks. Bankers, the agents of bank shareholders, try to maintain capital adequate to attract deposits and operate profitably. Bank supervisors, the agents of the public, try to maintain capital

adequate to protect the deposit insurance fund and promote a sound financial system. In recent years, however, bank capital has increased little relative to bank assets despite circumstances that seemed to make higher capital levels advantageous for bank shareholders and the public. Concern over this situation led to the International Lending Supervision Act of 1983, which empowers federal banking agencies to set and enforce minimum capital requirements. Pursuant to the Act, these agencies recently proposed new capital requirements.

This article argues that although minimum capital requirements are an imperfect means of limiting the risks posed by inadequate bank capital, they are necessary in light of current and prospective trends in the financial services industry. Without enforceable minimum capital requirements, banks would tend to maintain capital levels that posed too great a risk to the financial system. The first section of the article provides background information on the bank capital issue, including evidence of a long-run decline in bank capital ratios. The

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second section argues that low bank capital ratios have recently resulted in a riskier banking system. The third section discusses policy options for reducing banking sector risk and concludes that enforceable minimum capital requirements are the best means of restoring safety and soundness to the banking system.

Background on bank capital and regulation

Definitions and functions of bank capital

Although unequivocal to accountants, the definition of capital is a matter of controversy among bankers and bank supervisors. To accountants, capital is equivalent to ownership or equity, which is raised either by selling stock or retaining part of earnings. But because equity does not coincide with the functions that capital performs the term "capital" has acquired alternative definitions.¹

Capital performs two functions: it finances the purchase of fixed assets and it protects creditors. Because equity performs both functions, it is included in all definitions of capital. Equity is well suited to financing purchases of fixed assets because it represents long-term funding. Equity protects creditors by enabling a firm to survive losses sustained over several periods. This is because owners can liquidate some of a firm's assets to pay creditors if losses would otherwise cause the firm to default.

Bankers have argued that loan loss reserves and long-term debt should also be included in the definition of bank capital because these accounts perform some of the functions of capital for banks. Loan loss reserves represent

earnings retained to absorb losses. When a loss occurs, bankers reduce the reserve account instead of current earnings. By absorbing losses, loan loss reserves protect creditors, thereby performing one function of capital. Long-term debt, mainly subordinated notes and debentures, represents long-term loans to banks. Because this debt is long term, it can be used to finance fixed assets. Because long-term creditors are paid after depositors if the bank fails, long-term debt protects depositors. Thus, long-term debt serves both functions of capital.

Bankers' arguments have gained some acceptance among bank supervisors. Supervisors now agree that loan loss reserves should be counted as capital. Only recently, however, have supervisors begun to accept long-term debt as capital on grounds that excessive use of debt could cause a bank to fail.

Differences between the accounting definition of capital and the various functional definitions can be illustrated with aggregate bank balance sheet data. On December 31, 1983, the domestic offices of insured commercial banks held \$2,018.5 billion in assets, \$140.0 billion in equity, \$17.4 billion in loan loss reserves, and \$6.5 billion in subordinated notes and debentures. According to the accounting definition, banks had capital of \$140.0 billion and a capital-asset ratio of 6.9 percent. Broadening the definition to include loan loss reserves, banks had capital of \$157.4 billion and a capital-asset ratio of 7.8 percent. Broadening the definition of capital still further to include subordinated notes and debentures, banks had capital of \$163.9 billion and a capital-asset ratio of 8.1 percent.

Regulation of bank capital

To ensure the safety and soundness of the financial system, U.S. banks have been regu-

¹ Although market values are more appropriate, capital and capital ratios are measured in terms of book values throughout this article.

lated since colonial times. The more specific objectives of bank regulation have been to protect depositors, to promote a stable money supply by preventing financial panics, and to foster an efficient and competitive banking system that facilitates financial intermediation. To achieve these objectives, the government has limited the activities and practices of banks and controlled the environment in which banks operate. In addition, the government has created several regulatory agencies to supervise bank activities.

Bank supervisors have long been concerned about bank capital because of the central role capital plays in the safety and soundness of individual banks. Determining the amount of capital needed to ensure the safety and soundness of the financial system, though, has always been one of the thorniest problems facing supervisors. From time to time, supervisory agencies have set informal capital guidelines for the banking industry based on their assessments of the level of risk facing the industry. But because capital adequacy also depends on bank-specific factors, such as investment policies and management quality, supervisory agencies have relied mainly on periodic on-site bank examinations to determine if individual banks hold enough capital. After reviewing a bank's loan portfolio, financial statements, and operating policies, supervisors either accept the bank's capital as adequate or request that additional capital be raised.

The standards for capital adequacy have changed frequently over the years. In 1914, the Comptroller of the Currency stated that banks should maintain capital (equity)-deposit ratios of 10 percent. Capital adequacy was defined in terms of a capital-deposit ratio because the greatest risk facing banks then was the risk of sudden sizable deposit withdrawals. The 10 percent ratio remained the

norm until the 1930s, when the newly created Federal Deposit Insurance Corporation (FDIC) began using capital-asset ratios to gauge capital adequacy. Capital adequacy was redefined in terms of a capital-asset ratio because defaults on loans had replaced deposit withdrawals as the greatest risk facing banks. With the rapid expansion of federal debt during World War II, the capital-asset ratio ceased to be a useful measure of a bank's exposure to risk because virtually default-free Treasury securities comprised a large part of banks' assets. Bank supervisors came to gauge capital adequacy by the capital-risk asset ratio, where risk assets are defined as total assets less cash and Treasury securities. A 20 percent capital-risk asset ratio remained the norm until the 1950s, when bank supervisors began to develop more refined measures of capital adequacy.

Until recently, supervisors' standards for capital adequacy did not carry the force of law. Although supervisors could issue cease and desist orders against banks that refused to comply with requests for more capital, orders were rarely issued. Instead, supervisors relied heavily on persuasion to obtain compliance. Because increasing capital often hurts bank shareholders by diluting earnings, bankers' responses to requests for additional capital were based on a careful weighing of the costs of compliance and noncompliance. This situation changed last year with passage of the International Lending Supervision Act, which empowered federal banking agencies to establish minimum capital requirements and enforce them by issuing directives to capital-deficient banks. These directives may require banks to submit and adhere to plans to achieve supervisors' minimum capital requirements and are enforceable in the courts.²

Pursuant to the International Lending Supervision Act, the three federal bank supervisory

agencies—the FDIC, the Comptroller of the Currency, and the Federal Reserve—proposed new standards for bank capital adequacy last July. These standards are highlighted in Table 1. A notable feature of the standards is their uniformity across bank size. Heretofore, small banks had to maintain higher capital ratios than large banks on grounds that poor access to financial markets and poorly diversified portfolios made them riskier. But this argument has been invalidated by the ongoing integration of banking markets. Another feature of the proposed standards is their similarity across supervisory agencies. Although the Federal Reserve’s standards differ from the FDIC’s and the Comptroller’s, the differences are far smaller than in the past, thus reducing banks’ incentive to minimize regulation by changing supervisory agencies. Finally, the proposed standards represent an increase in capital requirements at large banks and a decrease at small banks.³

In addition to proposing different capital standards, the three federal bank supervisory agencies propose different approaches toward

enforcing these standards. The FDIC and the Comptroller regard their standards as rigid rules, the violation of which would result in a directive issued to the undercapitalized bank. In contrast, the Federal Reserve regards its standards as guidelines, the violation of which might not immediately result in a directive. The Federal Reserve prefers guidelines to rules because it regards rigidly defined standards as inappropriate in a rapidly changing world. By taking a flexible approach, the Federal Reserve believes it can maintain the safety and soundness of the banking system while allowing for unique circumstances at individual banks.

Historical trends in bank capital

In banking, as in other industries, the long-run trend has been toward lower capital ratios. Trends in various bank capital ratios since 1900 are shown in Chart 1. The equity-asset ratio declined almost continuously until after World War II, rose slightly during the 1950s, then declined again, leveling out at around 7 percent in the 1970s. Broadening the defini-

² In a sense, the establishment of legally binding capital requirements did not represent a radical departure from the past. Until recently, bankers and bank supervisors generally presumed that supervisors had the authority to enforce their capital guidelines, even though some believed that supervisors did not always use this authority effectively. Early last year, however, the Fifth Circuit Court of Appeals reversed a cease and desist order issued by the Comptroller to First National Bank of Bellaire on grounds of inadequate capital. Uncertainty about supervisors’ authority to enforce their guidelines undoubtedly motivated the section in the International Lending Supervision Act establishing minimum capital requirements.

³ Under the current standards, in force since December 1981, the FDIC defines benchmark capital adequacy as a 6 percent ratio of adjusted capital to adjusted assets. Lower ratios are allowed for certain banks judged to be sound in all respects, usually large banks. But the minimum ratio is 5 percent. (Adjusted capital is equity plus loan loss reserves less classified and some doubtful loans; adjusted assets are total assets less classified and some doubtful loans.)

In contrast to the FDIC, the Federal Reserve and the Comptroller currently define two capital standards for three size categories of banks. The minimum primary capital ratio is 6 percent for banks with assets of \$1 billion or less and 5 percent for larger banks. Three zones are defined for the total capital requirement, similar to the proposed standards. The lower limit of Zone 2, essentially the minimum total capital ratio, is 6 percent for banks with assets of \$1 billion or less, and 5.5 percent for banks with assets exceeding \$1 billion and with no multinational ties. The 17 largest banks, the multinationals, have no total capital requirement. (The primary capital ratio is equity plus loan loss reserves divided by total assets. The total capital ratio is essentially equity plus loan loss reserves plus some long-term debt divided by total assets.)

In comparison to the proposed capital standards, the current standards are more heterogenous across bank size, more stringent for small banks, and less stringent for large banks. In addition, the current standards are more heterogenous across supervisory agency.

TABLE 1

Federal bank supervisors and proposed capital standards

Federal Bank Supervisors

FDIC—Supervises all federally insured state banks that are not members of the Federal Reserve System in cooperation with state authorities.

Comptroller of the Currency—Supervises all national banks.

Federal Reserve—Supervises all member state banks in conjunction with state authorities, plus all holding companies.

Proposed Capital Standards

Primary Capital—The minimum ratio of primary capital to adjusted assets proposed by all three agencies is 5.5 percent.

Total Capital—The minimum ratio of total capital to total assets proposed by the FDIC and the Comptroller is 6 percent. The Federal Reserve proposes to gear the nature and intensity of its supervisory action to the zone within which a bank's ratio of total capital to adjusted assets falls.

Zone 1	at least 7 percent
Zone 2	6 to 7 percent
Zone 3	below 6 percent

Banks in Zone 1 have adequate capital provided the primary capital requirement is met. Banks in Zone 2 will be presumed to have adequate capital provided they are sound in all other respects. Banks in Zone 3, absent extenuating circumstances, will be presumed to have inadequate capital, even if the primary capital requirement is met.

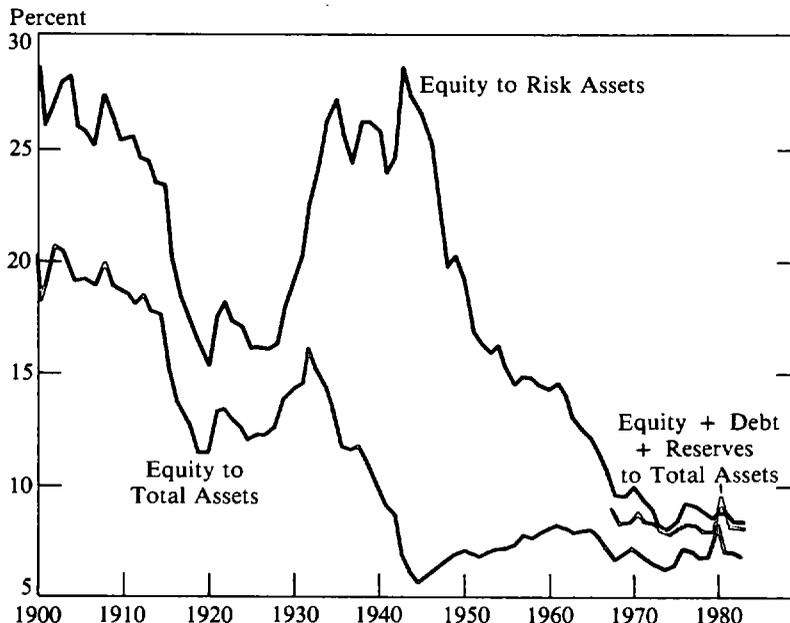
Notes:

All three federal supervisors regard the minimum ratios as a floor and expect most banks to maintain capital ratios above the minimum.

The three federal bank supervisors define primary capital, total assets, and adjusted assets identically. Primary capital is essentially equity plus loan loss reserves. Adjusted assets are total assets less intangible assets.

The supervisors define total capital, the sum of primary and secondary capital, differently. Debt with an original weighted average maturity of seven years essentially composes secondary capital for the FDIC and the Comptroller. All debt with at least five years to maturity, 80 percent of debt with four to five years to maturity, 60 percent of debt with three to four years to maturity, 40 percent of debt with two to three years to maturity, and 20 percent of debt with one to two years to maturity essentially composes secondary capital for the Federal Reserve, subject to the limitation that secondary capital not exceed 50 percent of primary capital.

CHART 1
Capital ratios of commercial banks



tion of capital to include loan loss reserves and long-term debt does not substantially raise the capital-asset ratio. While the ratio of equity to risk assets shows a slightly different pattern, its long-term trend has also been downward.

Although the banking industry appears better capitalized today than in the mid-1940s, judging by the equity-asset ratio, this conclusion is weakened when foreign offices of domestic banks are included. Foreign offices accept deposits and hold assets but provide virtually no additional equity. Hence, when the balance sheets of a bank's domestic and foreign offices are combined, the equity-asset ratio is lower. In 1983, for example, the average equity-asset ratio for domestic banks and their foreign offices was 6 percent, nearly as low as the equity-domestic asset ratio in 1945.⁴

Causes and consequences of the long-run decline in bank capital

The major question raised by today's historically low capital ratios is whether the banking system is riskier as a result. This section argues that while low capital ratios do not necessarily mean a riskier banking system, current low capital ratios do expose the banking system to greater risk. The first part of the section discusses the factors influencing bankers' and bank supervisors' preferred capital ratios and explains why bankers usually prefer lower capital ratios than bank supervisors. The

⁴ The equity-domestic asset ratio is also overstated due to "double leveraging" between banks and bank holding companies, which is discussed later. Briefly, double leveraging overstates capital ratios because some equity at banks affiliated with holding companies was purchased on credit by holding companies and, therefore, is little different than debt.

second part examines major factors that led to the long-run decline in bank capital ratios and explains why much of the decline did not adversely affect the riskiness of the banking system. The third part investigates why risk to the banking system probably increased recently.⁵

Capital preferences of bankers and bank supervisors

Throughout much of the history of bank capital regulation, bank capital ratios have differed—sometimes significantly—from bank supervisors' capital guidelines. These differences arise because bankers and bank supervisors consider different sets of competing objectives when choosing preferred capital ratios.

Bankers, as agents of bank shareholders, tend to choose capital ratios that maximize shareholders' expected welfare. Bankers maximize expected welfare by choosing capital ratios representing the optimal tradeoff between the two criteria by which expected welfare is judged: expected return and riskiness. For a given level of risk, shareholders are made better off by decisions that increase expected return. For a given level of expected return, shareholders are made better off by decisions that reduce risk. In maximizing shareholders' expected welfare, bankers make tradeoffs between expected return and risk because greater returns can usually be earned only by assuming greater risk.⁶

Bankers' capital decisions affect shareholders' expected welfare by affecting both expected return and risk. Expected return is

⁵ Throughout this section, capital is defined as shareholders' equity and the term "capital ratios" is used to refer to capital relative to such financial accounts as total assets, deposits, and risk assets.

normally reduced by increases in a bank's capital ratio, other things equal, since expected profits must be divided among a larger number of shares. An increase in capital ratios tends to reduce riskiness, other things equal, since capital increases a bank's ability to absorb losses and reduces the likelihood that the bank will fail. The effect on shareholders' expected welfare of an increase in capital ratios depends on the relative strengths of the return-reducing and risk-reducing effects. Bankers weigh these opposing effects in adjusting capital ratios.

Bank supervisors, as agents of the public, try to maximize society's welfare by choosing capital ratios representing the optimal tradeoff among the three objectives of bank regulation: to protect depositors, to promote a stable money supply by preventing financial panics, and to foster an efficient and competitive banking system that facilitates financial intermediation. Supervisors make tradeoffs because they cannot set capital requirements that best achieve all three objectives simultaneously. High capital requirements protect depositors and prevent financial panics by increasing banks' ability to absorb losses and withstand unexpected shocks.⁷ But high capital

⁶ It could be argued at a theoretical level that shareholders should not be concerned about risk because they hold well-diversified portfolios. As a practical matter, this is probably true only for shareholders in the largest banks and bank holding companies. Smaller banks are often either closely held private firms or publicly owned firms with shares traded in thin markets on local and regional exchanges. The illiquidity of small bank stocks causes investors in these stocks to be concerned about risk because investors cannot adjust their portfolios quickly and costlessly.

⁷ There is at least one plausible reason why high capital requirements might fail to protect the financial system. High capital requirements could increase the cost of bank funds and, therefore, the rates of return banks must earn on assets to maintain the same degree of profitability. Since less creditworthy borrowers must pay higher rates for loans, banks would have an incentive to make riskier loans. Riskier loan portfolios, in turn, would pose a threat to the financial system.

requirements hinder financial intermediation by limiting the growth of the banking sector and increasing the spread between lending and borrowing rates. Correspondingly, low capital requirements foster financial intermediation at the expense of depositor safety and financial stability. In setting capital requirements, therefore, supervisors weigh the social costs of achieving alternative objectives.

Because bankers and bank regulators consider different sets of competing objectives when choosing preferred capital ratios, their preferences rarely coincide. Bankers usually prefer lower capital ratios because they do not consider the social costs of a bank failure, such as confidence lost in the banking system and the out-of-pocket costs to depositors that withdraw funds from "shaky" banks. Supervisors prefer higher capital ratios because, as agents of the public, they believe the public wishes to minimize these costs. Because bank supervisors lacked effective means to enforce their preferred capital ratios until recently, the decline in capital ratios since 1900 mainly reflects bankers' preferences.

Factors in the decline in bank capital ratios

Current low bank capital ratios are mainly the result of four factors: greater economic stability, formation of bank holding companies, federal deposit insurance, and inflation. Most of these factors allowed bankers to reduce capital ratios by increasing banks' ability to absorb losses and withstand unexpected shocks. As a result, lower capital benefited bank shareholders without increasing the riskiness of the banking system. More recently, though, some of these factors have resulted in low capital ratios that benefited bank shareholders while increasing the riskiness of the banking system.

Greater economic stability. A striking fea-

ture of the postwar era is the absence of severe economic recessions accompanied by financial panics, such as characterized in the 1800s and the early 1900s. Several factors contributed to this stability. One was the transition from a less stable agricultural and manufacturing economy to a more stable services and high-tech industry-based economy. Another was the development of national money markets, which increased liquidity and made an activist monetary policy possible. A third factor was a change in national economic policy, evidenced by the Federal Reserve's greater willingness to act as a lender of last resort and the federal government's greater willingness to pursue high employment and high production policies, as articulated in the Employment Act of 1946.

Greater economic stability contributed to declining bank capital ratios in two ways. First, it reduced the severity of the worst-case scenario for which bankers had to plan, thus reducing the amount of capital needed to protect creditors against deposit runs and earnings shortfalls. Second, it allowed bankers to substitute liquidity—in this case, the ability to raise funds and sell assets in money markets—for capital. For both reasons, greater economic stability allowed bankers to reduce capital ratios without subjecting shareholders to additional risk or decreasing shareholders' expected welfare.⁸ For the same reasons, lower capital ratios did not increase the riskiness of the banking system.

Bank holding companies. One of the most significant recent developments in the banking industry is the rise of bank holding compa-

⁸ For corroboration of this point, see Wesley Lindow, "Bank Capital and Risk Assets," *National Banking Review*, September 1963, pp. 34-35; and Roland Robinson and Robert Pettway, *Policies for Optimum Bank Capital*, Association of Reserve City Bankers, Chicago, 1967, pp. 39-40.

nies. Whereas bank holding companies controlled less than 13 percent of total domestic commercial bank deposits in 1965, they controlled 84 percent by 1983. Multibank holding companies controlled 53 percent of total domestic commercial bank deposits in 1983, while one-bank holding companies controlled 31 percent. The dramatic change in the organizational form of banking firms was motivated by bankers' desire to expand product lines, diversify geographical markets, and exploit certain tax benefits. Financial considerations were also important.

The bank holding company movement contributed to low capital ratios at subsidiary banks by enabling them to substitute liquidity for capital to protect creditors. This is because affiliation with a holding company, especially a multibank company, increases a bank's ability to raise funds quickly. Affiliation improves fund raising by giving banks access to credit markets. Because of their larger size, holding companies can raise funds in credit markets and "downstream" them to subsidiary banks, which are usually too small to borrow directly. Holding companies can also raise funds in credit markets and use them to buy new shares in subsidiary banks. This practice, known as double leveraging, is used extensively to increase subsidiary bank capital. Affiliation also improves fund raising by giving banks access to the earnings of sister banks and nonbank affiliates in the event of a cash shortfall.⁹ Ready access to credit markets and affiliates' earnings partially explains why banks belonging to holding companies have tended to operate at lower capital ratios than

independent banks: affiliation permits subsidiary banks to operate at lower capital ratios without increasing risk, and thus without reducing shareholders' expected welfare or increasing the riskiness of the banking system.¹⁰

Federal deposit insurance. One of the most important institutional changes adopted as a result of the financial collapse in the 1930s was the federal deposit insurance program. Administered by the FDIC, the program fully insures deposits at FDIC-member banks up to a specified amount, currently \$100,000, in the event of bank failure. Federally insured banks pay a premium equal to 1/12 of one percent of deposits, although annual rebates reduce the effective insurance premium. If an insured bank fails, the FDIC either pays off insured depositors and liquidates the bank's assets or arranges for a healthy bank to take over the failed institution. Either way, no insured depositor has lost money in a failed bank since the introduction of federal deposit insurance.

Federal deposit insurance contributed to the secular decline in bank capital ratios both by increasing deposit safety and by allowing banks to shift risk to the FDIC. Greater deposit safety reduced the amount of capital needed to keep a bank solvent by reducing the likelihood of financial panic. A stronger banking system, in turn, reduced the bank capital ratios needed to give the public the same level of protection. Greater deposit safety probably explains most of the decline in banks' equity-asset ratios between 1933 and 1945 (Chart 1). More recently, federal deposit insurance's

⁹ Access is regulated under Section 23A of the Federal Reserve Act, which limits transactions among bank holding company affiliates. Financial transactions among sister banks are virtually unlimited, whereas transactions between a bank and nonbank subsidiaries are limited by the bank's capital.

¹⁰ See Arnold A. Heggstad and John J. Mingo, "Capital Management by Holding Company Banks," *Journal of Business*, October 1975, pp. 500-05; and John J. Mingo, "Managerial Motives, Market Structure and the Performance of Holding Company Banks," *Economic Inquiry*, September 1976, pp. 411-24.

fixed-rate premium contributed to the decline in capital ratios by allowing insured banks to shift risk to the FDIC. Since the cost of deposit insurance is unrelated to bank risk, banks are not discouraged by rising premiums from maintaining lower, riskier capital ratios. This, together with the fact that banks can usually earn higher rates of return at lower capital ratios, encouraged bankers to maintain lower capital ratios. While the expected returns to bank shareholders from lower capital ratios outweighed any increases in risk, lower capital ratios due to risk shifting increased bank risk to the public.¹¹

Inflation. Inflation was high by historical standards from the mid-1960s to the early 1980s. Persistent high inflation led creditors, including banks, to add an inflation premium to lending rates to compensate for being repaid in smaller dollars.

Inflation contributed to low bank capital ratios during this period by reducing after-tax inflation-adjusted bank profits. Because the tax system is not indexed for inflation, part of the inflation premiums banks added to lending rates were taxed away. As a result, banks' after-tax inflation-adjusted profit rates fell below profit rates at nonfinancial firms, which benefited more than banks from the untaxed appreciation in physical assets.¹² The prospect of persistent inflation and persistently low after-tax inflation-adjusted bank profit rates depressed the prices of bank stocks. Low stock prices, in turn, kept bankers from selling

¹¹ Several statistical studies have shown that both the deposit safety-enhancing and risk-shifting effects of federal deposit insurance exerted a significant influence on bankers' capital decisions after 1933. See Mingo.

¹² The profitability of banks and nonfinancial firms can be compared by comparing price-earnings ratios, which represent rates of return on shareholders' equity. Since 1978, nonfinancial corporations have typically exhibited price-earnings ratios of around 10, whereas banks have exhibited P-E ratios of about 8.

new shares to raise capital because they considered the dilution of earnings too detrimental to banks' current shareholders. Many bankers ruled out retaining more earnings to raise capital on grounds that shareholders could earn higher rates of return by reinvesting dividends outside of the banking industry. Under the circumstances, bankers often found that shareholders' expected welfare was maximized by simply allowing capital ratios to decline.¹³ But the decline in bank capital ratios increased the riskiness of the banking system.

In summary, current historically low bank capital ratios can be explained by the expected welfare maximizing behavior of bankers. Significantly, much of the long-term decline in capital ratios had little effect on the risk faced by either bank shareholders or the public. Specifically, the decline in capital ratios resulting from greater economic stability, enhanced deposit safety through federal deposit insurance, and the bank holding company movement did not increase the riskiness of the banking system because these factors reduced the amount of capital needed to afford the system a given degree of protection. Although the decline in capital ratios due to inflation and risk shifting to the FDIC did increase risk, these factors were probably not important until recently.

Other factors affecting banking risk

Capital ratios are but one of the factors affecting the strength of individual banks and the banking system. Recently, changes in other factors combined with low capital ratios

¹³ See Henry Wallich, "Inflation is Destroying Bank Earnings and Capital Adequacy," *The Bankers' Magazine*, Autumn 1977, pp. 12-16; and Kenneth Spong, Larry Meeker, and Forest Myers, "The Paradox of Record Bank Earnings and Declining Capital," *The Magazine of Bank Administration*, October 1980, pp. 22-27.

probably increased the riskiness of the banking system by increasing the amount of capital needed to afford the system a given degree of protection. Other factors affecting the strength of individual banks include asset quality, management quality, earnings, and liquidity.¹⁴ The most important factor affecting the strength of the banking system is the banking environment.

Declines in asset quality have definitely increased the capital ratios needed to give the financial system the same degree of protection. The most spectacular example is the declining quality of loans to Latin American countries. Since 1982, the debt repayment problems of the principal Latin American debtors—Mexico, Brazil, and Argentina—have sent shock waves through the U.S. banking community, which held \$53 billion in loans to these countries at the end of 1982, representing 75 percent of total capital.¹⁵ Although debt repudiation is unlikely, many banks with large exposures to these countries have seen the prices of their stocks plunge, suggesting that investors perceive a substantial reduction in the quality of Latin American loans.¹⁶

Improvements in the quality of bank managements have probably reduced slightly the

capital ratios necessary for a given level of protection. Bankers are using increasingly sophisticated techniques to make short-run investment decisions and long-run strategic decisions. Furthermore, the bank holding company movement has tended to improve management at small banks. Nevertheless, most of the recent spate of bank failures has been due largely to poor management.¹⁷

While banks' reported earnings have shown surprising strength in recent years, reported earnings have nevertheless increased the capital ratios needed for a given degree of protection. As noted in the discussion of inflation, the interaction of inflation and tax system has substantially reduced banks' inflation-adjusted after-tax earnings, the income available to augment capital. Modest real after-tax earnings have left creditors less well protected and left banks less able to survive losses sustained over several periods.

Trends in bank liquidity have probably had an ambiguous effect on the capital ratios needed to protect the financial system. The bank holding company movement improved liquidity at subsidiary banks by giving them access to financial markets and affiliates' earnings. But shifts in asset composition at all banks reduced liquidity. By December 31, 1983, relatively liquid assets such as cash and Treasury securities comprised only 19 percent of the assets of insured banks, compared with 44 percent at the end of 1960. Loans, which

¹⁴ Capital adequacy, asset quality, management quality, earnings, and liquidity are the five areas in which banks are rated under the CAMEL system introduced by the three federal bank supervisory agencies in May 1978. Banks are given a composite rating of 1 to 5 based on examiners' assessment of a bank's overall strength. Banks rated 1 or 2 are considered sound whereas banks rated as 3, 4, or 5 are considered weak.

¹⁵ Statement by Paul Volcker, Chairman, Board of Governors of the Federal Reserve System, before the Committee on Banking, Finance, and Urban Affairs, House of Representatives, February 2, 1983, Table V.

¹⁶ Another section of the International Lending Supervision Act empowered bank supervisors to require that banks hold reserves against loans to foreign countries with debt repayment problems. This power, however, has not been exercised.

¹⁷ For evidence on improvements in bank management, see Benton E. Gup and David D. Whitehead, "Shifting the Game Plan: Strategic Planning in Financial Institutions," *Federal Reserve Bank of Atlanta Economic Review*, December 1983, pp. 22-33; and Robert J. Lawrence and Samuel H. Talley, "An Assessment of Bank Holding Companies," *Federal Reserve Bulletin*, January 1976, p. 18. For evidence on the role of bank management in recent bank failures, see the interview with John Downey, Chief Bank Examiner, Comptroller of the Currency, *Washington Financial Reports*, January 16, 1984, pp. 163-67.

are relatively illiquid, increased as a percentage of total assets to 54 percent in 1983 from 46 percent in 1960.

Changes in the banking environment as a result of financial market deregulation have undoubtedly increased the capital ratios needed to protect the financial system. Deregulation has increased risk at given capital ratios by forcing banks to compete more closely among themselves and with nonbank firms. Increased competition tends to lower profit margins and reduce earnings, thus increasing the likelihood that prolonged losses will exhaust banks' capital and cause them to fail. Increased competition also increases risk by forcing banks to develop new products and services. Since some products inevitably fail, banks unsuccessful at product innovation suffer losses that could exhaust their capital. Deregulation has probably not yet proceeded far enough for reduced earnings and failed innovations to have measurably affected aggregate bank capital. But these factors are among the ones that will make increasing future bank capital ratios difficult. Hence, to protect the financial system from greater risk in the future banking environment, higher capital ratios are needed today.

On balance, the other factors affecting the strength of the financial system probably increased the riskiness of the banking sector at current low capital ratios. Bankers apparently held this view because they began sharply increasing net chargeoffs and provisions for loan losses in 1982. Bank supervisors undoubtedly held this view because they took steps to increase capital ratios at larger banks, which, as a group, had significantly lower capital ratios than small banks. Congress evidently held this view because it passed the International Lending Supervision Act to strengthen banks.

If the banking environment really did get

riskier, it is reasonable to ask whether the steps taken by bank regulators and Congress are enough to ensure a strong financial system. This question is the subject of the next section.

Policy options

Critics of banking regulation have long argued that regulating bank capital is not the best way to ensure the safety and soundness of the financial system. Over the years, they have proposed several alternative methods for controlling bank risk. Most of the proposals would replace bank capital regulation with one of two plans: market regulation of bank capital or modification of federal deposit insurance. Before discussing these proposals, it is useful to evaluate the arguments against bank capital regulation.

Arguments against bank capital regulation

The major argument against regulation of bank capital is that there is little evidence that capital ratios are reliably related to bank failures and, therefore, bank riskiness. Most statistical studies of the causes of bank failure conclude that low capital ratios are not the primary cause. During the Banking Panic of 1933, for example, many banks with low capital ratios did not fail while many with high capital ratios did. Most of the banks that have failed since the 1930s failed because of embezzlement, mismanagement, and insufficient liquidity due to low earnings, rather than undercapitalization.¹⁸

The weakness of the link between bank capital and bank failures does not mean, however, that capital is irrelevant to bank solvency. Rather, it is evident that simple capital ratios are imperfect measures of capital adequacy, as recent empirical work on bank failures has

shown.¹⁹ Other things equal, the better capitalized a bank is, the safer and sounder it is. Moreover, simple capital ratios have the virtues of being objective measures of bank strength and being easy for bank supervisors to monitor. Because simple capital ratios are poor predictors of bank failures, however, other ways of controlling bank risk have received serious consideration.

Market regulation of bank capital

One alternative is market regulation of bank capital. Under this alternative, current and potential depositors, creditors, and shareholders replace bank supervisors as monitors of bank capital. Market regulation is based on the notion that market forces are better able than supervisors to control risk at banks. Investors' assessments of banking conditions, including risk, are reflected in the rates banks pay for uninsured deposits and long-term debt as well as the prices of bank stocks. A bank that holds too little capital, in the judgment of investors, can expect the price of its stock to fall because it exposes shareholders to a greater risk of loss. To raise the price of their shares, current shareholders pressure bankers into strengthening the bank's capital position. Shareholders do not pressure bankers into adding too much capital, in their own judgment and the judgment of potential shareholders, because too

much capital reduces investors' expected returns, causing the price of the bank's stock to fall again. Hence, market forces should lead banks to maintain capital levels that best balance risk and expected return to shareholders.

Although market regulation is clearly preferable to supervisor regulation in principle, serious objections have been raised to this alternative. Several empirical studies have shown that the price of a bank's stock is either insensitive to the bank's financial condition or inconsistently related to its financial condition.²⁰ Some researchers have argued that the weak relationship between stock price and financial condition shows that the banking industry is currently overcapitalized. But a more plausible explanation is that investors in bank stocks lack the information and expertise needed to assess the risk posed by alternative capital ratios and, therefore, fail to penalize banks with low capital ratios. Another objection to market regulation is that it could not effectively control risk at most banks because their shares are not traded widely on public exchanges. Perhaps the strongest criticism against market regulation is that investors, like bankers, do not consider the social costs of a bank failure and, therefore, require too little capital to ensure the safety and soundness of the financial system. In view of the inability of market forces to control bank risk, some form of capital regulation by bank supervisors seems imperative.

¹⁸ See, for example, Richard V. Cotter, "Capital Ratios and Capital Adequacy," *National Banking Review*, March 1966, pp. 333-46; Vincent Apilado and Thomas Gies, "Capital Adequacy and Commercial Bank Failure," *Bankers' Magazine*, Summer 1972, pp. 24-30; and Anthony Santomero and Joseph Vinso, "Estimating the Probability of Failure for Commercial Banks and the Banking System," *Journal of Banking and Finance*, October 1977, pp. 185-205.

¹⁹ See Yair Orgler, "Capital Adequacy and Recoveries from Failed Banks," *Journal of Finance*, December 1975, pp. 1366-75; and Joseph Sinkey, "Identifying Problem Banks," *Journal of Money, Credit and Banking*, May 1978, pp. 184-92.

²⁰ See, for example, David Humphrey and Samuel Talley, "Market Regulation of Bank Leverage," Research Paper No. 7, Board of Governors, September 1975; H. Prescott Beighly, John H. Boyd, and Donald P. Jacobs, "Bank Equities and Investor Risk Perceptions: Some Entailments for Capital Adequacy Regulation," *Journal of Bank Research*, Autumn 1975; and Richard Pettway, "Market Tests of Capital Adequacy of Large Commercial Banks," *Journal of Finance*, June 1976.

Modification of fixed-rate deposit insurance

Another alternative for controlling bank risk is variable-rate deposit insurance and a reduction or elimination of capital requirements. Under a variable-rate system, the cost of insuring deposits would vary with the riskiness of the bank as judged primarily by capital ratios and the quality of bank assets: banks with riskier assets and lower capital ratios would pay higher premiums. The chief advantage of a properly administered variable-rate system is that it would allow bankers to choose the assets and capital ratios representing the best combination of expected returns and risk for bank shareholders while providing an insurance fund adequate to ensure a strong financial system. The FDIC has recently submitted a bill to Congress that would permit premiums to vary somewhat according to banks' riskiness.²¹

Although a variable-rate deposit insurance system would neatly resolve the conflicting objectives of bankers and bank supervisors, the system would have two practical problems. One would be assessing the riskiness of banks. Risk assessments would probably be made by comparing banks' financial ratios with standards set by the FDIC. The principal danger of this approach is that the standards might reflect risk only after banks became troubled, instead of as they assumed risk. Another difficulty would be setting the fee schedule. The fee schedule would need to compensate society for additional risk taking

by banks. As a practical matter, constructing such a fee schedule would be quite difficult. Hence, even if a variable-rate deposit insurance system were adopted, minimum capital requirements would still be needed to protect the financial system.²²

Conclusion

Despite their limitation as a means of controlling bank risk, enforceable minimum capital requirements are necessary to ensure the safety and soundness of the financial system. Recent changes in bank asset quality and inflation-adjusted after-tax profits together with the prospect of highly uncertain change in the financial services industry have increased the capital ratios needed to provide bank creditors and the financial system a given level of protection from widespread bank failures. Without capital requirements, substantial voluntary additions to capital would be unlikely because the profit-eroding effect of inflation has made new equity costly and retained earnings a limited source of capital. Moreover, bankers pick capital ratios that are too low from society's perspective because they ignore the social costs of bank failures. Other methods of controlling bank risk, such as market regulation of bank capital and variable-rate deposit insurance, are superior to minimum capital requirements in theory but not in practice. Under the circumstances, the establishment of minimum capital requirements was imperative.

²¹ *American Banker*, November 17, 1983. For a detailed discussion of variable-rate deposit insurance, see John Kareken and Neil Wallace, "Deposit Insurance and Bank Regulation: A Partial Equilibrium Exposition," *Journal of Business*, July 1978.

²² For a fuller discussion of the disadvantages of variable-rate deposit insurance, see Anthony Santomero, *Current Views on the Bank Capital Issue*, Association of Reserve City Bankers, Washington, 1983, Chapter 6.