

# BANK CAPITAL ADEQUACY: PERSPECTIVES AND PROSPECTS

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Recently Arthur Burns, Chairman of the Board of Governors of the Federal Reserve System, reported to the Senate Committee on Banking, Housing, and Urban Affairs on the condition of the nation's banking system [2]. In his review of banking conditions prominent attention was given to capital adequacy, over which concern has increased in recent years. This concern centers around erosion of key capital adequacy ratios and has been heightened due to the spread of banking practices that entail greater risk (for example, liabilities management) and to problems with loan losses. Fortunately, Chairman Burns was able to report that the capital position of the banking system has shown improvement over the past several years.

There is no guarantee, however, that this improvement will continue. In fact, recent increases in capital/asset ratios are partly attributable to a recession-induced slowing in the rate of growth of bank assets. A return to the rapid asset growth that characterized the early 1970's is likely again to put downward pressure on capital/asset ratios. Concern over bank capital adequacy, therefore, is likely to continue.

The purpose of this article is to review the historical trends leading to the present day capitalization of the banking system and to provide perspectives on several key questions surrounding the capital adequacy issue. These questions concern the banking system's likely future capital requirements and the ability of the industry to meet these requirements. In addition, an institutional change that has been proposed as a solution to the capital adequacy problem is described and evaluated.

**Trends in Capital Adequacy** Traditionally, bank capital adequacy has been viewed in the analytical context of ratio analysis. Using this analytical framework, bank capital positions are evaluated in terms of their relationship to a broad balance sheet measure, commonly total deposits, total assets, or some special combination of assets. Evolutionary changes in the banking environment, however, introduce a good deal of relativism into ratio analysis.

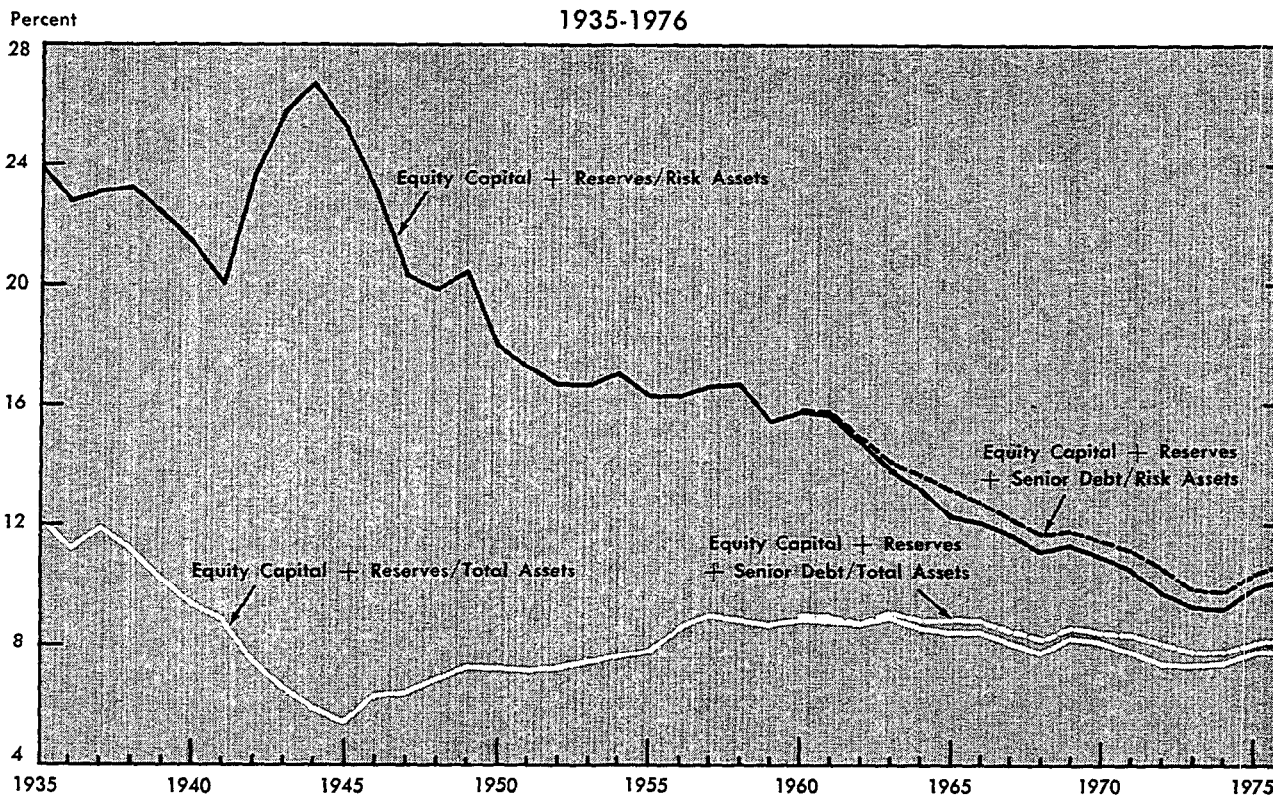
*Capital/Asset Ratios* The chart plots movements in two ratios that have been widely used in evaluating modern day capital adequacy. These are equity capital plus reserves/total assets and equity capital plus reserves/risk assets. For reasons to be discussed more fully below, these ratios include loss reserves as part of the capital base. In short, reserves and capital work together in providing protection against bank failure.

In the years prior to World War II, the regulatory authorities relied chiefly on the ratio of capital/total assets as an analytical tool for evaluating bank capital positions. Starting from a comfortable 12.2 percent in 1935, this ratio subsequently declined very rapidly. This decline started as a result of a prewar recovery in credit demand that was accompanied by only very modest increases in bank capitalization. The decline in the capital/total asset ratio became even more rapid as the banking system acquired huge quantities of U. S. Government securities issued in connection with wartime financing. By 1945, the ratio had fallen to 5.5 percent despite large additions to the equity capital base that were inaugurated starting in the early 1940's. Analysis of this decline by concerned bank regulators led to recognition of the differences in default risk among different types of assets. As a consequence, a new ratio for evaluating capital adequacy came into use. This is the ratio of capital to risk assets, the denominator being defined as total assets minus those assets free of default risk (cash and U. S. Government securities).

The capital to risk asset ratio has become one of the most widely used analytical measures of bank capital adequacy. Since risk assets are always less than total assets, the capital/risk asset ratio is naturally higher than the capital/total asset ratio for any given computational period. The capital/risk asset ratio was 24.0 percent in 1935 and rose to a peak of 26.7 percent in 1944 as bank acquisitions of U. S. Government securities during the war years acted to increase the fraction of risk-free assets. Conceptually, the switch by Federal bank regulatory agencies from a capital/total asset to a capital/risk asset approach

## CAPITAL RATIOS, INSURED COMMERCIAL BANKS

1935-1976



Note: Risk assets are defined as total assets minus cash and due from banks and U. S. Government securities.

Source: Federal Deposit Insurance Corporation, Annual Report.

in evaluating bank capital positions served its intended function, namely to provide a capital adequacy measure that would not penalize banks for asset growth directly related to financing of the war effort.

In the 1950's, the capital/risk asset ratio declined at a moderate rate, from 18.0 percent at the beginning of the decade to 15.5 percent in 1959. The capital/total asset ratio, however, increased from 7.1 percent to 8.7 percent. This divergent movement of the ratios is explained by the relative rates of growth of the capital base and the various types of bank assets. The capital/total asset ratio clearly indicates that equity growth, which resulted almost exclusively from additions to retained earnings, exceeded growth in total assets. This condition is generally considered to be representative of strengthening capital positions. But substitution of loans and other investments for holdings of U. S. Government securities also occurred, resulting in a rate of increase in risk assets that exceeded the rate of increase in capital. Taking the capital/total asset ratio into account along with the capital/risk asset ratio makes it clear that the 1950's was a period of strengthening in the banking system's capital position.

In the early 1960's, the capital/total asset ratio started to decline along with the capital/risk asset ratio. The declines were the result of accelerating rates of increase in risk assets and total assets that outpaced the rate of increase in the capital base. By 1969 the ratios of equity capital plus reserves/risk assets and equity capital plus reserves/total assets had dropped to 11.3 percent and 8.2 percent, respectively. By 1973 these ratios had declined to 9.3 percent and 7.4 percent, respectively. From the early 1960's through the early 1970's, therefore, the banking system clearly suffered a decline in the relation between capital and assets.

*Senior Debt and Ratio Analysis* Two capital adequacy measures that include senior debt (capital notes and debentures) in the computation of the capital base are also plotted on the chart starting from 1960. It is evident that senior debt has been used as a supplement to the capital base to a significant extent since the mid-1960's. These ratios are important because they represent an attempt to forestall, or at least to mitigate, the erosion in the capital/risk asset and capital/total asset ratios. This attempt

was abetted by a 1960 decision of the Comptroller of the Currency to accept limited amounts of senior debt in substitution for additions to the capital base of national banks. Actually, some analysts contend that senior debt should be viewed on an equal footing with equity capital and reserves and that the most relevant capital adequacy ratios are those that include senior debt. This view has also been advocated by some bankers, and by 1976 senior debt grew to 6.5 percent of equity capital plus reserves for all insured commercial banks. The pattern of utilization of senior debt across the banking industry, however, has been quite uneven.

A study of the extent of reliance upon senior debt by commercial banks [1] has shown that the number of banks issuing notes and debentures increased from only two in 1961 to 635 by mid-1972. Participation increased steadily in the 1960's and accelerated in the early 1970's. Nevertheless, the 635 banks with notes and debentures outstanding in mid-1972 represented only 4.7 percent of all commercial banks. Initially, state chartered banks participated in greater numbers than national banks, although national banks have an overwhelmingly larger dollar volume of debt outstanding. It now appears that national banks lead in terms of both number and dollar volume. For all issuing banks, the ratio of senior debt to total capital in mid-1972 was 19.2 percent. As a group, banks issuing notes and debentures seem to place a fairly heavy reliance on the use of senior debt as a supplement to capital.

**Estimating Future Capital Requirements** Estimating the future capital requirements of the banking system is not an easy task, depending as it does on key assumptions that contain some degree of uncertainty. The most important assumptions are those about regulatory policies regarding bank capital and the likely path of the banking system's asset growth. These will be considered in turn.

*Regulatory Policies Regarding Bank Capital* With respect to regulatory policies, it can be safely assumed that the current degree of capitalization of the banking system represents a minimum below which banks will be encouraged not to fall. From the chart the current degree of capitalization in terms of the capital/total asset ratio lies in the neighborhood of 8 percent. Recent regulatory actions taken by the Federal Reserve to deny applications for bank holding company expansion because of concern about the capital adequacy of bank subsidiaries provide evidence that this minimum will be enforced.

*Future Asset Growth* Forecasting asset growth is a particularly difficult task. This is so inasmuch as asset growth is itself a function of credit demands and the amount of reserves supplied by the central bank. One approach to forecasting asset growth entails working with possible ranges of banking activity, as has been done in a recent study by George Hempel [5]. In this study, which provides one of the most current formal estimates of capital requirements available, annually compounded asset growth rates ranging from 2-16 percent are applied to forecasting periods beginning with the year 1975 and extending to 1980 and 1985. Assuming a 10 percent growth rate through 1980, which falls a bit below the 11 percent rate of the 1969-1975 period; and an 8 percent capital/total asset ratio, the banking system's capital base would be required to expand to \$125 billion. The same set of assumptions extended to 1985 would require an expansion in the capital base to \$201 billion. These two estimates can be compared to the \$73 billion of equity capital plus reserves held by the banking system in 1975 and would require additions to the capital base of \$52 billion and \$128 billion, respectively. If recent experience is taken as a guide, it may prove difficult for the banking system to meet these capital requirements.

An estimated net addition to capital of \$52 billion over the period 1976-1980 would require average annual increments of about \$10.4 billion. In contrast, average annual additions over the period 1969-1975 equaled \$5.9 billion. These additions were below the amounts necessary to prevent declines in the key capital/asset ratios. Excessive reliance should not be placed on the details of this comparison, since the estimate of future needs is based on an assumption about asset growth selected from a broad range of possibilities. The comparative figures do, however, illustrate one point quite vividly. If bank asset expansion is to progress at anywhere near the rate of the early 1970's, then enlarged additions to the capital base will be necessary.

**Meeting Future Capital Requirements** There are two basic ways for banks to meet their capital requirements, namely through utilization of internal or external sources of funds. Internal funds generation depends on profitability and earnings retention, while external funds generation is accomplished through selling stock in the capital markets.

*External Generation of Capital* External generation of capital has, unfortunately, traditionally posed difficulties for banks. Price/earnings ratios on bank stocks commonly run below 10, meaning that new

shares sold carry a capital cost of over 10 percent [7]. Quite often, therefore, stock issues constitute an expensive form of capital generation and can even contribute to further declines in the price/earnings ratio by diluting earnings per share. Unless market conditions for bank stock change dramatically, it appears that stock issues cannot be counted on to provide a major part of estimated future capital requirements under conditions of rapid asset growth. In 1976, banks generated only about \$350 million in equity capital. This contrasts sharply with the roughly \$10.4 billion total annual requirement estimated earlier.

*Internal Generation of Capital* Internal generation of capital, accomplished by making after-tax additions to undivided profits, is the other means for increasing stockholders equity. Also, pre-tax additions can be made to loss reserves on the basis of historical or actual loss experience. Additions to undivided profits, or retained earnings, offer some discretion to banks, being a function not only of profitability but also of the dividend payout rate. Dependable earnings, therefore, will play an extremely important role in helping fund future capital requirements. This is especially true for smaller banks, which typically have fewer opportunities for raising external capital than do larger banks and necessarily operate with lower dividend payout rates. Larger banking organizations that operate with 45-50 percent dividend payout rates have the option of making reductions in the rate of dividend payout in order to supplement retained earnings.

Hempel [5, p. 18] estimates that, assuming an earnings growth rate of 8 percent and a dividend payout rate of 40 percent, earnings retention for the banking system will amount to \$27 billion by 1980 and \$66 billion by 1985. Applying these estimates to the projected annual capital requirement for the 1976-1980 period of \$10.4 billion leaves an annual external financing requirement of \$5.0 billion. Again, too much emphasis should not be placed on the details of this estimate. However, a strong suggestion is given that greater reliance may have to be placed on the capital markets in the future. Some more recent estimates of external financing requirements lie in the \$2-3 billion range [4], still a significant amount by historical standards.

*Debt As A Capital Supplement* There remains the possibility, advocated by some analysts, of more intensive use of senior debt as a supplement to the capital base. This is an attractive alternative to banks from the standpoint of cost, inasmuch as interest payments on debt are tax deductible and therefore

have a tax equivalent cost equal to only about half the value of actual dollar interest payments. As has already been mentioned, some banks have made fairly extensive use of senior debt as an alternative to equity capital.

Both equity and senior debt have a claim on bank assets that is subordinate to the claim held by depositors. In this sense, equity and debt are on an equal footing in offering depositor protection should bank failure occur. Such protection is important, of course, because of the risk exposure that depositors bear. Banks are unique businesses in the sense that they are privately owned and operated and yet have a special fiduciary relationship with depositors. Given the risks inherent in the banking business, which include credit and liquidity risks in addition to the normal operating risks, not only shareholders but also depositors are exposed to losses. Before the days of Federal deposit insurance, bank capital played an unambiguous role as protection for the depositor. Without a central insurance fund, the bank depositor was forced to rely on his personal assessment of the stability of the bank holding his funds. Individual bank capital positions thus meant a great deal in terms of reassuring depositors about the safety of their funds. With the formation of the FDIC in 1934, however, the risk of loss to a large class of depositors was virtually eliminated.<sup>1</sup> From the standpoint of the average depositor, therefore, bank capitalization is no longer the determining factor in evaluating deposit safety. Recognition of this may have actually provided banks with an incentive to reduce their capitalization, there no longer being a cost to declining capital in the form of lost deposits. One line of thinking attributes the sharply lower capital ratios that prevail today to the fact that FDIC insurance now performs part of the task formerly done by bank capital [8].

There is, however, an important sense in which equity and debt are not equal, namely in acting to prevent bank failure in the first place. In the event of unusual losses, profits can be reduced to zero, and the reserve account and the equity account are available to absorb losses. Interest payments on debt, however, may not be reduced as part of the management response to such circumstances. Interest payments on debt represent a fixed cost to the bank over the life of the debt. Unusual losses that inhibit debt payments could force a bank into liquidation. Furthermore, debt principal does not perform the primary function of bank capital viz., standing ready

<sup>1</sup> Today, over 60 percent of total bank deposits are insured by the FDIC.

to absorb losses and thus protecting the bank against insolvency. It is not part of the pool of funds against which losses can be charged. Should reserves and capital be severely reduced or exhausted as a result of losses, a bank would again be forced into liquidation rather than continue operations on a senior debt base.<sup>2</sup>

Bank regulators are concerned with protecting the individual depositor. A broader aim, however, is protecting the banking system, and by extension the entire economy, from the consequences of destabilizing bank failures [9]. The two possible consequences of bank failures that have serious implications are: (1) the creation of problems for otherwise healthy banks due to a general loss of confidence in the banking system by uninsured depositors and (2) the creation of large fluctuations in the money supply. Fulfillment of this broader aim means containing the size and extent of bank failures. Consequently, bank regulators must necessarily keep the inadequacies of senior debt fully in mind. As part of their effort to achieve the aim of preventing destabilizing bank failures, the bank regulatory agencies are unlikely to allow any substantial liberalization in bank use of senior debt as a substitute for capital. Rather, as has been the case in the past, moderate amounts of debt may be permitted for use by banking organizations that have already demonstrated the capacity to maintain adequate capital positions.

Until March of 1976, the instructions followed by commercial banks in filling out reports of condition directed that capital notes and debentures be listed with equity capital on the liability side of the balance sheet. The revised Consolidated Report of Condition, first used for the March 31, 1976 call, changes this practice. Now, subordinated notes and debentures are listed with liabilities and not with equity capital. This reporting change formalizes the Federal regulatory attitude toward debt, namely that debt is not a direct capital substitute.

*Asset Discrimination* Should the banking system find itself unable to match expansion in assets with at least proportionate expansion in the capital account, the only alternative is reduction of asset growth. If emphasis is placed on elimination of the least profitable investment alternatives, asset restriction becomes a policy of "asset discrimination" [7]. Several large banking organizations have explicitly adopted this alternative over the past several years, and it is likely to prove necessary on a selective basis for several more years to come. Widespread adop-

tion of this alternative has recognizably serious consequences for the economy in general, signifying as it does a reduction in a major source of credit for firms and individuals. It is also possible, however, that a policy of asset discrimination could benefit the long-run position of the banking industry. If restrictive growth policies are based on asset discrimination, profitability could be improved, thus providing the potential for additions to the capital base.

**Broadening the Scope of Deposit Insurance** In the current institutional setting, bank regulators are faced with a difficult job in insuring adequate capitalization of the banking system. On the one hand, they must be concerned about containment of bank failures and protection of depositors' interests. On the other, they must take care not to be overly conservative and thereby limit bank credit expansion to an unnecessary degree. Also, there is no direct procedure for bringing banks with capital positions judged to be marginally substandard back into line. A fine tuning device for accomplishing this objective does not exist. One proposed solution to these problems involves a major broadening in the scope of operations of the Federal Deposit Insurance Corporation [10]. Basically, FDIC insurance coverage would be extended to cover all deposits, or at least a much larger share of deposits than is now the case, and the insurance fee schedule would be revamped to vary with individual bank risk assessments.

Comprehensive deposit insurance coverage would virtually eliminate liquidity risks arising from loss of confidence in individual banking institutions. Although a minority of deposits are currently uninsured, these deposits include large amounts of volatile funds, or short-term deposits held in large accounts. Loss of confidence in a bank's stability might cause a large uninsured depositor to shift his funds out of the bank, resulting in a liquidity squeeze and possible failure. Such problems could be especially acute for nonmember banks who lack access to the Federal Reserve's discount window. Comprehensive deposit insurance would also preserve confidence in the banking system in the event of individual, but serious, bank failures. This would, of course, fulfill one of the primary goals of the regulatory agencies.

The costs associated with comprehensive FDIC insurance coverage have recently been estimated [6]. A study by David Humphrey estimates that FDIC assessments would have to increase by only 1 percent to maintain the current insurance fund/total insured deposit ratio. A cost estimate based on an extremely conservative estimate of future losses adds only 10

<sup>2</sup> These inadequacies of senior debt are discussed in detail in [11].

percent to FDIC assessments. Since the effective FDIC assessment averaged only 3.2 percent of insured commercial bank net income from 1969-1974, there is reason to believe that the costs of such a program could be absorbed with minimal additional burden.<sup>3</sup>

The second major broadening in the scope of FDIC operations, namely introduction of a variable assessment rate, is intended to introduce greater regulatory control over banks with deteriorating capital positions. Under such a system, banks would be charged on a basis that fully compensates the insurance fund for excessive risk. Bank regulators could quickly respond to changes in risk arising from declining capital/asset ratios. In such circumstances, the insurance fund assessment would reduce the degree of concern over eroding bank capital positions *per se*.

Establishment of a variable fee structure, subject to periodic review and revision, could also pull together an evaluation process that currently differs among regulators. While certainly no guarantee that the optimum evaluation system would be developed, formal adoption of a variable assessment rate plan by the FDIC might nevertheless provide impetus for development of such a system. The idea of leveling varying assessments on insured banks depending on their risk evaluations is inherently equitable, too. It penalizes offending banks with higher assessments and rewards prudent banks with lower assessments.

**Conclusion** It seems fairly clear that future expansion in bank assets must be at least matched by a proportionate expansion in capital. Trends in key capital/asset ratios reached historical lows in the period 1973-1974. Bank regulators are unlikely to tolerate such low ratios again. At the same time, traditional problems with generation of capital persist, and expanded use of debt as a capital supplement is clearly not a favored solution from the regulatory standpoint. Call report revisions effected last year removing subordinated debt from the capital account and grouping it with other liabilities emphasize the restrictive regulatory attitude toward this item.

These conditions suggest that asset discrimination, i.e., a policy designed to moderate total asset growth while emphasizing higher earning uses of funds, may be a realistic possibility in the years ahead. An ex-

pansion in the scope of FDIC operations to include comprehensive deposit insurance coverage and a variable insurance fee schedule is one possibility for easing concern over the capital adequacy problem. According to this possibility, banks would no longer be admonished to maintain certain minimum capital/asset ratios. Rather, the FDIC would require insurance payments tied to the degree of risk with which banks operate. Under such a system, insurance payments would increase to whatever level was necessary to compensate for declining capital. Such an institutional change might mitigate the effects of a growth restriction on bank assets.

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<sup>3</sup> The effective assessment ratio in 1976 was 1/27 of 1 percent of assessable assets. The actual annual assessment is 1/12 of 1 percent, but this is reduced by a 66-2/3 percent credit applied to the gross assessments due from banks after deducting administrative and operating costs, insurance losses, and additions to the loss reserve. For a fuller explanation see [3, p. 21].