

# 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.

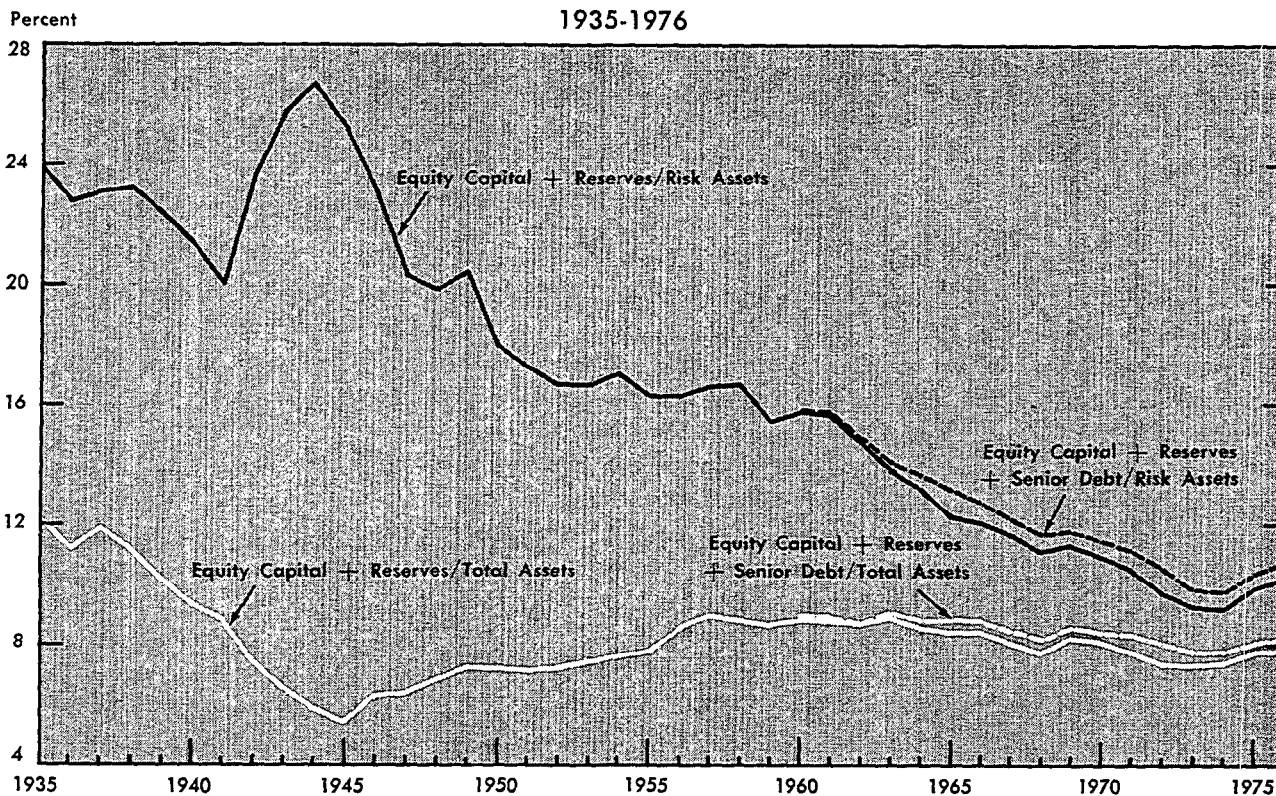
*Capital/Asset Ratios* The chart plots movements in two ratios that have been widely used in evaluating modern day capital adequacy. These are equity capital plus reserves/total assets and equity capital plus reserves/risk assets. For reasons to be discussed more fully below, these ratios include loss 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].



# CHANGES IN BANKING CONCENTRATION IN SELECTED FIFTH DISTRICT SMSAs: 1970-1976

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The expansion in the bank consolidation movement that began in the 1960's and gained speed in the early 1970's raised concern over possible over-concentration in banking markets. Have these fears been realized? This article will seek a partial answer to this question by examining changes in concentration that have occurred since 1970 within selected Fifth District metropolitan areas.<sup>1</sup>

Court decisions and regulatory rulings on bank mergers and bank holding company acquisitions have relied heavily on measures of bank concentration. These measures have been employed as indicators of potential anti-competitive effects of proposed bank consolidations.<sup>2</sup> Salley, however, cautions against the simplistic acceptance of concentration ratios as a quantitative measure of anti-competitive effects: "The concentration ratio can only suggest that the fewness of large firms makes restrictive pricing and output decisions more possible than if there were many firms of equal size. It does not mean that the large firms are actually engaging in anti-competitive conduct" [10, p. 187].

Empirical investigations into the relationship between concentration and prices in banking markets have produced conflicting results. Though most studies generally show that higher concentration is associated with higher prices and a deterioration in other performance variables, the effect is small [e.g., 6, 7, 8, 12]. Relatively large changes in concentration are associated with relatively small changes in performance. No such relationship, however, was found

in a recent study in Texas [3]. These opposing results may be partially explained by sampling differences and measurement problems. One problem, for example, is the difficulty of defining product and geographic bank markets. Because of such limitations, no attempt will be made in this article to draw conclusions about changes in competition on the basis of changes in statistical measures of concentration.

The article proceeds as follows. The first section introduces and briefly describes the measures of concentration included in the analysis. The second section applies these measures to selected Fifth District markets and summarizes the results.

**Measuring Static Market Concentration** Studies of market structure have frequently focused upon static measures that deal with the domination of a few firms at a single point in time. The three-bank concentration ratio, for one, determines the percentage of total deposits in a market held in aggregate by the three largest banks. It may be computed by the

formula  $CR = \sum_{i=1}^3 S_i$ . Here CR is the concentration

ratio,  $S_i$  is the  $i^{\text{th}}$  bank's share (percent of total) of market deposits,  $\sum$  is the summation operator, and  $i$  is the summation index representing each of the three largest firms. In words, the formula states that the concentration ratio is the sum of the deposit shares of the three largest banks. Note that this measure places total importance on the largest banks by implying that they are the only relevant firms to consider when gauging the degree of monopoly power that exists in a market. The concentration ratio does not distinguish between alternative distributions or mixes of market shares between even these largest banks. The same result would be derived from markets A or B if the three largest banks in each controlled 55, 10, 10 and 25, 25, 25 percent, respectively. Each market would have a three-bank concentration ratio of .75, yet the implications for monopoly power would be quite different in the two

<sup>1</sup> Only urban markets were considered in this article since the dual purpose of banking regulation tends to confine the potential usefulness of concentration ratios to the larger banking markets [10]. The use of Standard Metropolitan Statistical Areas (SMSAs) should not be interpreted as meaning the Federal Reserve Bank of Richmond or the Federal Reserve System has determined that the SMSA delineation best approximates the banking markets included in the study.

<sup>2</sup> Two landmark cases are *U. S. v. Philadelphia National Bank, et al* (1962) and *U. S. v. The Phillipsburg National Bank and Trust Co.* (1969). In the latter case, the Supreme Court ruled that concentration ratios were the only way by which the probable anti-competitive effects of a proposal could be ascertained, and without concentration ratios, no statistically reliable probability of lessening of competition could be determined. This reasoning has come under heavy criticism, for example [1, 2, 11].

markets. Note also that the concentration ratio takes no account of the number of firms in a market or the distribution of the remaining shares among small firms.

A better measure of static market structure would consider both the total number of firms in a market and the variation among the sizes of firms, two structural features that bear on the ability of the larger firms to increase price with a minimum loss in market share. The Herfindahl Index (HI) incorporates

these features. It may be defined as 
$$HI = \sum_{i=1}^n S_i^2$$

where  $n$  is the number of banks represented in the market and  $S_i$  is the  $i^{\text{th}}$  firm's market share expressed as a percent of total deposits.<sup>3</sup> In words, the formula states that the Herfindahl Index is the sum of the squares of the deposit shares of all banks in the market. Since each market share is squared prior to summation, relatively greater weight is given to banks with larger market shares. This seems reasonable since it is these firms that presumably have the power to alter short-run prices. Any switch in market shares from one firm to a larger firm will result in a larger value in the Herfindahl Index. Similarly, following a loss in market share by one bank to a smaller bank, the Herfindahl will fall. This measure can assume values between zero (indicating an infinite number of firms in the market) and one (indicating only one firm present).

**Measuring Dynamic Market Concentration** In judging the intensity of competition in a market, some measure of the ability of leading firms to maintain their relative market position over time may be more significant than is the extent of concentration at a particular point in time [4]. Consequently, a complete description of a market not only should include its current status but also an indication of how its structure has changed over time. Measures of change in market concentration can provide important information on market structure. Previous studies have relied on the Dynamic Herfindahl Index, the Dynamic Concentration Ratio, and/or the Share Stability Index for information concerning the changing structure of individual banking markets [3, 5, 10]. These measures were also applied to the metropolitan areas included in this article.

The Dynamic Herfindahl Index (DHI) is simply

<sup>3</sup> An alternative definition of the Herfindahl Index is:

$$HI = \sum_{i=1}^n x_i^2 + \frac{1}{n}$$

where  $n$  is the number of firms in the market and  $x_i$  is the deviation of the  $i^{\text{th}}$  firm's market share from the average share ( $x_i = S_i - \bar{S}$ ). The index increases, then, with either greater variation in the sizes of the firms or with a smaller number of firms.

the change in the value of the Herfindahl Index between years as measured by the difference between the end- and beginning-year index numbers, i.e.,  $DHI = HI_{1976} - HI_{1970}$ . It indicates the change in concentration or degree of inequality of firms' market shares. Since the Herfindahl gives greatest weight to the larger firms, the DHI gives an indication of whether the market power of the largest firms increased or decreased over the intervening years. The DHI can be either positive or negative. If positive, it suggests the largest firms have increased their relative strength in the market since the base year. If negative, on the other hand, the degree of inequality among market shares has declined.

The Dynamic Concentration Index (DCI) measures the statistical relationship between the 1970 market share of each bank and its 1976 share through simple regression analysis. Specifically, the DCI is defined as the *geometric mean* of (1) the regression of 1976 market shares on 1970 shares and (2) the reciprocal of the regression of 1970 on 1976 shares.<sup>4</sup> The DCI attains relevance when its computed value is compared with a norm or standard of unity. A value of 1.0 means that the relative sizes of the firms in a market are the same as in the base year, indicating that no change in concentration has occurred. A DCI greater than one indicates the larger firms have grown faster than (or, at the expense of) the smaller firms and, therefore, that concentration has increased. Conversely, a DCI less than one signifies that concentration has decreased since the largest banks have grown at a slower pace than the smaller banks. A DCI value below unity indicates that, on average, the larger firms in the base year were not able to maintain their market shares and suggests a lack of monopoly power in a market [5].

Another measure of change in market structure is the Share Stability Index (SSI). It is the simple correlation coefficient between market shares for each firm in the two years and, therefore, indicates the degree to which the market share of each firm in 1976 is determined by its 1970 share. The SSI has been used as a measure of the stability of market shares and, indirectly, as a measure of the intensity of competition in each market [3]. The assumption is that the greater the competition between firms in a market, the more susceptible will each firm be to variations in market share. Conversely, the less stable

<sup>4</sup> The DCI is the geometric mean of the regression coefficients,  $b_1$  and  $b_2$ , where  $b_1 = \Sigma xy / \Sigma x^2$ ,  $b_2 = \Sigma y^2 / \Sigma xy$ ,  $x$  is the deviation of the firm's market share from the average share in 1970, and  $y$  is the deviation from the average share in 1976. The DCI, therefore, is the square root of the product of the regression coefficients, i.e.,  $DCI = \sqrt{b_1 b_2}$ . As discussed in Prais [9], it is necessary to follow this procedure to obtain an unambiguous estimate of the direction of change in market concentration.



are market shares (the lower the SSI value), the greater the presumed degree of competition in a market. A SSI equal to one indicates no change in market shares, while a SSI equal to zero indicates no relationship at all between firms' market shares in 1970 and 1976.

### Changes in Fifth District Metropolitan Areas

The preceding section defined and explained the logic of alternative measures of market concentration. The next step is to apply the measures to 1970 and 1976 bank deposit data. Before this could be done, however, it was necessary to make certain adjustments for bank entry, mergers, and holding company acquisitions. The adjustments were as follows: a new bank entering the market between 1970 and 1976 was treated as if it had existed in the market in 1970 with a market share of zero. Similarly, a bank merged or acquired by another banking organization already in the market was treated as if it remained in the market in 1976 with a zero market share. A bank acquired by an outside firm, i.e., one not in the market, was simply replaced by that firm. Market shares were calculated by banking organization rather than by individual bank. Shares of affiliated banks,

therefore, were combined under the control of the parent holding company. Since adjustments were made in the geographic boundaries of SMSAs during the interim, market shares for both years were calculated using 1976 SMSA definitions.

According to the accompanying table, most of the largest SMSAs in the Fifth Federal Reserve District experienced *declines* in concentration between 1970 and 1976. The table shows the Dynamic Herfindahl Index declined in 11 of the 13 areas examined. Only the Charlotte-Gastonia and Baltimore SMSAs exhibited slight increases in this measure of concentration. The largest absolute declines occurred in the three South Carolina SMSAs; in Greensboro—Winston-Salem—High Point; and in Charleston, West Virginia, with the latter and Greenville-Spartanburg declining sharply from relatively low concentration levels in 1970. The Washington SMSA, with nearly twice the total deposits and banking organizations as the next largest market, displayed the least concentration in both years. The percentage reduction in concentration in the nation's capital over the period was considerable. The Charlotte-Gastonia and Roanoke metropolitan areas had the highest Herfindahl Indexes in 1976.

### DYNAMIC MEASURES OF MARKET STRUCTURE

SMSA <sup>1</sup>	Herfindahl Index		Dynamic Herfindahl Index <sup>2</sup>	Dynamic Concentration Index <sup>3</sup>	Share Stability Index
	1970	1976			
Charleston-North Charleston, S. C.	0.2546	0.2161	-0.0385	0.8746	0.9862
Greenville-Spartanburg, S. C.	0.1590	0.1191	-0.0399	0.7837	0.9727
Columbia, S. C.	0.2071	0.1538	-0.0533	0.7686	0.9645
Greensboro—Winston-Salem— High Point, N. C.	0.2820	0.2290	-0.0530	0.8864	0.9957
Raleigh-Durham, N. C.	0.1919	0.1729	-0.0190	0.9278	0.9879
Charlotte-Gastonia, N. C.	0.2385	0.2458	0.0073	1.0189	0.9754
Newport News-Hampton, Va.	0.1633	0.1628	-0.0005	0.9974	0.9795
Norfolk-Virginia Beach- Portsmouth, Va.-N. C.	0.2266	0.2004	-0.0262	0.9204	0.9858
Richmond, Va.	0.1889	0.1751	-0.0138	0.9509	0.9892
Roanoke, Va.	0.2418	0.2376	-0.0042	0.9880	0.9778
Charleston, W. Va.	0.1547	0.1168	-0.0379	0.8118	0.9804
Baltimore, Md.	0.1649	0.1783	0.0134	1.0464	0.9846
Washington, D. C.-Md.-Va.	0.0812	0.0686	-0.0126	0.9029	0.9853

<sup>1</sup> 1976 SMSA definitions formed the basis for calculation of market shares in both 1970 and 1976. For areas included within SMSAs, see *Fifth District Figures*, Federal Reserve Bank of Richmond, 1976, p. 109.

<sup>2</sup> Negative values indicate decreases in concentration.

<sup>3</sup> Values less than 1.0 indicate decreases in concentration.

All markets except Charlotte-Gastonia and Baltimore also exhibited Dynamic Concentration Indexes below 1.0, indicating that, on average, the largest firms have lost influence or dominance in their respective markets since 1970. Both the DCI and the DHI identified the same SMSAs as experiencing the greatest reduction in concentration. The Columbia, S. C. SMSA again had the greatest reduction, as measured by the DCI, with a value of .7686. This index reveals that the larger-than-average sized banks in the Columbia SMSA lost, on average, approximately 23 percent of their respective market shares between 1970 and 1976. Only slightly smaller losses were experienced by the large banks in Greenville-Spartanburg, both Charlestons, and Greensboro—Winston-Salem—High Point. The larger-than-average banks in Charlotte-Gastonia and Baltimore, on the other hand, increased their market shares an average of 1.89 and 4.64 percent, respectively.

The Share Stability Index for each market shows a strong relationship between market shares across years. Since the SSI was only slightly lower than 1.0 for all markets, market shares appear to be very stable and, though moving in favor of smaller banks in the aggregate, have not been subject to wide variations. The combination of high SSIs and low DCIs suggests that the larger-than-average banks lost market shares as a group primarily to small or new banks in the market rather than to other large banks.<sup>5</sup> This clearly was the case in the South Carolina markets; in Greensboro—Winston-Salem—High Point and in Charleston, West Virginia. In the remaining markets that experienced declines in concentration, the largest banks appear to have lost market shares both to other large banks and to small banks.

Evidence of decreasing concentration in the majority of markets does not necessarily mean lower prices or an improvement in service to bank customers. Similarly, though the DHI and DCI may indicate changes in monopoly power in the Charlotte-Gastonia and Baltimore SMSAs, higher prices and a deterioration in customer service is not necessarily implied.

**Summary** Courts and regulatory agencies have been concerned that bank consolidations might increase market concentration and erode competition within individual markets. It does not appear, however, that concentration has increased in Fifth District metropolitan markets. In fact, concentration

measures reported here indicate that 11 of the 13 SMSAs examined actually experienced *declines* in concentration over the 1970-1976 period. On the basis of these findings, it is safe to conclude that the pattern of proposed acquisitions and mergers approved by the Federal banking agencies since 1970, in general, has not resulted in increasing concentration in the District's major urban markets.

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<sup>5</sup> For a mathematical presentation of the implications from combinations of different measures of dynamic concentration, see [5].

# THE NEED FOR ORDER IN INTERNATIONAL FINANCE

*Address by*

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at the Annual Dinner of the*

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*April 12, 1977*

I plan to comment tonight on the need for order in international finance. My choice of topic does not require lengthy justification. For more than a decade now, we have been besieged by problem after problem in the working of international financial mechanisms. Strain and turbulence have, in fact, been so constant a feature of the international financial scene in recent years that I suspect they are coming to be widely regarded as the normal state of affairs.

I do not share any such mood of resignation. In the first place, governments around the world now have a better understanding of the troubles caused by inflation—both in their own economies and in international dealings—than they had only a few years ago. As a result, not a few countries have been adjusting their economic policies with a view to curbing inflation. In the second place, financial institutions—particularly commercial banks—are now giving closer attention to the volume and character of their foreign lending. And in the third place, the International Monetary Fund has been gaining in prestige and is already exercising a more constructive influence than seemed likely a year or two ago. These are promising trends, and if we build on them we can in time reattain the financial stability that is so vital to orderly expansion of the international economy.

Certainly, we all know of the great difficulties that plagued financial relationships among countries during the 1930's. Those difficulties generated pessimism about the capacity of nations ever again to achieve orderly arrangements for the conduct of international finances. And that pessimism was deepened by the frightful disruption of the world economy during the war. Yet, it was the genius of that age to devise the structure of Bretton Woods and to strengthen that extraordinary structure with our own Marshall Plan. Within a framework of

established financial rules, a great liberalization of the world economy occurred and world trade and output flourished. Although we tend to forget it now, the postwar period was a time of quite impressive stability in world finance until the early sixties.

That experience should serve to remind us that difficulties do yield to determined effort. Our present problems in the sphere of international finance, while different from those of a generation ago, surely are no greater. They too can be dealt with effectively if once again we perceive the wisdom of some subordination of parochial interests and if nations marshal the will to live by new rules of responsible behavior.

Quite obviously, the overriding problem confronting us in world financial matters today is the massive and stubborn imbalance that prevails in payments relations among nations—a condition arising importantly, although by no means exclusively, from OPEC's action in raising the price of oil so abruptly and so steeply.

This year alone OPEC's revenues from international oil sales are likely to total something on the order of \$130 billion. What is most significant about that figure is that it represents an enormous explosion of revenues in such a short time. In 1972, before OPEC's aggressive pricing policy began, receipts of the OPEC group from international oil sales totaled less than \$14 billion, with most of the rise since then representing higher prices rather than enlarged volume. For the great majority of OPEC's customers—both affluent and needy alike—it has been the rapidity of the massive change that has been so troublesome. To be sure, OPEC members have dispensed some aid to less developed countries, but so far the grants have been very selective and quite small relative to the size of the international problem that OPEC has created.

The imposition of the enormous tax that the OPEC group has in effect levied on the world economy has been met, as you know, partly by transferring goods and services to OPEC members and partly by deferring such transfers through borrowing arrangements. OPEC's absorption of goods and services for both consumption and development purposes has been expanding, with the consequence that OPEC's collective current-account surplus has shrunk considerably from its peak level of more than \$65 billion in 1974. Only five of the thirteen OPEC nations in fact are currently running sizable payments surpluses. Contrary, however, to earlier widespread hopes that the aggregate OPEC surplus would continue to decline—perhaps nearing elimination by the end of this decade—it seems at present to be eroding slowly, if at all. This year it could easily run above \$40 billion, marking the fourth consecutive year that OPEC's trading partners as a group will have to seek substantial loans or grants to help meet their oil bills.

Continuation of a surplus for the OPEC group at such a high-level reflects several influences: first, the further increase that occurred this January in OPEC oil prices; second, growing demand for oil as recovery of the world economy has proceeded; third, insufficient energy conservation by many non-OPEC countries, including most notably the United States; and fourth, a slowing of import absorption by the OPEC group—in some instances because bottleneck problems of one kind or another are being encountered, in other instances because development plans have come to be viewed as excessively ambitious. The apparent stickiness of the OPEC payments surplus at a high level, buttressed by what is now a significant stream of income from investments, implies large-scale financing requirements for OPEC customers for a considerable period ahead. The prospect of such persistent financing needs, year after year, is especially worrisome.

Great as must be our attention to these OPEC-related problems, we dare not lose sight of the fact that our international payments mechanism is now under stress for reasons that go beyond the extraordinarily high price of oil. The payments deficits of various nations, both industrial and less developed, can be traced to extensive social-welfare and development programs undertaken in the early 1970's and financed by heavy governmental borrowing, often directly from central banks. Even when the internal stresses resulting from inflation were aggravated by the oil burden and by weaker exports, there was little or no adjustment of economic policies in numerous instances, thus causing external positions to de-

teriorate sharply. There were conspicuous exceptions, of course, particularly on the part of countries that historically have the greatest sensitivity either to inflation or payments imbalance, or both. A wide diversity of payments imbalances thus developed around the globe, accentuated for a time by differences in the severity with which recession affected national economies and, more recently, by differing inflation and recovery trends.

The current pattern of international payments imbalances, in short, is something far more complex than an OPEC phenomenon alone. Essentially, what prevails is a problem within a problem. First, the non-OPEC group of countries collectively has a massive structural deficit vis-a-vis OPEC. In addition, serious payments imbalances exist within the non-OPEC sector itself, with a few nations experiencing sizable surpluses on their current account while many others suffer deficits that reflect many factors besides the way in which the burden of costly oil imports happens to be distributed around the globe.

A great deal of effort has been devoted by scholars to the task of trying to estimate how long the present severe imbalance of international payments accounts could persist in the absence of deliberate new policy actions. The results of these exercises generally are not reassuring. They point to the distinct possibility that huge borrowing needs—that is, needs that are uncomfortably large in relation to the debt-servicing capabilities of many countries—could persist at least through the remainder of this decade.

The potential trouble in this set of circumstances should be obvious. If OPEC surpluses on current account should continue on anything like the present scale, they would inevitably be matched by deficits of identical magnitude on the part of other nations. And if some countries outside OPEC should also have sizable and persistent surpluses, as now appears to be the case, the aggregate deficit of the remaining countries will be still larger. Under such circumstances, many countries will be forced to borrow heavily, and lending institutions may well be tempted to extend credit more generously than is prudent. A major risk in all this is that it would render the international credit structure especially vulnerable in the event that the world economy were again to experience recession on the scale of the one from which we are now emerging.

To minimize the risks that face us, there is a clear need for a strong effort involving all major parties at interest. In order to achieve relatively smooth expansion of the world economy, five conditions are essential: first, the aggregate of payments imbalances

around the world needs to be reduced far more rapidly than currently observable trends imply; second, the divergences that now exist among countries with regard to their balance-of-payment status need to be narrowed; third, protectionism must be scrupulously avoided by governments; fourth, private financial institutions need to adhere to high standards of creditworthiness in providing whatever volume of international financing occurs during the next few years; and fifth, official credit facilities need to be significantly enlarged.

The realization of these conditions requires diligent pursuit of stabilization policies by countries that have been borrowing heavily in international markets. The obstacles to speedy adjustment on the part of these countries are well known. Resistance stems chiefly from the political difficulty of gaining broad acceptance of the painful things that must be done to restrain inflation and to achieve energy conservation. Countries thus find it more attractive to borrow than to adjust their monetary and fiscal policies; and if they can do this without having lenders write restrictive covenants into loan agreements, so much the better. That is why countries typically prefer to tap foreign credit markets to the maximum extent possible rather than borrow from the International Monetary Fund which, in aiding countries that experience significant payments disequilibrium, makes credit available only after the borrower has agreed to follow internal policies judged appropriate by the Fund. Commercial banks, as a practical matter, have neither the inclination nor the leverage to impose restrictive covenants on sovereign governments.

In these circumstances, admonition alone is likely to accomplish little in prodding countries with large payments deficits to take affirmative action. There are, however, limits dictated by financial prudence beyond which private lenders will be unwilling to go. More than one country has recently found that its ability to borrow in the private market has diminished. The fact is that commercial banks generally, and particularly those which have already made extensive loans abroad, are now evaluating country risks more closely and more methodically. Credit standards thus appear to be firming; and as information about borrowing countries improves, we can reasonably expect the market to perform its function of credit allocation more effectively.

As some of you may know, the Federal Reserve is currently engaged in a joint project with other central banks to obtain a much more complete size and maturity profile of bank credit extended to foreign borrowers, country by country. That information, which is being gathered under the auspices of the

Bank for International Settlements, will be shared with private lenders, but even so it will fill only a fraction of the existing informational gap.

What we need is a more forthcoming attitude on the part of borrowing countries in regularly supplying information to lenders on the full range of economic and financial matters relevant to creditworthiness. I realize that much of the needed information is not even collected in some countries, but such a condition should not be tolerated indefinitely. Logically, the BIS—having links with the central banks of the principal lending countries—could take the lead in setting forth a list of informational items that all countries borrowing in the international market would be expected to make available to present or prospective lenders. Compliance could then become a significant factor in the ability of countries to secure private credit, particularly if—as I would judge essential—bank regulators in the various lending countries explicitly took account of compliance in their review of bank loan portfolios.

Imperfect or incomplete information, as I think we all recognize, makes for inefficient markets and heightens the risk of disruptive discontinuities if some previously unknown but pertinent fact suddenly comes to light. In the market for bank credit, a continuous flow of factual information will produce gradual as distinct from abrupt changes in assessments of creditworthiness. This should induce earlier recourse to the IMF by countries experiencing payments difficulties than was usually the case in the past. Even now, as lenders are becoming better informed and somewhat more cautious in extending foreign credit, a tendency toward earlier recourse to the IMF appears to be emerging. It seems likely, therefore, that more countries that need to adjust their economic policies will henceforth do so sooner and probably also more effectively. By so doing, the unhappy alternative of resorting to protectionism will be more readily avoided.

Private banks—both in this country and elsewhere—played a very substantial role in “recycling” petrodollars between the OPEC group and other countries, especially those whose external payments position was weakened by the higher oil prices. Had the banks not done so, the recent recession would have been more severe than it was, since there was no official mechanism in place that could have coped with recycling of funds on the vast scale that became necessary in 1974. But with many countries now heavily burdened with debt, bankers generally recognize that prudence demands moderation on their part in providing additional financing for countries in deficit. For that reason, they understandably wish

to see an increase in the relative volume of official financial support to countries that continue to have large borrowing needs.

Bankers are not alone in wanting to see countries in deficit pursue adjustment policies more diligently. This interest, in fact, is widely shared by economists and other thoughtful citizens who see an urgent need for healthier and more prosperous economic conditions around the world. The interests of the international economy and of private lenders thus converge and point to the need for a much more active role by the Fund.

The leverage of the Fund in speeding the process of adjustment would clearly be enhanced if its capacity to lend were greater than it is now. One reason why countries often are unwilling to submit to conditions imposed by the IMF is that the amount of credit available to them through the Fund's regular channels—as determined by established quotas—is in many instances small relative to their structural payments imbalance. That will be so even after the scheduled increase in IMF quotas becomes effective. To remedy this deficiency, the Fund is currently seeking resources of appreciable amount that could be superimposed on the framework of the quota system. Negotiations are in progress with several countries of the OPEC group as well as with the United States and other industrial nations whose payments position is comparatively strong. Such a supplementary Fund facility should induce more deficit countries to submit to Fund discipline. But in no case must it become a substitute for an adequate adjustment policy by borrowers or serve as a bailout for private banks. If negotiations for such a facility are completed soon, which appears possible, high priority should be given to prompt ratification by our Congress and the legislatures of other countries.

The ability of the Fund to act forcefully in speeding the adjustment process will be strengthened in still another way once the five-year effort of amending the IMF's Articles of Agreement is completed. At present the Fund normally immerses itself in urging appropriate policies on a country only when that country applies for financial assistance. Under the revised Articles, the Fund could take the initiative in determining whether individual countries are complying with formally prescribed obligations to foster orderly economic growth and price stability. This authority, once available, will enable the IMF to broaden progressively its oversight role even when a country is not an applicant for a loan.

As the number of countries brought within the reach of the Fund's influence increases—either because of the enticement of enlarged lending facilities

or because an IMF "certificate of good standing" becomes essential to further borrowing from private lenders—the outlook for correction of balance-of-payments deficits would be considerably improved. But that outcome will also depend on full appreciation by private lenders of the need to avoid actions that tend to undercut Fund efforts.

This does not mean that Fund judgments are to replace those of private lenders in the determination of which countries should be accommodated with private credit. Nor do I even mean to suggest that the texts of the Fund's country evaluations are to be handed around in the private banking community. Were that to become a practice, I am sure the quality of such reports would suffer by becoming less explicit and less frank. But some sharing of Fund information—within the limits imposed by requirements of confidentiality—may still become feasible, the most logical conduits perhaps being the central banks of the countries in which the major private lending institutions are located.

Fund country reports are transmitted to central banks as a matter of routine, and—as I previously indicated—new factual information about individual countries is now being developed, and more may well be developed later, by the BIS. Private lenders might want to discuss with the staffs of central banks the flow of such information, and this could be done—as would surely be the Federal Reserve's practice—without advising whether or on what scale a loan should be made to this or that country. Such a consultative process, especially if it also involved frequent interchange of information among the leading central banks, would go quite far in preventing any inadvertent circumvention by private banks of the efforts of the IMF to promote financial stability.

The suggestion I am exploring with you for improving the adjustment process obviously will not work unless broadly shared agreement develops that international financial affairs require a "rule of law" to guide us through the troubled circumstances that now exist. Such a rule cannot be codified in detail, but it is essential that there be broad agreement that parochial concerns will be subordinated to the vital objective of working our way back to more stable conditions in international finance. And if the IMF is to play a leadership role in pursuing this objective, it is not only private parties that must avoid weakening the IMF's efforts. Governments also—indeed governments especially—must be prepared to forego their own quite frequent inclination to do things inconsistent with the effective pursuit of Fund objectives. There have been too many instances in which the government of a country negotiating a



stabilization program with the Fund's officials has attempted to circumvent the Fund by seeking instead a loan from another government or by exerting outside political pressure on Fund officials in an effort to make loan conditions as lenient as possible. If the rule of law in international monetary affairs is ultimately to prevail, all countries—there can be no exceptions—must fully respect the IMF's integrity.

Our first requisite, therefore, is for a new sense of commitment by governments as well as private parties to a responsible code of behavior. I believe that understanding of this need has been growing—certainly within our own government. And, of course, the working of the marketplace—tending now to make credit less readily available to some foreign borrowers—is helping to foster a new set of attitudes.

As I noted earlier, the payments difficulties of countries outside the OPEC group reflect many factors besides the way in which the burden of oil costs happens to have been distributed. It is important that adjustment proceed along several paths in this vast part of the world.

First, countries whose external position has been weakened by loose financial policies are going to have to practice some fiscal and monetary restraint, either of their own volition or because they find it obligatory to do so in order to maintain access to international credit facilities, including those of the IMF. In individual instances, the adjustment process in such countries may at times also entail allowing some depreciation of the foreign exchange value of their currencies.

Second, since the burden of adjustment cannot and should not rest with deficit countries alone, those non-OPEC countries that are experiencing significant and persistent current-account surpluses must understand that they too have adjustment obligations. In saying this, I do not mean to imply that we should urge such countries to pursue expansionist policies that could undo or jeopardize the hard-won progress that some of them have made in curbing inflation. That would be both wrong and unwise. What I mean is simply that such countries should not actively resist tendencies toward appreciation in the value of their currencies in foreign-exchange markets. Such appreciation will aid other countries by facilitating access to the markets of the countries in surplus; and at the same time it will make imported goods and services available at a lower cost to the citizens of the surplus countries, thus reinforcing their constructive efforts to control inflation.

Third, practically all non-OPEC countries—the deficit and surplus countries alike—must treat energy conservation as a key element of their economic

policy. This is something to which the United States in particular must give the closest attention. We are by far the largest single consumer of energy in the world, and we have so far been notably laggard in addressing the energy problem. This year imported oil will probably account for over 40% of domestic consumption of petroleum, up from 22% in 1970. Our passive approach to energy policy, besides endangering the Nation's future, has aggravated strains in the international financial system, because we are directly responsible for a large part of the OPEC surplus. And, of course, our huge appetite for oil has added to the leverage of those OPEC members that have been most reckless in urging a still higher price of oil. The energy program being prepared by President Carter unquestionably will entail sacrifices by many of our citizens. It is essential, however, that we at long last recognize that a decisive conservation effort must be a major part of our Nation's economic policy.

If, in fact, we can build momentum into payments adjustment by the non-OPEC group of countries along these three paths—that is, internal discipline by countries in deficit, non-resistance to exchange-rate appreciation by countries in surplus, and determined energy conservation by all—the favorable consequences will be enormous. To the extent that energy conservation is effective, the present serious imbalance of the non-OPEC group of nations vis-à-vis OPEC will be reduced. Beyond that, there will no longer be such extremely large differences in the balance-of-payments status of the non-OPEC nations. Consequently, the risk of disruption of the international financial system would be greatly reduced, and we could have greater confidence that progress will be realized around the world in reducing unemployment and otherwise improving economic conditions.

There is a critical proviso, however, to this optimistic assessment—namely, that the OPEC group, seeing their surplus decline as a result of foreign conservation efforts or their own increasing imports, will not seek to compensate for the decline by a new round of oil-price increases. Obviously, if they were to do so—and if they could make the action stick—the whole exercise of trying to reduce the massive payments imbalances traceable to the oil shock would be rendered futile.

Effective oil conservation and the development of other sources of energy would, of course, militate against such an outcome to the extent that those efforts lessened OPEC's market leverage. That is important for the longer run, but particularly in the years immediately ahead it is vital that the members

of OPEC recognize that their economic and political future cannot be divorced from that of the rest of the world. Besides practicing forbearance with regard to the price of oil, it would be very helpful if they made larger grants of assistance to the less developed countries and also expanded the volume of loans and investments made directly abroad—so that the intermediation of American or European commercial banks may be substantially reduced. Fortunately, there are various signs that the more influential members of OPEC are becoming increasingly aware that their self-interest requires a major contribution along these lines. The OPEC group has become a large factor in international finance, and there is some basis for confidence that they will play a constructive role in the reestablishment of order in the international financial structure.

In the course of my remarks tonight, I have touched on a number of actions that either need to be taken or avoided to achieve a new sense of order in international finance. Let me conclude by sketching or restating the responsibilities, as I see them, of the major participants in the international financial system:

First, in order to contribute to a more stable international system, the IMF must act with new assertiveness in monitoring the economic policies of its members. To give the Fund added leverage for such a role, its resources must be enlarged. But those resources must be used sparingly and dispensed only when applicant countries agree to pursue effective stabilization policies. In view of the clear need for better financial discipline around the world, this would be a poor time for a new allocation of SDR's—or, in plain language, printing up new international money.

Second, national governments must encourage and support the IMF, so that it can become an effective guardian of evolving law in the international monetary sphere. Governments need to resist the temptation to circumvent the Fund by seeking bilateral official loans or to embarrass the Fund by exerting political pressure on Fund officials. Commercial and investment bankers also need to recognize that their actions must not undercut IMF efforts to speed

adjustment. The IMF, in its turn, will have to equip itself to handle appropriately its new and larger responsibilities.

Third, a better framework of knowledge for evaluating the creditworthiness of individual countries is badly needed. Among other things, central banks could work together through the BIS and establish a common list of informational items that borrowing countries will be expected to supply to lenders.

Fourth, commercial and investment bankers need to monitor their foreign lending with great care, and bank examiners need to be alert to excessive concentration of loans in individual countries.

Fifth, protectionist policies need to be shunned by all countries.

Sixth, countries with persistent payments deficits need to adopt effective domestic stabilization policies.

Seventh, non-OPEC countries experiencing large and persistent payments surpluses also need to adjust their economic policies and they can probably best do so by allowing some appreciation of their exchange rates.

Eighth, all countries, and especially the United States, need to adopt stringent oil conservation policies and, wherever possible, speed the development of new energy sources.

Ninth, the members of OPEC must avoid a new round of oil-price increases. They also need to play an increasingly constructive role in assisting the less developed countries and in the evolution of the international financial system.

Observance of these do's and don'ts would go a significant distance, in my judgment, in meeting the formidable challenges that now confront us. But we shall undoubtedly need to be ready to improvise in the fluid and complex area of international finance. I have no illusions that the ideas that I have presented here tonight can serve as a rigid blueprint. I hope, however, that they will have some value in suggesting directions in which governments, private lenders, and official institutions need to move. By working together towards a rule of law in international finance, we shall be contributing to a stable prosperity both for our own citizens and those of our trading partners.