

A Series of Occasional Papers in Draft Form Prepared by Members

# STAFF MEMORANDA

## **RISK AND SOLVENCY REGULATION OF DEPOSITORY INSTITUTIONS: PAST POLICIES AND CURRENT OPTIONS**

George J. Benston and George G. Kaufman

# Risk and Solvency Regulation of Depository Institutions: Past Policies and Current Options

George J. Benston and George G. Kaufman\*

It is generally agreed that an efficient financial system is a prerequisite for an efficient developed economy. Because of the perceived importance for the other sectors of the economy of breakdowns in the financial system, the current instability in the financial sector, particularly the dramatic decline in the profitability of depository institutions (collectively referred to as banks) and the sharp jump both in the number of failures and in their costs of resolution is an important public policy concern. This is not the first time in history, either in the United States or elsewhere, that such instability has been the focus of public attention. Indeed, during almost every one of the many actual or perceived financial crises in world history, legislation and regulation has been proposed and frequently enacted that purportedly were designed to strengthen the system and prevent recurrence. This paper reviews the basis on which public policy towards banks has been constructed in the United States, analyzes why the existing legislation and regulation are not achieving their intended dual objective of fostering stability and efficiency and are in large part themselves the cause of rather than the cure for the instability, and considers policy options for improving the stability and efficiency of the banking system in the current environment.

## I. Present Reasons for Regulating Banks

Financial products and services—loans, investments, and transfers of claims over resources that usually are denominated in monetary units—are produced by many different firms in a large number of forms. Although the products, and sometimes the firms, are similar, the producers are regulated to different degrees by government, depending in large measure on the

\*(Emory University and Loyola University of Chicago. Professor Kaufman is also a consultant to the Federal Reserve Bank of Chicago). This paper was funded in part by the American Enterprise Institute. An earlier version was presented at a Conference on Restructuring the Financial System in Washington, D. C., November 16 and 17, 1987, sponsored by the American Enterprise Institute. We are thankful for helpful comments throughout the development of this paper by the other members of the AEI Financial Services Project and the Advisory Committee, and by the discussants at the Conference. The paper will be a chapter in a forthcoming book, William S. Haraf and Rose Marie Kushmeider, eds., *Restructuring Banking and Financial Services in America* (American Enterprise Institute, 1988).

nature of their charters. For example, consumer loans are made by banks (commercial, savings, and savings and loan associations), consumer and sales finance companies, retail stores, securities dealers, and individuals. Yet, only the banks and consumer finance companies must get a license (charter) to offer these loans, and only the banks' lending activities are closely supervised.

The principal characteristic of banks with respect to regulation by government is that they are depository institutions. They offer investments (deposits) that are withdrawable or transferable in whole or in part to third parties at par (face value), usually on demand or with short terms to maturity. These deposits (and in earlier days, notes issued by banks) are used as the principal means of payment in the United States and most developed countries. It is the banks' role in money supply and transfer that has caused them to be regulated or controlled by the governments of most, if not all, commercially developed countries almost since their beginnings. (Benston, 1983)

Through the years, the reasons for government regulation of banks has expanded greatly. In this paper, we examine only those reasons related to concern about the safety and soundness of banks and the banking system.<sup>1</sup> Present reasons for such regulation include the following:

1. Concern for financial panics caused by bank failures. The series of banking panics in the U.S. culminating with the financial debacle of the Great Depression of the early 1930s are put forth as disasters that can be averted by means of bank regulation. Maintenance of public confidence in the banking payments system is a given as a collateral rationale for bank regulation. (See Corrigan, 1982 and 1987B, for a current explication of this reasoning.)
2. Prevention of disruptions to communities and costs imposed on other banks (short of a full-blown financial panic) when a bank's failure results in runs on other banks. Again, the maintenance of public confidence is invoked, as when all the creditors of the Continental Illinois Corporation were bailed out.
3. Protection of depositors. Deposit insurance has largely obviated this concern, especially for holders of less than \$100,000 per account in any insured bank.
4. Fear that banks will take excessive risk because federal deposit insurance and de facto guarantees remove all depositors' concerns about the risks taken. This moral hazard shifts the concern of the depositors to the deposit insurance and chartering agencies.
5. Restriction of competition among banks and between banks and other suppliers of financial and related services. The banking industry's profits are likely to be greater if they face less competition. However, laws and regulations have also constrained banks from competing with other

institutions (e.g., securities dealers and insurance companies) and have kept banks from efficiently diversifying their assets and liabilities.

Each of these five reasons for regulation are considered below. But first we outline and discuss the types of risks to which banks are subject that may result in their becoming insolvent.

## Types of Banking Risk

The risks to which banks are subject can be grouped under the following five headings:

1. System risk. Fractional reserve banking subjects banks to the risk that base (high powered) money will decrease, thereby requiring a multiple contraction of bank deposits and, consequently, the money supply. The result is financial panic and decline in national economic activity.
2. Price risk. Prices for bank loans and securities that are not in default may change adversely and unexpectedly, resulting in losses. Interest rate and foreign exchange changes are the most important sources of unexpected price changes and are sometimes referred to separately as "interest rate risk" and "foreign exchange risk". Another form of price risk occurs if assets have to be sold or funds obtained quickly to meet deposit withdrawals, with insufficient time to search out the highest bidders or lowest cost suppliers. As a result, the assets will have to be sold at "fire-sale" prices, and the cost of funds will be higher than otherwise. This type of price risk is often referred to as "liquidity risk". However, price risk does not include the risk that the general price level will change unexpectedly. This risk is imposed by and/or can be controlled by the central bank. (Schwartz, 1987A; Goodfriend and King, 1987)
3. Credit (default) risk. Borrowers may not repay their loans as promised either in amount or on time, which can result in losses.
4. Fraud and operations risk. Banks may be fraudulently or incompetently run, or bankers may undertake new or expanded operations that turn out badly.
5. Regulatory risk. Laws and regulations designed to enhance bank profitability may change to the detriment of banks and/or may constrain banks from increasing their earnings and diversifying their portfolios or may subject them to additional expenses (e.g., overchartering is said to have led to failures).

We now examine each of these risks. (Benston et al., 1986, Chapter 1; Benston and Kaufman, 1986)

System risk. The Great Depression was accompanied by the most severe collapse of the banking system in U.S. history. It resulted in the passage

of the Banking Act of 1933 (the Glass-Steagall Act), which imposed considerable additional restrictions on banks. These restrictions included:

- a. prohibition of interest payments on demand deposits;
- b. interest ceilings on time deposits (Regulation Q);
- c. restrictions on new charters;
- d. margin requirements on loans for the purchase of securities; and
- e. separation of full commercial and investment banking. Federal deposit insurance also was established in the form of the Federal Deposits Insurance Corporation (FDIC) for commercial and savings banks. (In 1934, the Federal Savings and Loan Insurance Corporation (FSLIC)—was established to provide deposit insurance for savings and loan associations.) While not a restriction, per se, federal deposit insurance has had far reaching consequences for risk taking, as we discuss further below.

These restrictions and deposit insurance have been justified as necessary to prevent a future banking collapse. That the U.S. banking system was devastated in the early 1930s is not questionable. The number of commercial banks in operation dropped from more than 25,000 in 1929 to 14,000 in 1934, and all banks were closed completely for one week—and some longer—as the first official act of newly inaugurated President Franklin Roosevelt in March 1933. Public confidence in the banking system clearly was low, and drastic actions clearly were taken.

But now it is also clear that the collapse of the banking system was not caused by excessive risks taken by banks of the type that the Banking Act of 1933 was supposed to prevent or, at least, reduce. The evidence does not support the belief that paying interest on demand deposits or higher interest rates on time deposits forced or enticed banks into making more risky investments. Indeed, banks that paid such interest had lower failure rates than those that did not, perhaps because they could reduce their expenditures more quickly when their business contracted. (Benston, 1964; Cox, 1964). Although it was charged by Senator Glass (co-author of the Banking Acts of 1932 and 1933 and principal author of the Federal Reserve Act) and others that speculation by banks in securities was a major cause of the collapse, in fact no bank that traded or held substantial amounts of securities failed. (Benston, 1987) Further, securities speculation, which was supposed to have been fueled by bank loans made to individuals and securities dealers, was thought by Senator Glass and others to have been a cause of the subsequent depression and financial collapse. However, few economists believe that the 1929 securities price crash or the later collapse of securities prices caused the Great Depression. Even fewer economists believe that banks' loans to investors and securities dealers caused or fueled a financial bubble that later burst. (Board of Governors of the Federal Reserve System, 1984)

Rather, the banking collapse of the early 1930s was caused by a number of forces, including the following three:

1. A one-third decline in the money supply, probably exacerbated by bank failures and state-imposed bank holidays that encouraged people to withdraw deposits and hold currency instead.
2. The hoarding of gold that preceded the March 1933 bank holiday. Prior to President Roosevelt's taking office, those "in the know" assumed that the dollar would be devalued in terms of gold. Thus, in the weeks before his inauguration, there was a run on gold, which helped to create the conditions for the President's order for a bank holiday and exacerbated the crisis. (Wigmore, 1987)
3. The unit banking system that hampered banks from diversifying geographically and that encouraged—indeed, in states that suffered the most failures, mandated—very small banks. Over ninety percent of the 3,500 banks that failed in 1930-31 had total deposits of less than \$2 million (Benston, 1973). All but ten were unit banks. Geographical concentration and small size also resulted in banks holding both loans and deposits that were dependent on the economic well-being of a single industry—timber, cotton, wheat and corn for banks in the farm states, automobiles for the Detroit banks, and so forth. Hence, when these crops and industries failed, the banks that served them also failed.

The general banking collapse and much if not all of the depression of the 1930s could have been prevented by the Federal Reserve. The Fed could have stemmed the decline in the money supply with open market operations and reductions in the required reserve ratio. Indeed, the central bank always can offset a multiple contraction of the money supply. Hence, a financial panic and collapse of the banking system as a whole is entirely preventable. Individual banks or groups of banks still might fail because they made bad loans (as did Continental Illinois and Seafirst), hold insufficiently diversified portfolios (as did many banks in the farm states in the 1920s and 1980s), maintain portfolios that are subject to the risk that interest rates could increase unexpectedly (as happened to the First Pennsylvania Bank in the 1970s and to several thousand savings and loan associations and savings banks in the early 1980s), be badly managed (as was the case with the Franklin National Bank), or be defrauded (as occurred with the United States Bank of San Diego and the Butcher group of banks in Tennessee). But none of these situations need start a chain reaction that affects other banks that are not directly subject to the same shocks, thereby causing a systemic collapse. That can be both prevented and caused by the central bank. (Schwartz, 1987A)

Price risk for banks is related primarily to the possibility that market rates of interest will increase unexpectedly when they hold assets with longer durations than liabilities. Banks that hold such portfolios will suffer capital losses. This form of price risk is responsible for the official failure of at

least 200 savings and loan associations and savings banks, the unofficial (when a merger was arranged to prevent liquidation or takeover by the FSLIC) failure of at least 300 additional associations since 1981, and the temporary economic if not legal failure of the majority of the thrift industry in the early 1980s. (Benston, 1985B; Kane, 1985). However, neither generally accepted accounting principles (GAAP) nor regulatory accounting principles (RAP) recognize the loss until it is realized, usually when the assets are sold. Hence, a bank that became economically insolvent as a consequence of higher market rates of interest may nevertheless appear to be solvent in terms of book value and can continue operations (if allowed by the authorities to do so), since federal deposit insurance permits it to continue bidding for deposits and pay its bills when they come due. This was true for the large majority of thrift institutions in the early 1980s. While most of these thrifts may not have realized the risk inherent in holding duration-unbalanced portfolios (fixed-interest long-term mortgage loans funded with short-term liabilities), some appeared to have gambled that interest rates would decrease.

Foreign exchange risk is another form of price risk. Banks can hold uncovered positions in foreign currencies and contracts that can result in their taking considerable losses when exchange rates change unexpectedly. Such was the case with Franklin National Bank, although it appears that the failure of the bank was due primarily to operational incompetence and fraud. (See Rose, 1974)

Interest rate futures contracts and options also may subject a bank to price risk. While these financial instruments are most frequently used to reduce interest rate risk when a bank holds an otherwise duration-unbalanced portfolio, they also can be used as a means of gambling on a change in interest rates. The potential loss can be great since futures and options can be highly levered obligations.

Savings and loan associations and savings banks may hold equities in companies and real estate. Changes in the prices of these assets may result in losses as well as gains. Thus far, however, there is no evidence that these investments are important causes of failure. To the contrary, for many savings and loan associations, investments in these assets have tended to reduce the variance of their cash flows, while increasing their returns. (Benston, 1985B)

Finally, a solvent bank that uninsured depositors believe to be insolvent may suffer a precipitous outflow of funds—a run. As a result, the bank may have to sell assets quickly at fire sale prices or borrow at higher than expected rates. This form of price risk from insufficient time to search out the highest bidder for assets or lowest cost supplier of funds often is called “liquidity risk”.

Credit or default risk has always been an important cause of bank insolvencies. As was discussed above, banks that lend to customers who experience severe economic problems, such as those that have served farmers, energy producers, and in recent years, experience credit losses. Credit risk is a particularly important source of losses in periods of rapid decelerations in the rate of inflation and of actual decreases in the general price level. (Schwartz, 1987A) The major problems suffered by the Continental Illinois, Seafirst, and Bank of America, to name but a few, stemmed primarily from their having made loans to borrowers who could not repay them. Risk of default by foreign borrowers, including foreign governments, is referred to as "country risk" and, if the default is primarily for political considerations, as "political risk". Credit risk is, or should be, the primary risk to which banks are subject, because the primary product of most banks, other than fund transfer, is the estimation and monitoring of credit quality. Indeed, bank supervisors have directed their efforts largely to estimating the credit risk to which banks are subject.

Fraud and operations risk are considered together because they both involve the way in which a bank is run and the extent to which the operations of its employees, particularly its senior managers, are monitored and controlled. Fraud is by far the more serious risk, since it often results in very large and very sudden losses. It also has been and is likely to continue to be an important source of insolvencies. A recent Congressional study concluded that fraud and other misconduct were the leading causes of failure among the thirty SLAs in California that failed between 1983 and 1986. (Yang, 1987) These failures cost the FSLIC almost \$6 billion.

Operations risk, ranging from bad decisions to poor management to just a run of bad luck, also can be very important, particularly when poor management makes fraud and credit risks more likely to occur. The most recent examples are the failures of Continental Illinois and Seafirst. The purchase by these banks of billions of dollars of loans from the Penn Square Bank which, when made, were unlikely to be repaid, imposed such large losses on these major banks that they became insolvent. The banking officers who purchased the loans accepted risks that, ex ante, should have been seen as unacceptable, net expected loss situations. (Zweig, 1985; Singer, 1985) Apparently they made these loans because of a combination of incompetence, reward structures that emphasized growth, inadequate credit controls that permitted loans to be made without independent review, and (possibly) dishonesty.

Operations risk, as such, appears responsible for some important failures. The Bank of United States, whose failure in 1930 was believed to have shaken public confidence in banks as it appeared to be an "official" government-related bank (Friedman and Schwartz, 1963), became insolvent

*FRB CHICAGO Staff Memoranda*



because its owners expanded by purchasing other banks at very high prices. The required payments drained the bank of resources, which the bank's owners (who ran the bank) covered up with false accounting, and the shifting of bad loans and real estate investments to affiliates. Franklin National Bank's rapid expansion from Long Island to New York City, in the process of which it incurred bad loans, has been cited as the major factor leading to its failure. (Rose, 1974) It is not clear to what extent the Bank of America's problems stem from credit risk or from poorly conducted lending and other operations. Nor is it clear whether the failure of Penn Square Bank is due to exceptionally poor lending, badly controlled lending, deliberate risk taking, or fraud.

Regulatory risk includes both unexpected changes in regulations and laws that reduce banks' profits and constraints that prevent banks from operating efficiently and safely. Unexpected regulatory changes may cause the termination or substantial modification of ongoing activities with resulting operating losses. Legally imposed constraints that increase the riskiness of banking operations and portfolios are legion. These include such restrictions as not permitting banks to offer the public a full range of securities underwriting and trading as well as discount brokerage, insurance products, and branching prohibitions that limit geographical diversification. Initially, ceilings on interest rates that could be paid explicitly on deposits (zero for demand deposits and Regulation Q ceilings for time and savings deposits) benefitted banks, but later prevented them from adjusting efficiently to market conditions.

**Interrelationships among the risks.** With the exception of extreme system and regulatory risk, banks can manage the risks they face. Interest-rate (price) risk can be reduced or even eliminated if duration-balanced portfolios were held, or either the spot or futures markets were used to hedge against market-rate changes. Similarly, foreign exchange risk need not be taken. Liquidity risk can be reduced when readily-marketable assets, such as U.S. Treasury bills, are held, and when banks conduct their affairs so as to reduce the probability that uninsured depositors will withdraw their funds precipitously (run). Credit risk can be reduced to an amount that does not deplete equity capital by means of more effective loan evaluation, monitoring, and collection procedures and by banks holding diversified portfolios that reduce the amount of loss that might be incurred from unexpected repayment problems. Controls and independent auditing can reduce the probability that fraud and losses from operations will result in large losses. The optimal trade-off between expenditures on risk reduction and the losses that otherwise would be incurred depends on the circumstances facing a particular bank, the propensity of its managers to take risks in exchange for higher returns, and the managers' competence.

## II. Evaluation of the Present Reasons for Regulating Depository Institutions

### 1. Financial Panics and Payments System Risk

The analysis presented above leads to the conclusion that banking regulation does little to decrease either the probability or the severity of a system collapse in terms of problems of individual banks progressively spilling over to other banks not directly subject to the same problems. But laws and regulations that keep banks from optimally diversifying their portfolios can make a system collapse more severe and, in the absence of appropriate action by the Federal Reserve, more likely. Such laws include restrictions on intra- and inter-state branching, restrictions on the assets and liabilities that banks can hold (e.g., the Glass-Steagall Act's separation of full investment and commercial banking), and the inducements for savings and loan associations and savings banks to hold duration-unbalanced portfolios.

Furthermore, there is no reason for the authorities to be concerned with maintaining the public's confidence in the payments or banking system. Given trust in federal deposit insurance, depositors with less than \$100,000 in any one insured account have no reason to be concerned about bank failures. Such, indeed, has been the situation with all the post-Great Depression failures. Few, if any, depositors with over \$100,000 in an account would keep their funds in currency. Rather, if they feared the failure of their bank(s) and believed that their funds were at risk, they would redeposit those funds in one or more other banks believed to be safe or they would purchase safe, e.g., U.S Treasury, securities. In the latter situation, the seller of the securities is likely to deposit the funds in a bank. Why else would he or she have sold the safe security? In either event, the funds would not leave the banking system and there would not be a systemic collapse. Only if depositors lost faith in all 14,000-odd commercial banks in the entire country and ran to convert deposits into currency would there be a reduction in total bank reserves and the possibility of a multiple contraction in aggregate money and credit that could adversely affect national economic activity. But this has occurred only rarely in U.S. history, even before federal deposit insurance in 1934, and never since, even after the well-publicized failures of recent years. Moreover, even if the funds were kept in currency, the Federal Reserve can offset the reduction in base money with open market operations, and/or through the discount window, thereby preventing the money supply from contracting. (Kaufman, 1985A; Benston et al., 1986, Chapter 2; Goodfriend and King, 1987)

Nor is there reason to believe that bank regulation is the best, or even an effective, way to prevent a bank failure that would impose costs on the

payments system by reducing its efficiency. (Huertas, 1986; Flannery, 1987) It is true that the mechanism might be disrupted were a major bank to fail before claims on it had cleared as some transactions would have to be reversed. (Volcker, 1986A; Humphrey, 1987) But if this is considered to be a serious problem, fairly stringent capital requirements should be imposed on all banks that have access to the system. Furthermore, the threat of a bank failure from problems in the payments system could be mitigated were the Fed to restrict or prohibit daylight overdrafts. An even simpler and perhaps even more effective procedure would be for the Fed to charge banks for daylight overdrafts. The result might be similar to that which resulted from the Fed's charging for float—the amount outstanding declined from some \$7,000 million per day to \$800 million. (See Goodfriend and King, 1987) The Fed could also consider removing its guarantee on each item entering the clearing process, since this reduces the incentive for banks to carry sufficient clearing balances and capital. And more attention should be paid to the consequence of a computer breakdown, as occurred to the Bank of New York. (Volcker, 1986B)

## **2. Disruptions of Bank Failures to Communities and Costs Imposed on Other Banks**

Concern that individual bank failures are especially costly is based on a belief that one or more of the following occurs: (1) failed banks are liquidated and disappear; (2) bank services are unique and even a brief interruption is exceptionally harmful to the community; and (3) the failure of one bank can set in motion a domino effect resulting in the failure of a large number of other banks and disruption of the payments system, that is, a systemic collapse. (Corrigan, 1982, 1987; Volcker, 1986A) The weight of available experience suggests that none of these fears is justified. Failed banks generally do not disappear physically, leaving a "hole in the ground" and the community without any banking services whatsoever. Generally, only smaller failed companies are liquidated, be they banks or other type of firms. The others are recapitalized, merged, or sold, although some time in bankruptcy may be required to work out a least-cost solution for larger institutions. Recent proposals, some already implemented, for the FDIC to establish "bridge" or "trusteeship" banks would provide the necessary time for these banks. The Federal Home Loan Bank Board now operates failed larger savings and loan associations under a management consignment program until they can be sold or privately recapitalized efficiently.

Nor is a bank failure likely to produce more harm in a community than the failure of any private firm of comparable size. Like any private firm, a bank fails economically when the market value of its assets declines below that of its liabilities. (Market values are present values that take into account the market's current expectations of future conditions.) At that

point, the bank would not be able to meet all of its liabilities in full and on time unless conditions change unexpectedly for the better. If the bank were legally declared insolvent exactly at the time it became economically insolvent and ownership were transferred to the creditors, the only loss would be to the shareholders, who would lose the value of their investments.

But banks are generally not declared legally insolvent at the time that they become economically insolvent. Nor can a bank be forced into insolvency by the actions of its creditors, as can other firms. Rather, a bank is declared insolvent by the appropriate regulatory agency, generally the chartering agency, when the value of its assets by whatever accounting standard applied by the agency, usually generally accepted accounting principles or regulatory accounting principles, declines below the value of its liabilities. (Symons and White, 1984) Because, as already noted, these accounting practices generally do not recognize losses until there is a missed cash payment nor mark assets down until they are sold and regulators are frequently reluctant to declare banks insolvent because such actions are popularly viewed as a black mark on their record, legal failure is likely to lag economic failure. As a result, losses may accrue to creditors, including uninsured depositors and the federal deposit insurance agency, in addition to shareholders. Indeed, as will be argued later, the sooner an institution is declared legally insolvent after it becomes economically insolvent, the smaller any losses are likely to be.

Furthermore, the sooner an economically insolvent bank is declared legally insolvent and reorganized, the more fairly will all uninsured depositors be treated. Until such a declaration is made, some depositors will be able to withdraw their funds in full, thus increasing the loss to the remaining depositors. This violates rules of equity and is a reason for the bankruptcy process for nonbank firms.

Unless creditors operate under illusions or are unaware of the true financial condition of the bank, as would happen when there was undetected fraud, they will alter their market behavior when the losses actually occur, rather than when they are recognized. As a result, the adverse impact of the failure on the spending behavior of depositors is likely to occur before the failure is legally recognized. To the extent that creditor losses accrue only to the deposit insurance agency, either because the bank is small or because the insurance agency de facto guarantees all deposits, the immediate adverse impact is spread throughout the country rather than in the local community.

Other than through causing a currency run on all banks that is not offset by reserve injections by the Federal Reserve, as was discussed in the previous section, a bank failure may spread to other banks if the failed bank

owed funds to other banks and the losses realized were greater than the capital of some or all of these other banks. A bank can owe funds to other banks because it borrowed Fed funds from them, held their corresponding balances, or incurred daylight overdrafts in the funds clearing process. But the losses to these other banks are unlikely to be equal to the size of their credits. Rather, they will be equal to the pro rata share of the failed bank's loss. Except for instances of massive fraud, for commercial banks this is likely to be only a few cents on the dollar by the time a bank is declared insolvent. For savings and loan associations, the losses have been greater in recent years as a result of both massive fraud and long delayed declarations of legal insolvency, but these institutions rarely are greatly indebted to other private financial institutions. In any event, if the creditor banks follow usual practices of diversification, their losses should amount to only a small fraction of their capital, regardless of the size of the failed bank.

The failure of the Continental Illinois Bank in 1984 illustrates this clearly. The bank was not only was one of the largest banks in the country, but also was one of the very largest correspondent banks. At the time it failed, almost 200 banks had correspondent balances at the Continental in amounts greater than 50 percent of their capital; 66 of these banks had balances greater than their total capital. Economic, although not realized, losses to Continental creditors totalled only about two or three cents on the dollar. Even if these losses had been as large as 10 percent, none of the banks would have suffered a loss in excess of their capital and only two would have suffered a loss between 50 and 100 percent of their capital. (Kaufman, 1985A; House Banking Committee; 1984) Thus, even in the absence of the full FDIC guarantee, the impact of the Continental failure would not have spread to its correspondent banks.

The larger the failed bank, the larger the expected number of creditor banks and the expected absolute dollar amount of losses (although not the relative amount). Large bank failures may require a longer time to work out and untangle, but, as noted earlier, the means to provide this have been developed and can be quickly put in place, e.g., bridge banks, conservatorships, and trusteeships, so as to minimize adverse impacts. These procedures apply equally well to defaults on daylight overdrafts as to defaults on Fed funds and correspondent balances.

Nor would the failure of a large bank be likely to spill over or contaminate other banks not subject to the same problems and lead to a reduction in aggregate bank deposits and the money supply. As noted earlier, when depositors flee banks that they believe to be insolvent, they are most likely to redeposit directly at another bank or to purchase default-free securities, which will result in an indirect redeposit. Thus, a large bank failure may reshuffle funds among banks, but is unlikely to result in a loss of reserves to the banking system.

The same outcome holds even if the deposits are transferred to banks outside the United States, as occurred at the time of the Continental Bank crisis. If this happens, there is an increase in foreign ownership of deposits at U.S. banks, but the total amount of deposits and reserves in the U.S. banking system remains unchanged. Only if currency is shipped abroad would reserves and deposits at U.S. banks be reduced. (Kaufman, 1985A)

This is not to argue that runs on individual banks, in particular on large banks, will not cause disturbances that are felt by other banks and possibly by the economy as a whole. In addition to the shifting of deposits out of the actual or perceived insolvent bank, the run may cause depositors at other banks to scrutinize their banks more carefully and to transfer some or all of their deposits to other banks. Thus, there may be churning of deposits among banks. Because adjustments do not occur instantaneously and transactions are not costless, such deposit churning may increase interest rate volatility and affect the market values of a wide range of assets. These effects may increase uncertainty and thereby possibly increase the overall level of interest rates, if market participants require a higher uncertainty premium. Moreover, if the deposits are transferred overseas, the churning may affect exchange rates. These changes may dampen levels of real aggregate economic activity and welfare. The larger the banks involved, the larger such adverse impacts are likely to be. But these effects are likely to be only temporary and not very costly to other banks or the community. Indeed, these costs may be less to society than the costs that would be incurred were banks shielded from the disciplinary effects of depositor scrutiny.

The adverse economic impact on a community of a failed bank may reasonably be expected to be greatest if the bank were the only one in the area. A recent article in the *American Banker* analyzed anecdotally the effects on communities in the midwest of the closing of their only banks (Bennet, 1986). According to the author, these communities generally were very small towns with populations under 300, too small to support another independent bank or even a branch of a distant bank. Though the only bank's departure was an inconvenience and led to reductions in revenues and even to the closings of some neighboring business firms, generally retail shops, these effects are little different from the repercussions following the loss of a community's only movie theater, department store, or supermarket.

But even liquidations rarely leave a community without reasonable banking alternatives. For example, between 1927 and mid-1932, near the height in the decline in the number of banks, less than four percent of the more than 10,000 cities in the United States with populations of 1,000 persons or more lost their only commercial bank, and less than two percent of the nearly

1,000 cities with populations of 10,000 or more. (Kaufman, 1986B) In more recent times, the number of savings and loan associations has declined by almost 50 percent from 6,200 to 3,200 in the 20 years between 1965 and 1985 and by 30 percent in the five years since 1980 alone. This is not much less than the decline in the number of commercial banks in the 1920-1933 period. Yet, there has been no major outcry by consumers about a loss of services. In large part, this may be explained by a sharp increase in the number of branches so that the total number of savings and loan association offices more than doubled from 9,200 to 20,300 between 1965 and 1985 and declined by less than 1,000 between 1980 and 1985.

Thus, bank failures generally do not leave communities without banking facilities. Rather, customers are likely to face banks under different managements and ownerships. This may cause some hardships, but these should not be overly severe. Deposit customers will be affected only to the extent that the new bank charges different service fees and pays different deposit rates. These changes are as likely to be favorable to the customers as unfavorable. The hardships may be more substantial for loan customers. The new banks could have different loan standards and loan officers, and long-standing bank-customer relationships may have to be reestablished. But it is unlikely that changes in bank management will result in changes of all or even most loan officers so that the continuity of the personal relationship may well be unaffected. Indeed, strong bank-customer relationships are valuable intangible assets that are readily marketable to other banks. If a bank failed because of poor loans, it may be possible that new banks will be reluctant to assume the failed bank's commitments not in default because of distrust of its credit judgment and/or probity. But, rather than reject all commitments, it is the acquiring bank that will benefit from screening the failed bank's loan portfolio and assuming those loans that are consistent with its own lending standards. Thus, those loan customers who are inconvenienced are likely to be those who should not have been granted bank loans to begin with.

Furthermore, the services offered by individual banks or even all banks are no longer unique. Recent dramatic advances in computer and telecommunications technology effectively permit anyone with a large computer system to offer similar services almost anywhere on short notice. In addition, different types of chartered financial institutions have been permitted to offer services previously restricted to only one type of institution. Surveys report that hardly any household now uses only one financial institution, fully 60 percent use three or more, and more than 50 percent of small business firms use two or more. (Whitehead, 1982, and Bennett, V., 1984) Larger firms may reasonably be expected to use a larger number of suppliers. Thus, failure and even liquidation of a bank is highly unlikely to leave many customers stranded.<sup>2</sup>

A recent study of bank failures in rural counties in Kansas and Nebraska between 1977 and 1984 tests the hypothesis that commercial bank failures have adverse effects on economic activity in their local communities. The authors conclude that "the weight of the evidence ... is consistent with the hypothesis that bank failures do not cause subsequent declines in economic activity in the communities where banks fail." (Gilbert and Kochin, 1987) The relatively small impact of bank failures may be attributed to the fact that, except for massive fraud, losses to uninsured depositors at failed banks are relatively small if the failures are resolved quickly after the economic value of net worth touches zero. Thus, the communities' wealth is not reduced greatly, if at all. As noted above, even in the case of the Continental Illinois Bank, it was unlikely that losses to uninsured depositors would have been much more than two or three percent of their deposits.

As discussed earlier, the presence of federal deposit insurance, per se, has all but entirely eliminated the threat of nationwide bank failure contagion and multiple contractions in money and credit. Except for errors in public policy, bank runs will not drive an economically solvent bank into equilibrium insolvency nor spread to innocent banks.

It is important to note that bank failures generally yield benefits that more than offset the relatively small costs incurred. If insolvent institutions were permitted to continue without being reorganized or closed, there is reason to believe that resources will be wasted, particularly if the insolvency occurred because managers or owners were incompetent or dishonest. Even if the managers and owners were simply unlucky and the failure was attributable primarily to external events, they would still have considerable incentives to take excessive risks in the hope of recovering their losses.

Recent analyses of economically insolvent but still operating banks support this observation. The U.S. General Accounting Office found that only a small minority of the savings and loan associations that were GAAP insolvent in 1982 recovered by 1986 and that the aggregate dollar losses of the others were many times greater than the earnings of the institutions that were restored to health. (U.S. General Accounting Office, 1987A and B) A study of some 550 serious problem commercial banks (CAMEL rating of 4 or 5) in the Tenth Federal Reserve District between 1980 and 1986 found that by the first quarter of 1987 less than 10 percent had recovered and gained a CAMEL rating of 1 or 2, while more than one-quarter had failed and one-half remained serious problems (Huyser, 1987). The costs of this risk taking are borne by the solvent banks that pay premiums to the deposit insurance agencies; by the taxpayer, if losses exceed the agencies' resources; and by uninsured depositors, if the losses are larger than the banks' net worth positions and are not covered by the deposit insurance agencies.



The greatest benefit from failure, though, is its effect on reducing ex-ante risk taking by bankers. The fear that they might fail and lose their investment and/or employment should they take excessive risks should reduce the banks' incentives to take such risks. Similarly, bank runs may not be costly on balance. Concern that depositors might remove their deposits were a bank operated in a risky manner would provide bankers with incentives to conduct their affairs so as to give depositors no reason to run. Rather than something to be avoided at all cost, runs or even the threat of runs should be seen as a desirable form of market discipline. The evidence clearly suggests that runs are primarily caused by bank insolvencies than a cause of the insolvencies. (Kaufman, 1987C)

### **3. Protection of Depositors**

A major reason for banking supervision in most countries is protection of depositors from the loss of their investments. As noted above, the establishment of federal deposit insurance has effectively eliminated this concern for people with less than \$100,000 in an account at an insured bank. Considerably greater deposits can be insured by depositors by maintaining their accounts in more than one bank. Indeed, the present availability of computers and telecommunications makes it relatively inexpensive for almost all household depositors and smaller business depositors to insure from loss as much as they wish. Furthermore, depositors in very large banks have some reason to believe that they will not absorb losses should these banks fail. They can recall that all creditors of the Continental Illinois Corporation, including nondepositors, were protected from loss by the FDIC. However, uninsured depositors in smaller banks have reason to be concerned, particularly where the banks failed because of fraud or gross mismanagement, as was the situation with the Butcher banks, the Penn Square Bank of Oklahoma City, and a number of smaller banks in recent years.

But protecting depositors from loss carries costs as well as benefits. Deposit insurance changes the incentives facing insured depositors so as to increase the risks that banks are likely to take. (Kane, 1985) Insurance of any type makes people somewhat less careful because the costs or penalties from loss are perceived to be less than if there were no insurance. For banks, deposit insurance removes the need for depositors to evaluate and monitor the financial integrity of their banks, at least up to the de jure maximum amount of the insurance coverage. This removes depositors as a reliable source of market discipline. Because advances in computer and telecommunication technology have reduced the cost of transferring funds across distances almost to zero, risk-prone banks can now attract almost unlimited funds almost overnight from throughout the country without depositor concern, at least from those depositors who do not mind keeping their balances in any one bank below \$100,000, by offering a sufficiently

higher rate than their competitors. As is evident from the recent experience of thrift institutions, the fact that a bank is economically insolvent has little effect on its ability to obtain funds. In addition, the continued solvency of other banks is endangered to the extent that the higher deposit rate paid by insolvent banks causes their solvent competitors to increase their rates. (It should be noted that because banks that want to attract large amounts of deposits quickly must publicize their rates, the bank regulatory agencies should have little difficulty in identifying the potential problem cases.)

#### **4. Fear of Excessive Risk Taking by Banks Because of Deposit Insurance**

Combined with the Federal Reserve discount window, federal deposit insurance provides a "safety net" for banks, particularly when regulators are reluctant to reorganize promptly economically insolvent banks. Both theory and evidence on safety nets in other activities indicate that they tempt participants to increase the risk exposure they are willing to assume. (Kaufman, 1987E) Thus, highway engineers know that the presence of guard rails causes automobile drivers to drive faster on mountain passes (consequently, they omit such rails on the most dangerous passes), and high-wire trapeze artists know that they will attempt maneuvers with a net below them that they would not try without a net. So it also is with banks.

As noted, deposit insurance shifts the concern about how banks are operated largely from depositors to the deposit insurance agencies. But, unlike private insurance companies, the premiums charged and coverage offered by the federal deposit insurance agencies are inefficient and inequitable in several regards. First and foremost, the premiums charged are not related to the risk assumed by the insured banks. Thus, banks are encouraged to pursue riskier ventures as their cost of insured deposit funds is not likely to rise proportionately to the expected increase in their revenues they can expect to earn a higher risk-adjusted return than otherwise.

Second, the premium is not charged against all deposits de facto insured. The flat fee is instead imposed on all domestic deposits at insured banks and not charged for the deposits of foreigners in domestic branches or all deposits in foreign branches. Furthermore, very large banks are frequently thought to be 100 percent de facto insured both domestically and overseas. Thus banks having the same risk exposure but different deposit characteristics are not charged the same. The generally small banks and thrifts that hold deposit balances under \$100,000 per account pay premiums on the amounts insured, the international, generally very large, banks underpay, ceteris paribus, and the medium sized banks with accounts over \$100,000 tend to overpay.

In the absence of explicit risk-related premiums, bank risk taking has been "controlled" by the authorities in four ways. First, banks' operations are

monitored by field examinations. Particular emphasis is placed on their portfolio of loans, and, since the massive failure of savings and loan associations in the 1980s, on the banks' exposure to interest rate risk. Second, banks are closely supervised. They must obtain permission to engage in many operating activities, including such ordinary events as the opening and closing of branches. Third, banks are prohibited from engaging in many activities, including some investment activities, and from holding specified assets on the grounds that this would reduce the risks in which they could engage. Fourth, formal entry into banking is restrained, in part based on the belief that overbanking and competition among banks led to financial weakness and failures.

These methods of control have been only partially successful, at best, in controlling risk, and have entailed considerable costs. Field examinations have often proved to be ineffective in keeping banks from undertaking excessively risky or fraudulent activities. For example, the Penn Square Bank was not closed by the authorities until after it had sold over \$2 billion in largely uncollectible loans to other banks, two of which—Seattle First and Continental—absorbed hundreds of millions of dollars in losses, resulting in their economic failures. Many important frauds were not discovered until after the banks had been substantially looted. The extent to which savings and loan associations have been booking ex-ante highly risky and even fraudulent loans in recent years and imposing millions of dollars of losses on the FSLIC appears to be little affected by examination and supervision by the Federal Home Loan Bank. While field examinations have not been useless, there is reason to question their effectiveness in controlling excessive risk taking by banks. (Benston, 1973; Benston et al., 1986, Chapter 12)

Supervision also has limited effectiveness. The preceding analysis of the risks faced by banks led to the conclusion that the optimal tradeoffs between risks and returns is complex and subject to change. Hence, it is doubtful that banking supervisors could determine which mix of assets, liabilities, and operations at each bank would reduce risk to an acceptable, if not an optimal, level. For example, the authorities might determine that particular assets, such as equities or real estate, may individually have a higher expected loss potential than loans, and hence not permit banks to hold the asset. But when the prohibited asset is held in a portfolio with permitted assets, the total loss potential could be reduced if the cash flows from the assets were imperfectly correlated.

Restraints on entry into banking and on competition among banks, e.g., Regulation Q and the prohibition of interest on demand deposits, may have reduced failures, but the cost in terms of lost interest income to the public is likely through time to have been greater than the benefit. In addition, over time, such restraints tend to reduce the efficiency with which banks

are operated, constrain innovation, and increase prices paid by consumers. Furthermore, presently available technology and alternatives developed by suppliers of financial service that are outside the authority of the bank regulators, such as money market mutual funds and cash management accounts, have made many such constraints largely ineffective. But many of the inefficiencies spawned by the constraints, such as branches built to offer depositors convenience rather than higher interest, are difficult to eliminate quickly. Hence, enhancing solvency among banks by imposing such constraints is counterproductive in the longer-run.

Finally, while some of the restraints on banks' investment activities appear to have been useful for increasing solvency, others have been harmful. Among the useful constraints are limitations on the magnitude of loans that can be made to officers, directors, stockholders, and other insiders, and on loans made to individual and related borrowers. The former limitations reduce the opportunities for fraud and self-dealing, while the latter enforce some degree of diversification. Both types of limitations have been found to be desirable in most times and countries. But evidence suggests that many of the statutes and regulations that constrain banks from engaging in specified activities and from holding a full range of assets are designed as much, if not more, to restrain them from competing with alternative suppliers of services than to keep them from taking excessive risks.

## **5. Restrictions on Competition**

Many laws and regulations are designed to restrain competition among banks and between banks and other suppliers of financial services. These laws include state restraints on branching and federal submission to state options that have, until very recently, prohibited full service interstate banking and still prohibit interstate branching. The Glass-Steagall Act prevents banks from competing directly with full-service securities dealers. Both federal and state regulations prevent most commercial banks from offering a full range of insurance products to their customers. The Bank Holding Company Act restricts bank affiliates to a subset of financial activities and prohibits them altogether from nonfinancial activities. While in effect, Regulation Q was used to limit competition among banks and thrifts for savings and time deposits. Likewise, the prohibition of interest payments on demand deposits has limited competition among correspondent banks for the deposits of respondents, and, among all banks, for checking accounts. While such laws often are supported as limiting risk taking by banks, they actually serve to constrain competition to the detriment of consumers.

## **Conclusions**

The analysis presented above leads us to conclude that the principal ongoing reasons for regulating depository institutions are limitations on avoidance of the disruption that a bank failure is presumed to cause, particularly when it is a very large bank that fails, including potential losses to the deposit insurance funds, and limitations on competition. We have argued that neither the fear of local or national contagion nor the restriction on competition rationales appear to be warranted or in the public interest. But more importantly, the system now is not working!

The increased level and volatility in prices and interest rates since the late 1960s, in large measure the result of poor macro-stabilization policies, greatly weakened the financial strength of depository institutions and, in more recent years, led to a sharp increase in the number of economic insolvencies (Schwartz, 1987A). The impact of adverse economic and financial factors on banks was magnified by regulations that restricted their ability to diversify both across product lines (e.g., savings and loan associations that were limited to fixed-rate residential mortgages), and across geographical markets (e.g., unit banking limited some banks to lending in agricultural and energy areas). At the same time, dramatic advances in computer and telecommunications technology that made it possible to transfer funds across greater distances quickly and cheaply permanently undermined the regulations protecting one institution's or one sector's turf from intrusion by others. In addition, increased levels of deposit insurance from \$40,000 to \$100,000 per account in 1980 severely reduced market discipline.

In combination, these forces overwhelmed the ability of the regulations to control either intentional or unintentional risk taking by banks and bankrupted the FSLIC and greatly weakened the solvency of the FDIC. The cost of these failed policies is estimated to be in excess of \$40 billion, a cost that is far beyond the current resources of the deposit insurance agencies and most of which must ultimately be borne by the taxpayer. Moreover, the system is nearly out of control and is generating additional large losses daily, even in an environment of stable or declining interest rates.<sup>3</sup> Losses promise to be even more substantial if interest rates were to rise significantly. It is evident that the regulatory structure requires a major overhaul as soon as possible.

## **II. Proposals for Changing the Present Bank Regulatory System**

In this section, we enumerate and evaluate the costs and benefits of the more credible, market-oriented proposals that have been suggested for in-

creasing both the safety and efficiency of the banking system. These include: (1) abolition of federal deposit insurance, (2) reform of federal deposit insurance coverage and premium charges, (3) risk-related capital requirements, (4) the narrow bank proposal, and (5) reorganization of banks before their economic capital becomes negative. Several of these proposals are not mutually exclusive.

### **1. Abolition of Federal Deposit Insurance**

Because the current structure of federal deposit insurance is frequently identified as the major cause of the increased instability in the banking system, since it encourages increased risk taking, elimination of federal deposit insurance has been proposed. (Ely, 1985, England, 1985) In a world without federal deposit insurance, banks would be subject to considerably greater market discipline from all depositors, shareholders, and private insurance companies, if they chose to insure their deposits. As a result, banks are likely to assume less portfolio risk and maintain higher capital-to-asset ratios. (England, 1987; Dowd, 1987A and 1987B) In effect, this would be a return to the pre-FDIC period.

The proponents of this proposal argue that none of the major reasons for introducing federal deposit insurance in 1933 remain valid today. These include protection against a collapse of the money supply and payments system, protection of small depositors, and protection of unit banking. As already discussed, with the exception of a few periods, bank failures were neither very frequent nor ignited the failure of other banks or an economic downturn either locally or nationally. Runs on individual banks resulted primarily in redeposits at other banks and bank failures did not either permanently reduce the supply of banking services to a community or depress the local economy more than the failure of any other firm of comparable size.

The few periods in which bank failures did contribute importantly to national financial and economic instability were characterized by a loss of confidence in all banks and attempts to convert bank deposits into currency. Thus, reserves were drained from the banking system, and causing multiple contractions in money and credit. But, with the exception of the 1929-1933 period, the adverse impacts were short-lived. The banks acted in common, generally through the major clearing houses and temporary suspensions of convertability of deposits into currency, to provide time for the orderly sale of assets and the restoration of depositor confidence. But dissatisfaction with the ad hoc and questionable legality of these actions resulted in the establishment of the Federal Reserve System in 1913 to protect against reductions in aggregate bank reserves. (Timberlake, 1984; Gorton, 1985)

Unfortunately, for whatever reasons, the Federal Reserve did not offset the currency drain in 1929-1933 and the private structure was not permitted to act as before. The results were disastrous, but unique to that period. The crisis led to a loss of faith in the Federal Reserve System's ability to perform its lender of last resort function appropriately and to the establishment of the FDIC and FSLIC as supplements, if not replacements.

Later evidence has demonstrated clearly that the Federal Reserve could have then and can now offset any reserve drain through open market operations and/or the discount window. (Schwartz, 1987A and King and Goodfriend, 1987) If it had done so in 1929-1933, federal deposit insurance would not have been enacted. Proponents of eliminating federal deposit insurance believe that the Federal Reserve has learned its lesson and can be counted upon to operate rationally in the future. Any perceived supplementary need for deposit insurance would be fulfilled either by private insurance companies or by a system of self-insurance and mutual guarantees by the banks themselves. (England, 1987; Ely, 1985) Small depositors also could protect themselves against both default and price risks by purchasing short-term Treasury securities or money market funds, which provide similar transactions services as bank deposits.

Finally, small unit banks no longer need to be protected. Indeed, the liberalization of state branching and holding company acquisition regulations has been more damaging to the preservation of unit banking (assuming that this is or ought still to be a goal) than would be the removal of deposit insurance and suggests that unit banking is no longer the policy concern it was in the 1930s.

Opponents of the elimination of federal deposit insurance argue that it is necessary for a number of reasons. Some are not confident that the Federal Reserve can be counted upon with absolute certainty to prevent a decline in aggregate bank reserves. As already noted, while the risk from theft and the necessity of transferring funds by check do not permit large depositors to convert their funds to currency, a large number of people with small deposits could find it feasible and desirable to hold currency rather than deposits or alternative safe securities or deposit-like investments. In the absence of offsetting actions by the Federal Reserve, the result could be a multiple contraction in the money supply with all of the accompanying undesirable effects for the economy as a whole. Consequently, they prefer an automatic mechanism or rule, to which they liken the FDIC, to human discretion and fallibility.

Others believe that the private sector cannot protect itself against system runs and bank failures and that any attempt to do so would require a federal program of support for the insurance companies rather than the banks;

thus there would be only a rearrangement rather than elimination of existing guarantees.

Some also argue that private insurance companies would not be given the legal authority to reorganize individual economically insolvent institutions in as timely a fashion as the federal agencies could, if they so wished, and thus private insurers would experience or expect large losses which would require large insurance premiums. (Horvitz, 1980, 1983; Bierwag and Kaufman, 1983; FSLIC, 1983) Moreover, because private insurance companies can become insolvent, even those that have the blessing and moral support of the state, e.g., those in Ohio and Maryland, depositors would not have absolute faith in the protection of their deposits and might run to currency at times of uncertainty.

Finally, even some of those who would prefer to have private deposit insurance substituted for federal insurance doubt that federal insurance could be repealed, *de facto* or *de jure*. They believe that even if federal deposit insurance were withdrawn, the failure of a bank that resulted in a substantial loss to many depositors would be followed by a federal government bail-out. This expectation is supported by a large amount of experience. Examples include the payment to depositors in the Home State Savings Bank of Cincinnati (Ohio) even though the State of Ohio had no legal obligation for such payments. Canada paid off all depositors in two regional banks that failed, even though deposit insurance covered them only to \$60,000 Canadian. The Bank of England bailed out the depositors in Johnson Matthey, even though they were not obligated to do so. Hence, even if it were politically possible to remove *de jure* federal deposit insurance, it is very unlikely that depositors would not, in fact, be insured.

We also do not believe that federal deposit insurance can be replaced entirely with private or no insurance. Therefore, we agree with those who look for reform of the system rather than for its abolition.

## **2. Reform of Federal Deposit Insurance**

Proposals for reform of federal deposit insurance focus on changes that reduce the moral hazard problems inherent in the current structure and are modelled on the structure developed by private insurance companies in their operations.

### **A. Co-insurance**

Private insurers frequently try to reduce moral hazard problems through co-insurance, so that the insured and insurer share in some proportion of the covered loss. The proportions differ depending on the particular program and can include: (1) a *deductible*, in which the insured pays 100 per-



cent of the first X dollars of loss up to a maximum amount and the insurer alone or in some combination with the insured pays the remainder; (2) a cap, in which the insurer pays up to X dollars of the loss and the insured alone or in some combination with the insurer pays the remainder; and (3) *fixed proportional sharing*, in which the insured and insurer share in the total amount of the loss in a given proportion, e.g., 50-50, or 20-80. Indeed, the FDIC program enacted in 1933 and scheduled to go into effect on July 1, 1934 to succeed the temporary program adopted on January 1, 1934, included such provisions. The plan provided for 100 percent insurance of the first \$10,000, 75 percent of the next \$40,000, and 50 percent of all deposit amounts above \$50,000. This plan was never put into effect (FDIC, 1984).

Opponents of co-insurance reforms argue that such changes would not affect the system greatly. The current *de jure* structure already represents co-insurance; the insurer pays 100 percent of up to the first \$100,000 and the insured pays 100 percent of the remaining loss. The question then becomes what is the appropriate cap. Moreover, regardless of the *de jure* structure, unless the deposit insurance agencies were willing to abide by the *de jure* limits, *de facto* insurance coverage would continue to be close to 100 percent.

#### B. Maximum Coverage

The amount of maximum coverage per account importantly affects the degree of aggregate market discipline applied by depositors. The lower the maximum, the more the number of depositors and amount of dollars that are at risk and the more that depositors have incentives to monitor the activities of banks. Moreover, the lower the maximum amount of coverage, the more difficult and costly is it to divide large amounts into an equivalent dollar amount of smaller fully insured deposit packages.

When introduced on January 1, 1934, the maximum FDIC coverage per private account was only \$2,500. It was increased to \$5,000 six months later, \$10,000 in 1950, \$15,000 in 1966, \$10,000 in 1969, \$40,000 in 1975, and \$100,000 in 1980. This thirty nine-fold increase is considerably greater than the seven-fold increase in the general price level over the same period. Thus, *de jure* protection has been given to increasingly larger "small" depositors but at the cost of greater risk taking by banks and potential losses to the insurance funds. In light of this greater-than-inflation-adjusted increase and the ready availability of safe deposit-like outlets for these depositors, a significant rollback of the coverage to \$50,000 or even less should reduce the moral hazard problems significantly and make raising funds quickly considerably more difficult for risk-prone banks at little, if any, cost to smaller depositors or protection of the money supply. Even if the amount per account were not reduced, deposit insurance could be lim-

ited to a total of \$100,000 per depositor in all insured banks combined. (Benston, 1983) Thus, if a bank failed, a depositor who wanted to be paid would have to file a sworn statement giving the amount of insured deposits at all banks at the time of the failure. Deposits in the failed bank would be covered only to the extent that the depositor's funds in other insured banks were less than \$100,000 in total. Similarly, a lifetime \$100,000 maximum per depositor has been proposed.

Arguments against a significant reduction in insurance coverage focus on political infeasibilities, inconvenience to small depositors, greater individual and social costs of depositors' credit evaluations of banks, and the expectation that the legislators would act to bail out de jure uninsured depositors if the losses were sufficiently widespread or if sufficiently powerful depositors were affected.

### C. Risk-Sensitive Insurance Premiums

The most widely and longest-standing proposed reform is to replace the flat percentage of total domestic deposits premium structure with premiums that are scaled to the risk of loss assumed by the bank. Risk-sensitive premiums are charged for almost all the types of insurance offered by private insurers, such as life, accident, fire, and automobile insurance. Private companies attempt to match their premiums to the computed actuarial fair value of the potential loss. Because the probability of loss is related to the risk assumed by the insured, the greater the risk, the higher the premium. But risk-related premiums serve not only to protect the insurance company, but to affect the ex-ante behavior of the insured. The higher the premium, the more costly the activity, and the less likely is the insured to engage in it. In this way, the insurance company can control its risk exposure.

Because all insurance companies, private or public, have an incentive to minimize their losses, they all attempt to control the risks assumed by the insured and relate their premiums to risk, either explicitly or implicitly. The use of flat percentage premiums forces the federal insurance agencies to rely on implicit risk-related insurance premiums in the form of regulations, capital requirements, and enforcement penalties. (Benston, et al., 1986, Chapter 9) As discussed earlier in this paper, regulations restrict permissible activities, permissible number of banks and banking offices, geographical location, and prices paid and offered.

But, as demonstrated earlier, these regulations have been found to be highly inefficient and costly to both the banks and society. In addition, recent evidence suggests that the insurance agencies have not been very successful in controlling bank risks through regulation, particularly for failing banks. Enforcement penalties, which by definition are ex post, have also failed to

halt risk taking at risk prone banks. (Benston, et al., 1986, Chapter 10) Thus, explicit risk-related premiums are preferred.

However, establishing risk-related insurance premiums is not easy. A large body of recent literature has considered the problem without devising an operational way of determining the premiums. (Kane, 1985; FDIC, 1983; FSLIC, 1983; Bierwag and Kaufman, 1983; Benston et al., 1986) Most proponents of risk-based premiums recognize that risk should be measured with respect to market prices rather than accounting numbers. This would involve the replacement of book-value accounting with market- or current-value accounting for both on- and off-balance sheet accounts. Just how market-value accounting is to be done generally is not specified. Some opponents of risk-based deposit insurance emphasize the difficulties of applying such accounting in practice, in particular of evaluating nonmarketable assets and goodwill for purposes of determining the premiums. This argument appears to be based on a reluctance to accept market values in principle rather than on a careful benefit/cost analysis. It is ironic that some bankers attempt to estimate the market value of their customers, but are unwilling to have an insurance agency evaluate their market value. If federal deposit insurance were to be replaced by private deposit insurance, it is highly unlikely that the latter firms would be willing to underwrite the insurance if they were not able to employ risk-related premiums based on market value accounting.

The pros and cons of market value accounting are discussed later in this paper. However, we do not believe that perceived operational incompleteness is a sufficient reason for rejecting risk-based premiums. Indeed, we suggest an operational market-value accounting procedure in section 5 below.

Some proponents of introducing risk-related premiums would use non-market measures, such as reported balance sheet information and bank examination ratings. They argue that these values are preferred to market-determined values because the former are easy to obtain and the latter take into account market values where possible but supplement this information with subjective expert evaluations of non-market factors. In addition, bank examiners have access to information that the market may not have and, as all banks are already being examined, the system would not require the installation of new and potentially costly reporting and monitoring systems.

Opponents of explicit risk-related insurance premiums base their arguments on both theory and practice. In theory, the opponents note that the insurance agency suffers no losses if it could monitor banks perfectly and costlessly and reorganize the bank before the market value of its net worth falls to zero. Knowledge about the riskiness with which a bank is operated

is required by the agency only to determine the extent to which the bank must be monitored. For this purpose, much less precision in estimating risks would be needed than would be required for establishing insurance premiums. The premiums charged should be related to the costs of monitoring and the perceived costs of more timely failure resolution. To the extent that monitoring costs are related to the risk exposure of banks, risk could, however, serve as a surrogate for monitoring costs, and thus be a basis for setting premiums. Additional premium amounts would be required to cover losses that result from an optimal trade off between the cost of monitoring and supervision and expected losses, insufficient and ineffective monitoring by the insurance agencies, the inherent inability of any agency to uncover all fraud, extreme bad luck, the inability of the agency to measure economic net worth accurately, and political pressure that prevents the agencies from reorganizing banks before their net worth becomes negative.

Some analysts oppose activity-specific risk-related deposit insurance premium plans because they believe that the risk imposed on the insurance agency is related to the total portfolio and operations of a bank rather than to individual assets, liabilities, and activities. Hence, relating the insurance premium to individual assets or liabilities not only will not provide a valid measure of risk, but could result in more rather than less risk being undertaken. For example, real estate holdings, by themselves, might be more risky in that the cash flows from and market values of the assets may be more variable than those derived from, say, bank loans, and hence have a higher probability of being negative at some time. But, the cash flows from real estate might be imperfectly or even negatively correlated with cash flows from bank loans. Hence, the risk a bank offers to the insurance agency could be lower if it held both real estate and bank loans than if it only held the loans. As is noted above, the optimal combination of assets and liabilities need not be stable and is not readily determined by a formula or a banking supervisor. Moreover, in banking, ex-ante projections of cash flows and risk may be more difficult to obtain from ex-post evidence than elsewhere. Would loans to Mexico and Brazil have been viewed as risky in 1978 as in 1985 or interest rate mismatches as risky in 1965 as in 1982?

Risk-related insurance premiums also would give banking regulators considerable power to direct banks towards and away from specific types of investments and activities. For example, bank examiners in the past have objected to banks making loans to inner-city borrowers and mortgages to race-integrated housing projects on the grounds that these investments were too risky. Thus, such a premium structure may be used as a means of credit allocation, particularly if there is no competition among the federal insurance agencies so that the risk premiums assessed may differ from their market determined values. (Benston et al., 1986) Perhaps most important, opponents of risk-related premiums doubt that they would dissuade risk-

prone bankers from taking risks that are excessive from the point of view of the insurance agency. The premiums would have to be sufficiently high such that the net returns from excessively risky behavior is less than the returns from acceptable behavior. In the absence of effective monitoring and co-insurance (such as capital requirements), the required premiums would have to be so high that only a banker who expected to get very high gross returns from risk taking would be willing to pay—thus the insurance agency would suffer from adverse selection. And, as is discussed above, if monitoring were efficient, there would be no need for risk-based premiums. (Horvitz, 1983)

### **3. Risk-Related Capital Requirements**

Regulators have always been concerned with bank capital. Even in earlier periods of more or less “free banking”, minimum capital requirements existed for new bank charters and examiners evaluated the amount and adequacy of the capital of ongoing banks. Minimum capital requirements for bank charters are explicitly included in the National Bank Act and in many state banking statutes. Capital provides a cushion to protect both depositors and the deposit insurance agencies from losses. The larger the amount of capital, the less likely are losses of a given magnitude to wipe out the bank’s capital and impose losses on depositors and the insurance agencies. A firm that has 100 percent capital, e.g., money market and other mutual funds, can never become insolvent by definition.

Although bank capital ratios appear always to have been below capital ratios in other industries, the magnitude of the difference has widened since federal deposit insurance was enacted. At the turn of the twentieth century, bank capital-to-asset ratios were about 20 percent. In 1930, the ratios averaged about 15 percent. But these ratios understate the protection to depositors as shareholders of all national banks and of state chartered banks in many states were subject to double liability up to the par value of their investment. After federal deposit insurance was introduced, capital ratios declined and double liability was discontinued. At present, capital-to-asset ratios for all commercial banks average about 7 percent. In contrast, they average about 20 percent for major life insurance and property insurance firms and 11 percent for diversified insurance firms. Capital asset ratios average 45 percent for all manufacturing firms, 37 percent for mining firms, and 34 percent for wholesale and retail trade firms.

Until the 1970s, bank examiners formally evaluated the adequacy of a bank’s capital in relationship to the assigned risk values of the bank’s asset portfolios and mix of deposits using so-called ABC forms. Around 1970 this approach was abandoned as unnecessary because the rate of bank failures had declined to such low levels that concern about capital almost disappeared. In this period, bank capital ratios declined and the regulatory

agencies found they had little legal power to enforce capital standards. In the mid-1970s, when the number of bank failures, including some larger banks, increased, and bank profitability started to decline, concern about capital standards reappeared. But it was not until the International Lending Supervision Act of 1983 that bank regulators were given legal authority to enforce capital standards.

In 1987, U.S. bank regulators formalized and issued for public comment a proposal for uniform risk-based capital standards which they developed jointly with their counterparts in the United Kingdom. Among other objectives, the "measure ... attempts to ... temper disincentives inherent in the existing capital requirements to hold low risk, relative liquid assets" (COC, 1986B; FDIC, 1986; Board of Governors, 1987). Thus, the objective of the structure is the same as that of risk-based deposit insurance premiums. The proposal includes provision for off- as well as on-balance sheet accounts. This differs from current capital regulations which consider only on-balance sheet accounts. Proponents prefer it because it builds on a base of capital regulation that is already in place and does not involve out-of-pocket costs as would insurance premiums.

Critics of the proposal object to it on several grounds. (Aspinwall, 1987) Overall, it appears to involve only a reshuffling of the existing capital in the industry among the individual banks, which will have little effect on bank safety generally, as banks tend to be undercapitalized. The proposal specifics are seriously flawed in several important respects. First, capital is valued on historical book basis rather than on economic market values. Consequently, there is an imperfect and manipulable (by a risk-seeking banker) measured relationship between risk and capital.

Second, the risk weights to be used are based on unjustified, apparently subjectively determined, criteria (see Table 1) rather than on market valuations of risk. For example, a ten year fixed-interest U.S. government obligation is subject to considerably more interest rate risk than is a five year obligation or a variable-interest rate ten year obligation, yet all are subject to a 30 percent capital requirement. What reason is there to believe that a ten year fixed-interest rate state obligation is twice as risky (60% vs. 30%) as a similar U.S. Treasury or agency obligation? Is a loan to Poland (an industrial country) as risky as a collateralized and easily monitored broker's loan? (Both are classified as "moderate risks.") Are equal amounts of funds invested in consumer loans and in commercial loans to an oil prospector or to the government of Peru all "standard risks"?

Third, the effect on risk of combinations of assets and liabilities discussed above is ignored. In particular, there is considerable room and incentive, both among and within risk classes, for reshuffling to increase risk.

Fourth, risk of the bank is incorrectly measured. Interest rate risk cannot be gauged by referring only to individual asset or liability accounts. The actual interest rate risk exposure of a bank is determined by the accounts on the two sides of the balance sheet considered together. By focusing only on individual accounts, the proposal gives no recognition to the risk-reducing characteristics of portfolio diversification. Rather, appropriate weights should measure the marginal contribution of each account to overall portfolio risk. (It should be noted that each of these criticisms could apply equally well to poorly designed risk-based deposit insurance premiums schemes.)

#### **4. Narrow "Fail-Safe" Bank**

This proposal focuses on constructing supposedly "fail-safe" banks that can provide the basic banking product—transaction balances or money supply—(hence, narrow bank) which the government perceives as having important safety concerns and as justifying intense regulation. All other bank activities would be placed in another institution, the safety of which would concern the government no more or less than that of other non-banking firms. This other institution could be independent or an affiliate of a diversified financial holding company that also owns the narrow bank. If successful, this proposal would reduce government risk regulation greatly and permit bank holding companies to engage in a broader range of activities, both financial and nonfinancial, than is currently permitted or would be permitted bank holding companies that would choose not to house the transaction deposit business in a narrow bank affiliate. Although initially appealing, careful consideration of the plan has revealed serious flaws that have reduced its popularity considerably. Both the plan and the flaws are summarized here and discussed in greater detail in Appendix A.

As proposed initially, the fail-safe bank would hold only securities that were riskless in terms both of default and interest rate changes. This would restrict its investments essentially to short-term Treasury and federal agency securities. In this scenario, federal deposit insurance would seem to be no longer necessary. However, depositors could bear losses from fraud and operations mismanagement. Hence, deposit insurance and monitoring might be retained.

As the proposed investment restrictions are unlikely to permit the bank to earn sufficient revenues to cover operating costs, fees would probably have to be charged and interest paid only on the largest balances. Other institutions, then, including affiliates in the same holding company, would have an incentive to develop transaction balance substitutes that could be offered at lower fees or higher interest rates. The result would be a shift of funds to these institutions, which would reduce the relative importance of the narrow banks and increase the concern of the government for the safety

**Table 1**  
**The Regulatory Agencies' Proposal for Supplemental**  
**Capital Adequacy Measure Risk Categories and Weights**

	<u>Weight</u>
<b>Cash and Equivalents</b>	0%
U.S. currency and coin and due from F.R. banks	
Cash items in process of collection and transaction accounts due from U.S. depository institutions	
Short-term U.S. Treasury securities in investment account	
Foreign currency and balances due from central banks in immediately available funds	
<b>Money Market Risk</b>	30%
Long-term U.S. Treasury securities held in investment account	
U.S. Government agency securities held in investment account	
Portions of loans fully guaranteed by U.S. government	
Short-term claims on U.S. depository institutions	
Acceptance on other U.S. banks	
Fed funds sold	
Loans to broker/dealers collateralized by U.S. Treasury and agency securities and securities purchased under agreement to resell (RPs)	
Assets held in trading account	
Legally binding loan commitments (including note issuance facilities)	
<b>Moderate Risk</b>	60%
All state, county, and municipal (SCM) securities in investment account (excluding industrial development bonds)	
All other claims on U.S. depository institutions	
All claims on governments and banks of industrial countries	
Acceptance of banks in industrial countries	
Local currency claims on governments and banks of nonindustrial countries	
Loans to broker/dealers collateralized by other marketable securities	
Commercial letters of credit	
Standby LCs backing SCM securities (excluding those backing industrial development bonds), supporting broker/dealers on secured basis or performance related	
<b>Standard Risk</b>	100%
All assets found in a typical loan portfolio, including:	
All commercial and industrial loans and leases	
Residential real estate and individual loans	
Loans to nondepository financial institutions	
All other claims on foreign obligors	
Corporate securities and commercial paper, and industrial development bonds	
Customers' acceptance liabilities	
All assets not included elsewhere	
All other standby LCs (net), including those backing industrial development bonds	
Loans sold with recourse	

Source: Federal Reserve System, 12 C.F.R. Part 225, Appendix A [Reg. Y; Docket No. R-0567], Capital Maintenance: Supplemental Adjusted Capital Measure.



of the alternative transaction deposit-offering institutions. Thus, little would have been gained at the expense of the cost of developing new institutional arrangements.

To combat such potential shifts from the narrow banks, proponents of the proposal progressively broadened the narrow permissible investment opportunities to securities, e.g., commercial paper (credit risk), and long-term Treasury securities (interest rate risk). Because banks holding these assets would no longer be fail-safe, federal deposit insurance would be required. Once the narrow bank is allowed to hold securities that offer some risk, where is the line to be drawn? It was a simple step to expand the proposed investment powers of the "narrow" bank to include all assets that have a reasonable secondary market and that could be valued at current market prices. (Huertas and Strauben, 1986) Capital standards could be introduced that were commensurate with the risk assumed by the bank. As the proposed bank's powers continue to be expanded, it would resemble today's broad bank, except that its assets and liabilities would be valued at market prices. Thus, today's problems would not be solved.

## **5. Reorganization Before Economic Capital Becomes Negative**

### **A. The Advantages of Timely Reorganization**

The key failing with all the reform proposals discussed above is their inability to resolve economic insolvencies (failures) effectively and costlessly. Recent evidence has made it clear that the largest losses to the federal insurance agencies and uninsured depositors have occurred from delayed failure resolutions. (Horvitz, 1983; Benston et al., 1986, Chapter 4; U.S. General Accounting Office, 1987A and B; Barth et al., 1986) The delay has permitted insolvent banks to continue to generate losses and place larger bets using the funds of others and has signalled other solvent institutions that the penalty for insolvency may not be as great as it is generally perceived to be. This has encouraged banks to take greater risks. Regardless of how insurance premiums, capital standards, or investment powers are structured, unless failures are resolved in a timely fashion, the banking structure will continue to impose unnecessary risks and costs on the economy. If depository institutions were reorganized (recapitalized, sold, merged, or, as a last resort, liquidated) before the point when the market value of their capital (net worth and subordinated liabilities) declined to zero, the incentives for excessive risk taking by their managers and owners would be greatly reduced and any subsidies involved in the provision of the insurance would be eliminated. (Kaufman, 1987A and C; Bennet, V., 1984; Pyle, 1986)

Timely reorganization offers four significant bonuses that may increase its attractiveness and thereby its adoption. One, except for cases of major

fraud, effective elimination of losses from bank failures reduces the need for insurance premiums other than for paying the FDIC's and FSLIC's operational expenses, including improved and more frequent monitoring of insured institutions and the development of useful market value accounting systems. Quicker action by the insurance agency also reduces the opportunity for uninsured creditors to transform their unsecured claims to secured claims, which increases the loss to the insurance agency.

Two, as uninsured depositors are likely to experience smaller if any losses, they are less likely to run on their banks when they receive unfavorable news. This would reduce potential disruption to other institutions and the economy as a whole.

Three, if the authorities would reorganize a bank expeditiously before it became economically insolvent, there would be little justification for regulating or legislating the nature of the activities in which banks may or may not engage on the basis of risk. These restrictions would have to be based on other considerations, such as concerns for excess concentration, assumptions about conflicts of interest, the undesirability of bringing an activity under the surveillance of bank regulators, or demands to restrict competition among and by banks. Absent these considerations, the amount of risk a bank wishes to assume and which products and services it would provide could be decided by its own management, who may be expected to be sensitive to the penalties of failure. Decisions to take portfolio risk, then, would tend to be made on the belief that the bank's capital is sufficient, rather than on the belief that the insurance agency will cover the losses. Greater risk would be undertaken only with greater capital.

Four, all failed banks and their depositors would be treated equally. At present, uninsured depositors at large failed banks are reimbursed in full regardless of a bank's condition, while those at smaller failed banks frequently are assessed losses related to the market value of their bank's assets. This policy has important inequitable competitive implications that are severely disadvantageous to smaller banks. Timely reorganization, by effectively eliminating depositor losses, would permit more equal treatment of banks regardless of their size, location, or nature of their business. No bank would be "too-large-to-fail" and the authorities need not be reluctant to reorganize a bank for fear of touching off runs at other banks.

As a result of the lower premium costs to banks, the greater freedom from regulation of bank risks and activities, and greater equity in treating banks in similar financial predicaments, timely reorganization should be much less costly than the narrow-bank proposal and more efficient and attract less opposition than either risk-sensitive premiums or sharp reductions in insurance coverage.

Timely reorganization also offers considerable advantages to public policy makers. As with any present policy structure or reform, policy makers must have the resolve to apply the available remedies at the de jure specified point without exception. But, as noted above, at least part of the reason for the current banking situation is a reluctance of policy makers to apply the available remedies on a timely basis. Thus, de facto deposit insurance coverage frequently exceeds de jure coverage and bank capital is permitted to decline below established minimum standards and even become negative for many troubled institutions under "forbearance" programs. (FDIC, 1986; COC, 1986) This occurs because the utility function of public policy makers includes many variables other than economic efficiency, e.g., compassion and susceptibility to pressure from directly affected parties. To remain in office, whether elected or appointed, policy makers must balance various objectives. These include losses to individuals on what the public has come to assume are "riskless" securities, such as bank deposits, whether or not they are federally insured. They also are concerned with the loss of jobs and disruptions in the payments system and credit availability in their geographical or political districts. Losses to bank owners might be a concern as well.

Under current procedures, bank failures could result in losses to depositors and are widely perceived to result in the loss of jobs, the interruption of financial relations, and the threat of severe spillover to other banks and sectors. This paper has demonstrated that the first consequence occurs only if failure resolution and reorganization are delayed, and that the other three consequences are highly unlikely to occur. Failed banks are generally sold or merged with the preservation of most of the banks' services and the employees' positions or, if liquidated, replaced by other banks if the demand for banking services is warranted.

How, then, could policy makers be motivated to accept and stick with efficient remedies? The theory of public choice suggests that one needs to appeal to their self interest. A policy structure that minimizes the possibility of loss to depositors, jobs to constituents, disruption to the payments mechanism, and progressive domino effects to other banks and businesses at a low cost to taxpayers and other banks should have strong political appeal to policy makers. If timely failure resolution were adopted, the primary losers would be shareholders, holders of subordinated debentures, and senior management. Policy makers have generally been willing to permit losses to these parties, while protecting others that have perceived themselves to be less at risk. By restricting losses primarily to not-to-be-protected parties, timely bank failure resolution and reorganization would result in less pressures on the authorities than imposed either by the current structure or by most other proposed reforms.

The same advantages should accrue to bank regulators. Moreover, because under the proposal any losses to depositors and the community will be small, bank failures (reorganizations) should no longer be a major blot on their records. Thus, the regulators should be more willing both to recognize bank failures officially and to avoid implementing inefficient and costly means to prevent them.

As noted, the application of timely reorganization rules requires the measurement of capital in terms of economic market values rather than generally accepted or other non-market value accounting principles and the receipt by the authorities of timely and sufficiently accurate information on an institution's capital. These reorganization rules also should be able to deal effectively with fraud and gross mismanagement, since these are the primary causes of bank failures and large losses to the deposit insurance agencies. We will examine each of these requirements.

#### **B. The Measurement of Economic Capital—Market Value Accounting**

The application of timely reorganization rules would be enhanced by the measurement of capital in terms of economic market values rather than generally accepted or other accounting principles. Banks and most other firms keep their books and render their financial reports on the basis of generally accepted accounting principles (GAAP) or of regulatory accounting principles (RAP), when these are prescribed, e.g., by the Federal Home Loan Bank Board. Unfortunately, these accounting methods do not provide measurements of the economic market values that clearly are required for the deposit insurance agency to determine when reorganization is required. (Benston, 1982; Benston et al., 1986, Chapter 8) Indeed, traditional accounting was not designed to nor, on the whole, does it measure economic market values. Moreover, there is strong reluctance among some parties in banking as well as elsewhere to accept the "vagaries" of the marketplace as the true valuation of a security or a firm rather than the evaluation of the owners or other experts.

The importance of measuring capital in market value terms rather than in book value terms has been clearly demonstrated in a recent Federal Reserve study. This study reported that while in book value terms the capital-to-asset ratio of the 25 largest bank holding companies in the United States declined from 8 percent in 1960 to 4 percent in the late 1970s before increasing again to near 5 percent in 1986, in market value terms the ratio fell twice as sharply from 12 percent to 3 percent in 1980 before reversing. (Keeley and Furlong, 1987) For the period from the early 1950s to the mid-1970s, the market value of capital consistently exceeded the book value; while it consistently fell short of book value from the mid-1970s through 1986. Thus, in the first period, when bank failures were low, the reported data understated the shareholders' investment in the banks. In

the second period, when bank failures began to increase, the reported data overstated the shareholders' investment. This pattern is consistent with the inverse relationship between the amount of bank capital and a bank's incentive for risk taking hypothesized earlier. It appears that the regulators may have badly underestimated the true decline in bank capital in the 1960s and early 1970s and devoted insufficient resources to controlling risk.

The use of market value accounting should improve the regulators' ability to evaluate the condition of their banks and respond more quickly to changes in market forces. In addition, were market value accounting adopted for banks' public reports, as well as for internal and regulatory reporting, regulators would be subjected to a form of market discipline, as their actions could be more effectively evaluated by others.

Fortunately, market-value accounting is much more feasible and inexpensive to adopt for financial institutions than for most other enterprises. Unlike nonfinancial firms, banks have relatively small investments in assets for which current market value are difficult to measure. Such assets include land, buildings, and equipment, patents and trademarks, advertising, and work-in-process inventory. These assets often are not traded in the market, in part because they are specific to an enterprise. Hence, their economic values are difficult to obtain. Nevertheless, the following review of the principal items on a bank's balance sheet illustrates how satisfactory economic market values can be obtained for banks.

**Liabilities - On Balance Sheet.** Bank payables and deposit liabilities (checking, time, and savings accounts and short-term certificates of deposits) tend to be stated at or very near current market values. The sole important exception is fixed-interest long-term obligations when market interest rates have changed. If these obligations are traded in the market, their current values can be determined directly. But, even if they are not negotiable or traded, their present values can be determined. Because these deposit obligations would be riskless (under the present proposal), their economic values can be measured simply by discounting the obligations by the present (market) rate of interest on currently issued, similar obligations. Some problems would be encountered in evaluating the effective maturity of deposits that do not have specific maturity dates and for which depositor can withdraw at par at any time, e.g., demand deposits, savings deposits, and MMDAs. These deposits are neither all withdrawn daily nor all maintained permanently regardless of interest rates and services offered. Thus, assigning them a maturity of one day may be too short but assuming that they are long-term core deposits may be too long. A realistic estimate of their average maturity is required. Thus, on the whole, the liabilities side of the recorded balance sheet presents few problems for market-value accounting.

**Liabilities - Off Balance Sheet.** Banks often issue letters of credit and guarantee loans, thereby assuming liabilities that are contingent on the nonperformance of a customer. In effect, the bank has an asset—the right to collect from the customer if that party does not meet its obligations to a third party, as promised. It also has a liability—a promise to pay the third party if the bank's customer does not perform as promised. With respect to a capital requirement, there should be no difference between this contingent liability and asset and an on-balance sheet liability and asset. For on-balance sheet accounts, the total nominal amount is recorded, regardless of the extent of the risk exposure, if any, to the institution. Hence, the liability or asset would be stated at the amount for which the bank is contingently liable or a beneficiary, thereby increasing both assets and liabilities. (If the obligation can come due only at a future date, its present value would be the amount stated.) Thus, on- and off-balance sheet activities would be treated consistently.

**Assets - Marketable Securities.** The market values of a bank's investments in marketable and fixed-interest securities (including equities) can easily be obtained. Where fixed-interest securities are not regularly traded their present values can be determined as described above for fixed-interest liabilities. (The procedure for estimating the market value of nontraded securities is discussed below.)

**Assets - Loans.** The realizable value of loans presently is estimated by banks. These estimates are attested to by certified public accountants for all insured savings and loan associations and for banks that are subject to the Securities Acts of 1933 or 1934. These estimates are close, but not equal, to market values, since future expected payments are not discounted to obtain present values. Nor are changes in market rates of interest on asset values accounted for. But such changes are not a serious problem when assets carry interest rates that vary with market rates or are short term so that they are repriced before interest rates change radically (as presently is the case for most commercial loans and many mortgages). Where institutions hold duration-balanced portfolios or have hedged interest rate risk, the problem is obviated. The remaining situations can be estimated by reference to market prices on such obligations as mortgage-backed bonds. Furthermore, an increasing proportion of bank loans are being packaged into marketable obligations and securitized. These include mortgages, automobile and other consumer loans, and even poor quality foreign loans. The value of these and similar loans can be determined by reference to the market rates at which securitized loans trade. In addition, the economic value of loans to large businesses can be approximated by reference to traded securities, such as commercial paper and bonds, that are issued by those businesses. Alternatively, the debt of large companies and countries may be valued centrally by a government

agency or private rating bureau, such as Moody's and Standard and Poors, with the values used by all banks.

**Assets - Nonmarketed or Nontraded Investments.** Banks also invest in nonmarketable investments, such as real estate, and nontraded securities, such as bonds and stock in nonlisted companies. These assets would have to be valued by independent appraisers. Obviously the valuations of such assets would be subject to error, and the probity of the appraisers, who are hired by the banks, should be questioned. Later in the paper, we offer a means by which this problem can be handled satisfactorily, at least from the point of view of the deposit insurance agency.

**Assets - Investments in Subsidiaries.** A bank may choose to conduct some of its activities in a wholly or partially owned subsidiary. In this event, the bank has an asset for which a market value must be obtained. Since the shares of the subsidiary are unlikely to be traded, market value accounting would have to be applied to the balance sheet of the subsidiary unless the bank and the deposit insurance agency is willing to accept the subsidiary's book value or a partial revaluation at market as a lower bound. Since the bank is likely to be directly or indirectly liable for the debts of the subsidiary, and because it is very difficult to monitor or prevent transfers of resources between a bank and its subsidiary, subsidiary liabilities and asset would have to be consolidated with the bank's balance sheet numbers.

**Assets - Operating Equipment, Buildings, Etc.** The market values of many long-term fixed assets may be determined by reference to their replacement cost, where replacement is defined in terms of the services derived from the assets. These values might be obtained from the new or used asset market or from engineering appraisals, although these numbers often are expensive to determine and are inexact, particularly when the assets are rarely traded. However, because GAAP accounting requires accountants to record assets at the lower of cost or market, this evaluation is not required unless a bank wants to demonstrate that its capital is greater than it appears to be. In this event, it would have to present appraisals that are accepted by the deposit insurance agency.

**Assets - Goodwill and Other Unrecorded Intangible Assets.** Goodwill and most other intangibles (such as personnel training, computer software, organization costs, patents, and the value of core deposits) are not recorded on a bank's (or other firm's) financial statements unless they are purchased in the market directly or as a consequence of a merger or acquisition. For banks, such assets can rarely be sold separately from the entire organization. (An exception might be computer software packages.) Nor are similar assets often traded in the market. While the market value of a bank's stock less the economic value of its assets less liabilities can provide an estimate of the market value of intangibles, this method is not satisfactory for

two reasons. First, most banks' shares are not actively traded. Second, the market value of a bank's equity reflects the value of underpriced deposit insurance—hence, the stock market value cannot be used directly as a means of determining the bank's capital for purposes of eliminating or reducing the risk to the deposit insurance agency. (If it could be so used, the stock market value would be a sufficient metric.) Hence, the measured economic value of bank equity will tend to be understated by the value of unrecorded intangibles. (From the point of view of the deposit insurance agency, this is no worse than the present system of accounting.)

Where goodwill was recorded as a result of an acquisition or other market transaction, it should not be included as an asset, for two reasons. First, the bank's other assets will have been stated at market values, which should account for the portion of goodwill representing the difference between the market and book values of the acquired organization. Second, relatively less capital would be required of banks that grew by acquisition and merger than of banks that grew internally, if the former could include goodwill in their assets and (therefore) in their capital. There is no justification for this bias.

**Determination of and Reliance on Reported Market Values.** An important concern about market value accounting is the extent to which the banking authorities can rely on the figures. This problem can be alleviated almost entirely were the following proposal adopted. All insured banks should have their accounts annually audited by certified public accountants who are acceptable to the authorities.<sup>4</sup> The CPAs would be charged with attesting to the numbers reported as being no greater than current market values as of the statement date. If they are unsure of these amounts, they can attest to lower numbers or can refuse to give a bank an unqualified opinion. Thus a bank would have to put up additional capital if it wanted to invest in assets of undeterminable value, since its stated capital would be reduced to the amount that its independent public accountants certify as being no greater than market value. Because their reputations and fortunes are at stake, the CPAs have a strong incentive to be conservative. (As partnerships, CPAs can be sued jointly and severally to the extent of their personal wealth.)<sup>5</sup> Furthermore, the cost of determining attestable market values, i.e., the appraisers' and CPAs' fees, would be borne by the banks that made the investments. This is a form of risk-related insurance premium.

### C. Supervisory Monitoring of Capital and Banking Operations

For purposes of frequent and timely monitoring, detailed quarterly statements would be required using market values for marketable assets and book values for others. These would be supplemented by more aggregated monthly reports for all banks and weekly reports for larger banks. The



data reported should be confirmed by periodic and surprise audits and/or attestations by certified public accountants.

Computerization permits rapid scanning of these reports for supervisory purposes. In the interim, changes in the values of traded assets can be obtained from market prices. Except for fraud, losses in nontraded assets generally occur only slowly through time and should be detectable from the periodic reports. In addition, information on potential risk taking institutions can be obtained weekly from advertised deposit rates compiled by private services.

An insufficiently well diversified or excessively concentrated portfolio can result in the sudden depletion of a bank's capital if prices change greatly. However, such portfolios can be observed from the reports rendered by banks and from confirming field examinations. These situations should be closely monitored. The cease and desist powers now held by the supervisory authorities can be used to control situations that pose an immediate danger to the insurance fund.

#### D. Fraud and Gross Mismanagement

The largest losses absorbed by the deposit insurance funds have been the result of fraud and gross mismanagement. (Benston et al., 1986, Chapter 10) Fraud is a particularly important problem because it is difficult to detect until it is too late. Furthermore, the incentives for bank managers and owners to engage in fraud or gross mismanagement is unlikely to be affected sufficiently by higher insurance premiums, higher capital requirements, or even prompt reorganization rules, either because they expect to steal or otherwise gain much more than they might lose or because their incompetence is so great that they cannot understand the nature of the risks they are taking.

Two methods can be employed to deal with fraud and gross mismanagement. One is to continue the present practice of field examinations and supervision. These procedures could be improved, however, were they directed specifically to the prompt detection of fraud and gross mismanagement, rather than to a general review of a bank's operations. For this purpose, more frequent reporting, the use of frequent publicly available information, e.g., deposit rates paid and loan rates charged, and the use of statistical early warning models to direct field examinations to banks that are likely to be serious problems could reduce the cost and improve the effectiveness of supervision.

The second method is for the authorities to rely more on the annual reports attested to by CPAs. As is noted above, CPAs have incentives to attest correctly to accounting numbers. Furthermore, they could be explicitly

charged with an obligation to report any serious weaknesses in a bank's internal controls and other problems directly to the banking authorities, as has been proposed in the United Kingdom.<sup>6</sup> The two methods can, of course, be used in combination.

## **6. Conclusion**

Several of the proposals for change discussed above have features that are desirable and practical, both operationally and politically. However, some do not. Abolition of federal deposit insurance is not desirable because we do not believe that this action is politically feasible nor do we believe that the federal government could refrain from bailing out depositors should more than a few banks fail. Thus we would have de facto deposits insurance without the benefits of federal responsibility for controlling moral hazard. Moreover, we need to protect small depositors, not so much for their own sake but for the sake of maintaining the aggregate money supply by not encouraging a run to currency. Private insurance is unlikely to instill the confidence to eliminate this possibility altogether.

We also find that the narrow bank proposal is not feasible in a form that is effective, or desirable in a form that is feasible. For it to be economically feasible, the narrow bank would have to hold assets that would make it similar to ordinary banks, with similar problems. To the extent that its asset holdings were limited to "safe" credit and interest rate risk assets, it would suffer the economic cost of inefficiency. Furthermore, alternative reforms can offer the benefits of the narrow bank without its limitations.

Reduction of deposit insurance coverage to some lower level per account would be desirable in order to increase monitoring by depositors. But it is not clear whether or not this change is politically feasible. Furthermore, to the extent that demand depositors are not insured, they have both the incentive and ability to run. While the fear of runs by bankers is desirable for providing them with incentives to be responsive to depositors' concerns, the banking authorities appear unwilling as of now, at least, to allow very large banks to suffer a run. Risk-related deposit insurance premiums would be desirable, but they do not appear to be operationally feasible sufficiently quickly to deal with the problem at hand. Risk-related capital requirements suffer from similar operational difficulties. Indeed, the scheme proposed by the banking authorities has some important and obvious limitations. In addition, it does not increase the economic capital base of the industry and thereby is not likely to reduce overall risk greatly.

We believe that the last alternative discussed—reorganization before economic capital becomes negative—is both desirable and operational. Although it may lead, at least initially to the formal recognition of more bank failures, it will not reduce the provision of banking services to customers.

The scheme does offer the advantages of reducing the costs of deposit insurance to the cost of monitoring plus losses that are not worth preventing or that cannot be prevented. It virtually eliminates the moral hazard from deposit insurance because bank managers and owners will now be playing only with their own funds and bearing almost all of the costs of failure. There would be little reason to regulate banks' operations for purposes of risk control. Other advantages include equal treatment of banks of all sizes. Fraud and gross mismanagement can be reduced more efficiently by greater reliance on CPAs, monitoring by the authorities of more frequently received information, and prompt reorganization of insolvent banks. Although the scheme requires economic market value accounting, we have suggested how this procedure could be implemented satisfactorily. Finally, the suggested reform appears to be feasible because it offers several advantages to public policy makers that the alternative proposals do not. The proposal is described next.

#### IV. A Proposal for Timely Intervention and Reorganization of Banks

**1. The Optimal Capital Requirement.** Because losses can occur quickly or remain undetected until after a bank becomes insolvent, the optimal amount of required capital clearly is greater than zero, and the authorities must intervene and reorganize a bank before it becomes economically insolvent. The larger the amount of capital required, the greater the incentive of bank managers and owners not to take excessive risks, which implies that the capital requirement should be relatively high.<sup>7</sup>

A capital requirement for banks is a requirement for a specified ratio of federally insured and uninsured debt (deposits) to subordinated, uninsured debt and equity that, if measured in terms of economic market values, is available to absorb asset losses before they must be met from the deposit insurance funds and uninsured depositors. ("Subordinated" refers to the claims of the federal deposit insurance agencies on the assets of the bank.) Thus, for purposes of bank regulation and federal deposit insurance, capital is equity plus subordinated debt and debt is all other liabilities that have claims on assets, particularly insured and uninsured deposits.

An optimal capital requirement should protect the deposit insurance agencies adequately, while not imposing excessive costs on the insured institutions. As the following analysis demonstrates, a higher rather than lower requirement is preferable. A higher capital ratio would not only reduce the probability and magnitude of losses to the insurance agencies, but would reduce their need to monitor the banks as frequently and carefully as otherwise. Because the benefits of higher capital ratios to the insurance agency

are self obvious, we focus our examination on the costs and benefits of such ratios to the banks.

As is well known from finance theory, the relative amounts of debt and equity are unimportant and have no economic consequences for the firm, with the following exceptions: (1) interest payments on debt are a tax deductible expense while dividend payments and retained earnings on equity are not deductible—hence debt is preferred to equity, *ceteris paribus*; (2) bankruptcy costs are more likely to be incurred and monitoring costs are higher when equity is relatively lower—hence equity is preferred to debt, *ceteris paribus*; and (3) for banks, insured debt (deposits) is preferred to uninsured debt or equity when deposit insurance premiums are less than the benefit of the insurance to the institution, as presently is the situation for many banks. This last advantage is precisely what we want to remove, and the second factor argues for more capital. Therefore, from the viewpoint of both the bank's owner and the authorities, we need be concerned only with the first factor.

The tax advantage of debt could be obtained by banks to the same extent as other firms if they were permitted to count as capital subordinated (unquestionably *de facto* as well as *de jure* uninsured) debentures that are junior to the claims of the insurance agencies and that cannot be redeemed before the authorities can force a reorganization of the bank, and cannot block that reorganization. To prevent flights of these funds (runs) from occurring, these debentures must not be redeemable by the bank before the authorities can intervene to reorganize the institution.

The banking authorities have severely limited the extent to which banks may meet their capital requirements with subordinated debt. This limitation appears based on a belief that debt holders do not exercise as great a monitoring function over bank operations as do equity holders, and that, unless perpetual, debt capital may be withdrawn at maturity and thus not as permanent as equity capital. But neither of these conclusions is valid. If the debtholders' claims are subordinate to those of other creditors (including the deposit insurance agencies) and if they cannot remove their funds when a bank experiences difficulties, they bear the cost of a bank's failure. Hence, as is the situation for bondholders generally, they have an incentive to monitor the risks taken by the equity holders and will insist on a return that compensates them for the risk they are assuming. Equity holders, then, have a concomitant incentive to reduce risk to the bondholders (and hence a cost to the equity holders) by altering the bank's operations and/or by increasing their capital (equity) investments. Moreover, debt need not be permanent to achieve this result. It must only be restricted so that it cannot be redeemed before the authorities can act. Thus, it will bear potential losses and protect the insurance fund. From the viewpoint of the banking authorities, it should not matter how much of a

bank's capital is in the form of equity or subordinated debt. It all serves the same function.

Indeed, subordinated debt capital offers several banking and supervisory advantages over equity capital. First, smaller banks may be loath to sell equities either because the price they could receive for minority stock in a closely held bank would be low, or because the owners do not want to dilute their control. They might find the cost of selling relatively small amounts of stock to be high. Subordinated debentures, on the other hand, could be offered to investors in their communities—in effect, they simply would be selling explicitly uninsured time deposits to people who are likely to have knowledge about how the bank is operated and the ability to monitor its operations.

Second, if the debentures were traded, the yields determined by the secondary market could give the authorities an early warning about the risks undertaken by the bank. Even if the debentures were not actively traded on secondary markets, any difficulties a bank might have in marketing its new debentures on the primary market as the old ones become due could provide timely information to the supervising authorities. Such signals could be obtained best if banks were required to hold debentures with evenly spaced maturity dates. For example, a rule might be that no less than five percent or more than ten percent of the debentures could mature in any one year. (Benston et al., 1986, Chapter 7)

An additional concern about imposing capital requirements on banks should be considered. It is possible that the amount of capital required to be invested could be more than the banking system can use efficiently. This result could occur if banks were required to invest in a limited subset of assets, such as U.S. Treasury obligations, or in physical assets that were limited to producing goods subject to limited demand. This concern is largely eliminated, however, by the removal of limitations on the assets in which banks can invest. At the extreme, however, a very high capital requirement could result in a misallocation of resources if bankers had a comparative disadvantage in using the funds they were required to obtain from investors.

Thus, with the asset constraint removed, the capital requirement should and can err on the side of too much rather than too little capital. Too high a requirement largely serves to reduce to zero the benefit to risk preferrers of underpriced deposit insurance, while too low a requirement increases the moral hazard cost of deposit insurance.

## **2. The Measurement of Capital**

Capital is the difference between total assets measured at no more than market values and total liabilities measured at no less than market values less subordinated debentures serving as capital.<sup>8</sup> As was discussed above, the market values reported are to be attested to by a certified public accountant whom the deposit insurance agency does not disapprove. Contingent (off-balance sheet) assets and liabilities must be added to total liabilities and total assets. The documents to which these liabilities refer must state explicitly that they are not covered by federal deposit insurance. However, the liabilities would not be counted as capital because they could be withdrawn quickly.

As noted above, a bank's investments in subsidiaries would be measured at their net asset values when the bank has no liability for the subsidiaries' debts and this fact is verified by the bank's CPA. If the bank were directly or contingently liable for the subsidiaries' debts, subsidiary assets and liabilities must be consolidated with those of the parent bank. The consequence of the rules with respect to contingent and subsidiary liabilities is to increase required capital, since the requirement is stated as a percentage of total assets. The allowance (reserve) for loan losses sometimes is considered to be part of capital on the assumption that it is overstated. However, GAAP and the tax regulations require that the allowance reflect the expected amount of loans that will not be collected. Hence, the loan loss allowance should be considered the amount necessary to reduce "loans receivable" towards market value and thus the allowance should be recorded as an asset contra account.

## **3. Banks That Are Subsidiaries of Holding Companies or Other Corporations or That Are Not Diversely Owned**

There is no reason for the authorities to examine or to be concerned with the management decisions of the owners of banks, including holding companies, as long as the banks have adequate capital and as long as there are controls against self-dealing and fraud. Self-dealing can occur when any bank offers less-than-market prices to its owners or their interests. Fraud against the federal deposit agency can occur when a bank that is in danger of becoming insolvent transfers funds to avoid the claims of creditors, including the deposit insurance agency. These possibilities represent potentially important dangers to deposit insurance. Consequently, banks owned by controlling interests must be monitored more closely than those which are diversely owned, and transfers (loans, dividends, and payments for services) between the bank and the owners' other interest may be restricted.

Holding company ownership of banks presents less risk to the insurance funds than does ownership by controlling individuals. Individuals owners

generally have greater incentive than corporate executives to divert bank funds to their own projects and to other uses because the owners benefit personally and directly thereby. In addition, it is more difficult for the banking supervisors to identify the interests of the owners in contrast to readily available information about holding company subsidiaries.

At present, holding companies are subject to Sections 23A and 23B (added by the Banking Act of 1987) of the Federal Reserve Act that limit the extent to which funds can be upstreamed from the bank to its holding company or other affiliates. (Benston et al., 1986; Saunders, 1987; Huertas, 1987) Similar restrictions should be applied to all transfers between a deposit-insured bank and enterprises in which the bank's managers and owners have a substantial interest, say, more than 10 per cent of the stock.

With monitoring and restrictions on funds transfers in place the capital requirement would be applied only against the commercial bank (including its subsidiaries), not the holding company or other owner. The holding company's capital requirement would be determined by market forces as it is not the recipient of federal deposit insurance, nor are the safety and soundness of its nonbanking activities of concern to the government.

The managers or owners of the bank might believe that it is more efficient to include all affiliates within the same organization that offers federally insured deposits. This poses no special problem; the requirement would then apply to the entire organization. The measurement of assets, liabilities and capital is the same as is described above.

If the bank and its parent have the same or similar names, the deposit insurance authorities might fear confusion by the public as to which is the insured bank. This possibility could be reduced or avoided if the parent were required to state clearly in writing on each security that it is not a federally insured bank and that its obligations are not covered by deposit insurance. Nor would the bank be permitted to guarantee the obligations of its affiliates.

In addition, timely insolvency intervention removes any subsidy associated with the provision of deposit insurance. This would remove any ability of insured banks to shift the benefits of underpriced insurance to other product lines or to its affiliates to gain competitive advantages, assuming that such cross-subsidization occurred.

#### **4. Reorganization Rules**

The capital required should be sufficiently high to absorb almost all probable reduction in net asset values. As is discussed above, banks do not bear costs from an overly high requirement (excluding the loss of the deposit

insurance subsidy) unless this requirement is so high as to prevent them from holding an optimal portfolio of assets. For commercial banks, we suggest the numbers and reorganization rules shown in Table 2. The precise values of the capital ratios in each tranche are illustrative.

The values shown in Table 2 are likely to be on the low side and may need to be revised upward in light of the considerably higher bank capital ratios that existed before the introduction of the FDIC in 1934, the considerably higher capital ratios that exist in almost all other industries, and the relatively low cost of capital to banks when subordinated debt is included. The primary criterion is that the capital ratios be high enough to minimize the possibility of loss to the insurance agency for any reason other than massive fraud. Thus, the tranche ratios need to be related to the historical and projected variability in the value of the institutions' portfolios.

Application of the proposed capital requirements would, of course, require a transition period. The current values were, in part, selected because they conform to the present capital standards of the commercial bank regulatory agencies, although they are stated in market rather than book value terms. Although it is possible at times for book values to exceed market values, as a general principle, the tranche ranges in book value terms should be increased, e.g., by three percentage points. Banks could be provided with a choice about which set of accounting rules they wish to use.

It is important that dividends, interest payments on the subordinated debentures, and fund outflows to a parent or affiliates could be suspended by the insurance agency if the market value of a bank's capital declines below ten percent of its assets on a market value basis, and must be suspended if the capital ratio is below six percent. Indeed, with some exceptions, banks now are permitted to pay dividends only if their capital ratios exceed the regulators' minimum standards and are limited to their current and previous years' earnings. These limitations are necessary because, unlike other firms, banks that offer federally insured deposits can obtain funds regardless of their solvency. The suspension of interest payments gives the debenture holders the right to force a reorganization of the bank. Thus, in all except the extreme circumstance, when the market value of a bank's capital declines substantially and precipitously, the deposit insurance agencies will not have to reorganize a bank—the reorganization will already have been undertaken by the subordinated debenture holders.

Current owners of banks can always maintain their ownership by providing sufficient capital. However, when, on the basis of quarterly or more frequent monitoring, the market value capital-to-asset ratio of a bank declines to 3 percent or below (tranche 4), ownership of the bank would be automatically transferred to the FDIC. This would occur if the owners, who may reasonably be assumed to know more about the true condition of the



**Table 2**  
**Illustrative Reorganization Rules for Federally Insured Commercial Banks**  
**Capital-to-Asset Ratio**  
**(All accounts valued at market)**

<u>10 Percent or Greater</u>	<u>6-9.9 Percent</u>	<u>3-5.9 Percent</u>	<u>Under 3 Percent</u>
No problem—minimum regulation and supervision level. Subject only to general reporting and examination requirements. All intra-holding company transfers must be fully disclosed and fraud provisions strictly enforced.	Potential problem—more intensive regulatory supervision and monitoring. Regulatory agency discretion to reduce or suspend dividend payments and/or up- or downstream payments to parent or affiliates.	Problem—intensive regulatory supervision and monitoring. Mandatory suspension of dividend payments, interest payments on and redemption of maturing subordinated debt, and outflow of funds to parent or affiliate.	Reorganization—mandatory recapitalization, sale, merger, or liquidation by federal insurance agency in orderly fashion. May require formation of “bridge” institution or “trusteeship” by insurance agency for no more than two years. Nondeposit funds distributed up to 90 days before to be recovered.

bank than the regulators, believe that the bank is not worth the investment of the necessary additional capital. The FDIC would then attempt to sell or merge the bank. Only as a last resort would it liquidate the bank. This process does not represent expropriation of shareowners' property, even though their investment in the bank may not be fully exhausted. As noted, current shareholders are given first choice to recapitalize their institutions. If they fail to do so, the proceeds to the FDIC from sale or liquidation would be passed through to the previous owners. They would thus receive the fair market value of their investment in the bank.

As discussed earlier, to provide sufficient time for the FDIC to accomplish its task efficiently, it may be necessary for the agency to operate the very largest banks temporarily in a bridge or trustee relationship for a few weeks, but no longer than for, say, two years. Authority for the insurance agencies to establish such arrangements was included in the Banking Act of 1987. In addition, as in the bankruptcy law for nonbank firms, nondeposit funds distributed by the bank up to 90 days before the date the reorganization tranche is breached are to be recovered by the FDIC.

The proposed reorganization scheme is different than that commonly applied to nonbank firms and may appear to be more stringent. A nonbank firm is generally declared involuntarily bankrupt and remedies for creditors started when it fails to pay a major scheduled payment on time and in full. Economic insolvency, per se, is not generally considered sufficient grounds for creditors to file for involuntary bankruptcy and request remedies, although it may be for voluntary bankruptcy. (Weintraub and Resnick, 1986) Thus, nonbank firms may be permitted some time to continue to operate after they become economically insolvent. However, more timely failure resolution is required for banks because federal deposit insurance makes it possible for them to continue operations even after they become economically insolvent. Unlike creditors of noninsured firms, depositors would continue to advance funds to banks as long as they could look to an insurance agency believed immune to failure. In the absence of federal deposit insurance, insured depositors would assess the economic solvency (market value) of a bank much as creditors assess the solvency of any firm, and would remove their funds (run) if they believed the bank to be insolvent. This would quickly cause the bank to miss a payment and result in involuntary bankruptcy. Thus, timely failure resolution based on market valuations is simply a replication by the deposit insurance agency of the situation that faces insolvent noninsured firms.

Evidence that more timely closure reduces losses to deposit insurance agencies and to other creditors is quite strong. Until recently, the FDIC closed banks reasonably quickly after it became evident that the market value of their assets had declined below that of their liabilities and, except in the cases of major fraud, experienced minor if any losses. (Benston, et

al., 1986, Chapter 4; Horvitz, 1983) In the absence of major fraud, the market values of banks are unlikely to decline abruptly. Rather, they generally will deteriorate slowly through time and can be monitored reasonably accurately. Through 1931, estimated losses at failed and swiftly closed national banks were 10 cents on the dollar, compared to 90 cents on the dollar at nonfinancial firms. (Lawrence, 1931) In comparison, a recent study of defaulted corporate bonds estimated that the immediate loss in market bond values from 1974 through 1984 was about 60 percent. (Altman and Nammacher, 1987) This is consistent with the loss ratios estimated for the 1900-to-1943 period. (Hickman, 1958) Losses to creditors primarily reflect the delay in initiating involuntary bankruptcy procedures for nonfinancial firms. These losses may reasonably be expected to be reduced even further under the proposed capital scheme. As a bank's capital declines through the successively lower strata of capital tranches, progressively stricter monitoring and supervision by the regulatory agency is triggered automatically. Such a scenario should result in "soft landings" as bad news surprises are less likely.

Moreover, as noted above, most other types of financial firms and almost all types of nonfinancial firms are forced by the marketplace to hold higher levels of capital relative to assets. Thus, speedier failure resolution would be necessary if banks were permitted to hold lower capital. Banks could, of course, hold higher capital voluntarily to reduce their probability of being reorganized when losses are larger than expected.

As more timely failure intervention when a bank's capital is still positive greatly reduces potential losses to depositors, the need for federal deposit insurance would be diminished. The need would not be removed altogether, however. Losses could still accrue to depositors from a sufficiently large fraud or other large declines in market asset values between monitoring periods. As a result, it is still possible that small depositors would suffer a loss of faith in all banks and shift their funds to currency and that this should would not be appropriately offset by the Federal Reserve.

## Summary of the Advantages of the Proposal

The proposed capital rules offer the following advantages:

1. The system would be voluntary in exchange for federal deposit insurance. Because the capital rules apply only to the incorporated entity providing federally insured deposits, institutions would be free to determine their own organization's structure. They could offer nonfederally insured deposits and avoid these requirements. In this event, they would have to disclose clearly that the deposits are not covered by federal insurance.

2. Losses to the federal deposit insurance agencies (and, therefore, to banks and ultimately to the taxpayer) would be minimized, as banks would be recapitalized before their economic capital became negative. Thus, deposit insurance premiums would be reduced.

3. Regulation of bank activities would be minimized. Because there would be only minor, if any, losses to the deposit insurance agency, there would be no justification for bank regulation based on solvency considerations by any authorities other than the federal deposit insurance agencies. These agencies would be responsible primarily for monitoring the reporting and capital requirements and for supervising banks that did not meet these requirements or that appeared to be operated recklessly or fraudulently. Indeed, they could better target their energies and limited resources to those banks that posed the greatest threat to the insurance funds. Since banks satisfying the capital requirements would be primarily risking loss of their own funds, there would be no need to restrict their activities. At least with respect to risk, they might engage in any financial or nonfinancial activity that could be monitored reasonably accurately and to whose market values recognized CPA firms were willing to attest.

4. Banks could be run more efficiently and could serve the public better, because operating and product decisions would be made by bank managers rather than by regulators.

5. Banks of all sizes and characteristics in the same financial condition would be treated equally. No bank would be "too large or too special to fail".

6. Banks would be subject to increased market discipline not only from subordinated debt holders but also from shareholders, who would not get second or more chances to recoup their losses when the economic value of their investments disappeared; from managers, who might lose their positions faster when their banks became insolvent; and possibly from uninsured depositors, who might experience losses if actual net worth at the time of reorganization was much below perceived net worth. The market discipline would resemble that in a noninsured environment. Because, except under conditions of fraud or highly unusual movements in market places, net worth would not become zero or negative, the tendency to make high risk end runs or take last chance plunges would be significantly reduced.

7. The proposal is not as radical as it might appear at first. Mandatory reorganization when capital requirements were violated existed under the National Bank Act and were enforced until the Great Depression and the introduction of federal deposit insurance. (Upham and Lamke, 1934) More recently, support for a similar proposal was voiced by Acting

Comptroller of the Currency H. Joe Selby in testimony before Congress in 1985. He suggested that

policy could be adopted that any time a bank's capital falls below 3 percent (the level at which the FDIC generally considers termination of deposit insurance), the primary supervisor would be given the authority to require the owners to seek a merger partner or to liquidate the bank. Alternatively, a conservator could be appointed by the primary authority to exercise the full range of powers possessed by bank management, including the sale of the bank. (Selby, 1985, p. 23)

Moreover, this type of rule was recently adopted by the Federal Home Loan Bank Board, which has recently incorporated a "sudden-death" clause in some of its agreements with buyers of failed savings and loan associations by which the FSLIC will automatically reclaim the institution if the new owners permit its capital to fall below 3 percent of its liabilities. A representative of a large commercial bank has noted that

"...to the extent that there is a problem with deposit insurance, that problem arises from the failure resolution policies pursued by the FDIC and other bank regulators. Reforming the deposit insurance system therefore requires reforming bank failure resolution policies so that banks are closed as they become insolvent; nothing more and nothing less will solve the problem." (Huertas and Strauber, 1986, p. 406)

Thus, our suggested reorganization rule provides an operational means of extending the pragmatic response of some banking authorities to the problems they have been facing. Further research is required to establish the precise values of the optimal capital tranches, the schedule for implementing market value reporting and monitoring (which has recently been proposed by the Financial Accounting Standards Board), and the particulars of the reorganization procedures and the transition process.

## Footnotes

<sup>1</sup> Other reasons for regulating banks include concerns for conflicts of interest, consumer protection (including discrimination concerns), and aggregation of economic or political power. We have not discussed them here because they do not impinge on the solvency of banks. Indeed, to the extent that banks do engage in conflicts of interest, take advantage of consumer ignorance, and are able to acquire the market power to raise prices, their solvency would be enhanced. These concerns are addressed by Edwards (1987) and Flannery (1987). They do not find the concerns to be justified. Regulation of banks as a means of allocating credit, particularly towards housing, is analyzed and rejected by (Weicher, 1987). But again, this is not a solvency issue. (Also see Benston, 1983, for a discussion of these and additional reasons for regulating banks.)

<sup>2</sup> James has recently argued that bank large business loans are "special" because they signal to the market the borrowers have earned the bank's "Good House-keeping seal of approval". But, as the bank's market share of the large corporate loan market is declining, large corporate borrowers appear to be giving less weight to this "advantage". (James, 1987) For other arguments that bank loans are unique see Bernanke, 1983 and Goodhart, 1985.

<sup>3</sup> This cost should also include the costs of the incentives for outright criminal activities and political corruption that the current system provides and that have come to light in recent months in the SLA industry in Texas and California. Senior members of Congress have reportedly been wined, dined, and financed extensively to help turn back legislative attempts to curb the looting. These costs are borne as much by the social, and political fabric of our society as the economy. (Kaufman, 1987B)

<sup>4</sup> If a CPA is unacceptable to the banking authorities on the basis of insufficient capital, reputation, or so on, they can request that a firm acceptable to them be engaged additionally. This procedure has recently been proposed to the U.K. Parliament by the Government. (Chancellor of the Exchequer, 1985, Section 8.2 [ii]).

<sup>5</sup> See Benston, 1985A, for a complete analysis of the incentives faced by public accountants.

<sup>6</sup> Germany and Switzerland presently rely on independent public accountants for bank examinations and reports.

<sup>7</sup> Some bankers and economists have argued that higher capital requirements actually may encourage institutions to increase their risk taking in order to offset the higher cost of capital. (Koehn and Santomero, 1980) But as we demonstrate later, if subordinated debt were permitted to serve as capital to supplement equity, there need not be an increase in the cost of capital. Moreover, these studies implicitly assume that all funds are de facto if not de jure insured and do not scale a bank's borrowing costs or deposit insurance premiums to its risk exposure. If they did, the result would differ. (Furlong and Keeley, 1987)

<sup>8</sup> If collateral were pledged to such debt, the amounts of the pledged assets would be excluded from the computation of the bank's capital.

## APPENDIX A

### Narrow, Fail-safe, or Money Market Banks: Analysis and Evaluation

A number of students of banking have recently proposed an alternative strategy to abolishing or reforming federal deposit insurance. (Litan, 1986, 1987; Tobin, 1986; Kareken, 1986; Lawrence, 1985; Golembe and Mingo, 1985; Huertas, 1986B; Angermueller, 1986. For a criticism of these proposals see Aspinwall, 1987.) They claim that this strategy would simultaneously increase the safety of the banking system, by reducing bank failures, and increase the efficiency of the system, by decreasing the extent of regulation, particularly with respect to permissible powers. In general, this proposal involves creating narrow, presumably "fail-safe" banks (also called money market banks) that would be restructured to invest in assets with only a minimal chance of declining in value due to either credit or interest rate risk. The proposals differ with respect to the types of investments narrow banks could make, the types of deposits they could offer, and their insurance coverage.<sup>1</sup>

The narrow banks could be owned by holding companies that could also own other affiliated entities that accepted noninsured deposits and would be permitted to engage in a wide range of activities, financial as well as nonfinancial. These institutions could, and would be permitted to fail. Bank holding companies that did not organize narrow banks would remain restricted in their permissible powers. Unfortunately, these proposals have several serious defects that invalidate many of the claimed benefits.

One problem stems from a requirement in the first proposals that fail-safe banks limit their investment to nearly riskless securities—Treasury securities with maturities under six months. But the total amount of such Treasury and even other federal-government-guaranteed securities is not much greater than the total amount of transaction balances. Thus, nearly all of these securities would have to be held by the fail-safe banks. This amount is also far greater than the dollar amount of such securities now held by commercial banks. Thus, this plan would result both in major disruptions of security prices at the time the fail-safe banks are established and major shortages of relatively riskless securities for the portfolios of nonfail-safe banks and other investors. This, in turn, would hamper greatly the ability of nonfail-safe institutions to provide portfolio liquidity against potential deposit withdrawals.

In a revised plan, Litan proposed that the fail-safe banks be permitted to hold default-free securities with longer maturities—U.S. Treasury obligations with maturities of more than one year. But, then, the narrow banks

no longer would be fail-safe, as they would be subject to interest rate risk. The massive failure of thrift institutions when interest rates increased in the early 1980s should make it clear that this risk is not trivial.

Narrow banks with limited investment powers are also likely to have difficulty in attracting deposits. In a world with many alternative types of financial institutions and instruments, individual banks or the banking system as a whole can attract deposits only if they offer a competitive (explicit or implicit) interest rate. The rate they can profitably pay depends on the return they can earn on their assets. The lower the return, the lower the deposit rate they can afford to pay, and the less they can attract in deposits relative to their competitors. But the return banks can generate on their earning assets depends on the restrictions imposed on the safety of the assets they may hold. The safer the assets, the lower the return. A truly fail-safe bank necessarily would have to hold assets yielding relatively low rates of return.

If a bank cannot offer a competitive rate for or has to impose high service charges on deposits, depositors would search out alternative institutions offering comparable services. The alternative, "nonfail-safe" institutions would offer deposit services at higher interest rates, much like money market funds offered quasi-transaction accounts in the late 1970s when Regulation Q and the prohibition on cash interest payments on demand deposits increased to very high levels the opportunity costs to consumers of holding bank deposits. Indeed, such competitive accounts might even be offered by other affiliates within the same bank holding company. Thus, there would be a shift of funds from fail-safe to nonfail-safe banks. If a sufficiently large percentage of transaction deposits were transferred, the original concerns that led to the proposal—protecting the payments system, dealing with failing banks without federal deposit insurance, and removal of regulations on other bank activities—would reappear.

To prevent such disintermediation, Kareken (1986) suggests that the Federal Reserve could refuse to process checks written on nonfail-safe banks. However, he does not show how nonfail-safe banks could be prevented from using fail-safe banks as a conduit for their checks, much as Merrill Lynch used Bank One (Ohio) for its money market management accounts. But even if Kareken's proposal could be made operational, it is likely to encourage the development of private clearing systems that bypass the Federal Reserve altogether.

What, then, can be done to eliminate this shift of deposit funds to nonbank institutions? One proposed solution would allow the fail-safe banks to earn more on their assets, permitting them to invest in securities that have greater default risk, interest rate risk, or both. But as long as they offer deposits withdrawable at par, the original reason for establishing the fail-



safe banks would be defeated, which would probably lead to the reintroduction of federal deposit insurance. The broader the permissible investments, the less fail-safe the bank, and the more necessary it will be to retain deposit insurance and/or regulations.

Alternatively, Kareken (1986) has suggested abandoning par deposits and requiring that the fail-safe banks offer only market-value deposits similar to those offered by money market funds. But there is substantial evidence that there is strong widespread demand for fixed-value (par) deposits. For example, at their outset money market funds marked their shares to market daily. Thus, they offered variable-valued "deposits", similar to all other mutual funds. But many of the funds soon discovered that they could increase demand by offering nominally fixed-value shares, even at times at lower interest rates. They were permitted to do so by the SEC if the average maturity of their portfolio was less than 120 days. (It should be noted that this is a voluntary accounting procedure. The funds would not be in default if they were unable to repay deposits at par.) Constant value money market funds soon dominated the industry.

Another proposal would permit fail-safe banks to invest in riskier assets if the bank held capital sufficient at all times to absorb expected losses. ("Sufficient" may be defined as the amount that a bank would have held were there no federal deposit insurance). These banks would be required to mark their securities to market. (Huertas, 1987) They could invest in securities of any risk as long as these could be marked to market reasonably accurately. Since losses now could be incurred that could exceed the bank's capital, this system would require explicit failure resolution strategies on the part of the regulatory agencies to avoid losses to depositors, interruptions to the payments system, or reimposition of explicit or implicit deposit insurance.<sup>2</sup>

Even if the narrow banks were prevented from taking default and interest rate risks, they still would be subject to operating and fraud risks. Indeed, to the extent that protection of the payments system is a major concern of the proposed schemes, losses from interbank clearing and failed delivery that may be labelled operating risk should be of at least equal concern. Yet, these risks are not considered. Thus, the narrow bank banks would not be fail-safe, and the case for withdrawing deposit insurance is significantly weakened.

Although in its more workable forms the narrow bank would offer the same problems with respect to capital requirements and reorganization rules as would current banks, it does not offer compensation in the form of greater efficiencies. To the contrary, it will increase costs to bank customers because it would prevent banks and their customers from taking advantage of economies of scope in production and demand. In particular, both

transaction deposit servicing and loan extension and monitoring involve substantial knowledge about the customer. The knowledge gained from providing one of the services reduces the cost of providing the other. This complementary relationship explains why loan provision was the first and is the most important service offered by depository institutions. Artificially separating lending and deposit gathering in the same legal entity by regulation would reduce the efficiency of the process and increase the cost of providing either.<sup>3</sup>

Lastly, monetary policy might be frustrated by reduced Federal Reserve control over nonfail-safe banks, which would no longer be required to hold legal reserves. As Litan (1987) correctly notes, this would depend on whether the monetary authorities want to control money (deposits) or credit (bank loans). If all transaction balances were held at fail-safe banks, control over the money supply (defined narrowly) would not be reduced, although, as discussed in the note to this appendix, control also would not be increased if the narrow banks could hold assets other than currency or reserves at the central bank. Indeed, even if some transaction balances were shifted to nonfail-safe banks, monetary control need not be reduced. The nonfail-safe banks would still demand some cash reserves voluntarily to meet deposit outflows optimally. Open market transactions by the central bank could induce them or their customers to alter their portfolio mixes and thereby the amount of deposits. If monetary policy were used to control credit in the form of bank loans, redistributing the total pool of credit among financial institutions or fail-safe and nonfail-safe banks would have little, if any, lasting effects. Likewise, interest rate control is unlikely to be affected one way or the other by a reshuffling of the types of assets held by different types of financial institutions.

## Footnotes

<sup>1</sup> The present proposals for a fail-safe bank should be distinguished from earlier, superficially similar ideas. Some of its proponents mistakenly trace its intellectual origins back to Milton Friedman's and, even earlier, Henry Simons' 100 percent reserve banking proposal. But this is not correct. Friedman, Simons, and their colleagues were concerned with central bank control of the money supply. They believed that fractional reserve banking introduced leakages in the deposit-reserves multiplier relationship, such as unexpected changes in excess reserves and differing legal reserve requirements across different banks or classes of deposits, that reduced control. Under their scheme, the relationship between base money, which the central bank controls, and the money supply would be precise (indeed, identical), because all bank reserves would be held in the form of currency or reserves at the central bank. Commercial banks would not be allowed to make any other investments, including loans. Such a bank would be fail proof, except for the risk of fraud and operations losses. However, unless the central bank paid interest on reserves held with it, the banks could not generate revenues from their assets and could not pay implicit or explicit interest on their deposit accounts.

Rather, they would have to levy service charge on their depositors to cover their costs of operation.

If banks could be permitted to satisfy the 100 percent reserve requirements with interest bearing Treasury securities instead of with central bank balances, the Treasury would have to keep all of its balances at the central bank. If it did not, the result would be fractional, not 100 percent reserve banking, and total bank deposits would exceed total bank cash reserves. Furthermore, unless the Treasury guaranteed to redeem all the securities at par value, interest rate increases could reduce the market value of the securities below the par value of the bank's deposits and the bank could become insolvent. Thus banks would have to hold excess reserves and capital to meet deposit withdrawals. This would reduce the desired precision of money control. Thus, the only condition under which the modern fail-safe would be equivalent to the Simons-Friedman 100 percent reserve bank would be if it held only currency or central bank balances. But this restriction is not included in any of the newer proposals. They all permit investment in earning assets.

<sup>2</sup> Marvin Goodfriend has suggested that the federal government could subsidize the banks to offer a competitive deposit rate if it viewed this cost to be lower than the losses it would incur from bank failures. However, a subsidy not only would shift a portion of the expense of deposit banking to taxpayers generally, but would be difficult to control and administer in the public interest, as are subsidies generally.

<sup>3</sup> Litan (1987A) mentions higher lending costs as a possible objection to his narrow bank proposal. However, he mistakenly identifies reduced supply from the narrow banks as the cause, apparently in the belief that other firms would not supply the funds. He might also have noted that loan costs could increase if the benefits banks received from underpriced deposit insurance were not passed on to borrowers. If this cross-subsidization were occurring, elimination of subsidized deposit insurance would increase rather than decrease aggregate economic efficiency.

## References

- Altman, Edward I. and Scott A. Nammacher, 1987, *Investing in Junk Bonds*. New York: John Wiley.
- Angermueller, James J., 1986, "Statement" Before a Subcommittee of the Committee on Government Operations, *Structure and Regulation of Financial Firms and Holding Companies (Part 3): Hearings*. U.S. House of Representatives, 99th Cong., 2nd Sess. (December 17 and 18), pp. 4-16.
- Aspinwall, Richard, 1987, "Draft Statement to the Shadow Financial Regulatory Committee on Bank Separation" (May).
- Barth, James, R. Dan Brumbaugh, Jr., and Daniel Sauerhaft, 1986, "Failure Costs of Government-Regulated Financial Firms: The Case of Thrift Institutions", *Research Working Paper No. 123*, Federal Home Loan Bank Board, Washington, D.C. (October)
- Bennett, Andrea, 1986, "Small Town Businesses Don't Stick Around When the Only Bank Closes Its Doors", *American Banker*, (December 2), pp. 40, 32.
- Bennett, Barbara A., 1984, "Bank Regulation and Deposit Insurance: Controlling the FDIC's Losses", *Economic Review* (Spring), pp. 16-30.
- Bennett, Veronica, 1984, "Consumer Demand for Product Deregulation", *Economic Review*, Federal Reserve Bank of Atlanta (May), pp. 28-37.
- Benston, George J., 1987, "An Analysis of the Evidence Supporting the Separation of Commercial and Investment Banking Mandated by the Glass-Steagall Act", manuscript.
- Benston, George J., 1985A, "The Market for Public Accounting Services: Demand, Supply and Regulation", *Journal of Accounting and Public Policy*, (Spring), pp. 33-79.
- Benston, George J., 1985B, *An Analysis of the Causes of Savings and Loan Failures*. Monograph Series in Finance and Economics, Salomon Center, New York University Graduate School of Business Administration, Monograph 1985 - 4/5.
- Benston, George J., 1984, "The Effects of Regulation", in *Payments in the Financial Services Industry in the 1980s*. Federal Reserve Bank of Atlanta, Quorum Books, pp. 125-137.
- Benston, George J., 1983A, "Federal Regulation of Banking: Analysis and Policy Recommendations", *Journal of Bank Research* (Winter), pp. 216-244.
- Benston, George J., 1983B, "Deposit Insurance and Bank Failures", *Economic Review* Federal Reserve Bank of Atlanta (March), pp. 4-17.

- Benston, George J., ed., 1983C, *Financial Services: The Changing Institutions and Government Policy*. New York: Prentice-Hall.
- Benston, George J., 1982, "Accounting Numbers and Economic Values", *The Antitrust Bulletin* (Spring), pp. 161-215.
- Benston, George J., 1973, "Bank Examination", *The Bulletin*, New York University Institute of Finance (May), Nos. 89-90.
- Benston, George J., 1964, "Interest Payments on Demand Deposits and Bank Investment Behavior", *Journal of Political Economy* (October), pp. 431-449.
- Benston, George J., Robert A. Eisenbeis, Paul M. Horvitz, Edward J. Kane, and George G. Kaufman, 1986, *Perspectives on Safe and Sound Banking*. Cambridge, Mass.: MIT Press.
- Benston, George J. and George G. Kaufman, 1986, "The Costs of Bank Failure: Overview, History and Evaluation", in George G. Kaufman and Roger C. Kormendi, eds., *Deregulating Financial Services: Public Policy in Flux*. Boston: Ballinger Publishing, pp. 49-77.
- Bernanke, Ben S., 1983, "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression", *American Economic Review*, June 1983, pp. 257-276.
- Bierwag, G.O. and George G. Kaufman, 1986, "A Proposal for Federal Deposit Insurance with Risk-Sensitive Premiums", *Staff Memoranda*, 83-3, Federal Reserve Bank of Chicago (March).
- Board of Governors of the Federal Reserve System, 1986, "Capital Maintenance: Supplemental Adjusted Capital Guidelines", *Press Release* (January 24).
- Board of Governors of the Federal Reserve System, 1984, *A Review and Evaluation of Federal Margin Requirements*. Washington, D. C. (December)
- Chancellor of the Exchequer, 1985, *Banking Supervision*. London: Her Majesty's Stationary Office.
- Chessen, James, 1986, "Regulatory Proposals for a Supplemental-Adjusted-Capital Measure", *Banking and Regulatory Review* Federal Deposit Insurance Corporation (March), pp. 11-17.
- Comptroller of the Currency, 1986A, "Capital Forbearance Policies", *News Release* (March 28).
- Comptroller of the Currency, 1986B, "Minimum Capital Ratios: Risk-Based Capital Ratios", *News Release* (March 25).
- "Continental Illinois National Bank Failure and Its Potential Impact on Correspondent Banks", 1984, Staff Report, Subcommittee on Finan-

- cial Institutions Supervision, Regulation and Insurance of Committee on Banking, Finance, and Urban Affairs, *Inquiry Into Continental Illinois Corp. and Continental Illinois National Bank: Hearings*. U.S. House of Representatives, 98th Cong., 2nd Sess. (September 18, 19 and October 4), pp. 418-334.
- Corrigan, E. Gerald, 1987A, "A Framework for Reform of the Financial System", *Quarterly Review*, Federal Reserve Bank of New York (Summer), pp. 1-8.
- Corrigan, E. Gerald, 1987B, *Financial Market Structure: A Longer View*. New York: Federal Reserve Bank of New York (January).
- Corrigan, E. Gerald, 1982, "Are Banks Special", *Annual Report*, Federal Reserve Bank of Minneapolis.
- Cox, Albert H., 1964, *Regulation of Interest Rates on Bank Deposits*. Ann Arbor: University of Michigan Bureau of Business Research.
- Doherty, Kathleen, 1987, "Who's Minding the Fraud", *American Banker* (September 21), pp. .
- Dowd, Kevin, 1987A, "Automatic Stabilizing Mechanisms Under Free Banking", Working Paper, University of Sheffield, England (March).
- Dowd, Kevin, 1987B, "Some Lessons From the Recent Canadian Failures" Working Paper, University of Sheffield, England (January).
- Edwards, Franklin R., 1987, "Consolidation, Concentration, and Competition Policy in Financial Markets: The Past and the Future", Paper for American Enterprise Institute.
- England, Catherine, forthcoming, "Agency Problems and the Banking Firm: A Theory of Unregulated Banking", in Catherine England, ed., *The Financial Service Revolution: Policy Directions for the Future*. Boston: Kluwer Academic. England, Catherine, 1985, "A Proposal for Introducing Private Deposit Insurance", *Proceedings of Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp. 316-337.
- Ely, Bert, 1985, "Yes—Private Sector Deposit Depositor Protection is a Viable Alternative to Federal Deposit Insurance", *Proceedings of Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp 338-353.
- Federal Deposit Insurance Corporation, 1986, "Statement of Policy on Principles of Capital Forbearance for Banks with Concentrations in Agriculture and Oil and Gas" (March 27).
- Federal Deposit Insurance Corporation, 1984, *The First Fifty Years*. Washington, D.C.

- Federal Deposit Insurance Corporation, 1983, *Deposit Insurance in a Changing Environment*. Washington, D.C. (April).
- Federal Home Loan Bank Board, 1983, *Agenda for Reform*. Washington, D.C. (March).
- Flannery, Mark J., 1987, "Payments System Risk and Public Policy", Paper prepared for American Enterprise Institute.
- Friedman, Milton and Anna J. Schwartz, 1963, *A Monetary History of the United States, 1867-1960*. Princeton, N.J.: Princeton University Press.
- Furlong, Frederick T. and Michael C. Keeley, 1987, "Bank Capital Regulation and Asset Risk", *Economic Review*, Federal Reserve Bank of San Francisco (Spring), pp. 20-40.
- Gajewski, Gregory and Deano Hagerman, 1987, "Should the Feds Prop Up Ailing Banks and S&Ls?", *Rural Development*, U.S. Department of Agriculture (October), pp. .
- Geis, Thomas G. and Lucy J. Reuben, 1977, "Impact of Bank Failures on Local Economies", Paper presented at Annual Meeting of Midwest Finance Association (March 31).
- Gendreau, Brian C. and Scott S. Prince, 1986, "The Private Costs of Bank Failures: Some Historical Evidence", *Business Review*, Federal Reserve Bank of Philadelphia (March/April), pp. 3-14.
- Gilbert, R. Alton and Levis A. Kochin, 1987, "Local Economic Effects of Bank Failures" in *Proceedings of Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago.
- Golembe, Carter H. and John J. Mingo, 1985, "Can Suspension and Regulation Ensure Financial Stability", *The Search for Financial Stability*, Federal Reserve Bank of San Francisco, pp. 125-146.
- Goodhart, Charles, 1985, *The Evolution of Central Banks*. London: London School of Economics and Political Science (October).
- Goodfriend, Marvin and Robert G. King, 1987, "Financial Deregulation, Monetary Policy, and Central Banking", Paper for American Enterprise Institute.
- Gorton, Gary, 1985, "Clearing Houses and the Origin of Central Banking in the United States", *Journal of Economic History* (June), pp. 277-283.
- Haugen, Robert A. and Lemma W. Senbet, 1978, "The Insignificance of Bankruptcy Costs to the Theory of Optimal Capital Structure", *Journal of Finance* (May), pp. 383-393.

- Hickman, W. Braddock, 1958, "Bond Quality and Investor Experience", Princeton, N.J.: Princeton University Press.
- Horvitz, Paul M., 1983A, "The Case Against Risk-Related Deposit Insurance Premiums", *Housing Finance Review* (July), pp. 253-263.
- Horvitz, Paul M., et al., 1983B, "Research on Federal Deposit Insurance", *Proceedings of Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp. 196-298.
- Horvitz, Paul M., 1980, "A Reconsideration of the Role of Bank Examination", *Journal of Money, Credit, and Banking* (November, Part 1), pp. 654-659.
- Huertas, Thomas F., 1987, "Redesigning Regulation: The Future of Finance in the United States", Paper presented at Conference on Restructuring the Financial System, Federal Reserve Bank of Kansas City (August).
- Huertas, Thomas F., 1986A, "Risk in the Payments System", Appendix D to Hans H. Angermueller Testimony Before a Subcommittee of the Committee on Government Operations, *Structure and Regulation of Financial Firms and Holding Companies (Part 3): Hearings*. U.S. House of Representatives, 99th Cong., 2nd Sess. (December 17 and 18), pp. 361-389.
- Huertas, Thomas F., 1986B, "The Protection of Deposits from Risks Assumed by Non-Bank Affiliates", Appendix C to Hans H. Angermueller Testimony Before a Subcommittee of the Committee on Government Operations, *Structure and Regulation of Financial Firms and Holding Companies (Part 3): Hearings*. U.S. House of Representatives, 99th Cong., 2nd Sess. (December 17 and 18), pp. 325-360.
- Huertas, Thomas F. and Rachel Strauber, 1986, "An Analysis of Alternative Proposals for Deposit Insurance Reform", Appendix E to Hans H. Angermueller Testimony Before a Subcommittee of the Committee on Government Operations, *Structure and Regulation of Financial Firms and Holding Companies (Part 3): Hearings*. U.S. House of Representatives, 99th Cong., 2nd Sess. (December 17 and 18), pp. 390-463.
- Humphrey, David, 1987, "Electronic Payments System Links and Risks", in Elinor H. Solomon, ed., *Electronic Funds Transfers and Payments: The Public Policy Issues*. Boston, Mass.: Kluwer-Nijhoff.
- Humphrey, David B., 1986, "Payments Finality and Risk of Settlement Failure", in A. Saunders and L. White, eds., *Technology and Regulation of Financial Markets*. Lexington, Mass.: Lexington, pp. 97-120.



- Humphrey, David B, 1984, *The U.S. Payments System: Costs, Pricing, Competition*. Monograph Series in Finance and Economics, New York University.
- Huyser, Daniel, 1987, "Problem Banks: The Phoenix Factor", *Proceedings of a Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago.
- James, Christopher, forthcoming, "Some Evidence on the Uniqueness of Bank Loans", *Journal of Financial Economics*.
- Kane, Edward J., 1987A, "No Room for Weak Links in the Chain of Deposit Insurance Reform", *Journal of Financial Services Research*, Vol. 1, No. 1, pp. 77-111.
- Kane, Edward J., 1987B, "Dangers of Capital Forbearance: The Case of the FSLIC and 'Zombie' S&Ls", *Contemporary Policy Issues* (January), pp. 77-83.
- Kane, Edward J., 1986A, "Appearance and Reality in Deposit Insurance", *Journal of Banking and Finance* (June), pp. 175-188.
- Kane, Edward J., 1985, *The Gathering Crisis in Deposit Insurance*. Cambridge, Mass.: MIT Press.
- Kareken, John H., 1986, "Federal Bank Regulatory Policy", *Journal of Business* (January), pp. 3-48.
- Kaufman, George G, forthcoming A, "Bank Runs: Cause, Benefits, and Costs", *CATO Journal*.
- Kaufman, George G., forthcoming B, "Public Policies Toward Failing Institutions: The Lessons from the Thrift Industry", *Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago.
- Kaufman, George G., 1988C, "The Truth About Bank Runs", in Catherine England and Thomas Huertas, eds., *The Financial Service Revolution: Policy Directions for the Future*. Boston: Kluwer Academic.
- Kaufman, George G., 1987D, "Bank Capital Forbearance and Public Policy", *Contemporary Policy Issues* (January), pp. 84-91.
- Kaufman, George G., 1987E, "The Federal Safety Net: Not For Banks Only", *Economic Perspectives*, Federal Reserve Bank of Chicago (November/December), pp. 19-28.
- Kaufman, George G., 1986A, "Federal Bank Regulatory Policy", *Journal of Business* (January), pp. 69-78.
- Kaufman, George G., 1986B, "Banking Risk in Historical Perspective", *Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp. 231-249.

- Kaufman, George G., 1985A, "Implications of Large Bank Problems and Insolvencies for the Banking System and Economic Policy", *Staff Memoranda 85-3*, Federal Reserve Bank of Chicago.
- Kaufman, George G., 1985B, "Implications of Large Bank Problems and Insolvencies for the Banking Industry and Economic Policy", *Issues in Bank Regulation* (Winter), pp. 35-42.
- Kaufman, George G. and Roger Kormendi, eds., 1986, *Deregulating Financial Services: Public Policy in Flux*. Cambridge, Mass.: Ballinger Press.
- Keeley, Michael C. and Frederick T. Furlong, 1987, "A Deposit Insurance Puzzle", *Weekly Letter*, Federal Reserve Bank of San Francisco (July 3).
- Koehn, Michael and Anthony M. Santomero, 1980, "Regulation of Bank Capital and Portfolio Risk", *Journal of Finance* (December), pp. 1235-1244.
- Lawrence, Joseph S., 1931, "What is the Average Recovery of Depositors", *American Bankers Association Journal* (February), pp. 655-56, 722-23.
- Lawrence, Robert J., 1985, "Minimizing Regulation of the Financial Services Industry", *Issues in Bank Regulation* (Summer), pp. 22-30.
- Litan, Robert E., 1987, *What Should Banks Do*. Washington, D.C.: Brookings Institution.
- Litan, Robert E., 1986, "Taking the Dangers Out of Bank Deregulation", *Brookings Review* (Fall), pp. 3-12.
- Litan, Robert E., 1985, "Evaluating and Controlling the Risks of Financial Product Deregulation", *Yale Journal on Regulation* (Fall) pp. 51-52.
- Mingo, John J., 1987, "'Narrow Banks' Part of Plan for Restructuring Regulatory System", *American Banker* (September 15), pp. 5, 7, 9, 13.
- Moulton, Janice M., 1987, "New Guidelines for Bank Capital: An Attempt to Reflect Risk", *Business Review*, Federal Reserve Bank of Philadelphia (July/August), pp. 19-33.
- Pyle, David H., 1986, "Capital Regulation and Deposit Insurance", *Journal of Banking and Finance* (June), pp. 189-201.
- Pyle, David H., 1984, "Deregulation and Deposit Insurance Reform", *Economic Review*, Federal Reserve Bank of San Francisco (Spring), pp. 5-15.
- Rose, Sandford, 1974, "What Really Went Wrong at Franklin National", *Fortune Magazine* (October), pp. 118-121, 220-227.

- Saunders, Anthony, 1987, "Bank Holding Companies: Structure, Performance and Reform", Paper for American Enterprise Institute.
- Schwartz, Anna J., 1987A, "Financial Stability and the Federal Safety Net", Paper for American Enterprise Institute.
- Schwartz, Anna J., 1987B, "The Lender of Last Resort and the Federal Safety Net", *Journal of Financial Services Research*, Vol. 1, No. 1, pp. 1-17.
- Selby, H. Joe, 1985, "Statement" before Committee on Banking, Housing and Urban Affairs, U.S. Senate (July 23).
- Shadow Financial Regulatory Committee, 1987, "Statements on Regulatory Proposals for Risk-Related Capital Standards" (March 31 and May 18).
- Singer, Mark, 1985, *Funny Money*. New York: Alfred Knopf.
- Symons, Edward L., Jr., and James J. White, 1984, *Banking Law*. 2nd ed. St. Paul, Minn.: West Publishing.
- Timberlake, Richard H., Jr., 1984, "The Central Banking Role of Clearing House Associations", *Journal of Money, Credit, and Banking* (February), pp. 1-15.
- Tobin, James, 1986, "Financial Innovation and Deregulation in Perspective", in Y. Suzuki and H. Yomo, eds., *Financial Innovation and Monetary Policy: Asia and the West*. Tokyo: University of Tokyo Press, pp. 31-42.
- Tussing, A. Dale, 1967, "The Case for Bank Failure", *Journal of Law and Economics* (October), pp. 129-147.
- Tussing, A. Dale, 1968, "Bank Failure: A Meaningful Competitive Force", *Proceedings of Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp. 99-109.
- United States General Accounting Office, 1987A, *Thrift Industry: Forbearance for Troubled Institutions, 1982-1986*, Washington, D.C. (May)
- United States General Accounting Office, 1987B, *Thrift Industry: The Management Consignment Program*. Washington, D.C. (September)
- Upham, Cyril B. and Edward Lamke, 1934, *Closed and Distressed Banks*. Washington, D.C.: Brookings Institution.
- Volcker, Paul A., 1986A, "Statement" in Testimony Before a Subcommittee of the Committee on Government Operations, *Structure and Regulation of Financial Firms and Holding Companies (Part 1): Hearings*. U.S. House of Representatives, 99th Cong., 2nd Sess. (April 22, June 11, July 23), pp. 127-198 and Appendix 2, pp. 391-541.

- Volcker, Paul A., 1986B, "Statement", *Federal Reserve Bulletin* (February), pp. 115-125.
- Weicher, John C., 1987, "The Future Structure of the Housing Finance System", Paper for American Enterprise Institute.
- Weintraub, Benjamin and Alan N. Resnick, 1986, *Bankruptcy Law Manual*. Boston: Warren, Gorham, and Lamont.
- White, Lawrence J., forthcoming, "Mark-To-Market Accounting for Thrifts: Vital to the FSLIC and Valuable to Well-Managed Thrifts", *Outlook*, Federal Home Loan Bank Board.
- Whitehead, David D., 1982, "The Sixth District Survey of Small Business Credit", *Economic Review*, Federal Reserve Bank of Atlanta (April), pp. 42-47.
- Wigmore, B., 1987, "Was the Bank Holiday of 1933 a Run of the Dollar Rather Than the Banks", *Journal of Economic History* (September), pp. 739-755.
- Yang, John E., 1987, "Fraud is Main Cause of Failure at S&Ls in California, Congressional Study Says", *Wall Street Journal* (June 15), p. 6.
- Zweig, Philip L., 1985, *Belly Up: The Collapse of the Penn Square Bank*. New York: Crown.