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**RISKS AND FAILURES IN BANKING:  
OVERVIEW, HISTORY, AND EVALUATION**

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FEDERAL RESERVE BANK OF CHICAGO

# Risks and Failures in Banking: Overview, History, and Evaluation

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At least since the Great Depression of the 1930s, public policy toward banking and financial services in the United States has emphasized safety at the expense of competition and efficiency. The original rationale for this emphasis is understandable. The 1930s were an economic and financial holocaust. The U.S. economy experienced its worst crisis in history. The number of commercial banks declined by 40 percent from about 25,000 to near 14,000 between 1929 and 1933, and all banks were closed for at least three days during a national bank holiday in March 1933.

But times have changed dramatically since then. While not perfect, overall economic performance has been relatively satisfactory. Increases in the level and volatility of interest rates, in large measure the result of increases in the level and volatility of inflation, have provided both depositors and suppliers of financial services with incentives to circumvent regulatory barriers—many of which were put in place in the 1930s to combat the actual or perceived problems of that day—that both imposed interest rate ceilings on deposit accounts and restricted transaction accounts to commercial banks. At the same time, advances in telecommunications and computer technology, which permitted the rapid and low-cost transfer of funds and information from both account to account and institution to institution, have provided the means to circumvent the barriers. The technology also has permitted banks to compete outside their traditional geographical and product market areas and allowed many other firms to offer financial services previously restricted to commercial banks. Thus, the number and type of firms comprising the financial services industry increased and competition intensified.

While much in the public limelight, recent *de jure* deregulation has primarily validated the *de facto* deregulation already produced by market forces. It did, however, help to remove some remaining vestiges of regulation that,

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although mostly ineffective, produced inequities where still effective. At the same time, risk in banking increased because of higher levels and volatility in interest rates; rapid runups followed by equally rapid run-downs in the prices of real estate, energy, and agricultural products; financial difficulties in many less-developed countries; and advances in technology that permit almost immediate and costless transfer of funds and that greatly increase both the importance, and the cost and complexity of internal control and monitoring systems. As a result, the number of bank and other depository institution failures has increased sharply. What should be the response of public policy?

The answer depends greatly on how important individual bank (in the generic sense to include all depository and other financial institutions) failures are for other financial institutions, the banking system as a whole, and the national economy. If they are likely to ignite instability throughout the financial system and reduce economic activity severely, such as in the 1930s, then adoption of new, more effective pro-safety and anticompetitive regulations could be in order. If failures of individual institutions are unlikely to spread to other institutions or to severely restrict national economic activity, then public policy need not be as concerned with bank safety and soundness and can be directed more at increasing competition and efficiency. This chapter first delineates the sources of individual bank risks and considers why and how they have become more important in recent years. It then analyzes the interrelationships between bank risk, bank runs, and bank failure and the conditions under which individual bank failures can spread to other banks and destabilize the banking system and economy as a whole. Next, it reviews the record of bank failures in U.S. history since the Civil War to determine the extent to which such failures and bank runs actually have been serious problems. Finally, the importance of bank failures in the current environment is analyzed and conclusions are drawn about the most effective ways to deal with them in the public interest.

## Sources of Individual Bank Risk

Individual banks face, assume, and even seek out risks that could lead to significant reductions in their net worth and, at the extreme, to insolvency and failure. The most important risk faced (as compared to sought out) by a bank is fraud. In this situation, only the defrauder benefits. But for other types of risk, bank owners and managers generally expect to benefit because the risk of loss usually is accompanied by an even greater expectation of gain. In contrast, banking authorities and the deposit insurance agencies, in particular, bear the cost of excessive risk taking of any type by banks. Besides fraud, risk taking can take the form of (1) credit risk, (2) interest rate risk, (3) securities speculation, (4) foreign exchange risk, (5)

risk taking by related organizations, (6) operations risk, (7) regulatory risk, and (8) liquidity risk. Each of these sources of individual bank risk is discussed briefly.

Though each type of risk is discussed separately, the total risk of a bank's failing is not simply a function of the sum of the individual risks. As is well known in portfolio theory, one type of risk can offset another, and the acceptance of one risk can reduce the amount of another. For example, highly variable cash flows from individual activities taken alone might indicate high risk for each but when summed may yield lower overall variability and, hence, lower risk for the firm as a whole. Thus, real estate investment might be risky if done alone, but the cash flows derived therefrom may be imperfectly or negatively correlated with the cash flows from business loans and result in lower overall risk for the bank. It should also be noted that the cost of reducing risk may be greater than the benefits—risk reduction is not an end in itself.

## Fraud Risk

Frauds—outright theft—are particularly troublesome because they result in the largest losses to depositors and other creditors, including the deposit insurance agency. In other failures, the banks' assets usually have substantial liquidation value, but in frauds the assets involved are frequently gone altogether. Fraud has always been a big problem for banks and their regulators. For example, the Comptroller of the Currency has cited fraud and violations of the law as the most frequent cause of national bank failures between 1865 and 1931. Over the years 1914 through 1920, citations for fraud comprised 63 percent of the total number of identified causes of bank failures. The percentage dropped to 16 over the decade 1921 through 1929, when local economic depression was identified as the principal cause (Benston 1973; Table VII). Between 1934 and 1958 the FDIC reported that in "approximately one-fourth of the banks, defalcation or losses attributable to financial irregularities by officers and employees appear to have been the primary cause of failure" (Federal Deposit Insurance Corporation 1958). One study found that 66 percent of the failures during 1959-71 were due to fraud and irregularities (Benston 1973; Table XI). Another study that covered much of the same period—1960-74—reported that 88 percent of the 67 failures were due to improper loans, defalcations, embezzlements, and manipulations (Hill 1975).

The most recent studies show that fraud continues to be the principal contributor to bank failures. The causes of the failures of 33 banks in 1982 and 47 failures in 1983 and the first quarter of 1984 are identified as follows: malfeasance alone, 30 percent; malfeasance and low performance, 15 percent; malfeasance and rapid growth, 16 percent; and malfeasance and both poor performance and rapid growth, 5 percent. In sum, 66 percent

of these failures are due in whole or in part to malfeasance (Peterson and Scott 1985). Similarly, a survey by a Congressional committee found that in the 75 commercial bank failures between 1980 and mid-1983, 61 percent involved actual or probable criminal misconduct by insiders and 45 percent involved criminal conduct as a major contributing factor (Committee on Government Operations 1984).

Fraud can take many forms. Simple looting of vaults is rare, perhaps because more can be stolen at less risk in other ways. Perhaps the most popular way is making loans to confederates who use the proceeds in very risky ventures or just dissipate the funds. In such situations, it is difficult for the authorities to prove that the bad loans were not the consequence of bad luck or bad judgment, rather than fraud. Contemporary and rather spectacular examples of this practice appear to include the failures of the United States National Bank of San Diego, the Penn Square Bank of Oklahoma City, the United American Bank of Knoxville, and Empire Savings and Loan of Mesquite, Texas, and possibly Home State Savings Bank in Cincinnati, Ohio. (See Committee on Government Operations 1984 for examples and an extensive analysis.)

Operations related to the normal lending and borrowing of securities can be another means by which banks are defrauded. Dishonest bank officers and customers can either gamble with or simply steal a bank's assets by using securities or other collateral that the bank did not keep under sufficiently close control. This appears to have occurred in the supposedly secured loans made by means of reverse repurchase agreements by Home State Savings of Cincinnati, Ohio to ESM Securities. The collateral securities were not deposited with an independent third party, but effectively remained under ESM control, which misused them. Partially as a result, Home State failed in 1985. Earlier fraudulent use of collateral securities by Drysdale Securities (New York) had cost the Chase Manhattan Bank, which acted as a conduit in providing Drysdale with reverse repurchase agreement customers, nearly \$300 million in losses (Welles, 1982).

Moreover, few if any of the "white-collar" crime culprits are prosecuted and those that are rarely serve significant time in prison. Thus, the penalties for fraud are relatively weak.

## Credit Risk

A primary activity of banks, and one for which they have a comparative advantage over many other organizations, is the assessment, monitoring, and resolution of credit risks. Such risks are kept within acceptable bounds by means of regularized routines for documentation, approval, and follow-up of defaults. Diversification of loans by borrower and restrictions on the amounts that can be lent to a single borrower or related group of

borrowers are important in reducing catastrophic losses. Diversification among industries, countries, and other groupings of borrowers, who may be similarly affected by adverse economic events, also is useful for reducing risk.

Occasionally, such constraints on credit risks are not taken. A notorious example is the Penn Square Bank, where lending officers wrote over a billion dollars in loans, twice the size of the bank, to a single industry—petroleum—based on little more than the bankers' unsupported and undocumented belief that the borrowers were "good for it" and that the industry was booming and could be expected to continue to boom. Amazingly, the Penn Square Bank had little trouble in selling large amounts of such poorly or completely undocumented loans to such major banks as Continental Illinois, Seattle-First, Northern Trust, Michigan National, and Chase Manhattan (Singer 1985; Zweig 1985). A consequence of these risky and often fraudulent lending practices was the economic failure of both the Continental and Seattle-First banks as well as the Penn Square Bank.

Banks that concentrated their loans in a single industry have failed as a consequence, even though they may have used reasonable credit standards and controls when writing the loans. For example, the Public Bank of Detroit, which was one of the largest U.S. failures at the time it failed in 1966, concentrated in loans to mobile home dealers. When that industry became severely depressed economically, the bank's portfolio declined in value sufficiently to use up its equity. More recently, banks in Oregon that were heavily involved in the timber industry and banks in midwestern farm states have experienced relatively high rates of failure as the industries in which they specialized fell on hard times (see Bovenzi and Njezchleb 1985). A similar situation explains the high rate of failure in the 1930s of banks in the western grain and southeastern and southwestern farm states (see Benston 1973; Table III).

"Country risk" is a related aspect of credit risk. It refers to the possibility that loans will not be repaid as promised because economic conditions in the borrowing country have deteriorated to the point where the foreign exchange needed to service loans made in foreign currency is unlikely to be available or because the government will not permit the loans to be repaid and/or will not repay the loans made to it. Some of the largest U.S. (and foreign) banks are currently experiencing considerable losses due to this type of risk from loans to Eastern European and Latin American countries.

## Interest-Rate Risk

An unexpected change in market rates of interest changes the present values of fixed-coupon-interest-rate assets and liabilities because the interest payments are discounted at higher or lower rates. The greater the change and the longer the maturities (or, more properly, the durations) of the obligations, the greater the change in present values. When banks have assets and liabilities that are unbalanced with respect to durations, interest-rate risk can be very serious because, unlike many other risks, there is nothing to offset a negative event. Consequently, those who accept this form of risk may be characterized as "betting the bank."

As long as interest rates were stable, interest-rate risk was only a minor danger. But the interest-rate changes experienced since the late 1970s have shown that this risk quickly can become major with serious consequences. Thrift institutions, in particular, were adversely affected by the increase in the level and volatility of interest rates because they held predominantly long-term, fixed-interest assets (mortgages) that were funded with short-term liabilities (savings deposits). They were able to hold this interest-rate sensitive portfolio because, to a large extent, deposit insurance removed the risk to depositors. As Kane (1985) explains, the fact that deposit insurance is not priced in relation to the risk assumed by the institutions gives them a strong incentive to gamble that interest rates will decrease rather than increase or remain unchanged. But many of them lost this gamble during the past seven years. Indeed, most of the official failures among thrifts were due to the unexpected increase in interest rates that occurred. Few were the result of the misuse of new powers. (Benston 1986). Moreover, because a depository institution can continue operations even though it is economically insolvent if the authorities decline to declare it legally insolvent, interest-rate risk has resulted in many more insolvencies than failures. Kane estimates that as of December 31, 1983, the thrifts' aggregate net worth after deducting unrealized losses on mortgages was a negative \$86 billion (Kane 1985; Tables 4-5 and 4-6). Other studies found similar results (Auerbach and McCall 1985; Barth, Brumbaugh, Sauerhaft, and Wang 1985; Barth, Bisenius, Brumbaugh, and Sauerhaft 1985).

Thrift institutions were not the only institutions to gamble on interest-rate declines, and mortgages were not the only means for gambling on interest-rate changes. Long-term bonds that are funded with short-term borrowings were used by the First Pennsylvania Bank which failed economically, if not legally, in 1980. In 1979, when interest rates went up instead of down, the bank's bond portfolio is estimated to have declined in market value by \$89 million, which contributed considerably to reducing its equity below zero if measured at market values (Maisel 1981: 123-34).

Forward or standby commitments to sell securities at a fixed price or yield on a future date at the option of the purchaser is another means of taking interest-rate risk. The banker selling the commitments gets a fee up front and accepts the possibility of a larger later loss. Such transactions appeal to risk-seeking bankers because they offer the prospect of immediate profits and increases in net worth and do not require much expertise or expense.

### Securities Speculation

The market value of equities change more rapidly than that of many assets, and therefore they often are considered a vehicle for risk taking. Federal Reserve member commercial banks, however, are forbidden by the Glass-Steagall Act from underwriting and trading equities, and all banks are prohibited from investing in corporate equities. However, banks can hold corporate bonds and mortgages and other asset-backed bonds of varying degrees of risk. Depository institutions generally also can hold very high risk, high nominal yield "junk" bonds. However, while each of these assets individually can be risky, a portfolio of such and other assets need not be very risky if it is well diversified. The cash flows from the portfolios also might offset cash flows from other aspects of a bank's operations, which reduces overall risk.

### Foreign Exchange Risk

Foreign exchange risk includes speculative dealings by means of options and forward contracts. Franklin National Bank of New York is the premier U.S. example of such risk taking. Before it failed in 1974, it was the twentieth-largest U.S. bank. When it failed, it achieved the distinction of being the largest U.S. bank failure up to that time. While factors other than foreign-exchange speculation caused Franklin's problems, as its financial situation worsened, it undertook increasingly risky foreign-exchange transactions. These transactions resulted in a \$65 million loss for the first five months of 1974, the largest loss ever reported to that date by a U.S. bank (Spero 1980; 1126). Similar speculations were responsible in 1974 for the failure of Bankhaus I.D. Herstatt—one of Germany's largest private banks—and for sizable losses by other banks, including Citicorp.

### Risk Taking by Related Organizations

Organizations related to a bank—such as subsidiaries and affiliates—can be used for excessive risk taking that is not controlled by the authorities, or as a means of separating risk-taking activities from ordinary banking. Affiliates are frequently said to have been used as a means of securities speculation and other risk-taking activities by banks prior to passage of the



Glass-Steagall Act. However, evidence to this effect is not unequivocal (Peach 1941). A more current example is the Hamilton National Bank of Chattanooga, which was the third-largest U.S. bank failure when it failed in 1976. Hamilton invested heavily and disastrously in real estate loans that were recorded as assets of its holding company affiliate, Hamilton Mortgage Corporation of Atlanta. The bad loans were shifted ( "sold" ) from the affiliate to the bank. Thus, the separate corporate form did not insulate the bank from the losses incurred.

Because the practice violated banking regulations, however, the situation might better be described as a fraud (Sinkey 1979; 199-205). The incentives for a banking organization to accept responsibility even for entities to which they are not legally related was demonstrated by many banks in their treatment of the real estate investment trusts (REITs) they sponsored. Though the REITs were not bank affiliates, the losses they took were absorbed by many of the sponsoring banks, which apparently feared a loss of their reputations, particularly when the REITs bore the bank's name (Sinkey 1979; 237-55). Thus, shifting activities to a related organization did not shield the banks from the losses incurred.

## Operations Risk

Operations risk refers to the possibility that a bank's operating costs will exceed its operating revenues to the extent that its continued existence is threatened. This, of course, is not special to banking. Because the risks discussed above are within the control of a bank's management, there are all forms of operations risk. For example, fraud, foreign exchange risk, and credit risk are likely to increase when a bank does not have a well-maintained and monitored system of internal controls.

High operations cost because of mismanagement or overambition have led to the failure of a number of banks. Overambition apparently was the initial cause of Franklin National's failure. The bank incurred high operating expenses and credit losses in its attempt to expand quickly from a suburban Long Island bank to a major New York City bank after the New York State branching laws were liberalized to permit branching throughout the New York City metropolitan area.

Fraud by customers is a form of operations risk, a risk that is made more serious by the increasing complexity of banking transactions and the advances in technology that permit large sums to be transferred almost immediately among accounts and institutions. Computer experts and skilled amateurs (hackers) attempt to and sometimes succeed in violating electronically a bank's security and funds-transfer systems.

Recently, E.F. Hutton admitted to obtaining billions of dollars in interest-free funds by writing checks on uncollected balances, a form of check kiting made possible on a large scale by computers. As effective internal controls systems become more difficult to construct, they also become more important to implement.

Daylight overdrafts are another form of operations risk. Banks can pay out amounts equal to many times their capital in funds that are uncollected from other banks at the time, but they expect to collect by the end of the accounting day. Should a paying bank fail during the day and these funds not be collected, the entire system could be severely disrupted and perhaps be forced to grind to a halt. This almost happened when Bankhaus Herstatt (Germany) failed in 1974.

## Regulatory Risk

Changes in regulations can affect banks' ability to cope with risks and even to survive. Most notably, the prohibition of interstate branching, and, in many states, of intrastate branching contributed to the large number of the failures of U.S. banks in the 1920s and 1930s. These laws hampered small banks in diversifying their portfolios efficiently. When local economic conditions declined severely, deposits at these banks were increasingly withdrawn at the same time, and an increasing proportion of their loans became uncollectible. Not having funds and gains from other areas to offset their losses, many of these banks had to close their doors. This situation is being repeated to some extent in the 1980s, as small agricultural banks have been failing when the economic condition of their homogeneous customers deteriorated.

Legislation, such as the Community Reinvestment Act, has encouraged banks to make loans to borrowers located in particular geographic areas (or punishes them for not doing so). The result can be inefficiently diversified portfolios. Should the value of the collateral or economic situation of these concentrated borrowers deteriorate, a bank could incur losses sufficient to wipe out its capital.

Legal and regulatory restrictions on bank investments can also impose inefficiencies on banking operations. The Glass-Steagall Act, which prohibits banks from offering corporate security underwriting, is one such example. Until recently, thrift institutions were constrained by laws and regulations that prohibited them from offering checking accounts, business loans, variable-rate residential mortgages, and direct investments in real estate and other assets. Because these laws (and tax subsidies), which rewarded thrift institutions for specializing in mortgages, the thrifts' portfolios were excessively vulnerable to unexpected increases in interest rates. Interest-rate controls have also been another important example of the

pernicious effect of regulations on bank risk. While the prohibition of interest on demand deposits and ceilings on savings and time deposit interest (Regulation Q) initially benefited banks, its long-term effect was to make it more difficult for banks to compete effectively for funds with “unregulated” suppliers of similar banking services. State-imposed usury ceilings on loans have led to similar inefficiencies.

## Liquidity Risk

Many depositors have claims on banks that can be exercised at par value at any time without notice. Consequently, if they have reason to believe that these claims may not be honored because the bank has incurred significant losses, the depositors have incentives to remove their funds immediately—to run. The only constraints are the transactions costs of the transfer (which usually are very small) and the costs of disrupting banking relationships (which are likely to be more considerable).

Liquidity risk refers to the possibility that depositors will withdraw funds at a rate that exceeds a bank’s ability to replenish their funds, except by borrowing at higher-than-normal interest cost (including emergency borrowing from the Federal Reserve discount window) or by selling assets at lower-than-normal (fire-sale) prices. Should these additional costs or losses exceed the bank’s capital, it would fail.

## Coping With Risk

Banks do not attempt to eliminate risks; indeed, to do so would be inimical to banking. Banks are organized to deal efficiently with risks—that is one of their principal comparative advantages over other types of firms. The bankers’ skills consist of effectively equating at the margin the benefits and costs of risk taking.

For example, the risk of fraud can be reduced by expenditures on internal control systems. Credit risk can be reduced by administrative procedures for loan approvals and monitoring to assure that diversification, collateral, and repayment requirements are being met. But a bank would not want to eliminate credit losses, because this could not be done without foregoing lending. Instead, banks charge customers for the risk of nonrepayment that is expected.

Interest-rate risk can be reduced by a bank’s holding a more duration-balanced portfolio. Adjustable-rate mortgages can be made rather than fixed-rate mortgages, though at the expense of possibly greater credit risk because the mortgagor’s income or the market value of the collateral may not increase, *pari passu*, with increases in market rates of interest. Un-

matched cash positions may be offset by purchasing or selling interest-rate futures and options contracts.

Regulatory risk can be reduced by expenditures on lobbying and planning. Liquidity risk can be mitigated by a bank's holding greater amounts of readily marketable assets and establishing lines of credit.

Although risk may be reduced through diversification, sufficient risk reduction may not always be possible or pursued for at least three reasons. First, laws and regulations may not permit bankers to diversify optimally. As noted, such laws include restraints on branching and on the products that banks may offer and assets in which they can invest.

Second, diversification can be costly if a bank must give up advantages from specialization. For example, a bank in a small farming community benefits from specializing in farm loans even though this specialization subjects it to a higher risk of failure. Banks specializing in oil and timber loans benefited as long as the prices of these resources continued to rise.

Third, diversification is not undertaken by bankers who want to take risks. Banks continue to specialize in industries with which they have a special relation and expertise. Many, perhaps most, thrifts still hold duration-unbalanced portfolios of fixed-interest-rate, long-term residential mortgages. Managers of economically insolvent institutions have incentives to "bet the bank." As is discussed next, deposit insurance that is not priced to reflect the risks taken encourages bankers to take excessive risk or at least protects them from market constraints on such risk taking.

## Recent Changes in Bank Risk Exposure

Although incentives for risk taking have always existed in banking, they have been increased in a number of ways in recent years.

### Risk Taking and Deposit Insurance

Depositors with account balances under \$100,000 in banks and thrifts that are insured by the Federal Deposit Insurance Corporation or Federal Savings and Loan Insurance Corporation have no reason to be concerned about the risks taken by their banks. Uninsured depositors are at risk, unless they believe that their funds are *de facto* insured, as occurred when the Continental Illinois Bank failed, or that they can remove their funds before their bank is closed.

This is not to say that bankers are unconcerned about failure: It might cause owners to lose their investments and bankers their jobs. Indeed, if

the amount of investment by owners and managers in a bank is sufficient, risk taking by bankers should be no more a problem than risk taking by anyone else. Alternatively, the deposit insurance agency could charge banks for the risks they undertake. Then bankers would be faced with the same problem faced by other decision makers. They must balance at the margin the benefits from additional risks undertaken with the cost of such risks.

However, deposit insurance is not now priced directly to reflect risks undertaken. Rather, banks are charged indirectly for risk taking in the form of more extensive and expensive monitoring by bank examiners and supervisors and by legal and regulatory constraints on their activities.

Because federal deposit insurance premiums were not tied to a bank's risk exposure, the value of deposit insurance increased sharply as a result of the greater volatility of interest rates in the late 1970s and early 1980s. (Kane, 1985.) Deposit insurance gave bankers, who held assets with greater duration than liabilities, a valuable option; they would benefit if interest rates decreased unexpectedly, while the deposit insurance agencies stood to lose if rates increased unexpectedly. Heads the bank wins, tails the insurance agency loses. The greater the volatility of interest rates, the greater the expected value of the gamble. Many, particularly thrift institutions, willingly took this gamble. More recently, many institutions have taken similar gambles on high credit-risk ventures.

Deposit insurance has also allowed banks and thrifts to hold lower amounts of equity capital. Were it not for deposit insurance, it is doubtful if depositors would keep funds in banks with capital ratios as low as those found in many banks and most thrift institutions. Bank capital ratios were substantially higher before the introduction of federal deposit insurance in 1934.

Finally, the increase in federal deposit insurance coverage in 1980 from \$40,000 to \$100,000 per account in each insured institution occurred just as computers sharply reduced the cost of transferring funds and keeping track of deposit accounts and as deposit rate ceilings began to be removed. As a result, depositors were offered the opportunity of placing large sums in risk-free accounts without concern about the practices or even name and location of the institution. Bidding for insured deposits by institutions anywhere in the country, particularly by banks that engaged in particularly risky activities, became feasible. (Though brokers are useful for such fund acquisitions, they are not necessary because bankers can use their own personnel and newspaper advertising to contact depositors.) The removal of deposit-rate ceilings made it possible for banks to bid for funds in more efficient ways.

Previously, banks could only offer depositors convenience in the form of branches and other services as a means of both making up the difference between the Regulation Q ceiling rates and higher market interest rates and competing for funds against other depository institutions. Thus, a bank's growth was pretty much limited by geography to its surrounding area. Now a bank's market can be the entire country or even the world, if it so wishes.

### Risk Taking and Bank Capital

The riskiness of banking activities was increased, in the sense that bank failures became more likely, by decreases in bank capital. Measured in economic rather than in accounting values, equity capital in banks and thrifts decreased as a consequence of two effects of the interest rate increases in the late 1970s. One was the entrance of nonchartered and "unregulated" suppliers of banking services into the banks' and thrifts' markets as market rates of interest greatly exceeded Regulation Q ceilings. The resulting growth of money market mutual funds decreased the intangible and unrecorded franchise value of bank and thrift charters. The other effect was the decrease in the present value of banks' and, particularly, thrifts' long-term, fixed-interest assets, which also is a decrease in their equity. The deregulation of deposit interest rates in the early 1980s served to increase the present value of the institutions' liabilities, which further decreased their equities.

### Risk Taking and Deregulation

It is important to note that the increase in incentives toward risk taking is not due to the deregulation. Indeed, much of the deregulation that removed constraints on banks' ability to diversify and extend their activities and portfolios have tended to decrease risks. Almost all of the bank and thrift failures since the beginning of deregulation have been the result of traditional frauds, previously permitted activities, and duration imbalances. In particular, commercial banks have not been permitted to offer many new products. The most widely publicized has been discount brokerage services, and these have not resulted in solvency-threatening losses. Few if any thrifts appear to have failed because they were given the power to offer checking accounts, consumer and business loans or to invest directly as majority owners in real estate and service corporations. They used more traditional ways to eliminate their net worth ((Benston 1986. An analysis of bank failures in the post-deregulation period shows that no more than 17 percent involved sustained low performance without some form of malfeasance involved (Peterson and Scott 1985).

## Bank Failures and Financial Instability

We have argued above that, although bank risk taking has always existed, it has become more prevalent in recent years and has been accompanied by an increase in the number of bank failures to the highest levels since the 1930s. At least in part, the increase in bank risk, and thereby also in bank failures, is the expected outcome of not scaling federal deposit insurance premiums to the risk exposure of the insured bank. The balance of this paper examines whether the increase in individual bank failures threatens the stability of the national banking system and overall levels of economic activity.

## Bank Failures

Banks fail in economic terms when the market value of their assets declines below the market value of their deposits and other borrowings. At that time, all depositors and creditors cannot expect to be paid in full and on time. The bank should be declared legally insolvent so that all depositors and other creditors can be treated equally. If not, those depositors who withdraw their funds from the bank first will be paid in full and those that wait, either because of ignorance or later maturity dates, will experience losses. Delay in declaring a bank legally insolvent does not affect its economic solvency or the size of past losses; they have already occurred. It affects only those who suffer the losses. But delays can increase future losses as the bank is encouraged to gamble to seek large gains. After all, with no capital left, the bank has little more to lose and much to gain.

As noted earlier, most depositors know that a large proportion of a bank's deposits have put options exercisable at par without notice at any time and that banks operate on fractional reserves and may have to take losses on hurried "fire-sales" of earning assets at below their fair equilibrium market values given normal search time. Thus, these depositors are motivated to withdraw their uninsured funds from a bank that is perceived to experience financial difficulties as soon as the difference between the value of the banking affiliation and the costs of fund transfer, which generally are low, fall below the expected loss. If the bank is economically solvent at the time a bank run starts, the only harm to the bank will be fire-sale losses on asset sales or losses from paying higher rates on hurried borrowings. If these losses exceed the bank's economic net worth, the bank would experience "fire-sale insolvency." Because all the bank requires to remain solvent is time, assistance from other banks or the Federal Reserve is appropriate and may reasonably be expected to be forthcoming.

If the bank is economically insolvent when the run starts, additional losses attributable to the run per se would also be only fire-sale losses. They probably would be small relative to the bank losses before the run, al-

though larger than the fire-sale losses experienced by solvent banks, since the assets may, on average, be expected to be less marketable. In this case, assistance from other banks is unlikely to be forthcoming and from the Federal Reserve inappropriate.

Such a bank particularly needs to be declared insolvent so that remaining depositors can be treated fairly and owners/managers can be removed before they incur additional risk in a last-ditch effort to regain profitability and save their investment and/or jobs.

## Bank Runs

The consequences of a bank run on other banks depend on what depositors do with the funds they withdraw. They have three alternatives: (1) redeposit at other banks, (2) purchase nonbank securities, or (3) hold currency outside the banking system. Which they do matters importantly.

If depositors perceive the financial difficulties to be limited to one or a few banks, they are likely to redeposit their funds directly at other, perceived safe, banks. After all, currency is an inferior form of money for almost everything but the purchase of small-ticket items. If redeposited, the deposits are only transferred within the banking system; they are not destroyed. *Ceteris paribus*, there is no decline in aggregate money and credit, and the problems of the affected banks are not transmitted to the system as a whole.

The larger the number or size of banks perceived to be in difficulty, the less likely are depositors to view as many other banks as safe and to redeposit directly. Many depositors are likely to purchase perceived safer securities, such as those of the U.S. Treasury—a flight to quality. The outcome now depends on what the sellers of the safer securities do with the proceeds. Because these transactions are likely to be relatively large, the funds probably will be deposited at a *safe* bank, possibly, particularly in the United States, quite a distance away. If so, aggregate deposits again would not change. But interest-rate spreads are likely to be changed somewhat as depositors bid up the yields (bid down the price) on riskier securities, including bank deposits, relative to safer securities. This is likely to dampen private investment and increase uncertainty. Although both effects may be expected to affect economic activity adversely, they are likely to be second-order effects. However, if the sellers of the safe securities hold the proceeds as currency, the implications would be different and more serious.

If the withdrawn funds are not redeposited at other banks either directly or indirectly but held as currency, they represent a reserve drain from the banking system as a whole. There is a run on the banking system, rather than on only individual banks or a group of banks. Unless offset by a Fed



injection of an equal dollar amount of reserves, the banking system will undergo the much-feared multiple contraction in deposits and credit, and aggregate money will be reduced. The difficulties of one bank will spread to other banks as the instability is transmitted in domino fashion throughout the system. Banks are also likely to experience greater fire-sale losses as the number of sellers increase, and more banks are likely to be driven into fire-sale insolvency. In this scenario, private bank support is more difficult and appropriate Fed action more important. Thus, net currency drain from the system is a prerequisite for individual bank problems to contaminate a larger number of other banks and the system as a whole.

But net currency drains are now unlikely and, as will be shown later, have not been frequent in U.S. history. As long as depositors are confident in the ability of the federal deposit insurance funds to pay fully and promptly and the minimum coverage per account is not too low, small depositors have no incentive to withdraw deposits from any bank and hold currency. Although Henry Ford threatened to do so in 1907, large depositors cannot conduct their operations efficiently with currency and are also unlikely to withdraw their funds from all banks. Thus, even in the absence of appropriate Fed policy to maintain reserves, contagious and severe bank problems are highly unlikely in today's federal deposit insurance environment. There is no reason, therefore, for the authorities to delay declaring a bank insolvent.

Even if the declaration intensifies the run on the insolvent bank, it is unlikely to destabilize many other banks or the banking system. Furthermore, fear of runs by bank managers is a desirable constraint on their taking excessive risks. If they have reason to be concerned that depositors might withdraw their funds should they perceive that the bank might become insolvent, bankers would have greater incentives to operate their banks safely and to voluntarily inform depositors about their banks' condition and operations. The net result may be fewer, rather than more, bank failures.

Aside from contagiousness, how important is a bank failure on the community? As noted, banks fail economically when they experience losses on assets greater than their economic net worth. Other than fraud, losses are likely to reflect either depressed economic conditions of the bank's loan customers, local lending community, or the nation, or sharp unexpected increases in interest rates. Such losses represent feedback from the economy to the banks and must be distinguished from any further effects that bank failures have on the economy. Only the latter are of concern to us here. When a bank fails and is declared legally insolvent, employees, customers, and creditors as well as shareholders are harmed. However, with the exception of customized loans, bank services are more or less homoge-

neous, and most employees and customers should not be inconvenienced greatly in transferring to other banks or providers of the particular service. Indeed, banking services are more homogeneous than the products of many other types of firms, and the cost of transfer among providers is less.

Furthermore, under most circumstances, a failed bank is likely to be sold or merged so that the facility will remain, although possibly as a branch office. Under these circumstances, customers with long-standing loan connections are likely to be disadvantaged most, but even they may not be harmed greatly because not all loan officers of the failed bank will lose their jobs. Thus, though bank failures are not costless, they also are not calamities for a community.

## Evidence from History

Why then have we been so fearful of bank runs and failures and have we directed public policy at minimizing if not preventing them altogether? Our research suggests that many of the public's concerns are based on a brief and not very representative period in U.S. history—the Great Depression from 1929-33. As noted earlier, the number of banks declined by 40 percent from some 25,000 to near 14,000, while the economy declined to record depths. The financial system literally was in a shambles, banks in many states were closed for all business for days at a time during bank “holidays,” and finally all banks were temporarily closed by President Roosevelt in March 1933. Depositors lost faith in almost all banks, and the currency to total bank deposit ratio jumped from 9 percent in 1929 to 19 percent in 1933 and to 23 percent, when government-guaranteed postal savings are included as currency. Aggregate deposits and money declined by one-third, and banks appeared to fail in domino style. Many of the survivors of this financial holocaust were so traumatized by the event and recorded it with such emotion and flair that they affected public policy not only at the time but for decades to come. Most of the regulations stressing safety and anticompetitiveness—such as Regulation Q, separation of investment and commercial banking, and more restricted entry—were enacted at the time in response to the crisis.

A review of history, however, shows that the experience of the 1930s was the exception rather than the rule. Although there were some 10,000 commercial banks in operation in 1892, 20,000 by 1906 and 30,000 by 1920, there was only one year between 1865 and 1919 in which more than 200 banks failed (491 in 1893) and only nine years in which more than 100 banks failed. As can be seen from Table 2-1, the annual rate of bank failure averaged 0.8 percent in this period, well below the failure rate of 1.0 percent for other firms. And this was before federal deposit insurance and, except for the last six years of the period, the Federal Reserve! The annual losses suffered by depositors at failed banks during these years was

estimated by the FDIC to have averaged only 0.2 percent of total deposits. (This estimate is somewhat on the low side, since the FDIC did not discount delayed payments by an interest rate; nevertheless, it does provide a ballpark figure.) Currency drains, as measured by an increase in the currency to total bank deposit ratio current with a decline in aggregate deposits, occurred in only three years—1874, 1893, and 1908. To the extent that currency drains are a prerequisite for contagious bank failures, before 1920, contagion could have occurred only in these three years and probably only in 1893.

This interpretation appears to be supported by studies made at the time. These tend to attribute the failures primarily to fraud, mismanagement, and depressed local economies. Hardly any mention was made of contagiousness or ripple effects. In the absence of federal deposit insurance and the Federal Reserve, private banks themselves undertook the task of offsetting the systematic effects of bank runs and failures during this period, thereby stabilizing the system. At times of serious runs, when depositors wanted to convert their deposits into currency (or earlier, notes into specie), the banks with the implicit approval of regulators called “time out.” They temporarily suspended convertibility but continued almost all other bank operations, including fund transfers by check and loan originations. The suspension provided banks with the necessary time to search out the highest bidders for their more specialized loans and minimize fire-sale losses. At the same time, bank clearing houses circulated their own transferable certificates, which the banks and, at times, the public used as a substitute for currency. Furthermore, financial panics, in which most bank failures occur, tended to lag national economic downturns (Cagan, 1965). In short, the evidence is strong that, at least, in the period from 1865 to 1919, the major direction of causation was from depressed economic conditions to bank failures rather than the other way around. (Similar evidence for the free banking era before the Civil War has recently been generated by Rolnick and Weber 1985.)

In the 1920s, the number of bank failures jumped sharply to an average of about 600 per year and the failure rate to more than twice that of other firms, yet there was no increase in nonbank failures. Nor did the national economy experience any downturns. Most of the banks that failed were small and in agricultural areas. The failures spread little fear. Indeed, the currency to deposit ratio declined steadily from 15 percent to 9 percent, indicating increased confidence in the banking system. The next section applies the lessons from history to the current environment.

## Current Policy Problems and Solutions

The introduction of federal deposit insurance in 1934, which may be attributed in large measure to the failure of the Federal Reserve to inject sufficient reserves to offset the currency drain of 1930-33 and prevent the money stock from declining, has further stabilized the banking system. Indeed, there has been little if any evidence of a currency run on the banking system in recent years despite the abrupt jump in the number of bank failures to the highest levels since 1933 and the well-publicized economic insolvency of many of the country's thrift institutions. This was true even in Chicago, which experienced the failure of the Continental Illinois National Bank (the largest bank in the city and seventh largest in the country) and its two largest savings and loan associations, as well as a series of negative reports about the financial condition of most of its other large commercial banks. A recent study by the FDIC also found no statewide contagiousness or adverse aftereffects of the twenty-six bank failures in Tennessee between 1982 and 1984. The failed banks held 7 percent of total deposits in the state and more than one-third of the deposits in the Knoxville standard metropolitan area. The study concluded that the failures did, however, increase depositor awareness of federal deposit insurance and induce more conservative bank lending policies (Nejezchelb and Voesar 1985).

Nevertheless, to allay any possible public concern about the sufficiency of the insurance fund, such as has recently happened for some state funds (such as Ohio and Maryland), deposit insurance should be transformed into a full faith and credit guarantee of the federal government. Another concern is the recent increase in both the means and incentives for individual banks to incur additional risk stemming from advances in technology that permit the almost immediate and costless transfer of funds both within and across institutions, high and volatile interest rates, and federal deposit insurance premiums that are independent of an institution's risk exposure. Although losses from such risk are unlikely to destabilize the banking system or the national economy, they are likely to result in losses to the deposit insurance agency (and thus the taxpayers) if the insolvent institutions are not caught soon enough and closed. Thus, there remains legitimate public concern about the financial health of individual banks.

The most efficient solution to excessive risk-taking by individual banks is to increase the forces of market discipline to the levels in other industries. This can be achieved in a number of ways. Bank owners can be placed at greater risk by increasing capital requirements. As studies have shown, the major reason that bank capital is low has been the artificially low failure rate under regulation and the introduction of federal deposit insurance,

including *de facto* 100 percent insurance of almost all depositors. Before the establishment of the FDIC, bank capital ratios were more than twice as high and exceeded 30 percent in the second half of the 1800s. In addition, national bank and some state bank shareholders faced double liability, and were assessed for additional funds when banks failed. This, undoubtedly, was a major contributor to the relatively low bank failure rate noted earlier.

Bankers may object to a requirement that they raise more capital. But capital is a source of funds that is distinguished from deposits primarily in two ways: Dividends on equity are not a deductible expense for tax purposes, and capital funds are not insured. The tax disadvantage can be reduced by permitting part of the requirement to be satisfied by subordinated debt that is *de facto* as well as *de jure* uninsured. Some of this debt should be short term. By being forced to enter the market periodically, banks will be more sensitive to the interest rate required on such debt, and the rate will serve as a signal to depositors and the supervisory authorities of the bank's risk exposure that is perceived by the market.

Uninsured depositors should also be placed at risk *de facto* as well as *de jure* so that they behave more as do the creditors of other firms. This should encourage them to monitor the bank's activities more carefully. At the same time, senior management at insolvent banks should be penalized and removed and directors should assume greater liability for major policies and control procedures at their banks.

No bank should be too large to fail, although some may be too large to liquidate, recapitalize, sell, or merge quickly. Failure implies that shareholders are wiped out and top management is removed. This is not an insurmountable problem. The FDIC can take temporary control of an insolvent large bank through a *trusteeship* program, introduce management changes, and mark down the value of uninsured deposits by the estimated prorated negative economic net worth (Kaufman 1985). Thus, the bank would be treated as smaller insolvent banks and competitive equity would be maintained. Because the bank is not *closed*, there is no interruption in business, and customer relations would be basically undisturbed. The FDIC would be required to sell, merge, or liquidate the bank within a specified period of time. The Federal Home Loan Bank has recently adopted a similar *consignment* program for some failed savings and loan associations.

As discussed earlier, except for fraud (and unexpected interest-rate increases for thrift institutions), uninsured depositor losses are unlikely to be very large if an economically insolvent bank is caught quickly. The value of the bank's total assets is unlikely to drop suddenly anywhere close to zero. Contrary to statements by some regulators at the time of the Conti-

mental Illinois Bank rescue, nonfraudulent banks are rarely *totaled*. A loss of a few cents on the dollar is most likely if the bank is declared insolvent soon enough. The largest losses to both uninsured depositors and the insurance agencies have come from fraud, (which is difficult to detect before the assets are dissipated) rather than from ordinary lending and investing, which are easier to monitor. This suggests that bank examiners need to reduce their emphasis on loan quality and increase their concern for detecting and preventing fraud.

Finally, federal deposit insurance premiums need to be scaled, at least in part, to an institution's risk exposure. This is necessary more to re-establish market incentives than to collect actuarially fair premiums, which, as discussed above, are more a function of monitoring than of known risk exposure. Indeed, as the insurance agency would experience no losses whatsoever if it caught a bank before its economic net worth became negative, deposit insurance is really not traditional insurance but a guarantee. Risk scaling may also be achieved through variable capital requirements and per diem charges for examinations and supervision.

## Conclusions

By its nature, banking is a risky business, and, as in any business, successful institutions must control their risk exposure. Though the risks faced by banks are similar to those faced by other businesses, the basic nature of banking exacerbates some risks. The risk of fraud is particularly serious because banks deal with an intangible resource that can be readily stolen or profitably diverted—money. Other forms of risk include credit risk, interest rate risk, securities speculation, foreign exchange risk, risk taking by related organizations, operations risk, regulatory risk, and liquidity risk. These risks can be managed through diversification (to the extent permitted by laws and regulations that constrain bank location and products) and internal controls.

Deregulation has, in general, not increased risk taking by banks or risks to the banking system. Indeed, the new product powers granted and liberalized inter- and intra-state branching authority have tended to reduce risk and strengthen institutions by permitting additional diversification. The gradual removal of ceilings on the rates of interest paid on savings and time deposits has resulted in a reduction of disintermediation and in more efficient means of paying for deposits, although higher operating expenses in the short run.

However, traditional sources of individual bank risk have increased in importance in recent years because of increases in the volatility of prices and interest rates and because of advances in technology that permit nearly in-

stantaneous and costless transfers of funds. In addition, federal deposit insurance was increased from \$40,000 to \$100,00 per account. These events have provided both the incentive for individual banks to enlarge their risk exposure and the means by which they can do so quickly, cheaply, and greatly.

If depositors believe that their bank's risk exposure is too great so that they may not be able to redeem their deposits in full and on time, they are likely to withdraw their funds as quickly as possible, starting a run on the bank. But a review of U.S. history suggests that runs on individual banks or groups of banks only rarely spread to other banks that are not subject to the same conditions that started the initial run and that most bank runs were contained by appropriate action with only minimal and short-lived adverse effects on national financial stability and economic activity. That is, the instability of individual banks or groups of banks did not translate into instability in the banking system as a whole. The major exception was the run on banks during the Great Depression of the early 1930s, which caused the banking system to come almost to a complete halt and contributed significantly to depressing national economic activity. Although an exception, this event was so traumatic that it has colored our analysis of bank runs and failures ever since. In this way, this experience was not unlike that of the Vietnam War, which although not representative of previous U.S. wars and unlikely to be representative of future wars, so traumatized the country that it affected U.S. foreign policy for many years afterwards.

The introduction of federal deposit insurance with some sufficient minimum per account coverage and a more informed policy by the Federal Reserve as lender of last resort have all but eliminated the conditions necessary for nationwide bank failure contagiousness. Individual bank reserve losses should not result in reserve losses to the banking system as a whole through a drain of currency. By reducing uncertainty about the financial strength of the insurance funds, transforming deposit insurance into an explicit deposit guarantee up to the *de jure* insured amount by the federal government would altogether eliminate the possibility of such an event occurring again.

It is time to discard the fears of bank runs based on the experiences of the Great Depression and to adopt realistic attitudes and policies based on both the long sweep of U.S. history and the new institutions and arrangements now in place. Bank runs indicate actual or perceived depositor concerns. They can be prevented from destabilizing other, nontainted banks and economic activity either by validating justified fears by declaring the bank legally insolvent or by disproving perceived fears through assisting economically solvent banks experiencing liquidity problems to remain solvent and in operation. Both policies can be pursued successfully without

either weakening market discipline or withholding punishing economically inefficient banks for fear of adverse externalities on other banks or the economy as a whole. The banking system is likely to operate most efficiently with some churning among individual institutions. Indeed, because runs are feared, they may intensify market discipline on other banks.

Although some institutions will fail in the process, this should not be prevented in the interest of economic efficiency and more effective service to consumers. The incentive that deposit insurance gives individual institutions to increase their risk exposure can be constrained by (1) scaling the deposit insurance premiums to the degree of risk exposure (2) increasing monitoring by depositors and other creditors by putting uninsured depositors at risk de facto as well as de jure, and (3) requiring bank stockholders to put more of their capital at risk. This, however, requires permitting uninsured depositors, other creditors, and shareholders greater access to the financial conditions of their institutions. If permitted to work, the free market will be able to control individual bank risk exposure more effectively than government regulators and with far fewer undesirable side effects.



**Table 1**  
**Commercial Bank and Business Failures,**  
**1865-1935**

	<u>Mean</u>	<u>Standard Deviation</u>	<u>Coefficient of Variation</u>
<u>Number of bank failures:</u>			
1865-1935	262	590	
1865-1919	64	71	
1920-1933	1,070	966	
1930-1933	2,274	1,062	
<u>Bank failure rate:</u>			
1875-1935*	1.82	3.88	8.27
1875-1929*	1.02	1.03	1.04
1875-1919*	0.82	0.96	1.12
1920-1933	4.61	6.65	9.60
1930-1933	13.05	8.89	6.06
<u>Business failure rate:</u>			
1875-1935	1.00	0.24	0.06
1875-1929	1.00	0.22	0.05
1875-1919	1.01	0.23	0.05
1920-1933	1.01	0.26	0.07
1930-1933	1.27	0.19	0.02

\* Available data substantially underestimates number of banks through 1896.  
SOURCE: George Benston et al., (1986: ch. 2).

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