

Minimizing Post-Resolution Costs in Bank Failures^{*}

George G. Kaufman and Steven Seelig^{**}

Introduction and Summary

Significant bank failures have been widespread in recent years, affecting almost every country with a banking system (Kaufman, 2002). A map published by the IMF in 1996 and reproduced in Figure 1 shows that only the United Kingdom, the Benelux countries and a few other countries generally with less developed banking systems escaped suffering significant banking problems and a substantial number suffered serious banking crisis. And this was before the East Asian banking and currency crises of 1997 and the continuation of the Japanese crisis. As a result, if the map were to be update, a number of additional countries would be darkened.

Bank crises generate two costs to the domestic economies. One is a fiscal transfer cost and the other is a slowdown or actual decline in aggregate real output that results in a loss in output from a trend or capacity level. The fiscal cost occurs because some or all stakeholders in bank failures may be protected by the government against loss through schemes such as deposit insurance. If the bank losses are sufficiently large, the necessary funds to make the stakeholders whole are likely to come from the taxpayer. This represents a transfer payment and redistribution of income. Although it does not represent lost output directly, it is likely to do so indirectly through deadweight losses.

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^{**} Kaufman is John Smith Professor of Finance and Banking, Loyola University Chicago and Consultant, Federal Reserve Bank of Chicago. Seelig is Financial Sector Advisor in the Monetary and Exchange Affairs Department at the International Monetary Fund.

The savings and loan association (S&L) crisis in the U.S. in the 1980s resulted in taxpayer transfers to depositors at failed institutions of some \$150 billion. Although large in dollar terms, this represented only 3 percent of GDP. Estimating the transfer cost before a crisis is resolved is not easy and subject to change almost daily. The cost is approximately equal to the negative net worth of the failed banks and depends, among other things, on the market rate of interest at which future recoveries from asset sales are discounted, by the state of the market for bank assets, particularly real estate, market liquidity, and so on. The estimated transfer costs as a percent of GDP is shown for a number of countries that suffered banking crises in recent years in Table 1. As can be seen, for many countries the cost is high and some countries, such as Argentina, even without including their current crisis, make the list more than one. For Japan, the cost of the ongoing crisis appears to be in the 20 percent range and for a few countries, the cost is in excess of this amount.

The estimated lost output associated with banking crisis is shown in Table 2 for some 50 countries from 1975 through 1997. These estimates were made by the IMF just after the start of the East Asian crises in 1997. Banking crisis were experienced by 54 countries, some more than once. The average cumulative loss in output from trend or capacity GDP levels was 11.6 percent and the average length of the recovery from the depressed crisis values back to trend values was 3.1 years. A few countries did not suffer downturns in economic activity during banking crisis. If one looks only at those countries that did, the cumulative loss in output increases to 14.2 percent. The numbers do not differ greatly between industrial and emerging economies. Some countries experienced concurrent currency crises, and they suffered larger losses in output.

But correlation between banking crisis and lost output does not necessarily imply causation. Indeed, the predominance of evidence suggests that problems in the macroeconomy precede and trigger banking problems through increasing loan defaults more often than exogenous bank failures trigger macroeconomic downturns. This is supported by a number of stylized facts developed by Kaminsky and Reinhart for 25 countries that experienced banking crises between 1970 and the early

1990s. These are shown in figure 2. Note that, on average, downturns in output, stock market, international reserves, and real exchange rates all precede the date of the banking crisis. Nevertheless, the evidence also indicates that banking crises exacerbate macroeconomic downturns in both depth and duration.

The high cost of bank failures and crises led to the introduction in most countries of explicit or implicit government-provided or sponsored safety nets under banks, including explicit deposit insurance and implicit government guarantees, such as "too big to fail" (TBTF), that may protect *de jure* uninsured depositors and possibly other bank stakeholders against some or all of the loss.¹

But even with such guarantees, bank failures still invoke widespread fear. In part, this reflects a concern that protected and/or unprotected depositors may not receive full and immediate access to their claims on the insolvent banks at the time that the institutions are legally declared insolvent and placed in receivership.² That is, they may suffer post-resolution losses in addition to any loss at the time of resolution. Unprotected depositors may be required to wait until the proceeds from the sale of the bank's assets are received. Protected depositors may also not be paid in full immediately if the insurance agency has no authority or procedures for advancing payment before receipt of the sales proceeds or if there is insufficient time to collect and process the necessary data on who are the insured depositors and how much is insured for each depositor. If depositors are not paid the full value of their claims immediately, some or all of the deposits are effectively temporarily "frozen". In the absence of an efficient secondary market for frozen deposits, both protected and unprotected depositors will experience losses in liquidity and, in addition, protected depositors will

¹ "Too big to fail" in the United States does not imply that the bank is not failed. All resolved banks since the resolution of the Continental Illinois Bank in 1984 have been legally failed. Rather, a large insolvent bank may be "too big not to protect some or all noninsured stakeholders" when failed or is "too big to liquidate quickly" and thus is kept in operation temporarily, thereby protecting all creditors during the delay (Kaufman, 1990). This interpretation was recently reinforced by Federal Reserve Chairman Greenspan (2000), who stated that "the issue is that an organization that is very large is not too big to fail, it may be too big to allow to implode quickly. But certainly, none are too big to orderly liquidate... and presumably, not to protect non-guaranteed deposits from loss." Since the enactment of the FDIC Improvement Act in 1991, TBTF in the United States may more accurately be termed the "systemic risk exemption."

² Restricted depositor access to their accounts is also common in many countries and historically in the United States during a general banking crisis to reduce conversion into specie or foreign currency even if the banks may be solvent e.g. in the U.S. during the banking panics of 1893 and 1907 and in Argentina during the recent currency crisis.

experience present value losses if they are paid the value of their claim after the date of resolution without interest. At the same time, the ability of the bank to conduct its normal lending business is greatly reduced. It is effectively partially or totally physically as well as legally closed. Indeed, a European bank analyst has recently observed that

The issue is not so much the fear of a domino effect where the failure of a large bank would create the failure of many smaller ones; strict analysis of counterparty exposures has reduced substantially the risk of a domino effect. The fear is rather that the need to close a bank for several months to value its illiquid assets would freeze a large part of deposits and savings, causing a significant negative effect on national consumption (Dermine, 1996, p. 680).

That is, both the great fear of bank failures and the magnitude of any damage that such failures impose on other sectors of the economy are triggered as much if not more by losses in liquidity by both insured and uninsured deposits as by losses in the value of uninsured deposits.^{3, 4}

The potential magnitude of losses to depositors and other stakeholders in bank failures is likely to affect both the supply of and demand for government guarantees and to influence the resolution options available to a deposit insurer. The larger are the potential losses in bank resolutions perceived to be, the greater is the demand for government guarantees by depositors and other stakeholders likely to be and the more likely are governments to bow to such political pressures and supply the guarantees. Likewise, the larger the potential losses, the greater is the probability that the accounts will be partially or totally frozen, the greater the potential harm to the macroeconomy, and the more likely is the government to provide the guarantees to minimize the potential damage.

Thus, the way depositors are treated at insolvent institutions in terms of the magnitude of the losses they may incur and their access to the value of their deposit claims has important public

³ For example, in November 2000, Nicaragua resolved its second bank in 100 days and guaranteed deposits of less than 20,000 cordobas (about \$1,500) at the second bank. But only 10,000 cordobas would be paid within five days; the rest would be paid as the bank's assets were sold. "Angry customers gathered outside the closed branches of Bancafe yesterday shouting 'thieves' and 'vampires'" (Financial Times, 2000).

⁴ In addition to losses in liquidity, depositors in many countries fear partial or complete expropriation of deposits at failed institutions by the government beyond the prorata share of any losses. In many countries, banks have not always been very secure depositories for funds and have often been perceived less secure than mattresses.

policy implications. It follows that the probability and magnitude of government guarantees may be reduced by reducing the perceived losses to depositors and other stakeholders in resolving insolvent banks.

This paper examines both the sources and implications of potential depositor losses in bank resolutions, in particular post-resolution depositor losses due to delays in paying both protected and unprotected depositors at failed banks the full values of their claims in a timely fashion after a bank is officially declared insolvent and resolved. For *de facto* insured depositors, the value of their claims is the par value of the eligible deposits at the time of resolution less any explicit deductible or loss-sharing amount. For *de facto* uninsured depositors, the value of their claim is the present value of the estimated eventual pro-rata recovery value of the bank's assets, which is likely to be less than the par value. Although losses in value to depositors in bank failures at the time of resolution have been frequently analyzed, this paper contributes to the literature by analyzing the implications of losses in liquidity after resolution, in particular, losses from delayed depositor access through the freezing of insured and/or uninsured accounts, which have not been thoroughly analyzed previously.

Because the magnitude and timing of the losses in both value and liquidity to depositors in bank insolvencies are in some measure under the control of the deposit insurance agency or the government, the paper also develops public policy recommendations on how to minimize all losses to depositors, but in particular the losses to depositors from delayed access to their funds after resolution. On the one hand, as noted, if this loss could be reduced, it could contribute to reducing both the demand for and supply of broad government guarantees, including reducing if not eliminating the need for TBTF. In the United States, the FDIC currently pursues such a strategy. In many instances, it effectively makes the full value of their permissible claims available to both insured and uninsured depositors one or two business days after a bank is legally failed. Combined with faster resolution after economic insolvency that reduces depositor losses at the time of resolution, this strategy has made it politically possible to resolve even large insolvent banks with

losses to uninsured depositors. The banks are legally closed in terms of effectively terminating the ownership claim of the old shareholders and transferring ownership to new shareholders. Except in infrequent cases of liquidation when there is no demand for the banking services in the community, the resolved banks are not physically closed. Thus, there is little, if any, interruption in their banking business.⁵

But this practice is not followed in most other countries. Rather, in these countries, both insured and uninsured depositors are paid the value of their claims only through time after the resolution of the bank. These delays may at times stretch many months for insured deposits and many years for uninsured deposits. As a result, to reduce the potential adverse economic and political ramifications from such additional losses to depositors, governments in these countries are often reluctant to resolve insolvent banks with losses to uninsured depositors and permit the banks to continue in operation by effectively protecting all depositors.

On the other hand, reductions in potential losses and delays in payment could reduce depositor discipline on solvent banks, thereby increasing their banks' fragility and the probability of failure. Thus, either corner solution appears to have drawbacks as well as advantages and an intermediate interior solution in terms of delay time in paying depositors may be preferred in reducing the potential damage from bank failures and maximizing aggregate economic welfare. The paper models the tradeoffs between increased market discipline and increased probability of government bailout as the time delay by the insurance agency in paying depositors the full value of their claims is varied to solve for the optimal depositor access delay time.

The remainder of the paper is organized as follows. Section 2 identifies and analyzes the sources of potential losses to depositors in bank failures. Section 3 discusses the implications of delayed depositor access to their funds at insolvent banks in terms of the effects on depositor

⁵ Berger and Udell (2001 forthcoming) have recently speculated that loan relationships are more with the loan officer than with the bank.

discipline on the one hand and depositor pressure to protect all deposits on the other. Ways that policy makers can reduce depositor losses from bank failures are discussed in section 4. Section 5 describes the current procedure used by the FDIC to provide depositors with full and immediate access to their claims at the time institutions are declared insolvent and placed in receivership. The history of immediate payment in the U.S. is briefly surveyed in Section 6. Section 7 considers the advantages and disadvantages of full and immediate depositor access. The access timing decision is modeled graphically in section 8 to solve for the optimal delay time. Section 9 reports on a survey of depositor access practices across countries conducted by the FDIC in spring 2000. The final section of the paper develops conclusions and "best practices" recommendations regarding depositor access to their funds at resolved insolvent institutions to enhance the safety and efficiency of banking systems.

II. Sources of Potential Losses to Depositors

Past analyses have identified up to five potential sources of economic losses to depositors or the government deposit insurance agency, which stands in the shoes of the *de jure* insured depositors, from the resolution of insolvent depository institutions:

1. **Poor closure rule** -- Embedded losses in value from a delay between the time when a bank becomes economically insolvent (where the market value of the assets declines below the market value of the liabilities -- the present value of the maturity value of the deposits and other debt) and the time it becomes eligible to be declared legally insolvent.

2. **Regulatory forbearance** -- Embedded losses in value from a delay in the time from when a bank becomes legally eligible to be declared insolvent and the time it is actually resolved – legally declared insolvent by the regulators or other authorized party (official recognition of the insolvency), a receiver appointed, and the existing owners removed.

3. **Insufficient information and processing delay** – Losses (gains) from time necessary after resolution for the deposit insurance agency to determine the identity of qualified protected and unprotected depositors and the qualifying deposits and to pay the depositors.

4. **Bad market conditions after resolution**. -- Losses (gains) from delay in the receiver selling the bank as a whole or in parcels after the bank is declared legally insolvent either because of operational problems or to wait for a better market.

5. **Inefficient receiver** -- Losses from delay in the receiver distributing the proceeds from the sales to the uninsured depositors and the deposit insurance agency.

These potential losses occur sequentially. The first two sources of losses occur before the date of resolution because economically insolvent banks are permitted to continue to stay open and operate under their existing owners and managers. The first loss arises from a poor legal closure rule that focuses on book or regulatory values that often overstate bank assets and understate bank liabilities compared to their economic or market values, particularly when a bank approaches insolvency. In the United States, banks (although not bank holding companies), unlike other corporations, are not subject to the jurisdiction of the bankruptcy process and courts. Rather, they are declared insolvent by their chartering or primary federal regulator.

The second loss reflects regulatory forbearance from fear of imposing losses and injuring favored stakeholders of the insolvent bank (e.g. shareholders, management, other employees, borrowers, or uninsured depositors), injuring other financial institutions, reducing the availability of banking services, or injuring the regulators' own reputation as public guardians against bank failures. In addition, until the date of official recognition of the insolvency and resolution of the bank, embedded losses from the continued operation of insolvent banks are not booked and accrue only to the deposit insurance agency. Both insured and uninsured depositors can withdraw their maturing funds from these banks at par value, effectively stripping the banks of their best and most liquid assets. Because they are not officially booked, the embedded losses to the insurance agency are

generally difficult for much of the public to recognize and easy for regulators to disguise, hide, and deny. Only at and after the date of official recognition of insolvency are the total embedded losses booked and visible to all and a pro-rata share imposed on the remaining unprotected depositors. This encourages regulators to delay closure. As a result, regulators are often poor agents for their principals -- healthy banks and taxpayers. The costs of regulatory forbearance in encouraging moral hazard behavior by the banks and increasing eventual losses to depositors in the U.S. and abroad have been amply documented (Kane, 1990; Kane and Yu, 1995; Kaufman, 1995 and 1997a; Barth, 1991; and Gupta and Misra, 1999).

The costs of a poor closure rule and forbearance include not only increase credit and market losses, but also increase losses from fraud and asset stripping, which is more likely at insolvent or near-insolvent institutions, and misallocating financial resources leading to misallocations of real resources and reductions in aggregate economic welfare.

The final three sources of loss occur after the date of official insolvency and when the institution is put in receivership. Losses to depositors from delay in receiving reimbursement and liquidating bank assets may be either or both credit/market losses and/or present value losses. Before insured depositors can be paid, their identities and amount of qualifying deposits must be determined and certified. Before uninsured depositors can be advanced the value of their claims, they also must be identified and certified and the recovery value of the bank assets estimated. The length of these operational delays depends on the state of information (record keeping) technology in use and represents a potential present value loss. The fourth source of loss is a credit loss that arises because of attempts, legitimate or not, by the receiver, to avoid fire-sale losses or depressing asset prices by selling quickly into perceived temporarily weak markets and waiting for stronger markets, from self-dealing by the receiver, or legal obstacles that prevent the receiver from disposing of assets quickly. The fifth and last source of loss from delays in distributing the funds from the sale of the

assets of the bank is primarily a present value loss to depositors from operational inefficiencies by the receiver.

III. Implications of Post-Resolution Delayed Depositor Access to Funds

Unlike the two sources of losses at the date the institution is legally declared insolvent and placed in receivership, which have been analyzed frequently, the three sources of depositor losses afterwards and the speed with which depositors gain access to their funds have been analyzed only infrequently.⁶ As noted earlier, at the time of resolution, insured (protected) depositors have claims for the par value of their deposits (adjusted for any coinsurance) at the date of resolution and uninsured (unprotected) depositors for the present value of the estimated pro-rata recovery value of their deposits. In the absence of an efficient secondary market, delay in offering depositors full access to their permissible funds decreases the liquidity and, in the absence of interest payments, also the present value of the deposit claims and greatly intensify both public fears and actual costs of bank failures. As noted by the Swedish Central Bank (Riksbank):

Freezing a company's assets and suspending its payments from the time the bankruptcy order is issued could have serious implications if applied to banks. A bank's liabilities do after all form an active part of its business operations, and its borrowing and interbank funding activities reflect among other things the banks' central role in the payment system. Suddenly freezing the repayment of the liabilities at one or more big banks could have immeasurable consequences for the banking system as a whole (Viotti, 2000, p. 55).

Moreover, the fear of such inaccessibility to one's account is likely to have important political as well as economic consequences. Affected depositors are more likely to demand full and immediate access to their funds and regulators and governments are likely to bow to the political pressures and both delay official recognition of insolvency (forbear) and fully protect more if not all

⁶ Speedy payment for insured depositors at failed banks is listed by Garcia (1999) as one of her 15 best practices for a deposit insurance system, but there is no further analysis of this practice nor any discussion of payment of noninsured deposits. Hall (2001) reports on payment practices by European Union countries for insured deposits only, but with no further analysis.

depositors (too big to fail) if and when insolvency is finally declared. At the same time, the government itself is likely to view any loss in depositor liquidity as potentially detrimental to the aggregate economy and may be reluctant to permit conditions that would trigger this loss. Thus, it may maintain insolvent institutions in operation and protect all depositors and possibly other creditors in full. This strategy is likely to increase the ultimate cost of the losses to the government. Moreover, such response further reduces market discipline and encourages additional moral hazard behavior by the banks.

IV. Reducing Potential Losses to Depositors

The adverse effects from bank failure can be reduced by reducing losses from any or all of the above five sources to both depositors and the deposit insurance agency. Indeed, if troubled banks could be resolved before the market value of their equity capital turned negative, losses would be restricted only to shareholders. Depositors would be unharmed. Little, if any, more serious adverse effects would then be felt from bank failures than the failure of any other firm of comparable size. Failures could be freely permitted to weed out the inefficient or unlucky players. Deposit insurance would effectively be redundant. In the U.S., the Federal Deposit Insurance Corporation Improvement Act (FDICIA) attempts to reduce the first two sources of losses through prompt corrective action (PCA) that both imposes a more efficient closure rule -- 2 percent tangible equity to asset ratio -- and reduces regulatory discretion to forbear by requiring mandatory sanctions on financially troubled institutions. These include resolution when the discretionary sanctions applied appear to be ineffective as reflected in a continued decline in the bank's capital ratio. How the FDIC reduces the third source of loss is described in the next section.

The fourth source of loss could be reduced by careful monitoring by the banking agency that appoints the receiver of the receiver's motivations or justification for delaying selling bank assets. This monitoring would verify both that the probabilities are sufficiently high that relevant asset markets are only temporarily depressed and may be expected to recover shortly and that the assets

can be managed efficiently in the meantime, so that the present value of the projected sales proceeds to depositors and the deposit insurance agency will be higher than without a delay. Recent experience in most countries, including the United States, suggests that delay in asset sales, although often politically popular, rarely produce financial gains (Kane 1990 and Gupta and Misra, 1999). Thus, it may be desirable to specify timely sales schedules. The fifth source of loss could be reduced by requiring receivers to distribute their proceeds more quickly as they are received and monitoring and enforcing their compliance with this policy.

V. Procedures for Immediate and Full Payment of Depositor Claims at Resolution

If losses are incurred in resolving an insolvency, governments, out of fear of political pressure by depositors for bailouts or of systemic risk, may prefer to provide depositors with immediate and full access to their claims at the time of resolution when the institution is legally declared insolvent and placed in receivership. The government or deposit insurance agency can do so by accelerating the identification of the depositors and the value of their claims and by advancing funds to the depositors before they are received from the receiver or encourage the development of an efficient secondary market in the claims.

The U.S. appears to be one of the very few countries that generally does not freeze accounts at failed banks when they are resolved and, except in unusual instances, provides all depositors almost immediate and full access to the value of their claims at resolution, based on losses from poor closure rules and regulatory forbearance, so that there is no loss of either liquidity or present value from post-resolution sources (FDIC, 1998a).⁷ The FDIC advances the funds. Although it may not receive full and immediate payment for all the assets in the resolution of a failed bank, the FDIC typically advances the pro-rata present value of the estimated recovery value through an advance dividend payment to all depositors at domestic offices of the bank on or about the next business day

⁷ Nevertheless, casual evidence suggests that at least some depositors, including fully insured depositors, are still concerned that they may find their deposits at failed banks temporarily frozen.

after the official recognition of insolvency and its appointment as receiver. For insured and ex-post protected deposits, the FDIC also advances the difference between the par value of the account and the present value of the estimated recovery amount, so that they receive the par value of their deposits. The FDIC fails to advance uninsured depositors a dividend equal to the estimated recovery amount primarily in resolutions in which it cannot quickly obtain reliable estimates of the recovery value of the assets.⁸ Payment of insured deposits is either at the bank that assumed the insured deposits of the resolved banks or, if the insured deposits are not assumed by another bank, at the site of the failed bank operating in receivership.⁹ Payment of the advance dividend on de facto unprotected deposits at domestic offices, which is generally for less than par value, is at the failed bank, unless these deposits are assumed by another bank at par value.¹⁰ However, since 1992, the least cost resolution provisions of FDICIA make assumptions of uninsured deposits by another bank unlikely, unless there is no or next to no loss to the FDIC in the transaction.¹¹ The FDIC can make funds available quickly because it has both legal authority to advance the funds and has solved the technical problems that underlie delays in payments after resolution. As noted earlier, to give the FDIC sufficient time to prepare for these payments and transfers, which includes identifying the owners and total of eligible accounts, banks are generally declared insolvent at the end of business on Thursdays or Fridays and depositors given access to their funds on the following Monday.

Reliable estimation of recovery values of bank assets, however, often requires longer than a weekend. And examiners and supervisors in the U.S. are typically provided with additional time.

⁸ Because the FDIC is generally appointed receiver, it can better estimate losses from delayed sales and need not be concerned with delayed distributions.

⁹ In those instances where no bank acquires the insured deposits and there are a large number of depositors, the FDIC will either arrange for another bank to act as its deposit transfer agent or the FDIC will mail depositors checks for the insured amounts.

¹⁰ Under the Depositor Preference Act of 1993, unsecured depositors at foreign offices of U.S. banks and other creditors, such as Fed funds sellers, have claims junior to those of domestic depositors and, unless the "too big to fail" provision of FDICIA is invoked, will be paid the recovery value of their claims only as the bank's assets are sold and all senior claimants have already been paid (Kaufman, 1997b).

¹¹ Before FDICIA, the FDIC generally protected all depositors, including *de-jure* uninsured depositors, particularly at larger banks, through merger (purchase and assumption) with another bank that assumed all deposits at par and received a payment from the FDIC (Benston and Kaufman, 1998 and FDIC, 1998).

Under prompt corrective action, bank examiners and supervisors are effectively required to progressively increase their familiarity with a bank as soon as its financial situation deteriorates to the extent that it becomes classified as undercapitalized, including increasing the frequency of on-site visits. Moreover, when a bank is considered in imminent danger of failing, is declared critically undercapitalized, or is being resolved for other reasons by its primary federal or chartering regulator, the FDIC is notified in advance and prepares for a possible sale of all or part of the bank to other institutions at auction at the highest price (FDIC, 1998c). To do this, it has to prepare detailed financial information on the bank to be provided on a confidential basis to potential bidders prior to the auction and to gather the information needed to make the determination as to which of several resolution alternatives will be least costly to it. Thus, the FDIC typically sends its resolutions staff into the bank some days prior to it being closed to collect the needed information (FDIC, 1998a). The data collected is used to arrive at both market valuations for the assets of the bank and estimates of the number and holdings of insured depositors and other creditor classes. As a result, except in the case of major fraud, the FDIC is able to reasonably accurately estimate recovery values before the bank is declared legally insolvent and put in receivership and the deposits need not be frozen after closure while the magnitude and impact of the payout is being estimated.¹²

If, after recovery is completed, the proceeds to the FDIC exceed the amount it advanced the uninsured depositors, the depositors are paid the difference up to the par value of their claims plus interest. Any remainder is paid to more junior creditors and eventually to shareholders. If the proceeds fall short of the amount it advanced to the uninsured depositors, the FDIC bears the loss.

¹² In addition to speedy payment of depositor claims, the FDIC also attempts to resolve insolvencies with minimum disruption to either bank customers or financial markets. As noted, if there is no demand for banking services in the community served or the bank is so severely impaired that there is little or no redeeming financial value, insolvent banks are sold or merged and open for business the next business day after resolution. If additional time is necessary to find a buyer, the FDIC can charter a bridge bank to temporarily continue the business in a new entity. Thus, liquidation with serious disruptions in banking services are rare and likely only for relatively small banks. This practice also reduces pressures for government support of insolvent institutions and is likely to reduce losses to depositors from delayed resolution.

Thus, to protect itself, the FDIC advances to the uninsured depositors only a conservative estimate of the present value of the recovery value.¹³

VI. History of Immediate and Full Payments of Depositor Claims

Immediate and full access for all depositors, or even for only ex-post protected depositors, to their permissible funds has not always been the practice of federal deposit insurance agencies in the U.S., has not been the practice of state insurance agencies in the U.S., and is not the current practice of deposit insurance agencies in most other countries. In large measures, the delayed access, particularly for protected depositors, reflects the inability of the insurance agency both to legally advance payment to depositors before receipt from the receiver and to collect and analyze in a timely fashion the necessary information on what balances and which depositors are insured and on estimates of recovery values, as well as the ability to establish paying agents quickly. The information on eligible insured deposits is complex because of, among other things, poor and/or noncomputerized records and depositor ownership of multiple accounts at the same bank. These obstacles provide a physical rather than a policy reason for not providing immediate and full access to both protected and unprotected depositors.

Before the establishment of the FDIC in 1934, depositors at failed banks, even in states with state insurance programs, had all or part of their accounts frozen and were generally paid only as the assets were liquidated and funds collected (FDIC, 1998b and Mason, Anari, and Kolari, 2000)¹⁴. The delay in liquidating a failed bank's assets and paying the depositors averaged near six years

¹³ Because the FDIC pays the full par amount of insured deposits, misestimates of the recovery values affect only the final allocation of its costs, not the total cost of these payouts. However, the FDIC would suffer a loss if it overestimated the recovery value and transferred the uninsured deposits to an assuming bank that offered a premium that was larger than the estimated loss rate at the time but ex-post smaller than the loss rate that was actually realized and reported. In retrospect, it would have been cheaper to the FDIC if it had paid off the uninsured deposits.

¹⁴ Note holders at failed national banks were paid the par value of their notes immediately by the U.S. Treasury (FDIC, 1998b). In addition, during bank panics, accounts at all banks in the affected area were frequently partially frozen to limit conversions into specie or currency. For example, Kelly and OGrada (2000, p.1113) note that "...on October 12[1857, New York]...savings banks invoked a rarely imposed clause in their articles of agreement limiting withdrawals on demand to 10 percent of the outstanding balance." A similar constraint was recently imposed on banks in Argentina

(Bennett, 2001). Even when the FDIC was initially established, it did not pay insured depositors immediately. The Annual Report for 1934 explains that

Payments of the insured portion of depositors' claims against the banks which closed during 1934 were started promptly after the receiverships began. The interval between the appointment of the receiver and the first payment to insured depositors varied from 2 to 22 days, the average being seven days. Upon notification of suspension, preparations were begun for payment of the insured deposits. Before payment can be made an analysis of the deposit liabilities of the closed bank is necessary. Balances due to depositors in the various classes of deposit accounts carried by the bank must be brought together in one deposit liability register, in order that the net insured deposit of each depositor in each right and capacity may be determined, as required by law. After the period in which the stockholders might enjoin the State authorities from placing banks in liquidation had expired, depositors were paid as rapidly as their claims were presented. (FDIC, 1934, p. 26).

Similarly, before the mid-1960s, the former Federal Saving and Loan Insurance Corporation (FSLIC), which insured S&L associations before the FDIC, often disbursed funds to insured depositors at failed S&Ls only slowly through time, and before the early 1980's, the FDIC did not advance payments to unprotected uninsured depositors (FDIC, 1998a).¹⁵ Likewise, Ohio, Maryland, and Rhode Island, states that experienced widespread failures of perceived state insured thrift institutions in the 1980s, generally reimbursed "insured" depositors at these institutions in full, but only slowly over a number of years, so that depositors suffered significant present value losses and liquidity costs (Kane, 1992 and Todd, 1994). Contrary to current FDIC practice, the insured depositors in these states were insured in future or nominal values only, not in present values.

¹⁵ The concept of advancing payment to uninsured depositors appears to have been developed by the FDIC in the early 1980s as part of its proposal for modified payoff resolutions in which an existing or newly-chartered bank would assume all the insured deposits of a failed bank in full and all the uninsured deposits partially in an amount equal to the estimated recovery value as reflected in the advanced dividend (FDIC, 1993, pp. III 4-5 and FDIC, 1997, p. 250). The policy may have been modelled on a number of earlier actual or proposed plans, which are discussed later in the paper. Advance dividends were paid in 13 resolutions in 1983 and 1984 and again starting in 1992. The dividend was generally funded by a loan from FDIC corporate account to the FDIC receiver account (FDIC, 1998a, and FDIC 1997).

Full and immediate depositor access also does not exist in most other countries.¹⁶ For example, the Canadian Deposit Insurance Corporation provided depositors of the failed Confederation Trust Company in 1994 access to the insured portion of their deposits 52 days after the bank was declared legally failed, although faster advance payments were made in cases of critical need (Canada Deposit Insurance Corporation, 1995). Article 10 of the Directive of the European Union dealing with deposit-guarantee schemes, which became effective on July 1, 1995, requires that each member country's national insurance agency pay insured depositors "within three months of the date on which the competent authorities make the determination" that the bank is unable to repay its deposits in full and deposits become unavailable to the depositors. But, this time period may be extended for three three-month periods to a maximum of twelve months if necessary in "exceptional circumstance." These delay schedules appear to have been imposed to limit the maximum length of delay from obtaining and processing the relevant deposit data and encourage faster payment rather than to prolong delay in order to increase market discipline. No harmonizing directive applies to the treatment of uninsured depositors and other creditors in the Union. This is left to the laws of the individual countries.¹⁷ The competent authority that can declare an institution insolvent and when it can do so also is determined by each country. In general, private receivers are appointed to sell or liquidate the bank. The uninsured or unprotected claimants are paid the recovered values as they are collected and distributed by the receiver. In most instances, this process is not fully completed for many years, so that the depositors do not have access to the full recovery value of their claims for an equal number of years.

VII. Advantages and Disadvantages of Immediate and Full Payment of Depositor Claims

¹⁶ As is discussed later, only three (Italy, Japan, and Peru) of the 25 countries other than the U.S. that responded to a survey by the FDIC and that had experienced at least one bank failure since 1980 reported paying its insured depositors immediately.

¹⁷ Only three countries in the FDIC survey (Canada, Japan, and Slovakia) report having authority to advance funds to uninsured depositors at failed banks, but few countries responded to this question.

Immediate and full payment of insured and uninsured depositor claims has both advantages and disadvantages. The major advantage, particularly for uninsured depositors, is that it may forestall political pressure by depositors on their governments to delay resolving insolvent banks and to make all depositors completely whole when they do. Moreover, by not requiring banks to be physically as well as legally closed, speedy payments also reduce the potential damage to the macroeconomy and reduces the need for the government to provide such guarantees. Thus, TBTF appears alive and well in most countries outside the U.S., which generally do not provide for such speedy payments.

Indeed, before the enactment of deposit insurance in the U.S. in 1933, Senator Carter Glass, the influential chairman of the Senate Banking Committee at the time, had proposed more rapid payment to depositors at failed banks as a superior alternative to insurance (Bradley, 2000, Kennedy, 1973, and Willis and Chapman, 1934). In describing the Glass proposal, Willis and Chapman (1934, pp. 65-67) write:

It was a fact that the receiverships were in the habit of extending anywhere from a few months to as long as twenty-one years.... Recognizing that in bank failures the source of difficulty and losses is not primarily found in lack of assets, but... that the resources of depositors are tied up and rendered unavailable for long periods... liquidation power and not guaranty was demanded... insuring an almost immediate settlement within a short time upon the basis of the estimated worth of the [failed] bank's assets... This plan was considered by the [Banking] Committee entirely adequate to the protection of the bank depositor against most of the evils to which he had been subject, while leaving him still with a measure of individual responsibility for the protection of his claims through the selection of a well-qualified bank.

The plan called for the establishment of a federal government liquidating corporation that would estimate a bank's recovery value immediately upon its failure, quickly sell the bank as a whole or in parts, and quickly pay the proceeds to the receiver for speedy disbursement to the depositors. But this plan was found too difficult to implement at the time, primarily because it required accurately estimating the market value of the failed banks' assets quickly.

However, the advantages of such a scheme had also been seen by others, particularly during the banking crisis of the early 1930s, when nearly 10,000 banks, or some 40 percent of the total number of banks, failed. For example, in 1931, the Federal Reserve Bank of New York attempted to have depositors at failed banks receive the recovery value of their claims faster by requesting healthy member banks to buy the assets of failed banks and advance the proceeds to them for immediate distribution (Bradley, 2000 and Friedman and Schwartz, 1963). This proposal did not appear to have been successful. In 1933, the New York State Banking Department entered into agreements with several large New York City banks to partially assume the deposits of failed banks and be reimbursed from the liquidation of a corresponding amount of assets. At the same time, the Reconstruction Finance Corporation began to loan funds to closed banks to make quick partial payment to depositors (Kaufman, 2002).

But providing immediate depositor access to the full value of their permissible funds may have important disadvantages as well as advantages and, thus, be a two-sided sword. It may reduce market discipline on the banks. Knowing that they may have to wait, and at times a very lengthy wait, to gain access to the full value of their claims after resolution and thus suffer liquidity and possibly present value losses in addition to any other losses unprotected depositors may incur, may provide both insured and uninsured depositors greater incentive both to monitor the financial health of their banks and to discipline them when necessary by charging higher interest rates commensurate with the greater perceived risk or transferring their deposits (running) to perceived safer banks.¹⁸ Immediate payment would reduce this incentive. In addition, under full and immediate access as practiced by the FDIC, any unexpected losses from delays in asset sales and distribution of the sales' proceeds will accrue to the deposit insurer rather than to the uninsured depositors. This would further

¹⁸ A recent study of depositor behavior in Argentina, Chile, and Mexico in the early 1990s found that insured as well as uninsured depositors disciplined riskier banks both by charging higher deposit rates and by withdrawing deposits (Peria and Schmukler, 2001). Among other possible reasons the authors note for this unexpected behavior by insured depositors are potential delays in receiving payment. Likewise, Demirguc-Kunt and Huizinga (1999) report finding evidence of market discipline in a large number of countries that have government provided safety-nets, but do not list delayed payments as one of the possible reasons.

reduce the incentive for unprotected depositors to monitor their banks. The tradeoff between the advantages and this disadvantages of full and immediate access is modeled in the next section to examine the implications more carefully and to identify the optimal time delay in providing depositors with full access.

VIII. Modeling the Access Delay Decision

As discussed above, the primary basis for reducing the cost of failure to depositors by advancing them funds immediately after a bank failure is to minimize the economic disruption that can result from the loss of liquidity associated with freezing deposits. However, there is a clear trade-off with market discipline. On the one hand, the greater the perceived loss that insured or uninsured depositors may potentially suffer, the greater is the incentive for them to monitor the condition of their bank and discipline the bank for taking excessive risks, either by withdrawing funds or requiring higher interest rates to compensate for the increased risk. On the other hand, the greater is the expected loss in either value or liquidity, the greater will be public pressure for government protection of most if not all stakeholders. This is likely to increase the cost of resolution to the government. Given this trade-off, it is possible to solve for the optimal time for the distribution of payments on depositor claims on a failed bank. This tradeoff can be modeled graphically. Because the government can affect, if not set, the delay time, including the time necessary to process the relevant deposit data and estimate the recovery values, it effectively serves as a policy tool.

The model is shown in Figure 3. The time delay in the insurance agency providing depositors with full access to the value of their claims after resolution of insolvent institutions or the length of time accounts are frozen (PD) is measured on the horizontal axis. The reduction in expected loss from additional market discipline (AMD) and the increase in expected loss from intensified bailout pressure (BOP) are measured on the vertical scale. These are shown in absolute terms. In the absence of an efficient secondary market for depositor receivership claims, both the

reduction and increase in expected loss from additional market discipline and bailout pressure, respectively, may be expected to increase the longer the delay time. The optimal delay time occurs when the reduction in expected loss from AMD exceeds the increase in expected loss from BOP by the maximum amount. In Figure 1, where the two schedules are drawn as crossing, this is shown as Q. If instead the AMD schedule lies above the BOP schedule at all points from the date of resolution, the optimal delay time is infinite. If the BOP schedule lies above the AMD schedule at all points, the optimal delay time is the date of resolution. Accounts should not be frozen at all and depositors should be given immediate access to the value of their claims.

If inability to advance payment or technical problems prevent the government from providing depositors with access at the optimal time, the government is likely to bailout all depositors at resolution. This reinforces the importance of both resolving institutions as quickly as possible with no or minimum loss and developing faster procedures for certifying protected deposits and estimating recovery values. It follows that by providing depositors with immediate and full access to their claims, as described in section 5, the U.S. implicitly assumes that bailout pressures immediately exceed gains from additional market discipline.

IX. The FDIC Survey of Depositor Access Practices Across Countries

In February 2000, the FDIC surveyed 78 deposit insurers in 64 countries outside the U.S. on aspects of their deposit insurance systems. The countries chosen were those that had explicit deposit insurance schemes in place. Thirty-seven surveys were returned providing insight into the deposit insurance practices of 34 countries.¹⁹ While the surveys covered a wide range of deposit insurance practices, this paper examines only that portion of the survey relating to the availability of funds to depositors after a bank has been declared insolvent and differences in the treatment of insured and uninsured depositors.²⁰

¹⁹ Austria, Germany and Italy have more than one deposit insurer.

²⁰ Other results from this survey are discussed in Bennett (2001).

When examining fund availability practices one must recognize the difference between policy intent and practice. A deposit insurer may wish to pay quickly, but not have the legal, technical, or informational capacity to do so. Conversely, they could believe in instilling market discipline by imposing costs on depositors through delay in making funds available, but not have the political resolve to carry out such a policy. Consequently, only the 30 responding countries that had actually experienced bank failures since 1980 were analyzed. Of these, three (Bahrain, Jamaica, and Sweden) did not specify a time frame within which they had paid depositors, since the failures occurred prior to the creation of a deposit insurance scheme.

Insured Deposits

As can be seen in Table 3, two countries (Japan and Italy) provided immediate and full payment of insured deposits and one (Peru) immediate but not always full payment. Japan has protected all depositors in those banks that it has declared insolvent to date and used resolution techniques that provided for immediate access to funds. In Italy, the Interbank Deposit Protection Fund also provided insured depositors with immediate access to their insured deposits. Peruvian depositors have had access to some but not all of their insured deposits in some failures the day after failure e.g., in the most recent failure in November 1999. But in other failures, the depositors have had to wait as long as eight months for even the initial payment. According to the Peruvian Deposit Insurance Fund, the factors that determine the speed within which insured depositors get access to their funds are the potential systemic effects that would be triggered by the failure of a specific bank and the quality of information given to the insurer by the liquidation agency. Five other countries gave insured depositors access to their funds within one month of the failure and the majority of all respondents followed the EU guidelines and gave insured depositors access within no more than three months.

The Isle of Man Financial Supervision Commission was still in the process of attempting to pay off insured depositors more than six months after the failure of a bank in 1999. Three other

countries, Poland, the Czech Republic, and Greece, reported that they were able to make funds available to insured depositors within six months. It is interesting to note that almost all of the respondents provided insured depositors with all their funds at one time. Only the deposit insurers in Italy, Austria, Latvia, and Peru paid in installments.

The responses from Peru and the experience of the Isle of Man suggest that much of the reason for the delay in paying insured depositors may not be a conscious policy of promoting insured depositor discipline. Rather, it reflects the practical need for delay from the technical difficulties associated with paying off a bank quickly.

Uninsured Deposits

The survey results presented in Table 4 clearly indicate that the practice of advancing funds to uninsured depositors is unique to the United States. Twenty-three of the respondents indicated that uninsured depositors cannot be fully protected at failed banks in their countries and only three deposit insurers (Canada, Japan, and Slovakia) indicated that they had the power to advance funds to cover uninsured depositors.

The timing of availability of funds to uninsured depositors is typically dependant on the type of resolution. Japan and Tanzania are notable examples of countries that have used resolution techniques to protect all depositors. In other countries, such as Italy and Brazil, uninsured depositors have immediate access to their deposits if a resolution results in the transfer of these deposits to another financial institution. In most countries, unprotected depositors have to wait for the liquidation process to yield sufficient cash for payments to be made to them. The practices surrounding the liquidation of assets and payment of claims follows the national practices for bankruptcy, with discretion being vested with the courts or the liquidator, receiver, or administrator for the failed bank estate. In all cases where the uninsured depositors were dependent on a liquidation process for their proceeds, they received access to their funds in installments.

A review of the comments received from the respondents suggest that, while most deposit insurers have no discretion to protect uninsured depositors in liquidations or to advance funds from their deposit insurance funds to uninsured depositors, they can use resolution strategies that protect uninsured depositors. This suggests that these countries will probably resort to keeping insolvent banks in operation through nationalization in whole or in part and/or extending blanket guarantees to depositors.

X. Conclusions and Recommendations

This paper identifies and analyses the five potential sources of losses to depositors in bank failures, two that are recognized at the time an insolvent bank is resolved and placed in receivership and three that occur afterwards. The three sources of post-resolution losses arise from delayed payment of depositor claims these sources may lead to losses in value and/or liquidity. Losses in liquidity through the effective freezing of some or all of the deposits by the deposit insurance agency until reliable data are available on what deposits and depositors are protected and/or the proceeds from the sale of bank assets are received has two conflicting effects. On the one hand, fear of delayed payment increases depositor monitoring and discipline. On the other hand, fear of delayed payment increases depositor pressures for protection and government willingness to provide such protection to reduce the chances of systemic risk.

This paper models these effects for a given loss from delayed resolution and solves for the optimal delay time that equates the gains from additional market discipline with the losses from increased bailout pressure. Different countries follow different practices with respect to delaying payment with different consequences for market discipline and resolution policies. In the U.S., the FDIC currently does not generally freeze deposits at resolved institutions. Rather, it effectively advances the proceeds to depositors at the time of resolution, generally before it, acting as the receiver, collects them from asset sales. Thus, insured depositors generally receive near immediate payment of the par value of their deposits and uninsured depositors receive near immediate payment

of the present value of their pro-rata share of the estimated recovery value. This practice may reduce market discipline, but is likely to reduce pressures for full protection bailout by more. Thus, given the loss at resolution, insolvent institutions are more likely to be resolved and uninsured depositors not protected. In contrast, most other countries freeze deposits and delay payments to both insured and uninsured depositors, according to a schedule or until the funds are collected from asset sales, both because of the inability to estimate quickly the amount that needs to be paid out and because of restrictions on advancing funds before collection of the sales proceeds.

These differences in the treatment of depositors at insolvent institutions have important implications for a country's bank resolution practices, in particular, for banks considered too big to fail. The smaller the perceived overall loss in bank failures, the easier it is economically and politically to resolve insolvencies with losses to *de jure* unprotected depositors. In the U.S., if regulatory prompt corrective action is successful in limiting losses (negative net worth) at insolvent institutions to relatively small percentage amounts, say, to not more than 5 percent of assets at large banks (the loss experienced by the Continental Illinois National Bank in 1984 was near 3 percent), and uninsured depositors have immediate and full access to their funds, losses to large uninsured depositors should be restricted to a loss rate that is well within the boundaries that most of these depositors can tolerate without panicking, e.g. losses they appear to be willing to bear in investments in commercial paper or other short-term debt instruments. Moreover, since enactment of depositor preference, which subordinates deposits at foreign offices and other creditors to domestic deposits and the FDIC, losses at failed banks can be charged to these accounts before domestic depositors. Thus, losses to domestic depositors and the FDIC may be even smaller. As a result, if the losses are both small and access to the remaining deposits is immediate, uninsured depositors are less likely to exert political pressure on the government to extend the safety-net to them and to be made whole and governments are less fearful of systemic risk and too big to fail protection may be avoided. The combination of the FDIC's payment practices and the improved closure rule under FDICIA helps to

explain why uninsured depositors at almost all recent failed banks in which the FDIC suffered losses have been required to share pro-rata in the losses (Benston and Kaufman, 1998). But, because no large money center bank has failed since FDICIA, the systemic risk exemption under FDICIA has not been invoked so that it is too early to declare TBTF dead in the U.S. Nevertheless, speedy payment to depositors is likely to reduce the need for its use.

In contrast, because losses in resolving insolvencies are not necessarily minimized and uninsured deposits are often frozen until payment is received from private receivers, most other countries find it difficult to resolve large insolvent banks with losses to depositors. They are under great pressure to protect all depositors and are fearful of igniting systemic risk if they do not. Thus, TBTF appears to be alive and healthy in these countries and large taxpayer losses in bank failures may be expected to continue.

Because cross-country differences in access of insured depositors to their funds affects both the intensity of market discipline and the probability of government bailout, cross-country studies of the effectiveness and efficiency of alternative deposit insurance structures that specify the existence of such programs or differentiate between explicit and implicit programs only by a single yes/no (or 1/0) variable, and thus omit reference to access delay, are likely to be incomplete and inaccurate.

The analysis in this paper suggests that the best strategy for achieving aggregate bank stability, characterized by efficient exit of inefficient or unlucky banks through failure at no or least cost to the economy, involves resolving these banks before or shortly after their net worth turns negative and providing full and immediate or near-immediate access for insured depositors to the par value of their deposits and for uninsured depositors to the present value of their pro-rata share of the estimated recovery value at resolution. Such a strategy minimizes the potential for systemic risk and permits otherwise TBTF banks to be resolved just like any other insolvent bank. However, the ability to provide full and immediate or near-immediate depositor access may be constrained both by lack of legal authority for regulators to advance payment to depositors before receipt of the funds

from asset sales from the receivers and by technical problems that interfere with this outcome, such as the unavailability of accurate and accessible account data and facilities for speedy analysis of the data and inability to estimate recovery values accurately and quickly. If this is the optimal policy, procedures for reducing the delays caused by these problems in each country need to be addressed.

References

- Barth, James R. 1991** , *The Great Savings and Loan Debacle*, Washington , D. C.: American Enterprise Institute
- Bennett, Rosalind L., 2001** “*Failure Resolution and Asset Liquidation: Results of an International Survey of Depositors*”, FDIC Banking Review, Vol. 14, No.1, 2001, pp. 1-28.
- Benston, George J. and George G. Kaufman**, "*Deposit Insurance Reform in the FDIC Improvement Act: The Experience to Date*," Economic Perspectives (Federal Reserve Bank of Chicago), second quarter 1998, pp. 2-20.
- Berger, Allen N. and Gregory G. Udell**, "*Small Business Credit Availability and Relationship Lending*," Economic Journal, 2001 forthcoming.
- Bradley, Christine M.**, "*A Historical Perspective on Deposit Insurance Coverage*," FDIC Banking Review, Vol. 13, No. 2, 2000, pp. 1-25.
- Canada Deposit Insurance Corporation**, *Annual Report, 1994-1995*, Ottawa, 1995.
- Caprio, Gerard and Daniela Klingebiel**, 1999, “Episodes of Systemic and Boarderline Banking Crises,” *World Bank Working Paper No. 428*.
- Dermine, Jean**, 1996, “Comment,” *Swiss Journal of Economics and Statistics*, December, pp. 679–682.
- Demirgüç-Kunt, Asli, and Harry Huizinga**, 1999, “Market discipline and financial safety net design,” World Bank, Washington, DC, working paper, July.
- Federal Deposit Insurance Corporation**, 1998a., *Managing the Crisis: The FDIC and RTC Experience*, Washington, D.C.:
- Federal Deposit Insurance Corporation**, 1998b, *A Brief History of Deposit Insurance in the United States*, Washington, D.C.: September,.
- Federal Deposit Insurance Corporation**, 1998c, *Resolutions Handbook*, Washington, D.C.:
- Federal Deposit Insurance Corporation**, 1997, *History of the Eighties: Lessons for the Future*, Washington, D.C.:
- Federal Deposit Insurance Corporation**, 1983, *Deposit Insurance in a Changing Environment*, Washington, D.C.:
- Federal Deposit Insurance Corporation**, 1935, *Annual Report, 1934*, Washington, D.C.,.
- Financial Times**, 2000, "*Managua Faces Crisis with Collapse of Another Bank*," November 21,.

- Freidman, Milton and Anna J. Schwartz**, 1963, *A Monetary History of the United States, 1857-1960*, Princeton, N.J.: Princeton University Press,.
- Garcia, Gillian G.H**, 1999, “*Deposit Insurance: A Survey of Actual and Best Practices*,” Working Paper 99-54, Washington, D.C.: International Monetary Fund, April.
- Greenspan, Alan**, 2000, “Question and answer session,” *The Changing Financial Industry Structure and Regulation: Bridging States, Countries, and Industries*, Proceedings of the Conference on Bank Structure and Competition, Chicago: Federal Reserve Bank of Chicago, pp. 9–14.
- Gupta, Atul, and Lalatendu Misra**, 1999, “Failure and failure resolution in the U.S. thrift and Banking Institutes,” *Financial Management*, Winter, pp. 87–105.
- Hall, Maximilian J. B.**, 2001, “How good are EU deposit insurance schemes in a bubble environment?,” in *Asset Price Bubbles: Implications for Monetary and Regulatory Policies*, George G. Kaufman (ed.), New York: JAI/Elsevier Press, pp. 145–193.
- International Monetary Fund**, 1998, *World Economic Outlook*, Washington, D.C., May.
- Kaminsky, Graciela L. and Carmen M. Reinhart**. 1996, “The Twin Crises: The Cause of Banking and Balance of Payments Problems,” *International Finance Discussion Paper No. 5541*, Washington, D.C.: Board of Governors of the Federal Reserve System.
- Kane, Edward J.**, 1992, “How incentive-incompatible deposit insurance plans fail,” in *Research in Financial Services*, Vol. 4, George G. Kaufman (ed.), Greenwich, CT: JAI Press, pp. 51–92.
- Kane, Edward J.**, 1990, “Principal agent problems in S&L salvage,” *Journal of Finance*, July, pp. 755–764.
- Kane, Edward J.**, 1989, *The S&L Insurance Mess: How Did It Happen?*, Washington DC: Urban Institute Press.
- Kane, Edward J., and Min-Teh Yu**, 1995, “Measuring the true profile of taxpayer losses in the S&L insurance mess,” *Journal of Banking and Finance*, November, pp. 1459–1478.
- Kaufman, George, G.**, 2002a, “Reducing Depositor Illiquidity at Failed Banks,” Loyola University Chicago, working paper, February.
- Kaufman, George, G.**, 2002b, “Too big to fail in banking: What remains,” *Quarterly Review of Economics and Finance*, Summer, pp.423-436
- Kaufman, George, G.**, 2002 “Banking and Currency Crises and Systemic Risk: A Taxonomy and Review,” *Financial Markets, Institutions, and Instruments*”, May.
- Kaufman, George, G.** 1997a, “Preventing banking crises in the future: Lessons from past mistakes,” *Independent Review*, Summer, pp. 55–77.
- Kaufman, George G.**, 1997b, “The new depositor preference act,” *Managerial Finance*, Vol. 23, No. 11, pp. 56–63.

- Kaufman, George G.** 1996, "Bank failures, systemic risk, and bank regulation," *Cato Journal*, Spring/Summer, pp. 17–45.
- Kaufman, George G.** 1995, "The U.S. banking debacle of the 1980s," *The Financier*, May, pp. 9–26.
- Kaufman, George G.** 1990, "Are some banks too large to fail? Myth and reality," *Contemporary Policy Issues*, October, pp. 1–14.
- Kelly, Morgan, and Cormac O Grada**, 2000, "Market contagion: Evidence from the panics of 1854 and 1857," *American Economic Review*, December, pp. 1110–1124.
- Kennedy, Susan E.**, 1973, *The Banking Crisis of 1933*, Lexington, KY: University of Kentucky Press.
- Lindgren, Carl-Johan, Gillian Garcia, and Matthew I. Saal**, 1996, *Bank Soundness and Macroeconomic Policy*, Washington, D.C.: International Monetary Fund.
- Mason, Joseph, Ali Anari, and James Kolari**, 2000, "The speed of bank liquidation and the propagation of the U.S. Great Depression," *The Changing Financial Industry Structure and Regulation*, Proceedings of a Conference on Bank Structure and Competition, Chicago: Federal Reserve Bank of Chicago, pp. 320–345.
- Peria, Maria Soledad Martinez, and Sergio L. Schmukler**, 2001, "Do depositors punish banks for bad behavior? Market discipline, deposit insurance and banking crises," *Journal of Finance*, June, pp. 1029–1051.
- Pulkkinen, Thomas E., and Eric Rosengren**, 1993, "Lessons from the Rhode Island banking crisis," *New England Economic Review*, May/June, pp. 3–12.
- Todd, Walker F.**, 1994, "Lessons from the collapse of three state-chartered private deposit insurance funds," *Economic Commentary*, Federal Reserve Bank of Cleveland, May 1.
- Viotti, Staffan**, 2000, "Dealing with banking crises—Proposal for a new regulatory framework," *Sveriges Riksbank Economic Review*, No. 3, pp. 46–63.
- Willis, H. Parker, and John M. Chapman**, 1934, *The Banking Situation*, New York: Columbia University Press.

Table 1
ESTIMATED TRANSFER COST OF SELECTED
BANKING CRISES
1999

<u>Country</u>	<u>Period</u>	<u>Estimated Cost/GDP*</u> (Percent)
Argentina	1980 – 82	55
Argentina	1989 – 90	NA
Brazil	1994 – 99	NA
Chile	1981 – 83	42
China	1990s	47
Finland	1991 – 94	11
Hungary	1991 – 95	10
Indonesia	1997 -	52
Japan	1990s	20**
Korea	1997 -	20
Malaysia	1985-88	5
Malaysia	1997	21
Mexico	1995 – 99	15
Russia	1998 – 99	6
Spain	1977 – 84	17
Thailand	1997 -	42
United States	1987 – 91	3

NA – Not Applicable

*For crises ongoing in 1999, data are for 1999

** Estimate by Author

Source: Gerard Caprio and Daniela Klingebiel, “Episodes of Systemic and Borderline Banking Crises,” World Bank Discussion Paper No. 428, 1999

Table 2
COSTS OF CRISES IN LOST OUTPUT RELATIVE TO TREND
 1975-1997

	Number of Crisis	Average Recovery Time ¹ (in years)	Cumulative Loss of Output per Crisis ² (in % points)	Crisis with Output Losses ³ (in %)	Cumulative Loss of Output per Crisis with Output Loss ⁴ (in % points)
Currency crises	158	1.6	4.3	61	7.1
Industrial	42	1.9	3.1	55	5.6
Emerging market	116	1.5	4.8	64	7.6
Currency crashes⁵	55	2.0	7.1	71	10.1
Industrial	13	2.1	5.0	62	8.0
Emerging market	42	1.9	7.9	74	10.7
Banking crises	54	3.1	11.6	82	14.2
Industrial	12	4.1	10.2	67	15.0
Emerging market	42	2.8	12.1	86	14.0
Currency & Banking crises⁶	32	3.2	14.4	78	18.5
Industrial	6	5.8	17.6	100	17.6
Emerging market	26	2.6	13.6	73	18.8

¹Average amount of time until GDP growth returned to trend. Because GDP growth data are available for all countries only on an annual basis, by construction the minimum recovery time was one year.

²Calculated by summing the differences between trend growth and output growth after the crisis began until the time when annual output growth returned to its trend and by averaging over all crises.

³Percent of crises in which output was lower than trend after the crisis began.

⁴Calculated by summing the differences between trend growth and output growth after the crisis began until the time when annual output growth returned to its trend and by averaging over all crises that had output losses.

⁵Currency 'crashes' are identified by crises where the currency component of the exchange market pressure index accounts for 75 percent or more of the index when the index signals a crisis.

⁶Identified when a banking crisis occurred within a year of a currency crisis.

Source: International Monetary Fund, *World Economic Outlook*: May 1998, p. 79

Table 3
Funds availability, insured deposits

Country	laws	Regulation/ payment	Immediate 7 days	Within 1 month	Within 3 months	Within 6 months	Within months	> 6 Payment
At least 1 insolvent bank since 1980								
Austria (1)	Yes				Yes			Installments
Bahrain ^a	No							
Belgium	Yes			Yes				All at one time
Brazil	No			Yes				All at one time
Canada	No				Yes			All at one time
Czech Republic	Yes					Yes		All at one time
France	Yes				Yes			All at one time
Germany (1)	No				Yes			All at one time
Greece	Yes					Yes		All at one time
Hungary	No				Yes			All at one time
Isle of Man	No						Yes	All at one time
Italy (1)	Yes	Yes						Installments
Italy (2)	Yes				Yes			Installments
Jamaica ^a	Yes							
Japan	No	Yes						
Latvia	No							Installments
Lithuania	Yes				Yes			All at one time
Netherlands	Yes				Yes			All at one time
Nigeria	No							
Peru	Yes	Yes						Installments
Poland	Yes					Yes		All at one time
Romania	Yes				Yes			All at one time
Slovakia	Yes			Yes				All at one time
Spain	Yes			Yes				All at one time
Sweden ^a	Yes							
Tanzania	No			Yes				All at one time
Trinidad and Tobago	Yes				Yes			All at one time
Turkey	No				Yes			All at one time
Uganda	Yes				Yes			All at one time
United Kingdom					Yes			All at one time
No insolvent banks since 1980								
Austria (2)	Yes							
El Salvador	Yes							
Germany (2)	Yes							
Mexico	Yes							
Oman	Yes							
Portugal	Yes							
Taiwan	No							

^aDenotes countries whose failures occurred prior to the establishment of the current deposit insurance scheme.

Note: For countries with two deposit insurance funds, the number in parentheses following the country name indicates which fund dealt/did not deal with bank failure. For example, in the case of Austria, deposit insurance fund 1 has dealt with an insolvent bank since 1980, while deposit insurance fund 2 has not dealt with any bank failures in that period.

Source: Federal Deposit Insurance Corporation.

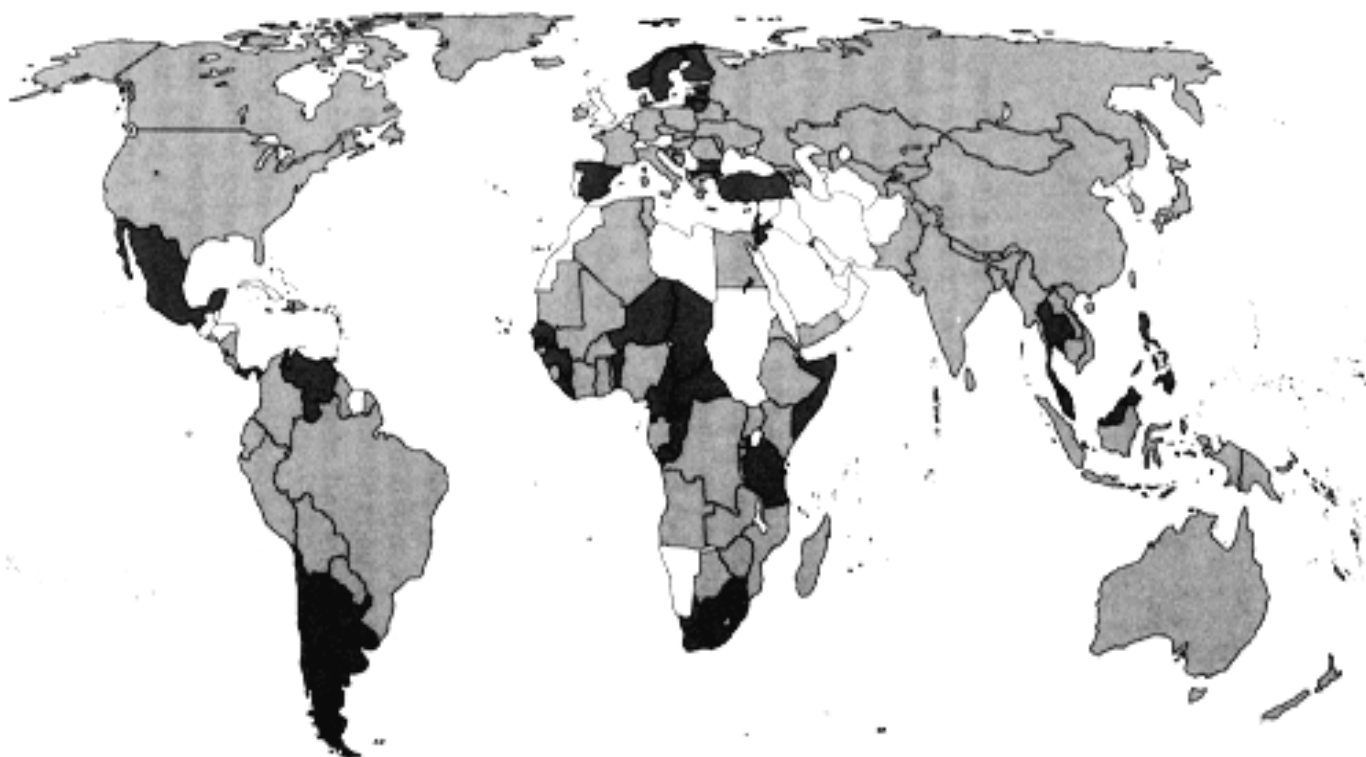
Table 4
Funds availability, uninsured deposits

Country	Regulation/ laws	Uninsured can be fully protected	Deposit insurer can advance funds	Time before accessing	Payment schedule	Resolution method affects schedule
At least 1 insolvent bank since 1980						
Austria (1)	Yes	No		5–6 months	Installments	No
Bahrain ^a	Yes	No				Yes
Belgium	No	No		Several months	Installments	No
Brazil	Yes	No		Depends on intervention	Installments	Yes
Canada	Yes	Yes	Yes	Not permitted	None	Yes
Czech Republic	Yes	No		No bankruptcy proceedings have finished yet.		
Germany (1)	No	No	No			Yes
France	Yes	No			Installments	No
Greece	No	No			Installments	
Hungary	Yes		No	2 years	Installments	Yes
Isle of Man	No	No				Yes
Italy (1)	Yes	Yes		Immediate access if assets and liabilities assigned to another institution; otherwise wait until receiver allocates assets.		
Italy (2)	No					
Jamaica ^a	Yes	No				
Japan	Yes	Yes	Yes	All deposits protected so far		No
Latvia	No	No			Installments	No
Lithuania	Yes	No		12 months	Installments	Yes
Netherlands	No	Yes		Normal bankruptcy laws between receiver and uninsured depositors; if funds available for creditors of their rank, paid out in due course.	Installments	Yes
Nigeria	No	Yes		No provision for depositors of insolvent banks to be paid from Deposit Insurance Fund.		Yes
Peru	Yes	Yes	No	0–1 year	Installments	Yes
Poland	Yes	Yes	No		Installments	Yes
Romania	Yes	No				
Slovakia	Yes	Yes	Yes	No case		No
Spain	Yes	Yes		Approximately 12 months	Installments	Yes
Sweden ^a	No	No				
Tanzania	No	Yes	No	Full compensation; depositors had access to their deposits within the shortest period.	All at one time	No
Trinidad and Tobago	Yes	No		Whenever sufficient funds from realization of assets are available.	Installments	Yes
Turkey		No		Since 1980, depositors unable to access explicitly uninsured deposits.	All at one time	
Uganda	Yes	No				
United Kingdom			No	Handled by liquidators or administrators.		
No insolvent banks since 1980						
Austria (2)	Yes	No		No bank failure		Yes
El Salvador	Yes	No	No	Bank failures, but no insured deposits system	All at one time	No
Germany (2)	No	Yes		No bank failures		
Mexico	No	No	Yes			
Oman	Yes	No				
Portugal	Yes	No		No explicitly uninsured depositors prior to 1999.		No
Taiwan	No	No	No	No order to close a financial institution during the past 15 years.	Installments	Yes

^aDenotes countries whose bank failures occurred prior to the establishment of the current deposit insurance scheme. Note and source: see table 1.

Figure 1. Banking Problems Worldwide, 1980-96

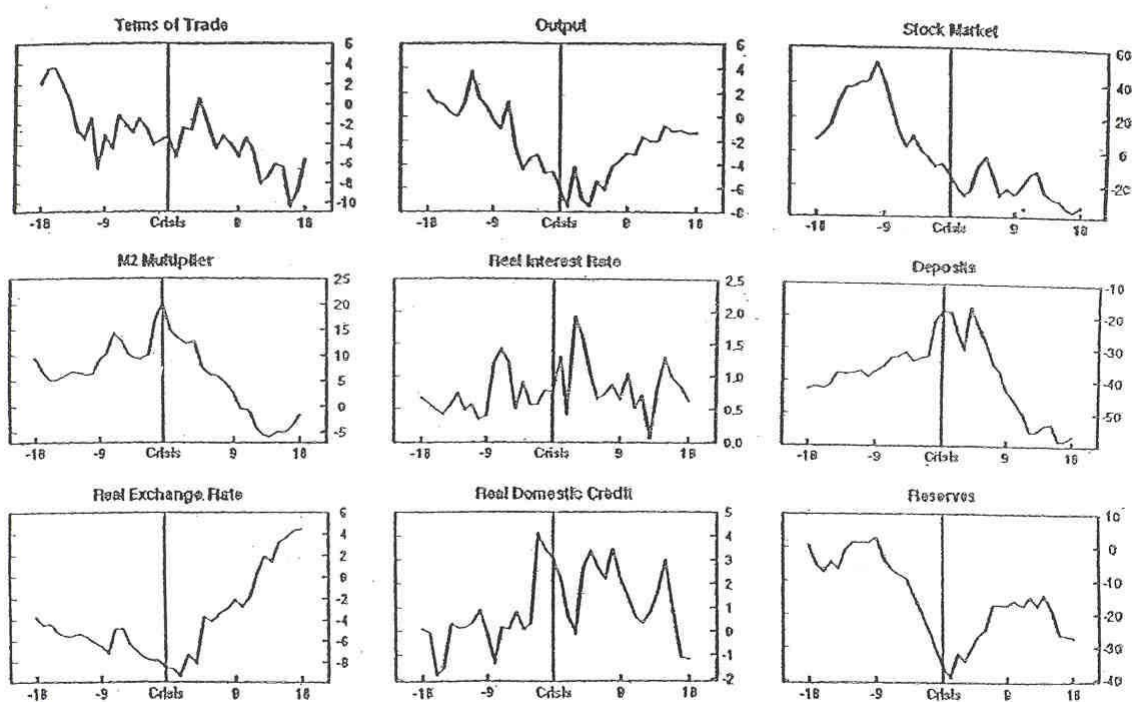
■ Banking Crisis ▒ Significant Banking Problems □ No Significant Banking Problems/Insufficient Information



Source: Lindgren, Garcia and Saal, 1996, p.4

Figure 2

EMPIRICAL REGULARITIES DURING BANKING CRISES



Source: Graciela L. Kaminsky and Carmen M. Reinhart, *The Twin Crises: The Causes of Banking and Balance of Payments Problems*, International Finance Discussion Paper no. 5541 (Washington, D.C.: Board of Governors of the Federal Reserve, 1996), 26.

Note: The real exchange rate and the real interest rate are reported in levels while all other variables are reported in twelve-month changes. All of them are relative to "tranquil" times. Vertical axes are percentages, and horizontal axes the number of months.

Figure 3

Effects of additional market discipline and bailout pressure
(as functions of depositor payment delay time)

