



IMF Working Paper

Post-Resolution Treatment of Depositors at Failed Banks: Implications for the Severity of Banking Crises, Systemic Risk, and Too-Big-To-Fail

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Monetary and Exchange Affairs Department

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Abstract

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| <p>The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.</p> |
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Losses may accrue to depositors at insolvent banks both at and after the time of official resolution. Losses at resolution occur because of poor closure rules and regulatory forbearance. Losses after resolution occur if depositors' access to their claims is delayed or "frozen." While the sources and implications of losses at resolution have been analyzed previously, the sources and implications of losses after resolution have received little attention. This paper examines the causes of delayed depositors' access to their funds at resolved banks, describes how the FDIC provides immediate access, reports on a special survey of access practices in other countries, and analyzes the costs and benefits of delayed access in terms of both the effects on market discipline and depositor pressure to protect all deposits.

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I. INTRODUCTION

Bank failures are widely viewed in all countries as more damaging to the economy than the failure of other firms of similar size for a number of reasons. The failures may produce losses to depositors and other creditors, break long-standing bank-customer loan relationships, disrupt the payments system, and spillover in domino fashion to other banks, financial institutions and markets, and even to the macro economy (Kaufman, 1996). Thus, bank failures are viewed as potentially more likely to involve contagion or systemic risk than the collapse of other firms. The risk of such actual or perceived damage is often a popular justification for 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.²

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 declared insolvent and placed in receivership. 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 the insured depositors are 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 experience present value losses if they are paid the value of their claim after the date of resolution without interest. 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 counterpart 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 deposit and savings, causing a significant negative effect on national consumption.” (Dermine, 1996, p. 680)

² “Too-big-to-fail” in the United States does not imply that the bank is not failed, but that it is “too-big-to-liquidate” or “too-big-to-impose losses on uninsured depositors” (Kaufman, 1990). This was recently reinforced by Federal Reserve Chairman Greenspan, who said, “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” (Greenspan, 2000, p. 14).

The potential magnitude of losses to depositors in bank failures is likely to effect both the supply of and demand for government guarantees and to influence the resolution options available to a deposit insurer. The larger the potential losses in bank resolutions are perceived to be, the greater the demand for government guarantees by depositors and other stakeholders is likely to be and the more likely that governments will bow to such political pressures and supply the guarantees. 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 policy implications.

This paper examines both the sources and implications of potential depositor losses in bank resolutions, in particular, 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 to depositors in bank failures at the time of resolution have been frequently analyzed in the literature, the implications of losses after resolution from delayed depositor access through the freezing of insured and/or uninsured accounts have not been thoroughly analyzed.

Because the magnitude and timing of the losses to depositors in bank insolvencies are in large measure under the control of the deposit insurance agency or the government, the paper develops public policy recommendations on how to minimize all losses to depositors, in particular, the losses to depositors from delayed access to their funds after resolution. On the one hand, 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. With only infrequent exception, 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. 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 damage 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 discipline on the one hand and depositor pressure to protect all deposits on the other. Ways that policymakers can reduce depositor losses from bank failures are discussed in Section 4. Section 5 describes the current policies of major countries with respect to providing depositors with access to their funds at resolved insolvent institutions and procedures available to provide depositors with full and immediate access to their claims at the time the institutions are declared insolvent and placed in receivership. Particular attention is given to the procedure currently used by the FDIC in the United States. The access timing decision is modeled graphically in Section 6 to solve for the optimal delay time. Section 7 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 four potential sources of economic losses to depositors or the government deposit insurance agency, which stands in the shoes of the de jure insured depositors, in from the resolution of insolvent depository institutions:

- **Poor closure rule.** Embedded losses 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.
- **Regulatory forbearance.** Embedded losses from a delay in the time from when a bank becomes legally eligible to be declared insolvent and the time it is actually resolved—declared insolvent by the regulators or other authorized party (official recognition of the insolvency), a receiver appointed, and the existing owners removed.
- **Bad market conditions after resolution.** Losses (gains) from delay in the receiver selling the bank as a whole or parcels of its assets and deposits after the bank is declared legally insolvent either because of operational problems or to wait for a better market.

- **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. 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 resolved by their primary federal regulator.

The second loss reflects regulatory forbearance from fear of imposing losses and injuring favored parties associated with the insolvent bank (e.g., shareholders, management, other employees, borrowers, or uninsured depositors), injuring other financial institutions and the macroeconomy, 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. 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 forbearance in encouraging moral hazard behavior by the banks and increasing eventual losses to depositors in the United States 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 increased credit and market losses, but also increased 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 two sources of loss occur after the date of official resolution and the institution is put in receivership. Losses to depositors from delay in liquidating bank assets may be either or both credit/market losses and/or present value losses. This delay generally arises because of time necessary to determine who the depositors are and certification of their claims and attempts—legitimate or not—by the receiver, to avoid fire-sale losses or depressing asset prices further 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 fourth and last source of loss from

delays in distributing the funds from the sale of the bank is primarily a present value loss to depositors from operational inefficiencies.

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 two sources of depositor losses afterwards have been analyzed only infrequently. 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 intensifies both public fears and actual costs of bank failures.

Moreover, the fear of such inaccessibility alone 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 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. 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 four 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 United States, the Federal Deposit Insurance Corporation Improvement Act (FDICIA) attempts to reduce the first two sources of losses through prompt corrective action (PCA) that both impose a more efficient closure rule—two percent tangible equity to asset ratio—and reduces regulatory discretion to forbear by requiring mandatory sanctions. These include resolution, when the discretionary sanctions applied appear to be ineffective as reflected in a continued decline in the bank's capital ratio.

The third 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 if the assets were sold 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 fourth 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 depositor bailout pressure 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 advancing funds to the affected depositors before they are received from the receiver or encourage the development of an efficient secondary market in the claims.

The United States appears to be one of the very few countries that currently does not freeze accounts at failed banks and provides all depositors immediate and full access to the value of their claims, so that there is no loss of either liquidity or present value.³ The FDIC advances the funds. Although it rarely receives 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 (advance dividend payment) to all depositors at domestic offices of the bank on or about the next business day after the official recognition of insolvency and its appointment as receiver. Insured depositors and de jure uninsured depositors that are fully protected ex post by the FDIC receive access to this amount plus the amount necessary to make them whole payable 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.⁴ De facto uninsured domestic depositors receive access to the present value of the estimated recovery value at the failed bank, unless

³ Nevertheless, casual evidence suggests that at least some depositors are concerned that they may find their deposits at failed banks temporarily frozen.

⁴ 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.

these deposits are assumed by another bank at par value.⁵ 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.⁶ The FDIC can do this because it has both legal authority to advance the funds and has solved the technical problems that underline delayed payments after resolution. 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 close of business on Thursdays or Fridays and depositors given access to their funds the following Monday. This generally provides the FDIC with time to review the bank's deposit statements and process the information to determine each depositor's total insured balances.

Reliable estimation of recovery values of bank assets, however, generally requires longer than a weekend, and examiners and supervisors in the United States are typically provided with additional time. 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 declared critically undercapitalized (or even if the bank is being resolved for other reasons) by its primary federal 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. 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.

⁵ 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).

⁶ 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).

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. Thus, to protect itself, the FDIC advances to the uninsured depositors only a conservative estimate of the present value of the recovery value.⁷

VI. HISTORY OF IMMEDIATE AND FULL PAYMENTS OF DEPOSITOR CLAIMS

Immediate and full access for all depositors, or even for only ex-post protected insured depositors, to their permissible funds has not always been the practice of federal deposit insurance agencies in the United States, and is not the current practice of deposit insurance agencies in most other countries. In large measure, the delayed access, particularly for protected depositors, reflects the inability of the insurance agency to 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 non-computerized 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, were generally paid only as the assets were liquidated and funds collected (FDIC, 1998b and Mason, Anari, and Kolari, 2000).⁸ 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 1980s, the FDIC did not advance payments to unprotected uninsured depositors (FDIC, 1998a). Likewise, state governments in 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). Thus, contrary to current FDIC practice, the insured depositors were insured in future or nominal values only, not in present values.

⁷ 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.

⁸ Note holders at failed national banks were paid the par value of their notes immediately by the U.S. Treasury (FDIC, 1998b).

Full and immediate depositor access also does not exist in most other countries.⁹ For example, Article 10 of the May 30, 1994 Directive of the European Union on 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 two three-month periods to a maximum of nine months if necessary in "exceptional circumstances." 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. This is left to the laws of the individual countries.¹⁰ 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. As a result, both the insured and, particularly, uninsured depositors attempt, often successfully, to exert political pressure on their government to delay declaring the bank insolvent and to make most, if not all, depositors whole when it does. Both outcomes are costly and inefficient. TBTF or broader appears alive and well in most countries outside the United States!

VII. DISADVANTAGES OF IMMEDIATE AND FULL PAYMENT OF DEPOSITOR CLAIMS

But providing immediate depositor access to the full value of their permissible funds may have an important disadvantage 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 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

⁹ As reported by the Financial Times in November 2000, Nicaragua resolved its second bank in 100 days and guaranteed deposits of only 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, November 21, 2000). As discussed later, only two (Canada and Peru) of the 25 countries other than the United States 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.

¹⁰ Only three countries in the FDIC survey (Canada, Japan, and Slovenia) report having authority to advance funds to uninsured depositors at failed banks, but few countries responded to this question.

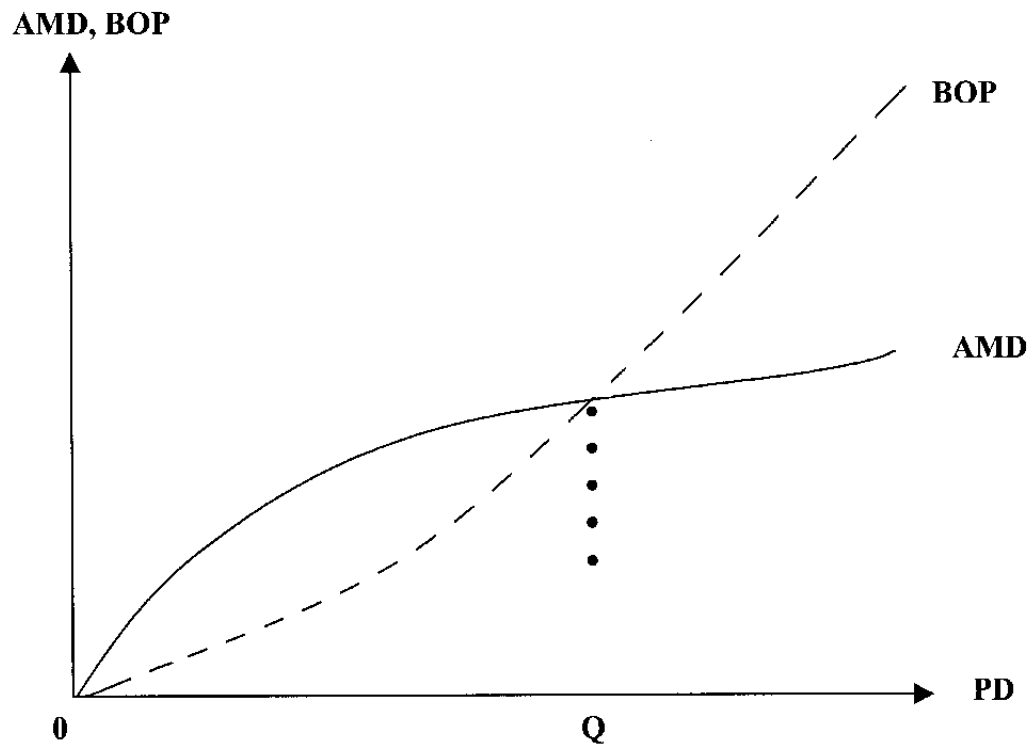
depositors may incur, may provide both insured and uninsured depositors greater incentive both to monitor the financial health of their banks and to discipline them when necessary by charging higher interest rates commensurate with the greater perceived risk or transferring their deposits (running) to perceived safer banks. In addition, under full and immediate access, 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 reduce the incentive for unprotected depositors to monitor their banks. The tradeoff between the advantages and these 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. The greater the perceived loss that depositors may potentially suffer, the greater 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. Given this trade-off, the problem is to solve for the optimal time distribution of payments on given depositor claims on a failed bank, assuming that the resolution loss is fixed at the time of failure. 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 1. The time delay set by the insurance agency after the resolution of insolvent institutions in providing depositors with full access to their claims (PD) is measured on the horizontal axis. Assuming a given loss at the time of resolution, the additional market discipline (AMD) from delayed payment resulting in possible present value losses to protected depositors and liquidity losses to unprotected depositors is measured on the vertical scale. AMD may be expected to increase with delay time. Likewise, bailout pressure (BOP) is also measured on the vertical axis. BOP may also be expected to increase with delay time. As long as AMD increases with delay time faster than BOP initially and then more slowly, as appears reasonable, so that the two schedules intersect, tradeoffs will result and an optimal delay time derived. Also in Figure 1, the optimum delay time is Q . For shorter delay times—to the left of Q —enhanced market discipline is greater than bailout pressure and for longer delay times—to the right of Q —bailout pressure more than offsets increased market discipline. As noted above, it appears reasonable that the slopes of both the AMD and BOP schedules are affected by the magnitude of the losses at resolution when the institution is placed in receivership (sum of losses from sources one and two). In particular, the slope of the BOP schedule may be expected to become steeper with increases in losses at

Figure 1. Additional Market Discipline and Bailout Pressure as Functions of Depositor Payment Delay Time



PD = Payment Delay Time

AMD = Additional Market Discipline

BOP = Bailout Pressure

resolution, so that pressures for bailout rise quickly above gains from increased market discipline. Indeed, if the slope of the BOP schedule is sufficiently steep at the beginning, the optimal PD is 0. If inability to advance payment or technical problems prevents 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 United States 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 United States. 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. 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.

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 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

Two countries (Japan and Italy) provided immediate and full payment of insured deposits and one (Peru) immediate but not always full payment (Table 1). Japan has protected all depositors in those banks it has declared insolvent 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. In other failures, however, 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 with 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

Table 1. Funds Availability of Insured Deposits

(Countries with at least one insolvent bank since 1980)

| Country | Regulation or laws? | Immediate payment | Within 7 days | Within a month | Within 3 months | Within 6 months | > 6 months | Payment |
|---------------------|---------------------|-------------------|---------------|----------------|-----------------|-----------------|------------|-----------------|
| Austria (1) | Yes | | | | Yes | | | Installments |
| Bahrain* | 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* | Yes | | | | | | | |
| Japan | No | | | | | | | |
| 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* | 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 |

*Denotes countries whose failures occurred prior to the establishment of the current deposit insurance scheme.

Funds Availability of Insured Deposits

(Countries without insolvent banks since 1980)

| Country | Regulation or laws? | Immediate payment | Within 7 days | Within a month | Within 3 months | Within 6 months | > 6 months | Payment |
|-------------|---------------------|-------------------|---------------|----------------|-----------------|-----------------|------------|---------|
| Austria (2) | Yes | | | | | | | |
| El Salvador | Yes | | | | | | | |
| Germany (2) | Yes | | | | | | | |
| Mexico | Yes | | | | | | | |
| Oman | Yes | | | | | | | |
| Portugal | Yes | | | | | | | |
| Taiwan | No | | | | | | | |

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 last year. Three other countries, Poland, 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 2, 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 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 will have to wait for the liquidation process to yield sufficient cash for payments to be made to them and 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 TBTF resolution strategies, nationalization of the bank (in whole or in part), and/or extend blanket guarantees to depositors while the insolvent bank continues in operation.

Table 2. Funds Availability of Uninsured Deposits

(Countries with at least one insolvent bank since 1980)

| Country | Regulation or laws? | Can uninsured be fully protected? | Can deposit insurer advance funds? | Length of time before accessing? | Payment schedule? | Does the resolution method affect payment schedule? |
|---------------------|---------------------|-----------------------------------|------------------------------------|--|--------------------------------------|---|
| Austria (1) | Yes | No | | 5-6 months. | Installments | No |
| Bahrain* | Yes | No | | | | Yes |
| Belgium | No | No | | Several months. | Installments | No |
| Brazil | Yes | No | | Dependent of the intervention process. | Installments | Yes |
| Canada | Yes | Yes | Yes | Not permitted. | Neither | Yes |
| Czech Republic | Yes | No | | No bankruptcy proceedings have been 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 | | In case of assignments of assets and liabilities to another depository institution, they may have immediate access to their deposits; otherwise they have to wait the receiver allocates the bank's liquidated assets. | All at one time, and in installments | Yes |
| Italy (2) | No | | | | | |
| Jamaica* | Yes | No | | | | |
| Japan | Yes | Yes | Yes | All deposits have so far been protected. | | No |
| Latvia | No | No | | | Installments | No |
| Lithuania | Yes | No | | 12 months. | Installments | Yes |
| Netherlands | No | Yes | | This is done under normal bankruptcy laws between the receiver and the uninsured depositors. If funds are available for creditors of their rank, they will be paid out in due course. | Installments | Yes |
| Nigeria | No | Yes | | There is no provision for depositors of insolvent banks to be paid from the 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* | No | No | | | | |
| Tanzania | No | Yes | No | In our experience: There was full compensation and the depositors had access to their deposits within the shortest period available. | All at one time | No |
| Trinidad and Tobago | Yes | No | | Whenever there are sufficient funds from the realization of assets available for making distributions. | Installments | Yes |
| Turkey | | No | | Since 1980, depositors were not able to access their explicitly uninsured deposits. | All at one time | |
| Uganda | Yes | No | | | | |
| United Kingdom | | | No | Handled by liquidators or administrators. | | |

*Denotes countries whose failures occurred prior to the establishment of the current deposit insurance scheme.

Table 2. Funds Availability of Uninsured Deposits

Funds Availability of Uninsured Deposits

(Countries without insolvent banks since 1980)

| Country | Regulation or laws? | Can uninsured be fully protected? | Can deposit insurer advance funds? | Length of time before accessing? | Payment schedule? | Does the resolution method affect payment schedule? |
|-------------|---------------------|-----------------------------------|------------------------------------|---|-------------------|---|
| Austria (2) | Yes | No | | No bank failure. | | Yes |
| El Salvador | Yes | No | No | There were bank failures but we did not have the insured deposits system. | All at one time | No |
| Germany (2) | No | Yes | | No bank failures. | | |
| Mexico | No | No | | In Taiwan, the competent authority, the Ministry of Finance, has never issued an order to close a financial institution during the past 15 years. | | Yes |
| Oman | Yes | No | | | | |
| Portugal | Yes | No | | No explicitly uninsured depositors prior to 1999. | | No |
| Taiwan | No | No | No | | Installments | Yes |

X. SUMMARY AND BEST PRACTICES RECOMMENDATION CONCLUSIONS

This paper identifies and analyzes the four potential sources of losses in bank failures, two at the time an insolvent bank is resolved and placed in receivership and two afterwards. The two sources of post-resolution losses arise from delayed payment of depositor claims. 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 United States, the FDIC does not freeze deposits at resolved institutions. Rather, it advances the proceeds to depositors before it, acting as the receiver, collects them from asset sales. Thus, insured depositors 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 more greatly reduce pressures for bailout. 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 TBTF. The smaller the overall loss in bank failures, the easier it is economically and politically to resolve insolvencies with losses to de jure unprotected depositors. In the United States, if regulatory PCA is successful in limiting losses (negative net worth) at insolvent institutions to relatively small percentage amounts, say, to not more than five percent of assets at large banks (the loss experienced by the Continental Illinois National Bank in 1984 was near three 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 thus 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). However, because no large money center bank has failed since FDICIA, it is too early to declare TBTF dead in the United States.

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 thus 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 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.¹¹

¹¹ For example, a recent study by Demirgüç-Kunt and Huizinga (1999) reports finding evidence of some market discipline on banks in countries that have government-provided safety nets, but does not mention delays in payment as one of the possible reasons.

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. 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 physical 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.

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