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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Introduction and summary

Bank failures are widely viewed in all countries as more damaging to the economy than failures of other types of 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 spill over in domino fashion to other banks, financial institutions and markets, and even to the macroeconomy (Kaufman, 1996). Thus, bank failures are viewed as more likely to involve contagion or systemic risk than are failures 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, 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. Protected depositors will also experience present value losses if they are paid the par 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 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

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uninsured deposits as by credit 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 to protect some or all bank stakeholders 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 willing governments are likely to be to bow to such political pressures and supply the guarantees. Likewise, the larger the potential losses, the greater the probability that the accounts will be partially or totally frozen, the greater the potential harm to the macroeconomy, and the more likely the government will supply 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 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 article examines both the sources and implications of potential depositor losses in bank resolutions. In particular, we examine post-resolution depositor losses due to delays in paying both protected and unprotected depositors at failed banks the full current value 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 claims 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 article 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 up to now.

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 article also develops public policy recommendations on how to minimize losses to depositors from all sources, 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 Federal Deposit Insurance Corporation (FDIC) currently pursues such a strategy. In many instances, it effectively makes the current 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 makes it more 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]

However, 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 and other stakeholders, including senior management.

On the other hand, reductions in potential losses and in delays in payment could reduce depositor discipline on banks, thereby increasing the banks' fragility and the probability of failure. Thus, either solution appears to have drawbacks as well as advantages; and an intermediate 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. This article 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.

First, we identify and analyze the sources of potential losses to depositors in bank failures. Then, we

discuss the implications of delayed depositor access 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. We consider ways that policymakers can reduce depositor losses from bank failures. Next, we describe the FDIC's current procedure to provide depositors with full and immediate access to their claims at the time institutions are declared insolvent and placed in receivership and provide an overview of the history of immediate payment in the U.S. Then, we consider the advantages and disadvantages of full and immediate depositor access. We model the access timing decision graphically to solve for the optimal delay time. We then report on a survey of depositor access practices across countries conducted by the FDIC in spring 2000. Finally, we develop conclusions and "best practice" recommendations regarding depositor access to funds at resolved insolvent institutions to enhance the safety and efficiency of banking systems.

Sources of potential losses to depositors

Past analyses have identified five potential sources of economic loss 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 (that is, where the market value of the assets declines below the market value of the liabilities, which is 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—that is, 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*—Possible losses from any 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*—Possible losses (or gains) from any delay in the receiver's 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's 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 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 with 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 legally closed and a receiver appointed 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 (for example, 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 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 at times 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, 1989 and 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 the misallocation of financial resources, leading to misallocations of real resources and reductions in aggregate economic welfare.

The final three sources of potential loss occur after the date of official resolution when the institution is placed in receivership. Losses to depositors from delays in receiving reimbursement and liquidating bank assets may be either credit/market losses or liquidity/present value losses or both. 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 liquidity or 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, 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 liquidity/present value loss to depositors from operational inefficiencies by the receiver.

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 depositors have claims for the par value of their deposits (adjusted for any coinsurance) at the date of resolution and uninsured 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, the present value of the deposit claims and greatly intensifies 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 bank's 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 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.

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 from 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), which 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. We describe how the FDIC reduces the third source of loss—insufficient information and processing delay—in the next section.

The fourth source of loss, bad market conditions, could be reduced by careful monitoring by the appropriate agency of the receiver's motivations or justification for delaying selling bank assets. This monitoring would verify 1) that the probabilities are sufficiently

high that relevant asset markets are only temporarily depressed and may be expected to recover shortly; and 2) 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 delays 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—inefficient receiver—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.

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 placed in receivership. To do so, the deposit insurance agency can accelerate the identification of the depositors and the value of their claims and advance funds to them before it is paid by 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. Except in unusual instances, the FDIC provides all depositors with 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 after its appointment as receiver.[8] In addition, for insured and ex-post protected deposits, the FDIC advances the difference between the par value of the account and the present value of the estimated recovery amount, so that these depositors receive the par value of their deposits. The FDIC does not advance uninsured depositors a dividend equal to the estimated recovery amount primarily in cases where it cannot quickly obtain reliable estimates of the recovery value of the assets.

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 have made 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 the legal authority to advance the funds and it has mostly 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, including identifying the owners and total of eligible accounts, banks are generally declared insolvent at the end of business on Thursdays or Fridays, and depositors are 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. Under FDICIA's 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 its being closed to collect the needed information (FDIC, 1998a). The data collected are 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 generally able to estimate recovery values reasonably accurately before the bank is legally resolved and put in receivership,

and the deposits need not be frozen after closure while the magnitude and impact of the payout are 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 the FDIC advanced to the uninsured depositors, the FDIC bears the loss. Thus, to protect itself, it advances to the uninsured depositors only a conservative estimate of the present value of the recovery value.[13]

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 measure, 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 inability 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 nearly six years (Bennett, 2001). Even when the FDIC was initially established, it did not pay insured depositors immediately. The FDIC's *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, 1935, p. 26).

Similarly, before the mid-1960s, the former Federal Saving and Loan Insurance Corporation (FSLIC), which insured savings and loan (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 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; Pulkkinen and Rosengren, 1993; and Todd, 1994). Contrary to current FDIC practice, the insured depositors in these states were effectively insured in future or nominal values only, not in present values.

Full and immediate depositor access 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 with 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 (EU) 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 period may be extended for three three-month periods to a maximum of 12 months if necessary in "exceptional circumstance."

These delay schedules appear to have been imposed to limit the maximum delay due to obtaining and processing the relevant deposit data and to 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 EU. This is left to the laws of the individual countries. The competent authority that can declare an institution insolvent and the authority's powers are also determined by each country. In general, private receivers are appointed to sell or liquidate the bank. The unprotected claimants are paid the recovered values as they are collected and distributed by the receiver.[17] In most instances, this process is not fully completed for many years, so that depositors do not have access to the full recovery value of their claims for an equal number of years.

Advantages and disadvantages of immediate and full payment of depositor claims

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 effectively physically as well as legally closed, speedy payments also reduce the potential damage to the macroeconomy and reduce the need for the government to provide 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 does 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, 2002a).

But providing immediate depositor access to the full value of their permissible funds may also have important disadvantages; in short, it may be a double-edged sword. It may reduce market discipline on the banks. Knowing that they face a delay, and at times a very lengthy delay, in gaining access to the full value of their claims after resolution, both insured and uninsured depositors have a greater incentive 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 unprotected depositors. This would further reduce the incentive for

unprotected depositors to monitor their banks. We model the tradeoff between the advantages and disadvantages of full and immediate access in the next section to examine the implications more carefully and to identify the optimal time delay in providing depositors with full access.

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 tradeoff with market discipline. On the one hand, the greater the perceived loss that insured or uninsured depositors may potentially suffer, the greater their incentive to monitor their bank's condition and discipline the bank for taking excessive risks, either by withdrawing funds or by requiring higher interest rates to compensate for the increased risk. On the other hand, the greater the expected loss in either value or liquidity, the greater the public pressure will be for government protection of most if not all stakeholders. This is likely to increase the cost of resolution to the government. Given this tradeoff, it is possible to solve for the optimal time for the distribution of payments on depositor claims on a failed bank. We can model this tradeoff 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.

Our model is shown in figure 1. The time delay in the insurance agency providing depositors with full access to the value of their claims after resolution or the length of time accounts are frozen (payment delay) is measured on the horizontal axis. The reduction in expected loss (or gain) from additional market discipline and the increase in expected loss from intensified bailout pressure 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 with the delay time. The optimal delay time occurs when the reduction in expected loss from additional market discipline exceeds the increase in expected loss from bailout pressure by the maximum amount. In figure 1, where the two schedules are shown as crossing, this is shown as Q. If instead the additional market discipline schedule lies above the bailout pressure schedule at all points from the date of resolution, the optimal delay time is infinite. If the bailout pressure schedule lies above the additional market discipline schedule at all points, the optimal delay time is the date of resolution. This would imply that accounts should not be frozen at all and depositors should be given immediate access to the value of their claims.

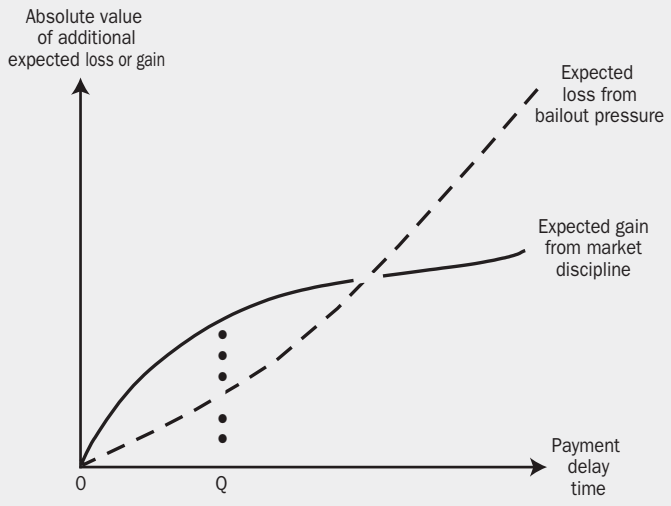
If an inability to advance payment or technical problems prevent the government from providing depositors with access at the optimal time, the government is likely to bail out all stakeholders and keep the bank in operation. This reinforces the importance of both resolving institutions as quickly as 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 earlier, the U.S. implicitly assumes that additional potential losses from bailout pressures immediately exceed potential gains from additional market discipline.

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

FIGURE 1

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



insight into the deposit insurance practices of 34 countries.[19] While the surveys covered a wide range of deposit insurance practices, this article 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]

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, the authorities may believe in instilling market discipline by imposing costs on depositors through delayed access to funds, but may not have the political resolve to carry out such a policy. Consequently, we analyzed only the 30 responding countries that had actually experienced bank failures since 1980. 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 table 1 shows, only three countries (Japan, Italy and Peru) provided immediate payment of insured deposits. 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, for example, 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 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 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 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 largely 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 dependent 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 follow the national practices for bankruptcy, with discretion vested in 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 suggests that, while most deposit insurers do not have the 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.

Conclusions and recommendations

This article identifies and analyses five potential sources of loss to depositors in bank failures, two that are recognized at the time an insolvent bank is resolved and placed in receivership and three that

TABLE 1

Funds availability, insured deposits

Country	Regulation/ laws	Immediate payment	Within 7 days	Within 1 month	Within 3 months	Within 6 months	> 6 months	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							

[a]Denotes 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.

occur afterwards. The three sources of post-resolution losses arise from delayed payment of depositor claims which may lead to losses in credit value and/or liquidity. The loss of liquidity through the effective freezing of some or all of the deposits by the deposit insurance agency, pending reliable data on what deposits and depositors are protected and/or the receipt of the proceeds from the sale of bank assets, has two conflicting effects. On the one hand, fear of delayed payment increases monitoring and discipline by depositors. On the other hand, fear of delayed payment increases pressure from depositors for protection and government willingness to supply such protection to reduce the chances of systemic risk.

This article analyzes these effects. 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, frequently before it collects them from asset sales in its capacity as

TABLE 2

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 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

[a]Denotes countries whose bank failures occurred prior to the establishment of the current deposit insurance scheme.
Note and source: see table 1.

receiver. Thus, insured depositors receive near immediate payment of the par value of their deposits and uninsured depositors generally 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 it may reduce bailout pressure even more. If so, 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) to relatively small 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 about 4 percent) and uninsured depositors have immediate and full access to their funds, then losses to large uninsured depositors would be restricted to a rate that is well within the boundaries that most of these depositors can tolerate without panicking (for example, losses they appear to be willing to bear in commercial paper or other short-term debt investments). 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 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, governments are less likely to be 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 recently 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, and 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, most other countries may find it more difficult to resolve large insolvent banks with losses to depositors, because these losses are not necessarily minimized and uninsured deposits are often frozen until payment is received from private receivers. These countries' governments are thus under greater pressure to protect all depositors and are more fearful of igniting systemic risk if they do not. Thus, TBTF appears to be alive and healthy in these countries, and taxpayer losses in bank failures may be expected to be relatively larger.

Because cross-country differences in insured depositors' access 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.

Our analysis in this article 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 quick depositor access may be constrained both by lack of legal authority for regulators to advance payment before receiving the funds from asset sales 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 the inability to estimate recovery values accurately and quickly. If this is indeed the optimal policy, policymakers in each country need to develop procedures for reducing the delays caused by these problems.

NOTES

[1] "Too big to fail" in the United States does not imply that the bank has not failed. All resolved banks since shortly after 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 "too big to liquidate quickly" and, therefore, may be kept in operation temporarily, protecting all creditors during the delay (Kaufman, 1990 and 2002b). 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 Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991, TBTF may more accurately be termed the "systemic risk exemption."

[2]Periodic restricted depositor access to accounts is common in many countries, for example, in Argentina during the recent currency crisis, and was so 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, for example, in the U.S. during the banking panics of 1893 and 1907.

[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 Limited, 2000).

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

[5]Berger and Udell (2002) have recently speculated that loan relationships are more with the loan officer than with the bank.

[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.

[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.

[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 it will mail checks to depositors 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, 1998a).

[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, unless 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, liquidations 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.

[13]Because the FDIC pays the full par amount of insured deposits, incorrect estimates 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, was 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 O Grada (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." As noted earlier, a similar constraint was recently imposed on banks in Argentina.

[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, 1983, pp. III 4–5 and FDIC, 1997, p. 250). The policy may have been modeled on a number of earlier actual or proposed plans, which we discuss later in the article. 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 the FDIC corporate account to the FDIC receiver account (FDIC, 1998a, and FDIC, 1997).

[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 even their 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.

[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 is potential delays in receiving payment. Likewise, Demirgüç-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.

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

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

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