

Eisenbeis, Robert A.; Wall, Larry D.

Working Paper

The major supervisory initiatives post-FDICIA: Are they based on the goals of PCA? Should they be?

Working Paper, No. 2002-31

Provided in Cooperation with:

Federal Reserve Bank of Atlanta

Suggested Citation: Eisenbeis, Robert A.; Wall, Larry D. (2002) : The major supervisory initiatives post-FDICIA: Are they based on the goals of PCA? Should they be?, Working Paper, No. 2002-31, Federal Reserve Bank of Atlanta, Atlanta, GA

This Version is available at:

<https://hdl.handle.net/10419/100869>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



FEDERAL
RESERVE
BANK
of ATLANTA

**The Major Supervisory Initiatives Post FDICIA:
Are They Based on the Goals of PCA? Should They Be?**

Robert A. Eisenbeis and Larry D. Wall

Working Paper 2002-31
December 2002

Working Paper Series

The Major Supervisory Initiatives Post-FDICIA: Are They Based on the Goals of PCA? Should They Be?

Robert A. Eisenbeis, Federal Reserve Bank of Atlanta
Larry D. Wall, Federal Reserve Bank of Atlanta

Abstract: The prompt corrective action provisions in FDICIA 1991 provide the supervisors with an unambiguous goal: “to resolve the problems of insured depository institutions at the least possible long-term cost to the deposit insurance fund.” Yet performance of the regulators in achieving this goal has been lacking in that substantial losses continue to be imposed on the insurance funds when banks fail. Is PCA misguided, or are there incentive defects in the law and how the requirements are being administered? This paper analyzes these issues in the context of recent proposals to reform the deposit insurance system.

JEL classification: G2, L5

Key words: deposit insurance, bank supervision, capital adequacy regulation

The authors gratefully acknowledge William Estes, Alton Gilbert, Lynn Shibut, Myron Kwast, and Allen Berger. They also thank Lisle Cormier for research assistance. The views expressed here are the authors' and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System. Any remaining errors are the authors' responsibility.

Please address questions regarding content to Robert A. Eisenbeis, Sr. Vice President and Director of Research, Federal Reserve Bank of Atlanta, 1000 Peachtree Street, N.E. Atlanta, Georgia 30309-4470, 404-498-8824, Robert.A.Eisenbeis@atl.frb.org or Larry D. Wall, Financial Economist and Policy Adviser, Federal Reserve Bank of Atlanta, 1000 Peachtree Street, N.E., Atlanta, Georgia 30309-4470, 404-498-8937, Larry.Wall@atl.frb.org.

The full text of Federal Reserve Bank of Atlanta working papers, including revised versions, is available on the Atlanta Fed's Web site at <http://www.frbatlanta.org>. Click on the “Publications” link and then “Working Papers.” To receive notification about new papers, please use the on-line publications order form, or contact the Public Affairs Department, Federal Reserve Bank of Atlanta, 1000 Peachtree Street, N.E., Atlanta, Georgia 30309-4470, 404-498-8020.

The Major Supervisory Initiatives Post-FDICIA: Are They Based On The Goals Of PCA? Should They Be?

Introduction

The post-FDICIA period has been marked by three major safety and soundness initiatives from the U.S. supervisory community: risk-based supervision, reform of the 1988 Basel Bank Supervisors Committee's risk-based capital regulations, and deposit insurance reform. Risk-based supervision, which followed from the 1988 Basel reforms, is intended to refocus bank examination away from verifying the past and present risks towards identifying future risks. The revisions to the risk-based capital regulations are intended to better align supervisory capital requirements with individual bank's risk exposure. Deposit insurance reform consists of a variety of measures that would reallocate the distribution of bank failure costs across time and interested parties including depositors, premium paying banks, and the taxpayers and bank equity holders.

Are these reforms leading in the right direction? To answer this question, one must begin by asking what is the goal of bank supervision and regulation (S&R)? Over time, the goals of banking supervision have evolved, due to changes in law, to changes in regulatory and supervisory philosophy, and to changes in the financial market place. In the early years, following the establishment of Federal Deposit Insurance, the principal objective of banking supervision was to prevent systemic banking failures and panics, and it was thought that the best way to do this was to prevent banks from failing. The agencies were very effective in achieving this end. Few banks actually were declared failures from the 40s through the mid-70s. Most recently, Congress clearly spelled out the supervisors' primary goal in the prompt corrective

action (PCA) provisions of the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA). PCA provides a structured procedure for addressing problem banks and gives the unambiguous goal of that process: “to resolve the problems of insured depository institutions at the least possible long-term cost to the deposit insurance fund.”¹

Superficially, the goals of failure prevention and loss minimization appear to be related. If a bank does not fail then it cannot impose losses on the deposit insurer. However, pursuit of these goals may have very different and potentially conflicting policy implications for the health of the banking system and for the deposit insurer. Each has different implications for the size of losses when they do occur and how they are distributed among the affected parties and the deposit insurance fund. They can also significantly affect risk-taking incentives by both healthy and distressed banks, and hence the size of future losses to the insurance fund.

Are the current supervisory initiatives consistent with the goal set by current law in FDICIA? Should these initiatives be consistent? This paper begins by reviewing the question of whether FDICIA’s focus on minimizing deposit insurance losses is appropriate and concludes, for a number of reasons, that it is indeed correct. Sections 2-4 evaluate each of the major S&R initiatives and their likely impact on the banking system. The evidence suggests that most of the supervisory efforts have continued to be directed toward minimizing the probability of failure rather than minimizing the expected losses due to failure. The fifth section evaluates deposit insurance reform issues. Section 6 presents some ideas for an agenda focused on minimizing the expected costs of bank failure. The last section provides concluding remarks.

2. Preventing failure vs. minimizing deposit insurance losses

The goals of preventing failure and minimizing deposit insurance losses make fundamentally different demands on bank supervisors and have different implications for loss sharing and incentives to management. The goal of preventing failure places a large share of the responsibility and accountability for a bank's failure with the bank supervisors. If a bank becomes financially distressed, then supervisors are expected to detect the problem and take appropriate remedial actions. When a bank fails, either the supervisor did not adequately evaluate the bank's risk or in some other way failed in its responsibilities.²

In contrast, minimizing deposit insurance losses means that when a bank fails, regulators attempt to limit losses to the deposit insurance fund. This involves ensuring that bank owners, managers, and uninsured creditors lose their equity or other liabilities before losses are born by the insurance fund. Because they are exposed to loss, risk taking and moral hazard behavior of managers and owners should be contained. Moreover, bank owners and managers have an incentive to protect their investment and to limit their loss exposure because they are explicitly responsible for the bank's performance. If a bank should fail, then either management took too much risk or the bank's future prospects were such that further investment by the bank's owners would not provide an adequate rate of return. Thus, the responsibility for the ultimate fate of a bank rests with its owners and managers, and not with its supervisors.

The next subsections present and evaluate the arguments for preventing failure and for limiting deposit insurance losses.

2.1 Preventing failure

The public policy argument for the goal of preventing bank failure is based on the perception that failure poses costly externalities on other banks, on bank customers, or on financial markets more generally. To the extent that failure reduces confidence in other banks, self-fulfilling bank panics may become more likely. Failure may impair the ability of other economic participants to make payments or to obtain credit. Failure may result in the loss of valuable information about a bank's borrowers, and hence increase borrowing costs, *ceteris paribus*. Finally, the failure of large banks may pose extra problems because of their role as major players in many financial markets, both for their own accounts and as dealers to facilitate transactions by other parties.

The argument that bank failures cause irrational panics has been examined in a number of papers and found to have little support in the data.³ Kaufman (1999) summarizes the evidence as "There is effectively no evidence of a depositor run driving an economically (market value) solvent bank into insolvency. Damaging runs were almost entirely on economically insolvent banks that were still open and operating." The evidence suggests that bank runs occur at banks where depositors have a reasonable basis for fearing loss and not at banks where there is no reason to doubt the bank's solvency.⁴ Moreover, even if irrational deposit runs were a concern, the combination of deposit insurance and central bank operations would mitigate any problem. Deposit insurance stops runs by smaller depositors and may discourage runs by larger depositors. The central bank may offset any large increase in the demand for liquidity both through its open market operations and its lending to specific solvent institutions.

A related concern is that a bank failure may disrupt the payment system at either the wholesale or inter-bank level when banks become uncertain that other banks will honor their obligations. The events of September 11 illustrate this problem very clearly. When the World Trade Center collapsed, not only were securities trading firms, such as Cantor Fitzgerald, unable to make or complete transactions, but also disruptions to communications meant that some institutions were either only able to accept payments or were unable to route payments to their final recipients. Some institutions' balance sheets ballooned out of control while others found themselves in substantial deficit reserve positions as anticipated payments did not materialize by the end of the day. Again, the systemic nature of this disruption was essentially mitigated when the Federal Reserve stepped in and provided the necessary temporary liquidity so that institutions were able to close their books and avoid technical insolvency or default.⁵

A third concern is that failure may result in the temporary or permanent loss of lending ability of the failed bank. In part, this concern arises from a mistaken belief that resolving a failed bank necessarily implies liquidating the bank. In most cases the FDIC does not liquidate all of a failed bank's assets but rather seeks to sell the bank as an ongoing operation to other banks or to recapitalize it. Other banks are often willing to buy the entire failed bank or parts of it precisely because the expected revenue from operating the bank once stripped of its bad assets (and other claims) is greater than the costs. The acquirer has an incentive to continue operating the financially viable parts of the failed bank with minimal disruptions to customers. Some banks operate facilities where even very short-run disruptions, such as securities transfers, may be costly to the market. However, the magnitude of these costs depends critically on how the failure is resolved. An orderly, carefully thought through transfer may impose few if any costs.⁶

2.2 Minimizing deposit insurance losses

The goal of minimizing deposit insurance losses should conceptually simplify the task of bank regulators in that their primary supervisory attention should be on dealing with problems and deteriorating institutions rather than focusing on both healthy and failing banks. In a world with deposit insurance, the value of the guarantee to healthy institutions should be zero (or nearly so). Moral hazard associated with deposit insurance arises when unhealthy institutions are incented and able to take on more risk, so as to increase the value of insurance. Hence, the objective of supervisors should be to prevent banks from assigning a significant value to deposit insurance in determining their portfolio allocations. Since the value of insurance increases as an institution's net worth declines, supervisory attention is best concentrated on valuing assets and determining whether a bank's capital has deteriorated to the point where the market value of the bank's equity is near zero. The advantage in dealing with failing banks is that forbearance is generally not desirable.

In contrast, a supervisor that seeks to minimize bank failures wants the costs facing bankers to incorporate the supervisor's cost of failure. As such, the supervisor is not only seeking to undo the effect of deposit insurance but also to have the prices contain an added risk premium to reduce bank risk taking to levels consistent with supervisory goals. In setting a synthetic pricing schedule to reduce risk, the supervisor may use a combination of prohibiting certain portfolios, imposing risk-sensitive capital requirements and deposit insurance premiums, and by imposing higher supervisory costs on riskier banks.⁷

A variety of problems may emerge because of the supervisors' trying to impose a synthetic price schedule on bank portfolio choices. Even if supervisors were able to set the right relative prices of risk to accomplish their goal, the consequences may be less than optimal. If the supervisor's cost of bank failure is greater than society's cost of failure, then the bank internalizes the supervisor's cost, and it will take less than the socially optimal amount of risk. Thus, even if market prices understate the total social cost of bank failure, giving banks a price schedule based on the cost of failure to supervisors may not improve social welfare.

Moreover, even if the supervisor and society assign the same cost to bank failure, information asymmetry poses potential problems. Bankers typically know more than supervisors about the distribution of returns associated with portfolios of various bank assets, liabilities and contingent claims. Thus, the supervisory agencies are unlikely to be able to avoid setting synthetic prices that are too high on some claims and too low on others. Supervisory errors are likely to result in banks making sub-optimal portfolio allocations even from the supervisor's perspective.

Further, the difference between the relative prices set by the supervisors and those set by financial markets creates an arbitrage opportunity. A bank may gain access to profitable opportunities by complying with the letter of the regulations while avoiding its intent, a process sometimes called regulatory arbitrage. This happened recently as banks restructured assets and liabilities and substituted off-balance sheet contingent liabilities for on-balance sheet liabilities to avoid Basel capital requirements. Supervisors may try to limit such arbitrage by adopting more detailed regulations, which creates incentives for banks to seek loopholes in the new regulation. Kane (1977) calls this process the regulatory dialectic and argues that it will continue unless and

until the “budgetary cost, social inconvenience, economic waste and distributional inequity ... become painfully obvious even to the ordinary citizen.”

In contrast, if the goal is merely to minimize deposit insurance losses, supervisors’ goal is simply to prevent market prices from incorporating expectations that the deposit insurer would absorb significant losses. This requires that the supervisors set relative prices so that a strategy of taking large gambles that could result in the rapid elimination of the bank’s capital are shareholder wealth reducing. This also requires that the supervisors carefully monitor the value of the bank’s portfolio so that they can intervene when capital falls below some minimal level at which moral hazard concerns become relevant and so that they can resolve the bank before it can impose large losses on the insurer. Indeed, if both of these goals are accomplished, the relative prices set in financial market price will reinforce the supervisor’s goal rather than providing an incentive to avoid the goal.

Another advantage of seeking to minimize losses to the deposit insurer is that doing so avoids creating any incentive for forbearance. Keeping the bank open creates a situation of asymmetric gains and losses in which the owners and managers retain the benefits if the bank returns to financial health but others— mostly uninsured creditors, the deposit insurer, and taxpayers—bear even larger losses if the bank fails. This asymmetry supplies the incentive for banks to engage in moral hazard behavior.

2.3 Regulatory Behavior Under FDICIA

One of the key intents behind the early intervention and prompt corrective action provisions in FDICIA was to refocus supervisory efforts on minimizing losses to the insurance funds by requiring the agencies to close institutions when insured institutions' book value of capital falls below 2 percent. The question arises as to how the regulators have performed since these provisions took effect in 1992, and whether this experience provides any clues as to whether regulatory agency behavior has changed?

CHART 1 ABOUT HERE

Chart 1 shows the loss experience of the FDIC over the period 1986 through 2000. Looking at just the dollar amount of the losses, there is a clear decline shortly after the full effects of PCA began to take effect in 1993. However, looking at the loss percentages relative to assets, it is hard to notice any discernable trend pre and post the PCA provisions in FDICIA, except for the two years 1998 and 1999. If the agencies were truly following FDICIA's prompt corrective action and early intervention provisions, then these losses as a percentage of assets should be close to zero. It is clear that the losses are huge in both dollar amounts and as a percentage of assets. Losses over the entire 1986-2000 period averaged about 13 percent, and in the post PCA era averaged 26 percent. This latter period's average is driven up significantly by the experience in 1998 and 1999, when very large fraud-related losses were incurred on a single institution in each of those two years. However, PCA appears to have had no noticeable impact even if these two years are dropped from the analysis. Moreover, large losses continue with

Blackwell (2002c) reporting that by early July 2002, the FDIC has closed three banks in that year, each of which had a loss-to-asset ratio of more than 50 percent.

TABLE 1 ABOUT HERE

As Table 1 indicates, there are some interesting differences in the patterns of losses when the experience is broken down by primary supervisor that have some interesting agency cost implications. One would theorize that the FDIC might be more sensitive to potential losses because it also has primary responsibility for the insurance funds. That is, the hypothesis would be that the losses and loss rates would be lowest on FDIC regulated institutions. However, the data do not seem to show such a pattern. All the regulators have dealt with institutions that failed, and that also imposed large, both in dollar amounts and in percentage of assets terms, losses on the insurance fund. Between 1986 and 2000 losses ranged from a low of 10.8 percent of assets for institutions supervised by the Federal Reserve to a high of 21.1 percent for institutions supervised by the FDIC. The experience for institutions supervised by the OCC and OTS were approximately the same at 11.3 percent and 11.7 percent, respectively. In some years, losses have been unexplainably large, especially given the agencies' mandate to minimize losses to the insurance funds.

There are several possible explanations for the large losses from 1993 onward. First, the agencies could still be pursuing forbearance and failure minimization policies rather than loss minimization. Second, the agencies may be closing institutions when book values reach the critical levels, but book values are such a poor indication of true underlying asset values that the

trigger closure rules are badly miss-specified. Third, the institutions that were closed were largely engaged in hard-to-detect fraudulent activities, making effective implementation of PCA problematic. Fraud was a significant factor in the OCC-supervised Keystone Bank, WV, which resulted in a \$780 million loss that amounted to nearly 75 percent of the institution's assets. Beyond a few spectacular cases, review of the specific case documents suggests that while fraudulent activities did play a role in some of the failures, it does appear that there were large delays in closing troubled institutions, suggesting that failure minimization may still be an important supervisory objective.

2.4 Summary

Our analysis suggests that the arguments for minimizing the probability of a bank failing are not very convincing and whereas the objective of minimizing deposit insurance losses is incentive compatible. The alleged harms of bank failure are overstated and those harms that do arise are best addressed through better resolution practices. A focus on preventing bank failure is mistaken in part because such a focus can unintentionally encourage forbearance at distressed banks. Moreover, the problems with a failure prevention focus go beyond those of forbearance. A focus on failure prevention results in supervisors trying to replace market signals with a synthetic set of signals that incorporate the supervisor's cost of bank failure. These synthetic signals may overstate the cost of failure, miss-price the relative riskiness of different assets, and encourage regulatory avoidance. In contrast, a focus on limiting losses to the deposit insurance fund seeks only to prevent banks from imposing part of the costs of bank failure on the safety net. To date, however, it does not appear that agencies have been very successful in limiting losses to the insurance fund.

3. Risk-based supervision

The U.S. bank regulators have adopted and implemented risk-based supervision during the 1990s. The *Commercial Bank Examination Manual* from the Federal Reserve (2000) discusses the differences between risk-based supervision and the prior examination process.⁸ On page 2, the *Manual* explains that “Historically, examinations relied significantly on transaction-testing procedures when assessing a bank’s condition and verifying its adherence to internal policies, procedures, and controls.” The *Manual* argues “Evolving financial instruments and markets have enabled banking organizations to rapidly reposition their portfolio risk exposures. Therefore, periodic assessments of the condition of a financial institution based on transaction testing alone cannot keep pace with the moment-to-moment changes occurring in financial risk profiles.” The *Manual* then goes on to explain the change made by risk-based (or risk-focused) examination: “To ensure that institutions have in place the processes necessary to identify, measure, monitor, and control risk exposures, examinations have increasingly emphasized evaluating the appropriateness of these processes, evolving away from a high degree of transaction testing.” The *Manual* does note that greater transactions testing may be necessary depending on the adequacy of the internal risk management and internal control processes.

A potentially important benefit of risk-based supervision is its reduction in the cost of examination. The increases in the size and complexity of many banking organizations have increased the cost of examining individual transactions to prohibitive levels. The cost of examination may be reduced under risk-based supervision because the change in approach allows the supervisors to focus on the major determinants of a bank’s risk. Risk-based

supervision may also contribute to the goals of minimizing the probability of bank failure and minimizing the losses to the deposit insurance fund. Banks that are not adequately managing their risk exposure are at higher risk of failure. If a bank's risk management process is sufficiently deficient, the bank may expose itself to losses so large that it poses the risk of significant loss to the deposit insurer.

The two different supervisory goals have important differences for the degree of emphasis supervisors should place on evaluating risk management systems. Given a goal of failure prevention, identifying and devising methods for penalizing risk concentrations is critical. The supervisors must identify ways in which banks are taking higher risk positions so that they can impose costs so as to reduce the expected rate of return on these activities, and thereby incentivize institutions to stop increasing and possibly even decrease these risky activities. The supervisors may impose these costs in a variety of ways. They may bring perceived deficiencies to the attention of the bank's management or board of directors. They may assign an unsatisfactory CAMELS rating to the bank, which increases its deposit insurance premiums. If these tactics appear insufficient, the supervisors may act directly on the portfolio by imposing constraints on the portfolio in the form of diversification requirements, limiting the investment in certain assets, or even demanding that the bank stop investing in certain types of assets.

In contrast, estimating the value of the bank's portfolio so as to come up with reliable measures of economic capital is less important if the goal is failure prevention. Lower levels of economic capital do raise the value of the deposit insurance subsidy to risk taking, inducing banks to take

more risk. However, even at high levels of economic capital the value maximizing strategy for the bank may be to take more risk than is optimal for a supervisor seeking to prevent failure.

On the other hand, if the goal is deposit insurance loss minimization, obtaining a reliable estimate of the value of the bank's portfolio, and hence of its economic capital is critical. The supervisors must have a good estimate of a bank's economic capital if they are to intervene or close a bank before it becomes economically insolvent and poses a threat of substantial loss to the deposit insurance fund. Moreover, under loss minimization, the supervisors generally accept banks' choice of portfolio if the choice is not significantly influenced by the ability to shift losses to the deposit insurer. How a bank's portfolio is distributed among different assets and liabilities is less important, provided the portfolio can be valued, and reliable estimates of economic capital can be obtained. If a bank has sufficiently high levels of economic capital, supervisors need not intervene because the option value of deposit insurance is sufficiently far out of the money so that it is not important to the bank's risk taking decisions.

Evidence on the role of risk-based supervision in practice is mixed. In testimony to Congress, former Comptroller of the Currency Ludwig (1997) suggests that the goal of risk-based supervision is to prevent failure:

And we also learned that supervision is much less effective if it is based on looking only at the current condition of an institution – in other words, what has already happened. What is needed is forward-looking supervision that identifies the problems that are emerging and how to manage them. Effective supervision

cannot be limited to treating the disease. We also need to practice preventive medicine.

He later explains that, “we have developed a supervision-by-risk system that is forward looking and improves our ability to identify and address problems before they become crises.” Ludwig’s discussion suggests a belief that supervisors are ultimately responsible for limiting bank risk taking. Supervisors must identify problems and use their powers to change the relative returns to taking risks so that losses may be prevented.

Federal Reserve Chairman Greenspan (2001) provides a different perspective on risk-based supervision. His overall philosophy towards bank risk taking is that “while public policy needs to limit the financial and social costs of bank failures, we should not view every bank failure as a supervisory or regulatory failure.” In the context of risk-based supervision he states:

It is, of course, our belief that, for the larger banks, improving the measurement and management of risk will provide bank supervisors with more reliable and efficient ways to evaluate a bank’s financial health. That thought underlies the concept of risk-based supervision and our increased focus on internal processes and controls. If we can gain greater confidence in a bank’s operating procedures and in its own evaluation of risk, we should be able to reduce our oversight role—certainly when compared with what would otherwise be required.

Greenspan’s arguments suggest the potential for risk-based supervision to support the goal of minimizing deposit insurance losses by helping supervisors identify threats to the deposit insurance fund before the losses are unavoidable.

4. Revised risk-based capital under Basel II

The modern history of U.S. capital regulation begins with the announcement of numerical capital guidelines in 1981. When first announced, these guidelines focused exclusively on the asset side of the balance sheet and excluded contingent claims such as derivatives and loan commitments. Moreover, these guidelines assigned an equal weight to all of the assets on the balance sheet. The announcement of these regulations included explicit statements that the supervisors believed the largest banks, the multinational category, needed to raise their capital ratios. U.S. banks moved to increase their equity capital as intended by the supervisors, but they also raised their regulatory capital adequacy ratios by reducing their holdings of highly liquid, low risk assets that had a low return while boosting their involvement in contingent claims. As a response, the U.S. supervisors together with their counterparts in other developed countries met as the Basel Bank Supervisors Committee and announced a new set of risk-based capital regulations for internationally active banks in 1988. These guidelines provided for a form of crude credit risk weighting and brought in the credit risk of contingent claims. However, banks responded to the 1988 guidelines in a similar manner to the 1981 guidelines: new capital was issued but banks have also sought ways to reduce measured risk without decreasing actual risk.

The effort to reform the 1988 guidelines has gathered considerable momentum in recent years. The proposal contains three parts or “pillars.” The first pillar establishes a minimum capital adequacy ratio and provides procedures for calculating that ratio. These rules specify three different ways to measure a bank’s risk exposure, each of which is intended to be more accurate than the 1988 standards. An innovative feature of the more sophisticated risk measurement proposals, the internal ratings based and advanced internal ratings based approaches, is that they

provide for the use of banks internal credit ratings to set capital requirements. The regulations seek to raise the overall cost of risk taking to banks but to leave the relative costs of different types of risk taking unchanged (at least with respect to credit risk). The intent in doing so is to reduce the distortion on bank portfolio allocations introduced by regulation.⁹

The second pillar of the new regulations is supervisory evaluations of bank's capital adequacy. Most of the provisions of this pillar will have more of an effect on some foreign supervisors than on U.S. bank supervisors.

The final pillar is market discipline, which focuses exclusively on providing additional information to financial markets, it does not call for market participants to be exposed to greater losses in the event of bank failure or call on supervisors to use market signals. The idea behind the third pillar is that market participants would exert more effective discipline over banks if they had better information. The extent to which market participants will exert discipline, however, also depends on the extent to which they are at risk. If the supervisor's goal is to prevent bank failure, market participants may perceive their risk of loss to be small, and this seems to be consistent with recent experience. Whereas, if the goal is to minimize losses to the deposit insurer, then uninsured participants may perceive a great deal of risk.

Most of the attention on Basel II seems to be focused on the first pillar, revised capital adequacy measures, suggesting that it is perceived to have the greatest impact on banks. Regulation specifying minimum capital adequacy ratios plays an important role under both the goals of minimizing the probability of bank failure and minimizing expected deposit insurance losses,

however, its role and implementation are very different under the two goals. If the goal is to minimize the probability of failure, capital regulations should generally exercise a binding influence on bank equity capital. That is, one way of taking implicit risk-based supervision and making it explicit is by putting regulatory (as distinct from market) prices on risk. The actual level of bank capital ratios may be greater than the minimum supervisory requirements, but the excess is a deliberate cushion held by the bank both to reduce the risk that unexpected losses will force the ratio below the requirements and to allow the bank to exploit unanticipated profitable growth opportunities. To the extent that required equity capital allocations are greater than would be imposed by the market, or are relatively different from what the market might charge on different asset classes, they will either reduce profits and/or induce innovations to avoid the capital constraints, such as increased reliance upon off-balance sheet activities or on derivatives. Note that risk-based capital is not the same thing as economic capital. Moreover the risk-based capital ratio is calculated using book values instead of market values.

In contrast, if the goal is to minimize expected losses to the deposit insurer, regulatory equity capital tranches will be set to trigger supervisory action only at distressed or failing banks, and should not affect asset allocations or the portfolio choices of healthy institutions. The equity capital trigger would require supervisory intervention before a bank becomes insolvent, partly to alert the bank to supervisor's view of its portfolio value and partly to limit moral hazard as the value of deposit insurance increases. These requirements would force supervisory action if a bank's capital deteriorated to the point where the bank faced a substantial moral hazard problem or if the bank posed a threat to the deposit insurance fund. Given these goals, the equity capital

trigger ratios set by the supervisors would generally be well below the capital ratios relevant to a well-run institution or that would maximize bank shareholders' wealth.

Capital regulation designed to protect the deposit insurance may also differ from regulation to prevent failure in two other ways. First, the measurement of capital should be done in economic values rather than historical cost accounting values. Historical cost accounting values are irrelevant to the deposit insurer if a bank must be resolved. Losses will only be controlled if assets can be sold at market prices sufficiently high as to cover liquidity needs and meet creditor demands for funds.¹⁰ However, if the goal is failure prevention then book value capital is the best measure of capital. Book value is superior to market value because supervisors may exert more control over book capital, allowing them to defer recognition of losses and the associated pressure to resolve failing banks.

Second, uninsured liabilities may serve as a form of contingent capital, ready to absorb losses to the extent that a bank's reported economic value exceeds its value in resolution. However, equity capital is preferred by supervisors if the goal is failure prevention because equity can absorb losses without the bank failing, whereas contingent capital absorbs losses only if the contingency of failure arises.

The 1981 and 1988 regulatory capital regulations were intended to be binding upon bank portfolio choice, and as such clearly fall under the goal of minimizing the probability of failure. The intent of Basel II also appears to be failure prevention. Supervisors have indicated on several occasions that they view the overall level of capital in the banking system to

approximately the right amount but they have concerns about its distribution. This implies that while Basel II will lower requirements for some banks, it will bind at even higher levels for other banks. Basel II leaves largely unchanged the 1988 definitions and measurement of bank capital, which are book value equity capital with a minimal role for contingent capital. These are the sorts of issues that are important considerations for regulations that bind most banks but which would be relatively unimportant for regulations that bind few banks.

The new proposal seeks to minimize the distortions arising from the 1988 standards in two ways. First, for banks with less sophisticated risk measurement systems, Basel II proposes a “Standard Model” that would use bank borrower credit ratings from agencies such as Moody’s to set more requirements. While the new weights attempt to be reflective of relative credit risk, any such simple risk weighting scheme that imposes uniform weights by categories will inevitably overweight some assets and underweight others. Even given this unavoidable problem, the proposal makes unnecessary errors. Altman, Bharath and Saunders (2002) demonstrate that the risk weightings on rated loans still underweight risky assets. Moreover, they argue that the proposed weighting of unrated loans is too low and would discourage weaker firms from obtaining ratings.

Second, more sophisticated banks would be allowed to use their internal risk weightings to set the capital charges for each asset. However, the relative weights assigned by internal ratings depend upon the model of credit risk and the data used to parameterize the model. Banks will have opportunities to engage in old-style arbitrage of the risk weightings if the bank learns of flaws in the model or obtains new information suggesting that historic parameters are wrong. To

be sure, these arbitrage opportunities may be more limited than under the 1981 and 1988 standards, but that in large part reflects the very crude nature of the risk measurements under those standards. Moreover, by relying on banks' internal ratings the supervisors have raised the cost of producing an unbiased estimate of the credit risk of any given obligation. Given a choice of how to rate the credit risk of a particular obligation, the existence of binding capital requirements raises the cost to institutions of using a procedure that generates the higher estimate of credit risk, creating an incentive to employ systematically biased models to measure credit risk. Supervisors will review bank's rating systems to assure compliance with minimum standards and will have an advantage in being able to see how different banks evaluate similar loans. However, banks will still have advantages in having better paid and likely more people working on the models, and in being able to observe market conditions that are not yet observable in historical loan loss data.

While bank capital regulation would be structured differently if the goal was to minimize expected deposit insurance losses, supervisors would still be interested in a bank's internal risk measurement models. Such models would be helpful in evaluating the riskiness of a bank's portfolio and the value of deposit insurance to a bank. Moreover, all banks would benefit from the use of such models to the extent they help their pricing and portfolio management. However, the use of internal models to set capital requirements imposes higher costs on supervisors and creates an incentive for banks to favor models that underestimate their risk exposure. These adverse incentives only increase the distortions resulting from binding capital regulation.

5. **Deposit insurance reform**¹¹

The FDIC (2001) recently made a number of proposals to reform the existing deposit insurance system. Among the more important of these are proposals to (1) levy insurance premiums on all banks regardless of their condition and the size of the fund, (2) allow the FDIC to issue credits against future premiums so that it can charge premiums to all banks without the fund becoming excessively large, (3) merge the Bank Insurance Fund (BIF) and the Savings Associations Insurance Fund (SAIF), (4) give the FDIC greater flexibility in setting the size of the fund, and (5) index the current \$100,000 limit on deposit coverage to a price index with the first adjustment in 2005. All of these reforms focus on the distribution of losses across depositors, banks, taxpayers and time. The first four of these reforms relate to the size of the net premiums (premiums minus rebates) paid by different groups of insured institutions; the timing of premium collections, now or in the future; and the risk that taxpayers will be asked to cover losses. The last relates to the distribution of risk between depositors and those paying for losses to the insurance fund.

The structure and role of deposit insurance depends to a very large extent on the goal of the bank supervisors. To the extent that the goal is to minimize failure, deposit insurance plays a central role and its funding structure is potentially important. Deposit insurance reduces the cost of bank failure to depositors and, thereby, reduces the probability of an adverse externality in the form of a bank run that forces the closure of a bank. The reduced probability of a run, gives supervisors more time to help distressed banks recover. In those cases where the bank does not recover, the bank is likely to have incurred further losses necessitating payments by the insurance fund to

protect insured depositors, and possibly protect uninsured depositors and even non-deposit liabilities.

The existence of deposit insurance, implicit and/or explicit, plays a central role in the need for regulation under loss minimization. However, far from seeking to prevent market discipline in the form of bank runs, a loss minimization goal would welcome occasional runs. If the supervisors have confidential information that suggests the bank is not in danger of becoming insolvent, the bank may be kept liquid by short-term loans from the discount window. Such a short-term supply of liquidity would give the bank time to convince the market that it was indeed solvent.¹²

The following three sections consider the major changes proposed by the FDIC. The first subsection takes the first two proposals, the next one takes the third and fourth proposals, and the fifth discusses the last proposal.

5.1 Premiums and rebates

The proposals to charge all banks a premium and rebate collections if the fund exceeds some target are related proposals intended to allow the FDIC to charge a premium to all banks. FDIC Chairman Donald Powell (2001) says that the “FDIC wants to be able to fulfill the original mandate Congress gave it in 1991 to design and establish a truly risk-based system.” The current restrictions on the size of the deposit insurance fund limit the FDIC’s ability to charge such premiums. Indeed, the FDIC is prevented by law from charging premiums to well capitalized banks with satisfactory ratings if the fund exceeds 1.25 percent of insured deposits. As a result,

the overwhelming majority of banks have paid no premiums in recent years. Powell further argues that if the appropriate premiums to discourage risk taking turn out to be too high ex post, then the FDIC should have the authority to rebate the excess. Relaxing this constraint would give the FDIC more freedom to charge premiums to all banks while keeping the fund within some desired range.

If the goal is to minimize the probability of bank failure, the pricing of deposit insurance is a potentially valuable tool. The premium payments may be scaled to the bank's riskiness in order to reduce the returns to holding a risky portfolio. As such, premium payments provide a relatively direct mechanism for influencing relative prices. The main constraint on scaling the premiums to risk is that they must not fully reflect the risk to the fund of distressed banks, as collecting higher premiums from these banks will reduce their probability of survival.

However, if the goal is to minimize losses, then setting premiums on the volatility of bank portfolio values misses the primary risk to the deposit insurance fund, which is that the supervisor will not close the bank in a timely manner. There is still an argument for trying to limit losses by charging premiums for risk, but it rests on a completely different foundation than is the case for premiums to minimize the risk of failure. Regulatory agencies charged with monitoring the solvency of depository institutions are faced with a number of alternatives. At one extreme, they could engage in continuous supervision and monitoring of all material aspects of a bank's portfolio. Doing so would not only be costly but also would probably be wasteful of resources. At the other extreme, agencies might not monitor at all and would simply pay off losses as they occur. This alternative too might be wasteful and clearly would lead banks to

moral hazard behavior and risk taking. Regulators need, therefore, to balance the expected costs of supervision and monitoring and the risks that institutions may become economically insolvent between examinations. This risk is a function of the ease and costs of monitoring, the transparency of the accounting system, and the short-run, risk-taking propensities of insured institutions between examinations. It should also be recognized that because experience is proving that not all realized risks can be readily detected, some portion of the FDIC's price should reflect the realization that not all the actuarial risk is solely related to the time between examinations.

From the perspective of ensuring transparency, the rationale for premiums that vary across banks is transformed from pricing exclusively for risk to pricing based primarily on transparency. As mentioned previously, a portion of the FDIC's premium levy may still reflect multi-period risk because the fund may incur some losses when a bank fails with losses that were not detected at the time of examination. However, the primary factor would be banks' transparency. Banks that are relatively easy to value would pay lower insurance premiums; at the limit would be banks that invest solely in marketable assets (such as money market mutual funds), where the potential loss could be trivial. Conversely, banks that are harder to value would pay higher fees reflecting their potential to incur greater losses before their problems are recognized. Moreover, the incentive created by deposit insurance premiums could be augmented by examination charges that reflect the frequency and difficulty of the examination process (see Flannery 1991). Continuous monitoring of the net worth of all depository institutions is extremely costly, so risk-related premiums serve the function of balancing the costs of monitoring versus the chance that

losses will materialize between examination periods.¹³ Presumably, the less risky and complex an institution's portfolio is, the lower the costs of monitoring.

5.2 The size of the fund

Powell (2001) points out a number of problems caused by the current restrictions on the FDIC's discretion when the fund is too high or too low. He argues that premium limits imposed by the restrictions on the fund's size not only make risk-based premiums less effective but also allow new deposits to enter without paying any premiums. He also notes that if the fund ratio falls below the target then deposit insurance premiums must be increased to 23 basis points. Such an increase would most likely happen at a point in the business cycle when it would be a significant drain on banks' earnings. Powell argues that the consequence of this drain could be "impeding credit availability and economic recovery" (2001).

The starting point for evaluating Powell's comments on the size of the FDIC's insurance fund is to recognize that it is not an insurance fund like that held by a private insurer. Indeed, as William Isaac, former chairman of the FDIC, notes, "It's important to understand that there is no deposit insurance 'fund'" (2000). Premiums paid to the FDIC are remitted to the Treasury and go into the General Fund of the United States.¹⁴ Outlays by the FDIC increase the federal deficit. Further, he asserts, "The object in collecting premiums from banks and thrifts is not to build a 'fund,' but to ensure that over time the deposit insurance program pays for itself. The so-called 'fund' is simply a running scorecard to determine whether banks and thrifts have paid in more than they have taken out" (36).¹⁵

Current law places limits on the size of the fund relative to insured deposits. These limits affect (1) the resources available to the FDIC to resolve failed banks without having to rely on congressional appropriation, (2) the way losses are shared between taxpayers and insured institutions, and (3) the incentives of institutions, taxpayers, and Congress to monitor supervisory agencies' compliance with the goal of FDICIA to ensure that losses are minimized. Each of these issues is considered below.

5.2.1 Resources available to the FDIC.

The FDIC has historically had the authority to buy assets and absorb losses up to at least the current value of the fund without seeking congressional authorization. It also may use these resources to provide temporary loans to receiverships to aid in resolving failed institutions. In effect, the fund serves as working capital for the agency, and efficiency considerations may argue for maintaining a minimal-sized account with the Treasury simply to facilitate the handling and finance of routine disposals of failed institutions. The minimum amount of resources readily available to handle failures should be sufficient to resolve problem banks as appropriate under both the goals of minimizing the probability of failure and minimizing expected deposit insurance.

The size of the fund is somewhat less important under the goal of minimizing the probability of failure. Under this goal, the fund must have access to sufficient resources so that depositors will not run problem banks due to a fear that the insurance fund will be unable to cover their losses. Depositors may be reassured either by the fund holding sufficient resources to deal with existing

problem banks or by a sufficiently strong political commitment to recapitalize the FDIC at some point in the future.

The size of the fund is more important under the goal of minimizing losses because the FDIC cannot resolve a failing bank if it lacks loss bearing ability. For example, a shortfall in the Federal Savings and Loan Insurance Corporation fund inhibited thrift regulators in the late 1980s, resulting in large losses to taxpayers.¹⁶ In this regard, having an account with the Treasury affects funds available to the FDIC and potentially its incentives. The FDIC may request additional resources from Congress if it lacks immediate access to sufficient funds, but the Congressional legislative schedule may not provide the needed funds to the FDIC on a timely basis as happened during the thrift debacle.

5.2.2 Loss sharing

Under the DIF Act, any deficiency in the fund, should it be totally or partially depleted, is to be made up through an ex post levying of a tax in the form of higher premiums on surviving institutions. When the coverage ratio is restored, payments stop. Thus, the coverage ratio serves solely as a means for banks to stop taxing themselves ex ante for future claims on taxpayer funds. Under this system, institutions are providing a de facto loan to taxpayers over and above the income taxes they pay each year. The principal reason for a larger fund coverage ratio is that it reduces the costs of failure to surviving banks by lowering the ex post tax on healthy institutions who were not responsible for either failed institutions' risk taking nor for regulatory policies, a point that will be explored in more detail later.

This current situation can be described more formally to aid subsequent analysis. The Deposit Insurance Funds Act provides that as long as the ratio $a = F/D$, or the actual size of the fund (F) to insured deposits (D) is less than the statutory required or target ratio, $\underline{a} = 1.25$ percent (that is, $a \leq \underline{a}$), premiums will be collected from all institutions. Although called a premium, the charges are better regarded as a tax or user fee because the size of the charge is not related to the perceived or actual actuarial risk of loss to the insurance fund, which is determined primarily by regulatory behavior rather than institution risk.

Should an institution fail and its resolution result in a loss to the fund, then healthy institutions bear the ultimate cost of the loss in the form of either a larger tax or paying the existing tax for a longer period of time until the fund returns to the required coverage ratio, $\underline{a}$. Now consider the case when the actual fund coverage ratio is greater than the statutory required ratio, $a \geq \underline{a}$. Then, according to the provisions of the 1996 DIF Act, premium or user fee collections cease for all but the riskiest institutions.

The actual coverage ratio may be greater than or equal to $\underline{a}$, even if failures occasionally occur, because interest on Treasury debt allocated to the insurance fund (via accounting transactions) accumulates and premiums/taxes are still collected from the riskiest institutions.¹⁷ Should the loss to the fund as a proportion of insured deposits, L , occur at any time, t , but not be sufficiently large to force the actual coverage ratio, a_{t+1} , to fall below its statutory target, $\underline{a}$ (that is, after the loss, a_{t-1} is still greater than $\underline{a}$), then taxpayer monies from the General Fund must be allocated to cover the losses.

If losses, L , are sufficiently large so that after the resolution the actual coverage ratio falls below its statutory target ($\underline{a} \geq a_{t+1}$), then losses are shared between taxpayers and surviving depository institutions as follows. The proportion of the loss, s , represented by the extent to which the existing coverage ratio exceeds the target or statutory ratio, $s = \underline{a} - \alpha$, is borne by taxpayers. The additional or remaining proportion of the loss, $L - s$, is paid for over time by surviving depository institutions until the fund is restored to its statutory target coverage ratio.¹⁸

In order to continue collecting risk-related premiums, supposedly to control its risk exposure, the FDIC has proposed rebating excess premiums whenever the fund exceeds the statutory target by some fraction. Such a proposal, again, has important loss-sharing implications. For example, if there is a cap on the coverage ratio, a , such that once the ratio exceeds the critical value $\underline{a} \geq \bar{a} \geq \alpha$, premiums are rebated to insured institutions. Instituting a cap on the coverage ratio puts a ceiling on the amount of losses that are borne by taxpayers and shifts more risk in any given year to surviving insured institutions. The lower the value of the cap relative to the statutory target level, the smaller are the losses borne by taxpayers and the larger the losses borne by surviving insured institutions.

5.2.3 Loss bearing and incentives

Bank supervisors are acting as agents for society in the performance of its mission. Ex ante alignment of agents' incentives with that of their principle is generally difficult, and outcomes are often improved by ex post monitoring. The two obvious candidates for monitoring the supervisors are the banks and Congress.

Banks concern about supervisory performance comes about both because of the direct impact of supervisory activities on individual banks and because banks bear most of the expected losses to the deposit insurer through their deposit insurance payments. Congress may care about the failure of individual banks; many failures have a clear set of losers that exert political pressure on Congress to recover their losses or at least punish those perceived responsible for the losses. Congress may also care about deposit insurance losses to the extent it impacts the measure of the federal government's fiscal surplus or deficit used by Congress. As noted above, the FDIC's insurance funds are merely memo entries in the federal government's accounting. The difference between the agency's receipts and expenditures flows through to the government's fiscal position in the current year. Thus, the marginal cost of failure is reflected in the reported surplus or deficit. If unexpected failure resolution costs occur, Congress must either accept a higher fiscal deficit, or offset the impact on the deficit with higher taxes or lower expenditures for other on-budget activities. Conversely, to the extent that the cost of failure is lower than expected, that will result in some combination of a lower fiscal deficit, lower taxes and higher spending. As a result, Congress also has an incentive to monitor the performance of the agencies in minimizing losses.

If the goal of the supervisors should be to minimize the failure rate, monitoring should be triggered by bank failures but its intensity should not depend on the costs of resolution. Bank payments to the deposit insurance fund should be insensitive to contemporaneous losses, as may be the case if premiums exceed expected losses to reflect the social costs of bank failure. On the Congressional side, the current budget system is less than optimal from the perspective of the goal of minimizing failures because it gives Congress an incentive to increase monitoring when

the net costs of failure increase within the year.¹⁹ A better system would reduce Congress's incentives to monitor the costs of resolution, a goal which may be met by changing the measured fiscal deficit to exclude resolution costs.

However, if the goal is to minimize deposit insurance losses, monitoring intensity should depend on resolutions costs but not failure per se. Conceptually, the incentives of Congress and taxpayers should be clearly aligned since any loss to taxpayers will be reflected in the current year's fiscal budget. If a target exists for the fiscal balance (surplus or deficit), Congress will have a strong incentive to be concerned about, and to monitor, regulatory agency behavior, because failure to close insolvent institutions could impinge upon tax or spending programs. Furthermore, a statutory mechanism exists for holding the regulatory agencies accountable to Congress.

It is less clear how regulatory agencies' incentives align with those of surviving depository institutions when regulatory failure to close institutions imposes potentially large losses on those institutions. One could argue that these incentives are not necessarily well aligned and may also have undesirable effects on systemic risk. Congress, for example, clearly has little incentive to discipline regulatory agencies when they impose costs on depository institutions. Institutions do not vote, and, moreover, they are perceived to be better able to bear the costs than taxpayers are.²⁰ On the other hand, adjusting premiums to impose the current year's losses on the surviving banks will clearly affect earnings and returns to shareholders. Thus, banks may be motivated to use their political power to support timely resolution of the failed banks, thereby minimizing surviving banks' cost of deposit insurance.

The downside of imposing losses on banks is, as Powell (2001) points out, that the demand for funds to resolve failed banks is likely to occur at times when the entire banking system is under financial distress, such as during recessions. Imposing additional costs on already weakened institutions would act to tie the health of financial institutions together and make their returns and likely failures more correlated. Sound financial institution policies would argue that regulatory agencies should seek to make failures isolated and independent events, both in actuality and in the minds of the public, so as to reduce the chances that systemic events and runs occur.

In the end, the choice of imposing costs on institutions or the taxpayers hinges on a judgment about the relative strengths of the incentives of taxpayers or banks to bring and exert pressure on Congress to monitor and discipline the regulatory agencies. Given that Congress is more likely to respond to budget pressure, a case can be made for a lower, rather than a larger, fund, and, if pushed to the extreme, an argument may be made for no fund at all.

Given Isaac's (2001) observation that the fund is really just a scorecard, the existence of the fund could mislead some into believing that the resources available to deal with failed banks are limited to the size of the fund. However, given that the losses are first covered out of the General Fund and that deposit insurance ultimately rests on the full faith and credit of the government, there is little case to be made for earmarking a contingent set of claims on the fund keyed to bank tax or premium payments.²¹ Thus, the case for maintaining a deposit insurance "fund" in an accounting sense rests on the need for the FDIC to have access to sufficient loss-

bearing ability to resolve failed banks without requiring a special appropriation by Congress for every resolution. However, the requirements for a working capital fund would not necessarily result in the same optimal level as that which would result from viewing the fund as banks' paid-in capital to cover future losses.

6. What Are the Real Issues?

This discussion has argued that the thrust of supervisory efforts post-FDICIA have been fundamentally misplaced.²² Under careful examination, a large fraction of supervisory efforts is directed towards the goal of minimizing the probability of bank failure rather than that of minimizing the losses to the deposit insurer. Such efforts reflect a misunderstanding of the real source of losses to society, which are better measured by the losses to the insurer than by the number and size of failed banks. What then should the agenda look like if the goal is minimizing deposit insurance losses? This study contends that the primary issue is strengthening the incentives to resolve failures at the lowest cost to the FDIC. After FDICIA went into effect, FDIC records indicate that losses from 1992 through the second quarter of 2001 on bank failures to the BIF were 10.8 percent of assets in the aggregate, and that thrift institution losses to the SAIF (excluding Superior) were 4 percent of assets. On a yearly basis, losses on BIF-insured failures during this period ranged from 8 percent to 61 percent, and for SAIF-insured failures, from 2 percent to 63 percent.

Admittedly, while some of the risks may be difficult to detect, the large losses the FDIC has borne with some failures, including Superior Bank, suggest that in at least some cases the rewards to supervisors of engaging in forbearance exceed the costs. FDICIA sought to realign

the incentive structure, for example, by requiring in Section 131 of the act that material losses be investigated by the agencies' inspector generals with public disclosure.²³ However, this incentive is apparently insufficient. Thus, further consideration of the supervisory incentive system appears desirable.

The first principle may be to do no harm in the sense of making changes that further misalign incentives. Because there is no insurance fund, any net losses borne by the FDIC flow through to the federal government's fiscal budget for the current year. The risk of changes in the deficit due to bank failures provides an incentive for Congress to monitor bank supervisors even if banks are likely to pay the entire cost of deposit insurance over some longer horizon.²⁴ Thus, bank premiums should not be tightly linked to the cost of bank failures in the current year in order to give Congress an incentive to monitor the supervisors.

A useful step forward would be to implement FDICIA's mandate in Section 121 to develop and implement supplemental disclosure of the economic value of banks' assets and liabilities. Academics have long argued that increasing the transparency of bank risk taking is one way to improve regulators' ability to monitor bank risk exposure. Immediate action to provide for market value disclosure could improve transparency, allowing outside parties to better monitor the regulators' performance. Further, the disclosure of economic values would help concentrate supervisory and bank attention on changes in the economic value of banks rather than on the manipulation of historic cost-accounting figures to produce desired levels of book capital. Moreover, the intent should be to move market value accounting for the purposes of prompt corrective action as supervisors and banks become more familiar with the concepts.²⁵

While a focus on economic values could be a significant improvement, the adoption of market value accounting will not be sufficient by itself to implement the intent of prompt corrective action. For example, a significant part of the losses at Superior Bank occurred in assets that were required to be accounted for at market value but for which market value was substantially overestimated. Even with market value accounting, supervisors must be willing to demand accurate valuations and insist on timely revaluations when material errors are discovered. Thus, an insistence on accurate valuations is an important part of any reform. Moreover, the nature of these valuations, and in particular, reliance upon accruals versus actual cash flows may reflect the going concern value of a banking organization, but may not reflect the value of assets available upon liquidation or closure.

A full solution to the incentive problem requires further consideration and likely will require a package of steps. This package should contain measures to increase both the political and financial costs of engaging in forbearance. FDICIA's provisions to require special assessments of banks in certain cases of large bank failure are designed to encourage banks to put pressure on supervisors to avoid costly failures.²⁶ However, these provisions have an offsetting effect of reducing Congress's incentive to monitor the supervisors. This effect may be small for the failure of a very large bank because such a failure is likely to involve other externalities that could affect large numbers of voters. In more general cases, however, there may be an unavoidable trade-off between trying to create incentives for banks to provide political pressure and maintaining incentives for Congress to monitor on its own.

Kane (1997) and Wall (1996) have recently made proposals to make supervisors' compensation depend in part on deposit insurance losses.²⁷ Such proposals may not be the most efficient way of providing incentives to supervisors, given that the conditions that lead to bank failure may vary substantially through time. Nevertheless, these or related proposals deserve some consideration as part of a package to increase the costs to supervisors of forbearance.

As a backstop to supervisory action, market mechanisms may apply pressure on banks and supervisors when supervisors choose not to act on their own. The provisions of FDICIA Section 141 create such an incentive by mandating that the FDIC should resolve banks at the least possible cost to the deposit insurance fund. Prior to FDICIA, most uninsured bank creditors could expect that the FDIC would resolve a failed bank in a way that protected all creditors. The least cost provisions of FDICIA and the FDIC's procedures in the wake of FDICIA appear to have substantially reduced expectations of such a bailout.

The least cost provisions appear to have had some effect in the case of Superior Bank. While some depositors were surprised by the failure of Superior, the record suggests that many uninsured depositors bailed out long before the failure. The Thrift Financial Report submitted by Superior Bank to the Office of Thrift Supervision (and available on the FDIC's Web site at http://www2.fdic.gov/call_tfr_rpts/?catNumber=74) indicates that Superior had uninsured deposits of \$572.4 million at its peak in March 2000. This figure dropped to \$492.0 million in September, to \$253.6 million in December, and to \$52.6 million by March 2001. The discipline exerted by uninsured depositors did not prevent the bank from costly failure, likely in large part because of the presence of risk-insensitive funding that Superior was able to attract as uninsured

depositors withdrew their funds. Insured deposits rose by \$220 million (from \$1.052 billion to \$1.272 billion) between March 2000 and March 2001. Similarly, short-term federal funds and repurchase agreements, which are typically protected by perfected collateral in the event of a failure, grew by \$73 million (from \$179.1 million to \$252.9 million).²⁸

Smaller banks may be able to rely entirely on insured deposits for funding, but the backstop provided by market pressure could be strengthened both for medium-sized and larger banks, which are typically more reliant on uninsured funding. One way of enhancing the role of market discipline would be to limit the ongoing growth of Federal Home Loan Bank (FHLB) advances, which provide a safety valve for banks.²⁹ The FHLB may advance money to even the most distressed bank without significant fear of loss because the advances are overcollateralized and backed by a super-priority lien on all of the bank's assets. These collateral agreements allow a bank to withstand a greater volume of withdrawals before becoming illiquid and to shift losses to the FDIC if the bank does fail.

Market discipline may also be enhanced by addressing market perceptions that the largest banks are “too big to fail”—that is, too large to be resolved in a way that imposes significant losses on most creditors, including all depositors.³⁰ One method of enhancing market discipline is to accept that perceptions that some banks are too big to fail are unavoidable in the near future and to seek to substitute market signals that are less subject to too-big-to-fail views. Evanoff and Wall (2000) have suggested that subordinated debt is viewed as highly unlikely to benefit from too-big-to-fail perceptions and, accordingly, its pricing could be used as a signal for prompt corrective action. A more direct, albeit longer-term project, would be to directly attack the

perception that some banks are too big to fail by developing and publicizing plans to close very large banks without protecting uninsured creditors.

7. Summary and Conclusions

Recent supervisory efforts appear to be directed towards the long-standing goal of minimizing the probability of bank failure, despite the fact that FDICIA was explicitly designed to minimize losses to the deposit insurance fund. In this respect, Basle II and related efforts represents a significant step back from the PCA provisions of FDICIA. Minimizing the insurance losses from failed banks is critical to minimizing the social costs of bank failure and eliminating moral hazard behavior. Moreover, attempts to minimize the probability of failure require supervisors to try to supplant the pricing schedule set by financial markets with one set by the supervisors. Such efforts to impose artificial price schedules inevitably lead to resource misallocation and avoidance efforts by banks.

On the other hand, minimizing losses to the deposit insurer requires relatively less intervention in the relative price schedule. The supervisors need only make sure that banks do not price in a deposit insurance subsidy to risk-taking because the deposit insurer is not going to bear significant risk. As such, the agenda for reform to accomplish the goals of PCA is shorter and focuses on the steps needed to change supervisory priorities to that of limiting deposit insurance losses. Implementing such an agenda may not be easy, but it will be more valuable in the long run.

Notes

1. Section 131 of FDICIA, titled “Prompt Regulatory Action,” creates a new Section 38 of the Federal Deposit Insurance Act. PCA is a modified version of Benston’s and Kaufman’s (1988) structured early intervention and resolution (SEIR).
2. Historically, this was clearly the FDIC’s objective in the 50’s.
3. For a summary of the evidence, see Kaufman (1994).
4. A recent example of runs limited to failing institutions, see Kane (1987).
5. The classic case of systemic externalities occurred during the late 1800s under the fractional reserve system of the National Banking Act. Because banks were allowed to keep required reserves in the form of deposits at Reserve City and Central Reserve banks, a withdrawal of funds from weak institutions would sometimes pyramid into withdrawals of reserve funds from healthy institutions. The Federal Reserve Act eliminated this problem. See Eisenbeis (1997) for a further discussion of the sources of systemic risk.
6. Indeed, these costs should not be overestimated given the recent experience with market disruption on a scale far in excess of that which would result from the failure of any individual firm.
7. See Merton and Perold (1993) for a discussion on the problems in holding company organizations for relying strictly upon capital, as reported, to capture the nature of the risk relationships in complex organizations.
8. *Commercial Bank Examination Manual*, “Examination Strategy and Risk-Focused Examinations,” Section 1000.1.
9. One way of thinking about the impact of capital regulations on portfolio allocations is in a CAPM type model. A bank locates itself on something like the securities market line which is a line with one point determined by the risk-free rate and another by a tangency portfolio on the set of efficient portfolios. If capital regulation could move banks along this line, it would induce banks to hold more capital but would not change portfolio allocations. However, capital regulation may change bank portfolios if it changes the optimal scale of the bank. In particular, the elasticity of prices is unlikely to be constant across all bank asset categories. Thus a change in the scale of a bank is likely to change its portfolio allocations. Moreover, if the risk weights do not exactly correspond with the market’s assessment then capital regulation will change the shape of the efficient frontier and banks’ portfolio allocations. Such distortions appear unavoidable given that Basel II evaluates the riskiness of assets on a stand-alone basis rather than in a portfolio context.
10. The economic value of some information intensive bank assets depends on who owns the assets. The assets may have greater value in the hands of the bank than if the bank is sold or liquidated.

11. This section is derived from Eisenbeis and Wall (2002).
12. See Smith and Wall (1992).
13. See Flannery (1991) for a discussion of these trade-offs. See Shadow Financial Regulatory Committee (2000a) for a slightly different view.
14. An Electronic version of Isaac's comments may be found at <http://woodrow.mpls.frb.fed.us/pubs/region/00-03/isaac.html>.
15. The FDIC annual report indicates the nature of the fund's investments and income, but these are only bookkeeping entries, similar to the Social Security Trust Fund.
16. White (1991), for example, documents the ways that the Federal Home Loan Bank System adopted policies of forbearance that ultimately resulted in large losses to the Federal Savings and Loan Insurance Corporation and taxpayers.
17. Presently, the FDIC is collecting premiums from only about 8 percent of insured institutions, according to Murton (2001).
18. How quickly the fund is rebuilt, from premiums paid by surviving institutions, may have solvency and systemic risk implications for the survivors.
19. The net cost of failure within the year is the losses recognized by the fund less any increase in deposit insurance premiums directly attributable to the costs of the failure. For example, if a bank failure resulting in losses of \$500 million and the FDIC collected no premiums then the net failure cost would be \$500 million. The failure cost would also be \$500 million if the FDIC charged premiums but the premiums were already at their maximum and did not increase as a result of the failure. However, if as a result of the failure, the FDIC collected an extra \$300 million in premiums then the net cost of failure would be \$200 million.
20. Institutions and their principals do make campaign contributions, but these have become relatively limited as a result of campaign financing reforms.
21. Some would argue that under FDICIA, taxpayers incur an insurance liability or loss only when the equity of the banking system is exhausted. The previous analysis suggests that this idea is not quite correct. Moreover, it is both unrealistic and unlikely that the government would let the banking system be destroyed before stepping in. Clearly, government has recently intervened on behalf of the airline industry in the aftermath of September, and there is clearly less of a statutory mandate and history to bail out that industry than there is for banking.
22. Blackwell (2002a,b) reports on an FCIE-commissioned study of private reinsurance for the FDIC. The benefits of obtaining reinsurance would be twofold: to spread the risk of loss and (as a "senior FDIC official" said in an interview that the pricing of the reinsurance "may

yield a valuable free-market perspective on the risk of loss banks and thrifts pose” (2002a, 1). However, the analysis in this article suggests that neither of these benefits would be significant. The risk of loss is already spread throughout the banking system, which is effectively providing its own reinsurance. It is not clear how that capacity would be significantly increased by reinsurance, nor is it clear how reinsurance would affect regulatory incentives to close economically insolvent institutions or to engage in least cost resolution since any premiums would be passed on to the industry by the FDIC, either directly or indirectly. Finally, the primary risk that would be priced by a private reinsurer is regulatory risk and not market risk. Blackwell (2002b) quotes George Kaufman as saying, “Reinsurers have to guess how well the FDIC will act. This is a problem you don’t have in other types of reinsurance. In terrorism insurance, victims are not in control of the terrorists (2002b,4).

23. FDICIA defines a material loss as the greater of \$25 million or 2 percent of the institution’s total assets at the time the FDIC was appointed receiver or initiated open bank assistance.
24. This condition should hold if the scorecard (insurance fund) has sufficient funds to pay the loss without increasing premiums. The condition will also hold even if the scorecard has insufficient funds so that banks will have to pay in the future, provided that the congressional discount rate on future payments is greater than the interest rate at which bank obligations are cumulating.
25. The Financial Accounting Standards Board (FASB) has been working on revisions to generally accepted accounting principles (GAAP) that would mandate the use of fair-value accounting for all financial instruments. Its preliminary views were published in FASB (1999).
26. The provisions for rebuilding the fund in the event that least cost resolution is suspended are in Section 141 of FDICIA.
27. Wall (1997) provides the incentive through a system in which the repayment of bonds issued by the FDIC to investors is contingent on the state of the deposit insurance fund. That proposal could easily be modified so that repayment of the bonds is contingent on the losses to the deposit insurance fund, possibly averaged over some period of time.
28. Superior’s ability to attract such funds provides further evidence of the desirability of increasing the limits on insured deposits.
29. See Stojanovic, Yeager, and Vaughan (2000) for a discussion of the implications of FHLB advances for deposit insurance.
30. The term “too big to fail” should not be taken too literally. While depositors may not suffer losses, equity holders may lose their investments and senior management may lose their jobs.

References

- Altman, Edward I.; Sreedhar T. Bharath, and Anthony Saunders. 2002. "Credit ratings and the BIS capital adequacy reform agenda." *Journal of Banking and Finance*, 5, May, pp. 909-921.
- Benston, George J. and George G. Kaufman. 1998. "Risk and Solvency Regulation of Depository Institutions: Past Policies and Current Options." Salomon Brothers Center for the Study of Financial Institutions Monograph 1988-1, New York: New York University Press.
- Benston, George J. and George G. Kaufman. 1994. "The intellectual history of the Federal Deposit Insurance Corporation Improvement Act of 1991." In *Reforming financial institutions and markets in the U.S.*, George G. Kaufman, ed. Boston: Kluwer Academic Publishers.
- . 1995. "Is the banking and payments system fragile?" *Journal of Financial Services Research*, 9, September, pp. 209–240.
- Blackwell, Rob. 2002a. "FDIC study backs reinsuring funds." *American Banker*, January 7.
- . 2002b. "Reinsurance for FDIC raises eyebrows." *American Banker*, January 8.
- . 2002c. "Latest Crop of Failures Brings Steeper Costs, July 8.
- Bovenzi, John F. and Alan J. Murton. 1988. "Resolution costs of bank failures." *FDIC Banking Review*, 3, Fall, pp. 1–13.
- Brown, R.A. and S. Epstein. 1992. "Resolution costs of bank failures: An update of the FDIC historical loss model." *FDIC Banking Review*, 5, Spring/Summer, pp. 1–16.
- Brumbaugh, R. Dan, Jr. 1993. "The collapse of federally insured depositories: The savings and loan as precursor." New York: Garland Publishing.
- Carnell, Richard Scott. 1997a. "FDICIA after five years: What has worked and what has not?" *FDICIA: Bank reform five years later and five years ahead*. Research in Financial Services: Private and Public Policy, 9, George G. Kaufman, ed. Greenwich, Conn.: JAI Press, pp. 11-16.
- . 1997b. "A partial antidote to perverse incentives: The FDICIA Improvement Act of 1991." *FDICIA: Bank reform five years later and five years ahead*. Research in Financial Services: Private and Public Policy, 9, George G. Kaufman, ed. Greenwich, Conn.: JAI Press, pp. 199–233.
- Eisenbeis, Robert A. 1997. "Bank deposits and credit as sources of systemic risk." Federal Reserve Bank of Atlanta *Economic Review*, 82, Third Quarter, pp. 4–19.
- Eisenbeis, Robert A. and Paul M. Horvitz. 1994. "The role of forbearance and its costs in handling troubled and failed depository institutions." *Reforming financial institutions and markets in the U.S.*, George G. Kaufman, ed. Boston: Kluwer Academic Publishers.

Eisenbeis, Robert A. and Larry D. Wall. 2002. "Reforming Deposit Insurance and FDICIA." Federal Reserve Bank of Atlanta *Economic Review*, 87, First Quarter, pp1-16.

Evanoff, Douglas D. and Larry D. Wall. 2000. "Subordinated debt as bank capital: A proposal for regulatory reform." Federal Reserve Bank of Chicago *Economic Perspectives*, 14, Second Quarter, pp. 40–53.

Federal Deposit Insurance Corporation (FDIC). 2000. *Options paper*. Washington, D.C., FDIC, August.

———. "Keeping the promise: Recommendations for deposit insurance reform." Washington, D.C., FDIC, April.

Financial Accounting Standards Board (FASB). 1999. "Reporting financial instruments and certain related assets and liabilities at fair value." *Preliminary Views*, December 14.

Flannery, Mark J. 1991. "Pricing deposit insurance when the insurer measures bank risk with error." *Journal of Banking and Finance*, 15, September, pp. 975–998.

Fuerbringer, Jonathan and Peter T. Kilborn. (2002). "Bank Trader's Losses Total \$750 Million: Allied Irish Discloses Currency Unit Trouble." *New York Times*, February 7, C1, C14.

Greenspan, Alan. 2001. "The financial safety net." Speech delivered at 37th Annual Conference on Bank Structure and Competition of the Federal Reserve Bank of Chicago, May 10, Chicago, Illinois.

Isaac, William M. 2000. "Financial reform's unfinished agenda: A look at deposit insurance funds." Federal Reserve Bank of Minneapolis, Special Issue of *The Region*, 14, March, pp. 34–37.

James, Christopher. 1991. "The losses realized in bank failures." *Journal of Finance*, 46, September, pp. 1223–1242.

Jensen, Michael C. and William H. Meckling. 1976. "Theory of the firm: managerial behavior, agency costs, and ownership structure." *Journal of Financial Economics*, 3, October, pp. 305–360.

Kane, Edward J. 1977. "Good Intentions and Unintended Evil: The Case against Selective Credit Allocation." *Journal of Money, Credit and Banking*, 9, February, pp. 55-69.

———. 1983. "The role of government in the thrift-industry's net-worth crisis." *Financial services: The changing institutions and government policy*. George J. Benston, ed. Englewood Cliffs, N.J.: Prentice-Hall.

- . 1987. “Who should learn what from the failure and delayed bailout of the ODGF.” National Bureau of Economic Research Working Paper 2260, March.
- . 1989. “Changing incentives facing financial-services regulators.” *Journal of Financial Services Research*, 2, September, pp. 263–272.
- . 1997. “Ethical foundations of financial regulation.” *Journal of Financial Services Research*, 12, August, pp. 51–74.
- . 2002. “What lessons might crisis countries in Asia and Latin America have learned from the S&L mess?” Paper presented at the conference “What Can an Examination of S&Ls Reveal About Financial Institutions, Markets, and Regulations?” sponsored by the UCLA Anderson School of Management and the Milken Institute, Los Angeles, Calif., January 25.
- Kaufman, George G. 1994. “Bank contagion: A review of the theory and evidence.” *Journal of Financial Services Research*, 8, April, pp. 123–150.
- . 1996. “Bank failures, systemic risk, and bank regulation.” *The Cato Journal*, 16, Spring/Summer, pp. 17–45.
- . 2001a. Prepared testimony of George G. Kaufman for the hearing on the failure of Superior Bank, FSB, Hinsdale, Illinois, before the U.S. Senate Committee on Banking, Housing, and Urban Affairs, September 11. <www.senate.gov/~banking/01_09hr/091101/kaufman.htm>
- . 2001b. “The current status of deposit insurance in the United States and proposals for reform.” Loyola University, Chicago. Unpublished working paper, December.
- Koehn, Michael, and Anthony M. Santomero. 1980. “Regulation of bank capital and portfolio risk.” *Journal of Finance*, 35, December, pp. 1235–1244.
- Litan, Robert E. 1987. “What should banks do?” Washington, D.C., Brookings Institution.
- Maremont, Mark. 2001. “Pritzkers to pay \$460 million over bank failure.” *Wall Street Journal*, December 11.
- Merton, Robert C. and Andre F. Perold, 1993. “The management of risk capital in financial firms.” *Financial services: perspectives and challenges*. Samuel L. Hayes, III, ed. Boston, MA: Harvard Business School Press.
- Murton, Arthur J. 2001. “BIF assessment rates for first semiannual assessment period of 2002. Memorandum to Board of Directors, Division of Insurance, FDIC. <www.fdic.gov/deposit/insurance/risk/Bif2002_01.html> .
- Powell, Donald E. 2001. Statement of Donald E. Powell, chairman, Federal Deposit Insurance Corporation, on deposit insurance reform before the Subcommittee on Financial Institutions and

Consumer Credit, Committee on Financial Services, U.S. House of Representatives, October 17. www.fdic.gov/news/news/speeches/chairman/sp17oct01.html>

Shadow Financial Regulatory Committee. 1999. "The failures of BestBank and First National Bank of Keystone." Statement No. 157 of the Shadow Financial Regulatory Committee, September 27.

———. 2000a. "Proposal on full cost pricing of supervisory and examination services by the federal banking agencies." Statement No. 161 of the Shadow Financial Regulatory Committee, May 8.

———. 2000b. "Deposit insurance reform options." Statement No. 165 of the Shadow Financial Regulatory Committee, December 4.

Stephen D. Smith and Larry D. Wall. (1992). "Financial Panics, Bank Failures and the Role of Regulatory Policy." *Economic Review*, Federal Reserve Bank of Atlanta, (January/February) 1-11.

Sprague, Irvine H. 1986. "Bailout: An insider's account of bank failures and rescues." New York: Basic Books.

Stojanovic, Dusan; Timothy J. Yeager, and Mark D. Vaughan. 2000. "Is Federal Home Loan Bank funding a risky business for the FDIC?" Federal Reserve Bank of St. Louis *The Regional Economist*, October, pp. 5-9.

Wall, Larry D. 1997. "Taking note of the deposit insurance fund: A plan for the FDIC to issue capital notes." Federal Reserve Bank of Atlanta *Economic Review*, 82, First Quarter, pp. 14-30.

Wall, Larry, and David R. Peterson. 1990. "The effect of Continental Illinois's failure on the performance of other banks." *Journal of Monetary Economics*, 26, August, pp. 77-99.

White, Lawrence J. 1991. "The S&L debacle: Public policy lessons for bank and thrift regulation." New York: Oxford University Press.

Table 1
Annual Losses due to Failure by Primary Supervisor

	Estimated yearly loss FDIC	Ave. % of Assets Lost: FDIC	Estimated yearly loss OCC	Ave. % of Assets Lost OCC	Estimated yearly loss OTS	Ave. % of Assets Lost: OTS	Estimated yearly loss FED	Ave. % of Assets Lost FED
1986	\$ 976,554,240	26.0%	\$ 755,470,341	20.3%	\$ 6,984,532	20.7%	\$ 36,708,183	27.0%
1987	\$ 1,106,501,283	20.5%	\$ 740,903,476	25.4%	\$ 63,567,730	12.7%	\$ 112,047,662	26.9%
1988	\$ 1,375,946,066	18.1%	\$ 5,412,436,370	11.7%			\$ 133,408,698	26.7%
1989	\$ 1,077,926,300	19.0%	\$ 4,698,994,148	19.1%	\$ 288,209,804	33.0%	\$ 134,168,454	25.7%
1990	\$ 637,864,568	21.9%	\$ 1,250,361,193	16.9%	\$ 855,242,293	16.3%	\$ 41,595,347	23.1%
1991	\$ 1,457,784,779	21.2%	\$ 1,767,011,143	3.9%	\$2,907,336,882	15.6%	\$ 16,639,598	12.3%
1992	\$ 1,140,958,161	22.8%	\$ 137,539,048	1.9%	\$2,202,121,477	7.7%	\$ 198,205,247	4.3%
1993	\$ 233,001,142	21.1%	\$ 257,928,650	18.3%	\$ 117,863,581	12.5%	\$ 38,558,415	50.9%
1994	\$ 95,845,263	17.7%	\$ 52,008,264	29.4%	\$ 16,586,291	2.9%	\$ 14,514,528	13.4%
1995	\$ 61,474,953	13.5%	\$ 2,593,302	27.7%	\$ -		\$ 20,988,865	7.6%
1996	\$ 14,680,091	17.5%	\$ 23,739,421	24.3%	\$ 14,000	39.8%	\$ -	
1997	\$ -		\$ -		\$ -		\$ 5,025,538	19.5%
1998	\$ 234,049,254	54.2%	\$ -		\$ -		\$ -	
1999	\$ 47,223,873	27.8%	\$ 791,726,586	66.3%	\$ 1,343	2.1%	\$ 2,221,575	16.4%
2000	\$ 29,932,008	10.6%	\$ 8,748,478	8.5%	\$ 1,402	4.7%	\$ -	
Average 1986-2000	\$ 565,982,799	21.1%	\$ 1,059,964,028	11.3%	\$ 461,280,667	11.7%	\$ 50,272,141	10.8%

Chart 1. Estimated Dollar Amount of Losses and Losses as a Percentage of Assets to the Deposit Insurance Funds

