

## Market Discipline by Depositors: A Summary of the Theoretical and Empirical Arguments

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Fifty-four banks failed in the first quarter of 1987, more than in any quarter since 1933.<sup>1</sup> Because bank failures are linked to bank risk, most of the regulatory proposals offered to control the growing number of bank failures are designed to encourage depositors to exert market discipline on bank officers and directors, thereby decreasing bank risk and lowering the incidence of bank failure.<sup>2</sup> For policies relying on depositor discipline to be effective, depositors' assets must be exposed to some risk, so that depositors will have an incentive to check the soundness of the banks in which they have deposited their money. At present, however, bank failure policy uses federal bailouts and arranged mergers for most failing banks, providing essentially complete protection for all depositors, regardless of the size of their deposits. This policy reduces the effectiveness of depositor discipline. In addition, the policy removes the incentive for bank managers to limit risk-taking, in effect subsidizing poorly managed, risky banks, and increases the likelihood of bank failures.

Professor Helen A. Garten, in a recent and provocative article in this Journal, points out the importance of determining whether "market discipline by depositors will work in practice as it is supposed to work in theory" before using the premise of depositor discipline as the basis of

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1. Am. Banker, Aug. 13, 1987, at 4, col. 1. In the first seven months of 1987, over 100 banks failed. Okla. City J. Rec., July 24, 1987, at 1, col. 4. Such a failure rate indicates that bank failures will continue to increase annually: 120 banks failed in 1985, Okla. City J. Rec., Oct. 29, 1986, at 2, col. 4; and a record 138 failed in 1986. Wall St. J., Jan. 2, 1987, at 3, col. 4.

2. See, e.g., G. Kaufman, Federal Reserve Bank of Chicago Staff Memorandum 85-3: Implications of Large Bank Problems and Insolvencies for the Banking System and Economic Policy (1985); Eisenbeis & Gilbert, *Market Discipline and the Prevention of Bank Problems and Failures*, ISSUES IN BANK REG. 16, Winter 1985; Huertas & Strauber, *Deposit Insurance: Overhaul or Tune-up?*,

regulation to control bank risk-taking.<sup>3</sup> She contends that no evidence supports the proposition that depositor discipline can be an effective tool in controlling bank risk,<sup>4</sup> and she states that the assumption that depositors faced with some risk of loss in bank failures will cause banks to control their risk-taking is flawed.<sup>5</sup> This Article disputes Garten's theoretical arguments. We find a good deal of support for the proposition that depositor discipline can control risk-taking by bankers. Ultimately, as with so many economic questions, this one is subject to resolution through empirical testing. We also dispute Garten's contention that the proposition that market discipline by depositors works lacks empirical support. In fact, we find a considerable body of data to support that proposition. Thus, we argue for a market-oriented approach to bank regulation.

Part I of this Article explains the nature of the problem of excessive risk-taking by banks. Part II discusses the theoretical basis for the argument that depositors can exert market discipline. In Part III, the most important section of this paper, we present the empirical evidence bearing on the efficacy of market discipline. Finally, Part IV offers our preliminary proposals for regulatory changes that would use depositor discipline to control bank risk.

## I. Current Regulatory Distortions to Market Incentives

Applying the modern theory of corporate finance in the banking context reveals an inherent conflict of interest between bank depositors and shareholders.<sup>6</sup> In the absence of regulations that distort incentives, depositors, who are fixed claimants to firms' income flows, prefer firms to maximize the probability that the fixed claims will be repaid. By contrast, shareholders, who are residual claimants, prefer the firms in which they invest to pursue more risky investment strategies that maximize their ultimate returns.<sup>7</sup> Depositors and investors will prefer the firms in which they have placed their money to pursue such conflicting strategies, even if the total

ISSUES IN BANK REG. 3, Winter 1986; G. Bolcar, Benefits of a Deposit Insurance System with Modified Payoffs (1986) (paper available at American Bankers Association).

3. Garten, *Banking On the Market: Relying On Depositors to Control Bank Risk*, 4 YALE J. ON REG. 129, 130 (1986).

4. *Id.* at 130-31 (notion that depositors will exert market discipline "an assumption" that "neither proponents nor opponents of market discipline have questioned").

5. *Id.* at 131 ("This Article examines and ultimately rejects the assumption that depositor discipline will cause banks to control their risk-taking.").

6. For an explanation of the problem in the context of banking, see Fischel, Rosenfield, & Stillman, *The Regulation of Banks and Bank Holding Companies*, 73 VA. L. REV. 301, 314 (1987).

7. For an elegant and cogent illustration of the conflict between fixed and residual claimants, see W. KLEIN & J. COFFEE, *BUSINESS ORGANIZATION AND FINANCE: LEGAL AND ECONOMIC PRINCIPLES* 207-09 (2d ed. 1986).

values of the firms' investments are the same under the alternative investment strategies.

The administration of federal insurance for bank and thrift depositors through the Federal Deposit Insurance Corporation (FDIC) and the Federal Savings & Loan Insurance Corporation (FSLIC) presents an interesting twist on the nature of the conflict between fixed and residual claimants in financial institutions. The federal insurance system removes the incentive that the fixed claimants otherwise have to reduce the risk-taking proclivities of the residual claimants. The debate about depositor discipline has not focused on the deposits of less than \$100,000 which statutes require the FDIC and the FSLIC to insure.<sup>8</sup> Instead, the focus has been on liquidation strategies used by the federal agencies that provide protection not only for the relatively small depositors, but for all depositors. These strategies have transformed a system that was not designed to avert all the risk inherent in the business of banking into a system that essentially guarantees full protection for every depositor, regardless of the size of the deposit.

Federal regulators have three options when faced with an insolvent insured depository institution. Recently, the traditional alternative, a deposit payoff, has rarely been used. In a deposit payoff, the regulator liquidates the bank and makes immediate payments to insured depositors only up to the \$100,000 limit. Depositors with accounts above the insured limit become general creditors of the bank for the uninsured amount. They share any proceeds from the sale of the bank assets with other general creditors (including the FDIC in its corporate capacity as insurer) on a pro rata basis after the secured creditors have been paid.<sup>9</sup>

The second alternative available to regulators is a purchase and assumption transaction, a method through which other banks bid for the assets of the failed institution that are considered to be of good value.<sup>10</sup> The winning bidder acquires these assets and assumes the deposit liabilities of the failed bank. The FDIC can provide additional cash and make other, more customized arrangements where the value of the assets of the failed bank is lower (or harder to evaluate) than the deposit liabilities

8. 12 U.S.C. §§ 1724(b), 1813(m) (1983).

9. See 12 U.S.C. § 194 (1983).

10. See Gilbert, *Recent Changes in Handling Bank Failures and Their Effects on the Banking Industry*, FED. RESERVE BANK OF ST. LOUIS REV., June/July 1985, at 21; Norcross, *The Bank Insolvency Game: FDIC Superpowers, the D'Oench Doctrine, and Federal Common Law*, 103 BANKING L.J. 316, 348 n.137 (1986). Acceptable assets ordinarily include the failed bank's cash, its securities portfolio, and the bank building. For a general discussion of the mechanics of a purchase and assumption transaction, see Burgee, *Purchase and Assumption Transactions under the Federal Deposit Insurance Act*, 14 FORUM 1146 (1979).

assumed.<sup>11</sup> For our purposes, the importance of the purchase and assumption transaction lies in the fact that all of the failed bank's deposit liabilities—including deposit liabilities above \$100,000—are assumed by the successful bidder.

The final technique for handling the failure of an insured depository institution, known as open-bank assistance, vaulted into the public consciousness when it was used to bail out the Continental Illinois National Bank and Trust Company in 1984.<sup>12</sup> Under this scheme, the federal insurer provides assurances and financial support that "all depositors and other general creditors of the bank will be fully protected and services to the bank's customers will not be interrupted."<sup>13</sup> Under a plan of open-bank assistance, the federal agency removes troubled loans from the bank and provides a capital infusion through the purchase of preferred stock or debentures.<sup>14</sup>

Both open-bank assistance plans and purchase and assumption transactions insulate all depositors and most creditors from any risk of loss and therefore remove any incentive that even the large depositors might have to control excessive risk-taking by bankers. To see why this is so, imagine the decision-making process faced by management in a bank with depositors who are insured either directly by the FDIC or *de facto* as a result of the regulatory policy concerning failed banks. For such a bank, a managerial decision to shift the bank's loan portfolio from a set of relatively safe assets to a set of highly risky assets will not affect in any way the interest the bank must pay to attract deposits.<sup>15</sup> On the other hand, in a world of uninsured deposits, as Fischel, Rosenfield, and Stillman have pointed out, "the bank . . . must consider the probability that adding the loan to its portfolio of assets will force it to pay more to attract and preserve deposits."<sup>16</sup>

The implications of this analysis are clear. In a world of insured deposits, at the margin, the bank . . . has an incentive to make risky loans that it would not make but for insurance. . . . Therefore, when the price of

11. Gilbert, *supra* note 10, at 22.

12. See Office of the Comptroller of the Currency, FDIC, and Federal Reserve Board, *A Permanent Assistance Program for Continental Illinois National Bank and Trust Company*, ISSUES IN BANK REG., Spring 1984, at 6.

13. Joint News Release of FDIC, the Comptroller of the Currency, and the Federal Reserve Board, May 17, 1984, *reprinted in* Gilbert, *supra* note 10, at 24 (describing Continental Illinois bailout).

14. See Gilbert, *supra* note 10, at 22. The most recent guidelines that outline the conditions under which the FDIC will grant open-bank assistance were promulgated in December 1986. See Statement of Policy and Criteria on Assistance to Operating Insured Banks, 51 Fed. Reg. 44,122-23 (FDIC 1986).

15. Fischel, Stillman & Rosenfield, *supra* note 6, at 314 ("the funding costs of the bank in the world of insured deposits and fixed insurance premiums are unaffected by the risky loan").

16. *Id.*

insurance is fixed, increasing the riskiness of the loan portfolio . . . redounds primarily to the benefit of the residual claimants—bank stockholders.<sup>17</sup>

A fixed-price deposit insurance scheme (such as the one currently in place) benefits bank shareholders rather than depositors, as is generally thought, because a firm's stockholders, as residual claimants to the firm's earnings, prefer the firm to pursue risky projects, whereas fixed claimants, such as depositors, do not.

Creditors do not want the firm in which they have invested their money to pursue risky projects because, as fixed claimants, they receive none of the benefits from the extra returns associated with such projects, yet they stand to lose if the projects do not fare well. By contrast, the stockholders, as residual claimants, share the costs with the fixed claimants on the down-side but capture all of the gains after the obligations to fixed claimants have been paid.<sup>18</sup> Fixed-price deposit insurance thus benefits shareholders rather than depositors by enabling stockholders to engage in high risk projects without being charged a risk premium for such projects by the uninsured depositors.

By contrast, in a world in which fixed claimants such as depositors face risk of loss, "as long as [fixed claimants] accurately perceive the motivation of the equity-owning manager"<sup>19</sup> to engage in high-risk projects, shareholders, not depositors, lose if firms engage in excessive risk-taking. The fixed claimants will raise the rates charged to extend money in a situation where managers have the opportunity to shift the firm's investment strategy from low-risk to high-risk projects. This increased rate will reflect the greater risks associated with such a firm.<sup>20</sup>

Thus, shareholders of banks with depositors who are not insured by the FDIC will not merely bear the costs of actual increases in the riskiness of their banks; they also will bear the costs of any inability to assure depositors credibly that they will refrain from shifting from low-risk investment strategies to high-risk investment strategies in the future. This arrangement provides shareholders with strong incentives to issue contractual

17. *Id.*

18. Rational creditors will not increase firms' debt beyond a certain point, because such a capital structure gives a residual claimant a "strong incentive to engage in activities (investments) which promise very high payoffs if successful even if they have a very low probability of success. If they turn out well, he captures most of the gains; if they turn out badly, the creditors bear most of the costs." Jensen & Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 334-37 (1976).

19. *Id.* at 337.

20. *Id.* at 338.

promises to depositors limiting the riskiness of the bank's future activities.<sup>21</sup>

To summarize, depositors will be indifferent between putting their money in insured, riskless banks at riskless rates of return and putting their money in uninsured, risky banks at higher, risk-adjusted rates of return, particularly given opportunities for diversification that cause rational investors to behave in a risk-neutral fashion. The current regulatory scheme, which provides a large measure of protection for uninsured depositors, encourages risky behavior by banks and is in essence a wealth transfer used to subsidize risky banks.

The bank settlement techniques preferred by the FDIC also create a phenomenon known to economists as a "moral hazard" problem. Such a problem exists in all insurance contracts because those who would receive payment from the insurance company have a lower incentive to engage in risk-reduction strategies.<sup>22</sup> But in federally administered insurance programs, the standard mechanisms through which excessive risk-taking is controlled by private insurers, such as deductibles, co-insurance, and risk-related premiums, are nonexistent.<sup>23</sup> In turn, the absence of these contractual devices makes internalization of the costs of risky activities more difficult for banking regulators than for private insurers.<sup>24</sup> For the banking industry, these contractual devices to control excessive risk-taking are replaced by monitoring by state and federal regulators and by other regulatory devices such as lending limits, minimum capital requirements, restrictions on insider dealings, and restrictions on competition among firms.

The likelihood that regulators are as effective as private parties at designing methods to control bank risk is slight, because unlike private parties, regulators do not have their own funds at stake in the contracting process. Given this situation, regulators have a lower incentive to impose effective restrictions on risk-taking—they have very little to lose if their strategies fail. Regulators have little, if any, personal stake in bank regulation for two reasons. First, bank management, not regulators, bear the primary responsibility for a bank failure. Regulators do not manage the day-to-day activities of the banks they regulate; those who do bear the

21. Shareholders of publicly held firms commonly make promises to fixed claimants to employ outside auditors; to produce detailed, independently prepared financial statements; to maintain certain levels of working capital; or to refrain from paying dividends or issuing additional debt. This list is just a small sampling of the array of contractual mechanisms used by shareholders and fixed claimants. For a detailed inventory accompanied by a useful economic analysis, see Smith & Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. FIN. ECON. 117 (1979).

22. For a discussion of the moral hazard problem in private insurance schemes and methods to decrease its effect, see K. ABRAHAM, *DISTRIBUTING RISK: INSURANCE, LEGAL THEORY, AND PUBLIC POLICY* 14-16 (1986).

23. See Fischel, Rosenfield, & Stillman, *supra* note 6, at 314.

24. *Id.* at 315.

primary responsibility for failure. Second, and more important, regulators have a variety of constituencies, some of whom have only a slight degree of interest in ensuring bank safety.

Two of the most important constituencies of bank regulators are the banks that they regulate and the congressional committees that provide oversight and influence the levels of funding received by the regulatory agencies. Clearly, the banks themselves are not eager to have significant impediments imposed on their activities. To the extent that bank regulatory policy is influenced by the regulated entities,<sup>25</sup> this policy will not force banks to internalize the full costs of the risks associated with their activities. In fact, over a wide range of regulatory issues, this constituency may be as likely to lead bank regulators away from solutions to the bank failure problem as towards solutions.

Nor is Congress likely to demand that banking regulators pay close attention to matters of bank safety; after all, their money is not at stake, either. Rather, the politicians with oversight responsibilities for regulatory agencies are more likely to promote solutions to bank failure problems that favor the powerful interest groups that form the politicians' own political bases.<sup>26</sup> Once again, the banks themselves are likely to have a disproportionate influence on the politicians.<sup>27</sup> A point made in a recent article by Professor Fred McChesney is particularly relevant here: he observes that powerful special interest groups are willing to spend political capital to pressure politicians and regulators to forbear from regulating.<sup>28</sup> McChesney's analysis applies with great force to the world of banking. As is well known, Jim Wright, the Speaker of the House of Representatives, recently has invested considerable time and energy to pressure regulatory agencies to forbear from closing insolvent savings and loan associations in his home state of Texas.<sup>29</sup> Wright seems to be moti-

25. The classic expression of the argument that producers strongly influence the actions of regulators and lawmakers is Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971).

26. For a detailed explanation of why interest groups are more likely to obtain laws that further their interests than are ordinary citizens, see J. BUCHANAN & G. TULLOCK, *THE CALCULUS OF CONSENT* 283-96 (1962); M. OLSON, *THE RISE AND DECLINE OF NATIONS* 36-74 (1982); see also Migué, *Controls versus Subsidies in the Economic Theory of Regulation*, 20 J. L. & ECON. 213, 214 ("Regulation is . . . an instrument of wealth transfer—the extent of which is determined in a political market—where interest groups demand regulation and politician-regulators supply it").

27. See M. OLSON, *supra* note 26.

28. McChesney, *Rent Extraction and Rent Creation in the Economic Theory of Regulation*, 16 J. LEGAL STUD. 101 (1987).

29. Banking regulators said that Wright intervened in a Federal Home Loan Bank Board probe of Thomas M. Gaubert, a major Democratic fund-raiser and owner of the Independent American Savings Association in Irving, Texas. To defend Wright's actions, a spokesperson for the Congressman claimed that Wright consistently aided Texas depository institutions from what he considers to be overly strenuous enforcement efforts. See N.Y. Times, June 22, 1987, § I, at 12, col. 5; see also N.Y. Times, Feb. 9, 1987, § IV, at 2, col. 1 (describing Wright's efforts to obtain new rules making it more difficult for regulators to close troubled savings and loan institutions).

vated by a desire to protect the management, employees, and debtors of these institutions, rather than by a belief that a strategy of regulatory forbearance furthers the interests of the banking system or promotes the cause of bank safety and soundness.

Thus, even conscientious regulators with the best intentions are likely to produce regulations that provide a sub-optimal level of safety for the banking system as a whole. The banking system is a disorganized, amorphous constituency that includes depositors and non-depositors, as well as the banks themselves. Important members of this group have far less access to and influence over bank regulators than bank managers and shareholders groups.<sup>30</sup> For this reason, a successful regulator inevitably will find himself responding to more direct constituency pressures from the latter groups.

It seems incontrovertible that the absence of any meaningful incentive to control excessive risk-taking explains a significant portion of the bank failures that have occurred to date.<sup>31</sup> If even large depositors prove to be unreliable agents for controlling risk-taking, then the social costs of protecting uninsured depositors through the use of open-bank assistance or purchase and assumption transactions are likely to be negligible. By contrast, of course, if uninsured depositors exert significant pressure on bank management to control excessive risk-taking, then the social costs of using bank settlement techniques that negate the incentives of such depositors to control risk-taking are likely to be significant.

We wish to emphasize that our analysis does not imply that regulators completely lack the incentive to prevent banks from engaging in excessive levels of risk-taking. Indeed, we observe regulatory measures such as reserve requirements, lending limits, and capital-to-asset ratio limitations, all of which are designed to promote bank safety. Our point is not that such regulatory devices do not exist; rather our arguments are (1) that these measures impose fewer constraints on excessive risk-taking than would be optimal from a societal perspective; and (2) that they do not punish excessive risk-taking by individual banks in the same way as a

30. Even in the absence of the ordinary collective action problems that plague disorganized political groups such as depositors, the existence of a federal deposit insurance program eliminates any incentive depositors have to lobby for increased bank safety.

31. This discussion is not meant to suggest that federal insurance of bank deposits is a bad idea. Rather, it is meant only to point out that the problem of excessive risk-taking by banks is a cost associated with such insurance that ought not be ignored. Deposit insurance provides a host of benefits, which may or may not outweigh the costs. Among the benefits are (1) the prevention of the prisoner's dilemma among depositors that may lead to bank runs; (2) protection of relatively unsophisticated depositors against losing their funds in a bank failure that they lack the sophistication to prevent; and (3) protection for, and a subsidy to, the nation's financial intermediaries. See Benston, *Brokered Deposits and Deposit Insurance Reform*, ISSUES IN BANK REG. 17, 18 (Winter 1987).



market-driven system would, because these measures are uniformly applied to all banks.

Finally, there is often a presumption that to make the case for depositor discipline, one must prove that such discipline is better than or even as good as the safety and soundness regulations promulgated by the regulators. This presumption is flawed. One is only required to prove that depositor discipline would be a valuable complement to whatever beneficial regulations are generated by the relevant agencies, and that the benefits to the banking system of invoking the forces of depositor discipline would outweigh the costs associated with this strategy. As we show in the following section, our complaint with the current regulatory scheme is that it deprives depositors of any incentive to impose market discipline on the excessive risk-taking proclivities of the nation's banks.

### II. Market Discipline by Uninsured Depositors: A Theoretical Model

The market system could become an effective tool for controlling the risk that banks were willing to assume if bank regulators would eliminate the use of bank settlement techniques that completely insulate depositors from any risk of loss. Absent the economically perverse settlement techniques currently used, uninsured depositors have information that would enable them to demand higher returns from risky banks and to provide banks with a clear incentive to control risk and minimize their cost of funds. Moreover, in a market system unencumbered by guarantees, depositors would demand contractual limitations on bank risks. Meanwhile, banks would require limitations on depositors' right to withdraw funds, thus reducing the likelihood of bank runs and the concomitant liquidity crisis.

Our argument that in the absence of deposit insurance, depositors will influence the excessive risk-taking proclivities of banks does not depend on an assumption that concerns about risk are the only, or even the primary, considerations of depositors. This statement is a rather basic point, but it is often misunderstood. Professor Garten, for example, declares that for depositor discipline to "cause banks to control their excessive risktaking . . . there must be a group of investors for whom risk is the primary consideration in choosing an investment."<sup>32</sup> She then concludes that because "most bank depositors . . . are concerned with factors other than risk when they select a bank," depositor discipline is not likely to be a useful method of controlling excessive risk-taking by banks.<sup>33</sup>

32. Garten, *supra* note 3, at 131.

33. *Id.*

Initially, we view the assertion that depositors who are not the beneficiaries of FDIC insurance will be blasé about risk as highly implausible. Professor Garten identifies such factors as “the convenient location of bank offices” and “personal relationships with bank officers” as more important to depositors than risk.<sup>34</sup> In light of the fact that most demand accounts at commercial banks serve as the depositors’ primary sources of liquidity,<sup>35</sup> risky banks will have to foster extremely close personal relationships with customers or be extremely convenient for such concerns to eliminate depositor concerns about riskiness.

Moreover, even if we take as true Professor Garten’s assertion that depositors are more concerned with factors other than risk, to conclude from this that depositor discipline will be wholly ineffective is still untenable.<sup>36</sup> When selecting a bank, anticipated riskiness will be a cost facing the depositor that he will weigh against benefits such as convenience and friendliness. Thus, the riskiness of the bank, together with a number of other factors such as the bank’s convenience and the friendliness of its employees, will inform the depositor’s investment decision.<sup>37</sup>

In this way, the customer’s decision about which bank to choose resembles the consumer’s decision about whether to buy a particular product (such as detergent) at a convenience store or at a discount store. The customer who shops at the convenience store forgoes savings for convenience; the customer who shops at the discount store gives up convenience to obtain a better price. Merely because we observe people shopping at convenience stores, however, does not mean that we can infer that customers are indifferent to price. If a convenience store charged its customers \$100.00 for a box of detergent, it is unlikely that customers would continue to shop there. Indeed, customers would be likely to travel a great distance (*i.e.*, to incur a large measure of inconvenience) to obtain a market price for detergent.

This example emphasizes the fact that consumer decisions, including the decision about where to deposit one’s money, are made at the margin.

34. *Id.* at 134.

35. The Board of Governors of the Federal Reserve System considers demand deposits at commercial banks to be the equivalent of cash for purposes of calculating “M1,” the figure that represents the nation’s basic reservoir of liquidity.

36. Professor Garten also argues that, for different reasons, another group of depositors, which she characterizes as “involuntary depositors,” will be unconcerned with bank riskiness. Garten, *supra* note 3, at 134. We consider this argument, *infra*, text accompanying notes 53–56.

37. This consideration assumes that depositors have sufficient information at their disposal to permit them to evaluate bank riskiness. On this point we agree with Professor Garten—depositors do have such information at their disposal. *See infra*, text accompanying notes 41–51; Garten, *supra* note 3 at 145 (“[T]he market for bank stocks is using publicly available information to make accurate judgments about bank risk. Since investors in bank deposits rely on exactly the same information, they should in theory be equally successful.”).

Consumers make trade-offs between factors like risk and convenience every day. In a world where depositors face risk of loss on the funds they deposit in commercial banks, as the riskiness of a bank increases, depositors will begin to withdraw their money. Because bankers will recognize this relationship, they will keep the riskiness of their activities sufficiently low to enable them to attract and retain depositor funds.

From an economic perspective, the matter can be simply put: all depositors will engage in monitoring up to the point at which an additional dollar spent on monitoring activity is offset by a dollar in expected savings from default. At lower levels of monitoring, engaging in additional monitoring will prove profitable; at higher levels of monitoring, the costs of some of the monitoring will outweigh the expected gains. The point at which marginal monitoring costs equal marginal savings to depositors from monitoring determines the efficient level of depositor monitoring activity.

We recognize that free-rider and other collective action problems make monitoring and controlling bank risk costly for certain individual depositors.<sup>38</sup> For such depositors, the costs of engaging in sufficient monitoring to obtain a useful amount of information about a bank will be quite high if depositors are unable to act collectively. This collective action problem is mitigated, however, by the fact that in a world where depositors face risk of loss, they will demand compensation for bearing this risk.<sup>39</sup> The cost of paying this additional compensation to depositors is borne by the shareholders and management of the risky bank. Thus, in the absence of government protection, the banks themselves have strong incentives to mitigate the collective action problems facing depositors, because the banks that do this can reduce their cost of capital.<sup>40</sup>

Another prerequisite to effective market discipline is a means to control information costs. To monitor and control bank risk effectively, depositors must have sufficient information about the financial condition of the banks in which they place deposits to make informed decisions about bank risk. Depositors must also be able to use this information in a positive way, *i.e.*, to influence bank management to decrease levels of risk-taking.

38. Our analysis of behavior at the margin explains why monitoring may be relatively unaffected by free-rider problems. Because depositors have differing amounts of money invested in banks, varying risk preferences, and differing bank investment portfolios, the efficient level of monitoring will be different for each depositor. Thus, a depositor cannot free-ride on another's monitoring, given that the extent of monitoring by the second depositor may not adequately meet the first's needs. In other words, as long as the gains from a given level of monitoring vary among depositors, none will be able to free-ride completely on the monitoring efforts of others.

39. See *supra* text accompanying notes 15–24; see also Fischel, Rosenfield & Stillman, *supra* note 6, at 314.

40. See *infra* text accompanying notes 65–66.

### A. *Information Available to Depositors*

Banks whose securities are publicly traded must produce extensive information to allow investors to assess the risk associated with these securities,<sup>41</sup> and this information is of equal value to depositors wishing to assess bank risk.<sup>42</sup> In addition, all federally regulated banks must prepare and submit annual statements of financial condition and income.<sup>43</sup> Bank regulators require additional disclosure "concerning areas of particular supervisory concern," such as the provisions for disclosure of bank loans to insiders.<sup>44</sup>

Even in the absence of federally mandated disclosure requirements, banks in search of funds have strong incentives to provide a broad range of relevant information voluntarily.<sup>45</sup> This notion is an extension of Professor George Akerloff's important article about the market for "lemons" (items of uncertain quality).<sup>46</sup> For uninsured depositors, bank safety is analogous to product quality: safe banks offer a product of higher quality than risky banks. Depositors who desire safety and who keep their money at safe banks will have to pay for it by foregoing higher interest. Conversely, depositors who prefer a high return will prefer to place deposits in riskier banks and receive compensation in the form of higher interest for bearing that additional risk.

Suppose, however, that consumers are unable to distinguish risky banks from safe banks. If this is the case, risk-neutral depositors will presume they are receiving only the average level of safety. Those banks that are safer than the average will be undercompensated for the level of service they provide. They must choose either to withdraw their services from the market or to discover a means to differentiate their superior (safer) product from the inferior (riskier) products of their competitors.

Disclosure of information about financial condition, in conjunction with stiff penalties for fraudulent disclosures, provides a means of sorting out

41. The Securities and Exchange Act of 1934, 15 U.S.C. §§ 78a-78kk (1982 & Supp. II 1984), requires that public companies, including banks and bank holding companies, issue quarterly and annual reports, as well as annual proxy statements. 15 U.S.C. §§ 78m(a), 78n(a) (1982).

42. See Garten, *supra* note 3, at 141.

43. See 12 U.S.C. § 161 (1982) (detailing financial reporting requirements for national banks); 12 U.S.C. § 324 (1982) (detailing reporting requirements for state-chartered banks that are members of Federal Reserve System). See also Garten, *supra* note 3, at 141 n.71.

44. See 12 C.F.R. § 304.4 (1987); Garten, *supra* note 3, at 141 n.72.

45. STAFF OF HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, 95TH CONG., 1ST SESS., REPORT OF THE ADVISORY COMMITTEE ON CORPORATE DISCLOSURE TO THE SECURITIES AND EXCHANGE COMMISSION 637-39 (Comm. Print 1977); Benston, *Required Periodic Disclosure Under the Securities Acts and the Proposed Federal Securities Code*, 33 U. MIAMI L. REV. 1471, 1473-76 (1979); Macey & Netter, *Regulation 13D and the Regulatory Process* (forthcoming in 65 WASH. U.L.Q.).

46. Akerloff, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970).

high quality products from low quality products. Where disclosure is possible, consumers will presume that firms that decline to disclose the details of their financial condition are in the worst imaginable straits.<sup>47</sup> Thus virtually all banks, even in the absence of mandatory disclosure laws, have a strong incentive to disclose relevant financial information and to do so in a format that is credible, accessible, and intelligible to depositors. For this reason, banks are willing to provide details about their condition to rating agencies and other private sector financial analysts even without laws requiring such disclosure.<sup>48</sup>

Finally, as Professor Garten has observed,<sup>49</sup> prices are set at the margin, so it is not necessary that all depositors obtain information about their banks' financial condition for disclosure to have an effect.<sup>50</sup> So long as all depositors can easily observe the interest rates available to large, sophisticated depositors, they will not only have a good proxy for bank riskiness, but they will also be able to demand a level of interest that permits them to receive compensation for any risks they incur at a particular bank.<sup>51</sup>

### B. *The Usefulness of Available Information*

From a policy perspective, information about a bank's financial condition will be useless to depositors unless the information is accurate, firm-specific, and available to investors in time for it to matter. Uninsured depositors will demand information about a bank's financial condition when they decide where to place their funds. At that moment, they will evaluate the riskiness of the banks in the relevant market and make the appropriate risk-return tradeoff. They have further incentives to continue to monitor the chosen bank to discern changes in its financial condition during the time their funds are deposited in the bank.<sup>52</sup>

Professor Garten suggests that a sizable group of depositors, the "involuntary" depositors, are unconcerned with the risk exposure of the financial institution that holds their deposits. Instead, the involuntary depositor

47. Benston, *supra* note 45, at 1476.

48. See Cates, *Disciplined Bank Management Can Turn Risk to Its Advantage*, *Am. Banker*, Nov. 20, 1984, at 4, col 1.

49. Garten, *supra* note 3, at 142-43.

50. *Id.* at 145.

51. *Cf. id.* at 143-44. For empirical support of this proposition see *infra* text accompanying notes 78-81.

52. As with the first condition of accuracy, the fact that investors can obtain information about bank financial condition in a timely fashion is also empirically supported. Indeed, the evidence shows that private investors more quickly identify problem banks than do federal regulators. See Schick & Sherman, *Bank Stock Prices as an Early Warning System for Changes in Condition*, 11 *J. BANK RES.* 136 (1980); see also Garten, *supra* note 3, at 144-45 (summarizing other studies and concluding that they suggest that the market "may already have been aware of the problem that led to the banks' inclusion on the lists").

chooses a bank primarily because of factors other than risk, such as convenience, the quality of other banking services, and the high costs of changing banks.<sup>53</sup> Garten's example of involuntary depositors occurs in a payroll situation; she considers both the employer who deposits the firm's payroll and the employee whose checking account is automatically credited for wages as involuntary depositors.<sup>54</sup> Given the dominance of this class of depositor in the commercial banking system over the group of investor-depositors who are primarily concerned with the riskiness of banks, Garten argues that any attempt to use uninsured depositors as a source of market discipline may be unsuccessful.<sup>55</sup>

The idea of an involuntary depositor who is impervious to risk does not withstand close scrutiny, however, because all uninsured depositors, involuntary depositors and investor-depositors alike, will be concerned with bank risk. In the payroll situation, the employee's deposits are likely to be less than \$100,000 and to enjoy the statutory protection of federal deposit insurance. Thus, the key depositor in terms of market discipline is the employer who manages the payroll account and selects the bank for all the accounts. Contrary to Garten's assertion, this involuntary depositor is a potential source of strong market discipline.

The employer will desire to keep the main payroll account in a safe bank because the account will often have a balance in excess of the insured limit. If the bank engages in excessively risky activities and fails, the employer will not only risk the loss of much of its savings but will also continue to owe wages and salaries not transferred to the employee accounts.<sup>56</sup> Moreover, an employer will prefer to avoid the disruption and loss of morale invariably associated with the failure to pay employees. Thus, uninsured involuntary depositors, as well as investor-depositors, represent a means to control the risk exposure of depository institutions.

### C. *Depositors' Use of Information About Bank Riskiness*

Given the availability of usable information, the most important issue is whether uninsured depositors will use that information in a way consistent with the public policy objective of a safe and stable banking system. Critics of depositor discipline do not suggest that such discipline is nonexistent; instead, they object to the way depositors exercise this discipline. Market discipline by depositors manifests itself in two ways: depositors

53. Garten, *supra* note 3, at 134.

54. *Id.* at 134-35.

55. *Id.* at 137.

56. See *Closely Watched Banks: One that Got Away*, Bus. Wk., Oct. 19, 1987, at 108 (firms lost payroll accounts over \$100,000 in bank failure). The possibility of such losses suggests an important reason for employers to prefer safe banks and to avoid risky institutions.

may demand compensation *ex ante*, and they may withdraw funds already deposited from banks that offer an unattractive mix of risk and return. Those who doubt the efficacy of depositor discipline ignore the demand for compensation before depositing and focus on the threat of withdrawal.

Professor Garten, for example, maintains that “in the market for deposits, sudden and devastating bank runs are the only form of discipline that is likely to occur.”<sup>57</sup> She concludes that depositor discipline does not appear in a usable form, because in the end it only results in “discouraging both bank depositors and management from expending any energy in the ongoing monitoring of risk.”<sup>58</sup> This conclusion suggests that bank shareholders and management are insensitive to the cost of funds and that depositors are somehow unable to obtain from banks contractual promises that effectively constrain risk-taking.

Banks are sensitive to the costs of funds; other things being equal, bank shareholders will prefer to keep the cost of capital low to obtain higher returns on their equity investment. The fact that uninsured depositors will demand risk premiums from banks that engage in risky activities provides shareholders with an incentive to select management teams and boards of directors that will control risk-taking. Put another way, market discipline by depositors should be reflected in the portfolio allocation decisions of bank management.

It has been suggested that banks may misperceive the signal that is sent to them by an increase in funding costs. Specifically, Professor Garten argues that “[r]ate variations may also reflect the frequency with which the bank sells deposits, returns on competitive investments, and market conditions.”<sup>59</sup> This argument ignores the fact that for the purposes of this discussion, what matters to shareholders and managers of banks is not the absolute cost of funds. Rather, banks are concerned with the costs of funds relative to that of rival banks, and the spread between the cost of funds and return in the form of interest paid by borrowers. Banks that make riskier loans must earn a greater rate of return on assets to justify their higher cost of funds due to a greater risk exposure.

Numerous contractual devices are available to prospective depositors who wish to control excessive risk-taking before making their deposits.<sup>60</sup> While these contractual devices are not costless, nothing suggests that depositors, like other creditors, will not employ them in a cost-effective man-

57. Garten, *supra* note 3, at 132.

58. *Id.*

59. *Id.* at 158 n.151.

60. For a general description of the various contractual devices that fixed claimants employ to limit excessive risk-taking by residual claimants, see Smith & Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. FIN. ECON. 117 (1979).

ner. Moreover, such contractual devices would restrict firms' risk-taking, belying Professor Garten's notion that bank runs are the only means for depositors to express their disapproval of bank management.<sup>61</sup> For example, under the current system, depositors have no incentive to require the banks in which their funds are held to maintain an equity cushion against unforeseen fluctuations in the value of the bank's portfolio of assets. Nor are banks encouraged to maintain high levels of loan loss reserves or even to match the maturity schedules of their assets with their liabilities because depositors look to the assets of the federal government rather than the assets of the bank to protect them from risk of loss.

Professor Garten argues that depositors will discipline banks primarily through disastrous bank runs because withdrawal of deposits from a questionable bank is costless and easy for depositors.<sup>62</sup> This argument has several implications for Garten's position. First, the ease of withdrawal discourages depositors from verifying negative rumors and may encourage depositors to withdraw their money at the first unsubstantiated hint of trouble. Second, depositors are apt to be indifferent to excessive risk taking because they can "easily escape [from the burning building] before the roof collapses."<sup>63</sup>

The argument that depositors discipline banks only through fatally destructive runs is flawed because it assumes that a depositor who wants to withdraw funds from a bank faces zero costs. This assumption ignores the fact that depositors who withdraw their funds must put them somewhere else. While the costs of physically removing the funds from one bank are close to zero, the search for a safer depository institution is costly. The cost of investigating the bank in which a depositor's money is held to verify rumors about changes in the bank's financial condition often will be lower than the cost of locating another bank for the money,<sup>64</sup> because the depositor already has invested resources to develop a store of information about the implicated bank at the time the withdrawal decision is being made. To discover a new bank, the investigation must start from scratch and encompass several financial institutions.

This is simply a specific application of the more general point made previously that exerting market discipline on risky banks is costly to depositors, and that such decisions are made at the margin.<sup>65</sup> The costs of withdrawing money and searching for a new bank must be balanced against the costs of keeping money in the old bank and pressuring bankers

61. See *infra* text accompanying notes 106-08.

62. Garten, *supra* note 3, at 153-154.

63. *Id.* at 153.

64. *But see id.* at 155-56.

65. See *infra* text accompanying notes 49-51.



## Depositor Discipline

to change their policies. For large depositors, such jawboning may be an attractive alternative to sudden withdrawal, particularly where banks that have increased their levels of riskiness *ex post* are willing to pay for the privilege of retaining the deposits by offering risk premiums.<sup>66</sup>

The second reason why depositor discipline is not likely to manifest itself in the form of irrational and fatally destructive runs is that banks could avoid the problem altogether. Banks could place limitations on depositors' rights to withdraw funds on demand, such as the current notice requirements contained in many NOW account deposit agreements. If the additional costs to banks in the form of higher interest payments on deposits (which banks inevitably will have to pay if customers cannot withdraw their funds on demand) are lower than the benefits to banks in the form of lower capital costs, banks will find offering such accounts to be in their interest, even if they are not compelled to do so by regulators.<sup>67</sup> Such a reaction by banks would eliminate any collective action problem facing bank depositors that might lead to destructive runs<sup>68</sup> and would provide even greater incentives for depositors to demand *ex ante* contractual restraints on risk-taking by management.

In the real world, of course, monitoring by investors, including depositors, is costly because of such collective action problems as free-riding and high information and enforcement costs. Thus, if an individual depositor monitors bank management, he bears the full costs of this activity but

66. This analysis applies even where large depositors have funds on deposit at several banks. It might appear that this sort of depositor simply will transfer money from his account at one bank to his account at another bank if the first bank appears to be engaging in risky activities. Because depositor decisions are made at the margin, however, the decision to place additional funds in another account will cause the depositor to engage in additional search about the second bank. The decision for such a depositor will be whether the marginal costs of acquiring, processing, and verifying information about the first bank are higher than the marginal costs of acquiring, processing, and verifying information about the second bank.

67. A bank's cost of capital might be higher if it did not place limitations on depositors' rights to withdraw their money on demand, because large uninsured depositors and other creditors might fear a bank run if the bank did not impose such limitations and therefore might demand large risk premiums on their deposits. In addition, rational, self-interested depositors might agree to forego immediate access to their funds because such depositors realize that although such restrictions inconvenience them, they also constrain other depositors and thus eliminate the possibility of a destructive bank run that harms all depositors.

68. See Fischel, Rosenfield, & Stillman, *supra* note 6, at 307-310. Bank depositors face a form of prisoners' dilemma when individual depositors can withdraw their money at any time, because banks at any particular time maintain a store of funds on hand that is insufficient to meet the demands of all their depositors.

[R]ational depositors realize that any mass withdrawals of funds may force the bank to take value-reducing actions such as liquidating commercial loans at distress prices or calling loans prematurely. Thus, it is in the interest of depositors as a group not to withdraw large amounts simultaneously. But if some class of depositors does decide, for whatever reason, to withdraw assets from the bank, other depositors will rationally conclude that they must do the same to avoid being left with nothing. The result of such a "run" on the bank's assets may be the failure of a previously solvent bank to the detriment of depositors as a group.

*Id.* at 307-08.

must share the benefits with all depositors. Because monitoring is costly and because depositors are numerous and widely dispersed, in some cases only depositors with very large deposits will be able to capture a sufficient fraction of the gains from monitoring to make monitoring worthwhile. In a world of depositor discipline, however, shareholders will bear the cost of excessive risk-taking by a bank because depositors will demand compensation for excessive risk-taking in the form of higher interest payments. These higher interest payments increase the capital costs of the bank and are borne directly by the shareholders.<sup>69</sup> In other words, to the extent that free-rider problems impede the ability of depositors to monitor at an ideal level, the shareholders will suffer.

Thus, bank managers and shareholders would share the desire of depositors to solve the collective action problem. To help depositors mitigate their collective action problem, bankers would be willing to appoint independent, outside agents to represent the depositors' interests if doing so would reduce the risk premium they were required to pay on deposits by an amount sufficient to offset the fees charged by the outsider. Such agents would be the functional equivalent of the indenture trustees who perform monitoring functions on behalf of corporate and municipal bondholders, thereby mitigating the collective action problem facing these fixed claimants. Such a system would provide depositors with a mechanism to continue to monitor their deposits (by proxy) after their initial investigation of the bank in the course of deciding where to place their funds.

In a world of depositor discipline, an additional force would keep banks from engaging in excessive risk-taking after depositors have entrusted their funds to the institution. This force stems from the fact that banks are continually in the market for deposits. As Frank Easterbrook recently pointed out in an important article in the *American Economic Review*,<sup>70</sup> investors such as uninsured depositors find it relatively easy to monitor their investments *ex ante*.<sup>71</sup> But after they invest their funds, collective action problems make such monitoring less likely. Easterbrook's insight is that investors can solve this problem by placing their money at a firm that must continually return to the market to obtain funding. The necessity of continually returning to the market for new depositors will ensure existing depositors of continual monitoring by the new depositors and further mitigate the collective action problem.<sup>72</sup> Banks are continually in the market for new depositors because holders of demand deposits are continually

69. See Jensen & Meckling, *supra* note 18, at 334-37, 342-43.

70. Easterbrook, *Two Agency Cost Explanations of Dividends*, 74 *AMER. ECON. REV.* 650, 653 (1984).

71. *Id.* at 654.

72. *Id.* at 654-55.

withdrawing their funds. This situation should alleviate the collective action problem facing depositors in a world in which all depositors do not have the luxury of relying on *de jure* or *de facto* deposit insurance.

### III. Market Discipline by Depositors: A Summary of the Empirical Evidence

As we noted at the outset, the efficacy of depositor discipline can best be ascertained through empirical data, and this empirical evidence decisively supports the position that depositor discipline could control bank risk-taking, and that even given bank bailouts and policies that suppress incentives for depositor discipline, uninsured depositors do impose some discipline on banks in a form other than uncontrolled bank runs at the first sign of financial irregularity.<sup>73</sup>

A recent study by two economists at the Federal Reserve Bank of Chicago, Herbert Baer and Elijah Brewer, looked at the risk premiums demanded by owners of large, uninsured certificates of deposit (CDs) to see if riskier banks paid more to issue such certificates.<sup>74</sup> Baer and Brewer used two measures for bank risk: (1) the ratio of market value of equity to total assets; and (2) the variance of returns on bank equity. The higher the market value of a bank's equity in relation to the total value of its assets, the greater the cushion uninsured depositors enjoy in the event of financial trouble. Thus a bank with a low ratio of market value of equity to total assets is riskier, from the perspective of uninsured depositors, than a bank with a high market-to-asset ratio. The second measure of bank risk, the variance of stock returns, is a well-known proxy for risk. Banks whose stock values display a high measure of variance are perceived by the market to be riskier.

Baer and Brewer found that the rates of return to holders of uninsured CDs were closely correlated with changes in banks' market-to-asset ratios and the volatility of bank stock returns. They found, for example, that as banks' market-to-asset ratio decreased by one standard deviation, they could be expected to pay rates on uninsured CDs that were seventeen

73. If market discipline by depositors did not work or inevitably took the form of depositor panic and massive withdrawals, then we would expect to observe numerous bank runs and failures prior to the creation of the FDIC and the Federal Reserve Board. This was not the case. Professor George Kaufman found that significant market discipline resulted in few bank failures during the period from 1875 to 1919, prior to the existence of the Fed or the FDIC. Simmons, *Annual Conference Assesses Bank Risk*, ECON. PERSPECTIVES, FED. RESERVE BANK OF CHICAGO, Sept./Oct. 1986, at 19 (reporting on Kaufman's study). In addition to depositor discipline, the high levels of bank capitalization during this period also was suggested as a reason for the low incidence of bank failure. Capitalization decisions are not made in a vacuum, however; depositor discipline leads to efficient levels of capitalization because depositors demand a capital cushion as an assurance that their deposits will be safe.

74. Baer & Brewer, *Uninsured Deposits as a Source of Market Discipline: Some New Evidence*, ECON. PERSPECTIVES, FED. RESERVE BANK OF CHICAGO, Sept./Oct. 1986, at 23.

basis points higher.<sup>75</sup> An increase by one standard deviation in the volatility of stock returns was linked to an increase of sixteen basis points in the rates of these certificates.<sup>76</sup> These results indicate that the market for CDs reacts to the risk-related decisions of bank and that uninsured depositors can exert discipline on banks through a market mechanism "even when banks are solvent," and not only through bank runs.<sup>77</sup>

Several empirical studies cited by Garten also indicate that depositors will not necessarily discipline banks solely through runs and that discipline will not spill over to affect healthy banks.<sup>78</sup> Two studies of the market reaction to the disclosure of the problem bank list in 1976 observed a lack of long-term changes in the banks' stock prices and concluded that the market was aware of the financial situation of the banks before the lists were made public.<sup>79</sup> Moreover, the information did not cause any spillover of negative reactions to bank stocks generally.<sup>80</sup> These studies focus on the response of bank shareholders to the risk profiles of financial institutions; however, uninsured depositors with an incentive to monitor bank risk should react similarly, particularly because they will rely on the same sources of information.<sup>81</sup>

A more exhaustive study by Timothy Hannan and Gerald Hanweck confirmed the findings that holders of uninsured CD's demand differential risk premiums from banks.<sup>82</sup> Hannan and Hanweck studied interest rate data for five different CD maturities at 300 different banks.<sup>83</sup> After a series of calculations that used firm-specific data to indicate the perceived probability of insolvency and that isolated variables such as bank size and geographic location, they discovered that the market assesses both the variability of bank returns on assets and the bank capital-to-asset ratio and exacts a price for bank risk-taking.<sup>84</sup>

Two further results of the Hannan and Hanweck study are noteworthy

75. *Id.* at 29.

76. *Id.*

77. *Id.* at 23.

78. Garten, *supra* note 3, at 144-45.

79. Johnson & Weber, *The Impact of the Problem Bank Disclosure on Bank Share Prices*, 8 J. BANK RES., Autumn 1977, at 179-80; Murphy, *Disclosure of the Problem Bank Lists: A Test of the Impact*, 10 J. BANK RES., Summer 1979, at 92, 95.

80. Murphy, *supra* note 79, at 92.

81. See *supra* text accompanying notes 49-51.

82. T. HANNAN & G. HANWECK, BANK INSOLVENCY RISK AND THE MARKET FOR LARGE CERTIFICATES OF DEPOSIT (Financial Structure Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System, Working Paper in Banking, Finance, and Microeconomics No. 86-1, April 1986).

83. *Id.* at 10.

84. *Id.* at 13-14, Table 3. The authors reported surprising findings with regard to bank profitability; they found a positive relationship between that variable and the interest rates on uninsured CDs. *Id.* at 14. This result indicates that bank profitability is not solely a measure of risk but also reflects the presence of profitable uses of the funds because of a more efficient banking operation.

for the purposes of assessing the viability of market discipline by depositors. First, the results were consistent with the proposition that uninsured depositors perceive larger banks as safer than smaller banks, given the FDIC's settlement policies that insulate all depositors in large banks from any risk of loss.<sup>85</sup> Second, the risk premium demanded by uninsured depositors increases as the maturity of the CD increases, indicating that longer-term depositors are more concerned with the risk of bank insolvency than are shorter-term depositors.<sup>86</sup>

Eugenie Short, senior economist at the Federal Reserve Bank of Dallas, found in a recent study that banks reporting four or more quarters of negative income between 1982 and 1984 had a higher cost of funds than other banks.<sup>87</sup> Apparently, depositors demanded higher risk premiums from the problem banks; however, the difference in the cost of funds was not statistically significant when large banks were isolated.<sup>88</sup> Short found that the risk premiums demanded by depositors of CDs did not emerge until after the identification of serious problems that could have threatened the viability of the institution.<sup>89</sup> Nonetheless, the findings do prove empirically that market discipline operates even in the current system that discourages it.

Other studies have produced similar results. Elijah Brewer and Cheng Few Lee found that differences in banks' reliance on purchased funds (primarily large CDs sold through a brokered market) significantly affect the riskiness of bank activities.<sup>90</sup> Banks that rely heavily on purchased funds tend to be more risky,<sup>91</sup> because purchased funds, unlike deposits, are likely to be uninsured. This finding is particularly significant in that it not only confirms that uninsured deposits are sensitive to bank risk, it also indicates that the market imposes costs on shareholders who cause their banks to engage in risky activities when those banks have a significant portfolio of uninsured liabilities.

85. *Id.* at 12-13.

86. *Id.* at 18.

87. Short, *Bank Problems and Financial Safety Nets*, ECON. REV. OF THE FED. RESERVE BANK OF DALLAS, March 1987, at 17; see also T. HANNAN & G. HANWECK, *supra* note 82; Baer & Brewer, *supra* note 74 (cited by Short).

88. *Id.* at 25-26. Regulatory policies that absolutely protect uninsured depositors in large problem banks through purchase and assumption transactions or open-bank assistance, while occasionally subjecting uninsured depositors in small problem banks to risk of loss and delay through a deposit payoff, explain the insensitivity of uninsured depositors in large banks to riskiness, as compared to smaller banks.

89. *Id.* at 25. Short speculated that the market would react more quickly without the increasingly absolute protection of deposit insurance. *Id.* at 18.

90. Brewer & Lee, *How the Market Judges Bank Risk*, 10 ECON. PERSPECTIVES, FED. RESERVE BANK OF CHICAGO, Nov/Dec. 1986 at 25.

91. *Id.*

A study by John Harris, James Scott, and Joseph Sinkey<sup>92</sup> provides empirical support for the proposition that bank bailouts protecting uninsured depositors amount to a subsidy to risky banks. They found that the FDIC bailout of Continental Illinois Bank discouraged market discipline by uninsured depositors in the nation's largest banks. This effect was observed because the bailout conveyed the message that regulators would not permit these banks to fail.<sup>93</sup> The *de facto* insurance of all deposits in large banks caused a cumulative abnormal return (*i.e.*, total return net of expected market reaction) of forty per cent to the stockholders of the nation's largest banks.<sup>94</sup>

Joseph Sinkey studied the financial condition of First Pennsylvania Bank, which received open-bank assistance from the FDIC in April 1980.<sup>95</sup> He found that early warning signals of trouble could be discerned six years before federal aid. Sinkey analyzed the bank through a return-on-equity model and demonstrated that the quality of the loan portfolio began to deteriorate in 1974;<sup>96</sup> that First Pennsylvania relied significantly on purchased funds beginning in 1975;<sup>97</sup> and that the bank had been unsuccessful in controlling expenses and developing consistently good management for some time before the bailout.<sup>98</sup> The existence of these warning signals at such an early stage suggests that a more risk-sensitive market might have averted the need for a bailout.

All of these studies present evidence indicating that shareholders will cause the banks they control to engage in lower levels of risk-taking where regulators decline to provide either *de jure* or *de facto* insurance for large depositors. In the absence of insurance, shareholders must pay for the privilege of engaging in excessive risk-taking, whereas the existence of deposit insurance allows them to engage in such risk-taking free of charge.

#### IV. Proposals to Maximize Market Discipline by Depositors

The foregoing theoretical discussion and empirical findings show the need for change in the federal deposit insurance system. Because uninsured depositors can exercise discipline on banks that engage in excessive

92. Harris, Scott & Sinkey, *The Wealth Effects of Regulatory Intervention Surrounding the Bailout of Continental Illinois* (1986) (unpublished paper on file at the Yale Journal on Regulation). See Simmons, *supra* note 73, at 21 (reporting results of study).

93. Harris, Scott & Sinkey, *supra* note 92, at 6. After the Continental Illinois assistance, the Comptroller of the Currency explicitly stated that the nation's eleven largest banks were considered by federal regulators as too big to be allowed to fail. Wall St. J., Sept. 20, 1984, at 2, col. 2.

94. Harris, Scott & Sinkey, *supra* note 92, at 13.

95. Sinkey, *The Performance of First Pennsylvania Bank Prior to its Bail Out*, 14 J. BANK RES. 119 (1983).

96. *Id.* at 126-27.

97. *Id.* at 128.

98. *Id.* at 130.

risk-taking, the system should be modified to use this potential market force to supplement the relatively less efficient mechanism of regulatory oversight. In this section we will outline possible regulatory changes suggested by our analysis, and we will discuss additional market mechanisms that uninsured depositors will develop so they can monitor bank risk effectively.

The crucial problem with the federal deposit insurance system lies in its choice of bank settlement techniques and in its refusal to deal with bank failures in a consistent way. The FDIC has developed, but no longer uses, a modification of the purchase and assumption transaction, known as the modified payout procedure. This technique was adopted in 1983 as a means “to give the FDIC more flexibility in minimizing disruption of banking services, while exposing uninsured depositors to the risk of loss on their deposits.”<sup>99</sup> Under a modified payout, FDIC administrators make an appraisal of a failed bank’s assets and conservatively estimate the ultimate recovery on those assets. Another solvent insured bank then assumes all the insured deposits and the percentage of uninsured deposits equivalent to the estimated total present value of bank assets recoverable through liquidation. Uninsured depositors obtain receivership certificates for the amount not assumed by the purchasing institution, and if the FDIC realizes a higher net asset value than estimated, additional funds are distributed on a pro rata basis to certificate holders.<sup>100</sup>

The modified payout strengthens depositors’ incentives to monitor bank crisis and should be used in all bank failure situations, thereby eliminating the uncertainty currently associated with bank failures.<sup>101</sup> As Professor Garten correctly indicates, uncertainty is disastrous in the commercial bank setting—in part because of the adverse impact on the extent of depositor monitoring. Uncertainty also increases the cost of funds for banks because they must compensate depositors for the risk that in the event of a failure, the FDIC will use a deposit payoff rather than the other techniques that provide depositors absolute protection. This problem is particularly acute for medium-sized banks that are not certain candidates for a purchase and assumption or open-bank assistance.

The contractual devices used by private insurers to mitigate the “moral hazard” problem suggest another appropriate modification of the regula-

99. Gilbert, *supra* note 10, at 22; *see also* FEDERAL DEPOSIT INS. CORP. DEPOSIT INSURANCE IN A CHANGING ENVIRONMENT III-4 to III-6 (Apr. 1983).

100. For a discussion of the modified payout technique and its advantages in terms of maximizing market discipline, see Note, *The Modified Payout of Failed Banks: A Settlement Practice to Inject Market Discipline into the Commercial Banking System*, 73 VA. L. REV. 1349 (1987) (authored by Elizabeth Garrett).

101. *See* Garten, *supra* note 3, at 163-66.

tory system.<sup>102</sup> One mechanism in particular, risk-related deposit insurance premiums, could be used by the FDIC to force banks to internalize at least some of the costs of risk-taking. Currently, the FDIC assesses banks an annual premium of one-twelfth of one percent of total domestic deposits for federal deposit insurance coverage.<sup>103</sup> Because a flat-rate premium ignores the specific risk profile of a bank, a bank is able to engage in risk-taking without affecting its cost of insurance.<sup>104</sup> Commentators have devised various systems for calculating and implementing risk-related premiums;<sup>105</sup> many of these would improve the present system by forcing banks to offer interest rates to depositors that reflect bank risk and by allowing depositors to more accurately measure the risk exposure of financial institutions.

As the regulatory system begins to encourage depositors to act as a source of market discipline, depositors could develop *ex ante* contractual mechanisms to facilitate monitoring and to limit risk.<sup>106</sup> Under a regime that would rely more heavily on depositor discipline, equity investors, managers, and uninsured depositors would develop contractual provisions similar to bond indentures and debt covenants that limit the ability of corporations to engage in conduct detrimental to creditors.<sup>107</sup> These efficient contractual solutions often include restrictions on the dispositions of assets, restrictions on mergers, and reporting requirements.<sup>108</sup> Depositors placed at risk of loss would demand these and other contractual protections, and banks would develop them to decrease their cost of funds.

These suggestions for regulatory and contractual innovations are by no means comprehensive. As the potential for market discipline by depositors is gradually realized and as certainty is increased in the context of bank failure policy, further market solutions may evolve as depositors seek to economize on monitoring costs and as shareholders and managers attempt to decrease the cost of capital.

102. See *supra* text accompanying notes 22-24.

103. 12 U.S.C. § 1817(b) (1982).

104. See Scott, *Deposit Insurance: The Appropriate Roles for State and Federal Governments*, 53 BROOKLYN L. REV. 27, 33-34 (1987); see also *id.* at 35-36 (discussing more radical proposal: co-insurance).

105. See, e.g., Kane, *Proposals to Reduce FDIC and FSLIC Subsidies to Deposit Institution Risk-Taking*, ISSUES IN BANK REG., Winter 1985, at 24, 31-32; Scott, *supra* note 72, at 38-42.

106. See *supra* text accompanying notes 60-61 and 66-68.

107. Easterbrook & Fischel, *Limited Liability and the Corporation*, 52 U. CHI. L. REV. 89, 105 (1985).

108. For a detailed discussion of debt covenants, see Smith & Warner, *supra* note 41, at 125-43.



### Conclusion

The scores of bank failures may serve a beneficial purpose if they cause us to identify the underlying weaknesses of the current regulatory system—a system that negates any incentive for depositors to monitor bank financial condition and to discipline institutions that engage in excessive risk-taking. If these weaknesses are isolated and regulatory policy is changed appropriately, perhaps by the adoption of modified payouts and risk-related premiums, market mechanisms should develop to allow depositors to discipline excessively risky banks.

Economic theory suggests that depositors exposed to risk of loss will discipline excessively risky banks *ex ante* through contractual devices and higher risk premiums and *ex post* through withdrawals. These actions will be informed and targeted at appropriate firms because market forces, in addition to statutes, will lead to the development of accurate, firm-specific information. The empirical studies support this scenario by demonstrating that depositors currently exert discipline that could be strengthened in a system designed to maximize it. Empirical studies indicate that information about poor bank performance is available to depositors and other creditors well before a failure so that gradual discipline can be applied. Thus an increase in depositor discipline promises to restrain excessive risk-taking without further destabilizing the troubled banking industry.

