Taking Note of the Deposit Insurance Fund: A Plan for the FDIC to Issue Capital Notes

LARRY D. WALL
The author is a research officer in the financial section of the Atlanta Fed's research department. *He thanks George Benston, Rob Bliss, Mark Carey, Jerry Dwyer, Bob Eisenbeis, Mark Flannery, Ed Kane, Michael Gordy, Paul Kupiec, Saikat Nandi, Will Roberds, Steve Smith, Ellis Tallman, and workshop participants at the Board of Governors of the Federal Reserve System and the Office of the Comptroller of the Currency for helpful comments. The views expressed are the author's.*

ARE EXISTING REGULATORY POLICIES ADEQUATELY LIMITING TAXPAYERS' EXPOSURE TO DEPOSIT INSURANCE LOSSES? LOOKING TO THE PAST, IF THERE HAD BEEN A CREDIBLE, INDEPENDENT ANSWER TO THIS QUESTION, THERE MIGHT HAVE BEEN FEWER LOSSES FROM THE THRIFT DEBACLE OF THE 1980S. BOTH REGULATORS AND CONGRESS MIGHT HAVE RESPONDED MORE RIGOROUSLY TO THE THRIFT PROBLEM IF A MORE CREDIBLE SIGNAL HAD BEEN GIVEN ABOUT ITS SERIOUSNESS.

Looking to the future, although some subsequent policy changes should help forestall such scenarios, breakdowns that would expose the taxpayer to losses remain possible. The likelihood that in the event of substantial bank failures taxpayer funds would have to bail out the deposit insurance fund has been used as an argument for continuing regulatory controls on what activities may be affiliated with banks.

This article argues that the interests of both taxpayers and banks may be best served by developing an independent monitor of the insurance fund and outlines a proposal that would provide such a monitor. The proposal calls for the Federal Deposit Insurance Corporation (FDIC) to issue securities for which the promise of payment is contingent on the state of the insurance fund.[1] For example, if the fund required taxpayer contributions to satisfy its deposit insurance obligations, then the securities would receive no payment. The notes would be called *capital notes* because their promised payments would depend on the level (or capital) in the deposit insurance fund. Although capital noteholders would necessarily be subject to risk, the primary purpose of the notes is not to substitute for bank-supplied funds in absorbing the risk of loss but to produce information about the risks facing the fund.

This proposal provides a way of tapping private investors' information.[2] Private investors already gather a substantial amount of information about the state of the banking industry, and thus they are in a position to make informed judgments about the state of the deposit insur-

ance fund. However, investors currently have no incentive to focus on the implications of their knowledge for the insurance fund, nor do they have any organized vehicle for aggregating and expressing their views of the fund's health. The capital note proposal gives investors both an incentive to examine the fund and a mechanism for expressing their views. Capital notes would also help regulators by providing an independent assessment of the risks facing the fund and by enhancing the incentives of senior regulators to protect the fund.[3] Such supplemental information might also be useful to Congress in evaluating both the condition of insured intermediaries and the performance of the system for disciplining banks' risk taking.

The plan presented here is designed to produce useful information with little or no net cost to taxpayers and banks. It imposes virtually no direct costs on the taxpayers because the sole source of funds for paying the notes is the proceeds of deposit insurance premiums paid by insured banks. Although the plan imposes costs on banks, the net present value of this cost is likely to be near zero because receipts from issuing notes would be used to offset banks' current insurance payment obligations. In the United States these receipts could be applied to payments on Financing Corporation (FICO) bonds.[4] Indeed, the plan would have a positive net present value to banks to the extent that reducing policymakers' concerns about the insurance fund could result in more extensive deregulation.

A secondary rationale for this proposal is to encourage greater consideration of the use of carefully crafted financial market contracts to reduce government exposure to deposit insurance losses. The government will continue to bear some residual risk from the failure of depositories as long as it provides deposit insurance.[5] However, through thoughtfully designed financial contracts, the government could enlist private-sector help in monitoring and perhaps even reducing its deposit insurance exposure.[6]

This recommendation is not presented as a substitute for mechanisms that monitor the riskiness of individual banks and limit losses at failed banks. It is designed instead to provide information about the overall state of the insurance fund, not about any individual bank. The discussion below focuses on the United States and is based on the current system for monitoring and disciplining banks as well as the system for distributing losses at failed banks. Thus, the provisions of the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA), such as those requiring prompt corrective action and least costly resolution, are assumed to remain in force. However, the capital note proposal has the potential for broader applications, as shown in Box 1, which considers the benefits of incorporating capital notes into alternative regulatory regimes such as cross-guarantees and narrow banking.

As long as the government is at risk of loss when depositories fail, some mechanism for signaling the magnitude of that exposure is desirable.

The remainder of this article reviews the need for a way to monitor the health of the fund, and lays out the capital note plan in greater detail, explaining how capital

1. For simplicity, the proposal assumes the existence of only one fund, but the plan could easily be extended to each of the two existing funds in the United States, the Bank Insurance Fund and the Savings Associations Insurance Fund.

2. The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) provides for ex post monitoring of the fund's condition via studies of excessively expensive bank resolutions and through its requirement for higher insurance premiums if the systemic risk exception is invoked. In contrast, the capital note proposal allows for ex ante information production by private market participants.

3. The federal bank regulatory agencies in the United States are the FDIC, the Federal Reserve System, the Office of the Comptroller of the Currency (OCC), and the Office of Thrift Supervision (OTS).

4. FICO was created by Congress to help finance the resolution of failed thrifts. Its obligations are to be met by the collection of insurance premiums from thrifts and banks.

5. Box 1 notes that the removal of de jure deposit insurance does not imply the end of de facto insurance.

6. Two casual suggestions proposed in a seminar as alternatives to the capital notes plan call for contracts that could produce the same information as capital notes. One suggestion was that the United States issue option contracts that are payable only if the deposit insurance fund requires a taxpayer bailout. The capital note proposal seems preferable to issuing options contracts because Congress could have a very difficult time understanding why it should make payments to optionholders when it also has to appropriate taxpayer money to bail out the insurance fund. Paul Kupiec suggested that the FDIC issue contracts that would require payments to the agency in the event the insurance fund needed additional funding. The capital note proposal also seems to have an advantage over Kupiec's suggestion for issuing reinsurance contracts because the capital note plan would obtain the investors' funds before a crisis rather than try to obtain the money after a crisis. However, while the capital note arguably offers distinct advantages, both of these alternative proposals seem capable of providing independent information about the state of the insurance fund and hence could result in a significant improvement over the current system of monitoring the fund.

The Usefulness of Capital Notes under Alternative Regulatory Systems

The capital note proposal for monitoring the health of the FDIC fund is set in the context of existing U.S. banking supervision and closure policies. A number of alternative approaches to bank supervision and closure have been proposed over the years. However, the attractiveness of the capital note proposal hinges on whether the government is at risk from bank failures. As long as the government is at risk of loss when depositories fail, some mechanism for signaling the magnitude of that exposure is desirable. The analysis that follows argues that none of the existing proposals for bank supervision and closure would eliminate the government's exposure to loss, and some of the proposals may actually increase the government's risk by shifting its exposure to unregulated entities. Thus, the benefits of implementing the capital note proposal are independent of the system of bank supervision and closure. However, the capital note proposal would be feasible only in systems that explicitly recognize a contingent government liability.

Proposals That Recognize Contingent Government Liability

The capital note proposal would be both desirable and feasible with reform proposals that explicitly permit government deposit insurance as a backup to private-sector systems for monitoring banks and absorbing losses from failed banks.

Cross-Guarantees. A deposit insurance reform proposal from Ely (1994) is based on cross-guarantees among banks. The idea behind this proposal is that the parties in the best position to evaluate a depository's risk exposure are other depositories managing similar risks. The proposal has some historical support in the work of Calomiris (1990) on state-run deposit insurance systems in the 1800s. If Ely's proposal worked as intended, then government guarantees would be unnecessary because no bank would fail with large losses to depositors. However, banks in such a system could collectively choose to take on risk, knowing that if enough of them failed the government would probably step in to protect depositors. Indeed, by tying the fortunes of many banks together, a cross-guarantee system could force systemic concerns and a government bailout if a subset of the depositories suffered sufficiently large losses.

While the cross-guarantee system would not eliminate the government's exposure to loss, this approach is not inherently inconsistent with a government backup insurance fund that issues capital notes. Under such a system, the losses at failed banks would first be the responsibility of the other banks in the cross-guarantee system and would become a government problem only if the losses exceeded the capacity of the cross-guarantee system to absorb them. The backup government insurance scheme, including the capital note issue, could be funded by the individual cross-guarantee funds. The note price and interest rate would then serve as a signal about the financial condition of the cross-guarantee systems.

Specialized Guarantors and Puttable Subordinated Debt. The idea of shifting monitoring responsibility and the risk of loss to private parties unaffiliated with banks is shared by proposals by Kane, Hickman, and Burger (1993) and Wall (1989). The Kane-Hickman-Burger proposal shifts the risk of loss and responsibility for monitoring to a private surety. Wall's proposal requires banks to either maintain a minimum amount of subordinated debt in a form that could be withdrawn or face automatic closure. Both of these proposals avoid some of the conflict of incentives facing cross-guarantees by placing the responsibility and risk outside the banking system. Both systems would provide for market-determined early closure of depositories should their equity values erode gradually over time. However, both are vulnerable to the possibility that a sudden, very large drop in asset prices could change the incentive of the private monitors.[1] Should the sudden loss exceed the value of a depository's equity, the risk arises that private monitors' claims will become more like equity than debt. That is, the value of the private monitor's claim may be greater if it forbears from closing an institution in the hope that the depository will recover its financial strength.

Both the Kane, Hickman, and Burger proposal and the Wall proposal give market participants an incentive to monitor banks and signal when individual banks are financially distressed; thus, both are similar in spirit to the capital note proposal. Neither plan would necessarily be operationally inconsistent with the capital note plan. The guarantors under the Kane-Hickman-Burger proposal could contribute to a government backup insurance fund in a manner similar to that suggested for the cross-guarantee system. Under the puttable debt proposal, the banks themselves would contribute to the government insurance fund.

Proposals That Claim to Eliminate Contingent Government Liability

Proposals designed to eliminate the government's contingent liability are unlikely to accomplish their intended goal, as Benston (1995) notes. In any event, they would complicate the use of capital notes because of questions about which institutions are likely to receive de facto insurance coverage.

Eliminate Deposit Insurance. Proposals to eliminate deposit insurance seem to obviate the use of capital notes. If the government is not at risk, then monitoring systems seem unnecessary. The problem with this approach is that eliminating statutory provisions for deposit insurance is not the same as eliminating either the expectation or reality that deposit insurance will be provided at failed depositories. Neither the states of Ohio or Maryland explicitly backed their deposit insurance systems, but when the funds went bankrupt the states bailed out the depositors. Similarly, banks have failed in numerous countries around the world and depositors were ultimately bailed out, despite the absence of deposit insurance or tight limits on the extent of de jure insurance coverage. The bottom line is that democratic governments in the later part of this century have often been unwilling to let depositors suffer.

While eliminating deposit insurance statutes is not necessarily a feasible way of eliminating deposit insurance, it would nevertheless render the capital note plan unworkable. First, the existence of capital notes based on government deposit insurance liabilities would further undercut the market's perception that deposit insurance had truly been eliminated. Second, it is not clear who would pay the interest on the notes. Without an insurance fund, nobody would pay insurance premiums that could go toward paying off the noteholders. Third, it would be less clear what set of government bailouts might place the noteholders at risk.

Safe Bank Proposals. Another proposal that seems to eliminate risk to the FDIC is some version of the safe bank or narrow bank proposal (see, for example, Litan 1987 and Pierce 1991). Such a proposal would limit deposit insurance to accounts backed by short-term, highly liquid securities with low credit and market risk. These securities could be marked to market on a daily basis so that the exposure of the insurance fund to losses would be minimal. If such a proposal worked as intended, it too could eliminate the advantages of preferred stock in the insurance fund.

The problem with safe bank proposals is their implicit assumption that the combination of making short-term, information-intensive loans and issuing short-term, highly liquid deposits in banks is a historical accident with no economic basis for its continued existence. However, the widespread combination of these functions in banklike institutions around the world suggests that there is some economic benefit in combining the two functions. Flannery (1994) argues that this combination is an efficient way of dealing with the agency costs associated with making short-term, information-intensive loans. Rajan (1996) argues that businesses' demand for large loans at short notice makes it desirable to have lending concentrated in institutions that specialize in managing liquidity, which is what deposit-taking banks must do. Whether or not Flannery or Rajan are correct, or whether the loan-deposit combination exists for some other reason, the weight of banking practice worldwide suggests that banks cannot be neatly divided into a deposit-taking function and a lending function. Yet, if this division is not possible, then limiting deposit insurance to narrow banks only means that banking problems currently troubling policymakers will reappear outside the narrow banks. Thus, while adopting the narrow bank proposal seems unlikely to make deposit insurance irrelevant, it nevertheless has the effect of eliminating regulation of those institutions for which it is relevant.

The narrow bank proposal creates the same sort of operational problems for the capital note proposal as the elimination of deposit insurance—namely, that those institutions most likely to require government support are not formally covered by the system.

1. This vulnerability is less than it may appear based on a review of banks' financial statements. Often, what appears, from the perspective of the financial statements, to be a sudden loss is actually a series of losses accumulated over a longer period. The losses only seem to have occurred suddenly because the bank deferred recognition of the losses until delay either no longer benefited the bank or release became unavoidable. For example, many banks deferred recognizing losses on loans to Latin American borrowers in the 1980s for a long period of time until the banks decided that recognition would be desirable.

notes would reduce taxpayers' risk in the event of deposit insurance losses. The discussion includes a consideration of some possible disadvantages.

The Need for Monitoring

Prior to the creation of the Federal Deposit Insurance Corporation in 1933, both depositors and the government monitored the condition of individual banks. Depositors monitored banks because they were exposed to losses should the bank fail.[7] The government played an important role by examining banks' confidential records and certifying that the records did not contain adverse information. However, the creation of the FDIC, combined with the agency's historic policy of seeking to protect all depositors, resulted in less depositor discipline, especially in weaker financial institutions. This relaxing of depositor monitoring shifted the burden of disciplining banks' risk taking to federal bank regulators.

An alternative to enhanced government discipline of banks is to shift risk back to the private sector in an attempt to enlist market discipline.

Federal bank regulators provided an adequate level of discipline over most of the period from the mid-1930s through the mid-1970s, helped in no small part by restrictive regulations that boosted banks' charter values and simplified banks' operations by limiting their activities largely to gathering deposits and making short-term loans.[8] However, regulators' ability to maintain restrictive regulations has been eroding continually since the 1970s. Bank charter values have declined as the combination of improving technology (communication, data processing, and financial), increases in the level and volatility of interest rates, and changes in regulation has increased competition among banks and between banks and nonbank firms. The complexity of banks, especially the largest banks, has increased dramatically with the use of technology to provide a wide variety of financial services.

As the task of supervising banks became more difficult, two supervisory problems surfaced. The first was that of conflicts in supervisory incentives, revealed during the thrift debacle of the 1980s.[9] Kane (1989a, 1989b) points out that although bank supervisors are in effect agents for the taxpayers, their personal objectives often include other goals that are inconsistent with reducing taxpayer exposure to failed depositories.[10] Congress sought to mitigate this conflict in incentives through passage of the FDIC Improvement Act of 1991. In particular, the act provides for prompt corrective action that prescribes a series of mandatory and optional regulatory responses to falling capital ratios.[11] However, prompt corrective action depends in large part on the accurate measurement of banks' financial condition, and such accurate measurement is not always feasible. A large fraction of a depository's assets are either not traded at all or are traded in very illiquid markets where prices may vary from full-information value (Berger, King, and O'Brien 1991). The determination of the economic value of these assets is necessarily subject to potentially large measurement error. Thus, regulators still have room to exercise discretion so that, as Kane (1995) points out, incentive problems have not been eliminated by FDICIA.[12]

The second problem is how to supervise banking organizations effectively, given that changing technology has made these organizations far more complex. The banking, securities, and insurance industries have each used advances in technology and innovative legal approaches to offer products that are functionally similar to products offered by the other two industries but that have a very different regulatory status; for example, money market mutual funds are substituted for bank deposits. As a consequence, current systems of regulation that designate separate regulatory bodies for each of the different types of financial services are being made obsolete by developments in the financial marketplace. Whether regulators could adequately limit the risk to the FDIC fund in the emerging complex, highly competitive financial marketplace is an open question.[13] Some analysts, such as Pierce (1991, 98-100), advocate severely restricting insured banks' choice of assets, in part because they are pessimistic about regulators' ability to monitor sophisticated financial services firms.[14]

An alternative to enhanced government discipline of banks is to shift risk back to the private sector in an attempt to enlist market discipline. FDICIA has sought to enlist depositor discipline through adoption of least costly resolution.[15] This provision retains deposit insurance coverage up to the de jure coverage level of $100,000; however, the FDIC absorbs losses from larger deposits only if doing so reduces the overall cost of resolution to the agency. If this stipulation is enforced for all bank failures, it should substantially increase depositor monitoring, especially at the largest banks, which tend to be the most complex. However, FDICIA also provides for the suspension of least costly resolution in systemic risk situations, thus tending to reduce depositor monitoring, particularly at large banks. The ultimate effectiveness of least costly resolution in providing depositor discipline at large banks therefore remains an open question, in part because no very large bank has failed since the adoption of FDICIA.[16]

Even if systemic risk considerations (real or imagined) limit the potential effectiveness of depositor discipline, other opportunities for increasing market

discipline remain. One set of options would be to shift more of the losses to the private sector without giving market participants direct authority to force troubled banks to close. Examples of such options include increased issuance of subordinated debt, as proposed by Benston and others (1986, 192-96), and the use of private coinsurance to help set insurance premiums for individual banks. Market discipline in these instances arises from the risk premiums that financial markets would charge individual banks. The limitation of these proposals is that, while they give government regulators more time to close failing banks before the FDIC absorbs any losses, they do not directly address the problems of conflicting regulatory incentives or the problems of supervising very complex financial firms.

Another set of options for increasing market discipline would give private parties both a larger fraction of the risk of loss in bank failure and the ability to close a failing bank. Examples of such proposals (which are discussed in Box 1) include those of Kane, Hickman, and Burger (1993) for private sureties and Wall (1989) for puttable subordinated debt. These strategies, which give private participants the authority to close any institution that cannot demonstrate its solvency or reasonable risk-taking policies, go further to address the regulatory problems of conflicting incentives and the difficulty of supervising complex organizations. However, these proposals are limited in that sudden, very large losses can effectively force the conversion of the private monitors into de facto equityholders in a failed depository. Thus, in some circumstances the health of the FDIC would ultimately depend on government supervisors, even under the provisions of these proposals.

Ultimately, then, although the primary system for protecting taxpayers from losses at financial intermediaries has been improved, and perhaps could be further

7. This monitoring occurred for all national banks and those state-chartered banks that did not have state-sponsored deposit insurance.

8. Charter or franchise value is the net present value of the economic profits resulting from owning a bank charter. Keeley (1990) provides evidence of a decline in franchise value. Demsetz, Saidenberg, and Strahan (1996) provide evidence that banks with higher franchise values take less risk.

9. See Kane and Yu (1995) for evidence that the U.S. Federal Home Loan Bank Board (FHLBB) dramatically understated the true reserves of the Federal Savings and Loan Insurance Fund for the period 1985-88. They further argue that the misinformation supplied by the FHLBB played an important role in actions taken by Congress in 1987. Cole and Eisenbeis (1996) provide evidence that delays in closure increased the cost to taxpayers. Other discussions that suggest that regulatory problems have contributed to actual or potential taxpayer losses include Kane and Kaufman (1993) on problems in Australia; De Krivoy (1995) on Venezuela; Cargill, Hutchison, and Ito (1995) on Japan; and Gall (1996) on Brazil.

10. Several theoretical models reach varying conclusions about optimal closure policies. Examples of these studies include Acharya and Dreyfus (1989), Davies and McManus (1991), Kumar and Morgan (1994), Mailath and Mester (1994), and Noe, Rebello, and Wall (1996). However, the previously cited empirical work appears to suggest that Kane's model better explains most past regulatory forbearance than do these models.

11. For a presentation of the structured early intervention and resolution proposal that formed the basis for prompt corrective action provisions of FDICIA, see Benston and Kaufman (1988). For a discussion of FDICIA's key safety and soundness provisions, see Wall (1993).

12. Jones and King (1995) and Peek and Rosengren (1996) show that a large fraction of the banks with high insolvency risk in their respective samples would not have come under prompt corrective action requirements given existing capital standards.

13. Chan, Greenbaum, and Thakor (1992) question whether fairly priced deposit insurance is feasible in a competitive marketplace. Their results may be put in more general terms by recognizing that in order to own a bank charter in the United States, a firm must generally participate in the deposit insurance system and accept other regulatory requirements. When restated in this manner, their results imply that an intermediary will prefer to be chartered as a bank only if the rents from owning a charter (including any government subsidy through deposit insurance) exceed the regulatory costs (both safety and soundness costs and social regulation costs) of owning a charter. As the government reduces or eliminates the deposit insurance subsidy, the ratio of rents to taxes from owning a bank charter will become less favorable and less intermediation will take place through the banking system. However, even if one believes that the ratio of rents to taxes from owning a bank charter should be increased to encourage charter ownership, it is not obvious that the most efficient way to do so is by subsidizing bank risk taking.

14. Box 1 discusses the narrow bank approach in greater detail but reaches the conclusion that the approach is unlikely to reduce FDIC's exposure to the degree suggested by its proponent.

15. Another legislative change is a depositor preference provision, which states that domestic depositors (including the FDIC, which stands in the depositor's place when it makes an insurance payment) in a failed depository are entitled to full repayment before nondeposit creditors receive any payment. In theory this provision should lead to an increase in monitoring by nondeposit creditors, at least in those states that did not previously follow depositor preference. In practice, the increased risk to nondeposit creditors can be substantially reduced by having the bank put up collateral to back the nondeposit liability. See Osterberg (1996) for a review and empirical analysis of depositor preference laws.

16. FDICIA also provides regulators with various powers, such as final net settlement, designed to enhance their ability to implement least costly resolution. The credibility of least costly resolution could be enhanced if regulators developed and advertised plans to implement least costly resolution in a way that was unlikely to generate systemic risk.

improved, it remains vulnerable to failure. Drawing on an engineering analogy, when the failure of a primary system could have catastrophic consequences, backups must be incorporated into the design to reduce the risk of damage. Given the potentially high stakes from a failure of the system to limit banks' risk to the fund, Kane (1995) argues that it would be desirable to monitor the condition of the FDIC. He contends that information about the FDIC's condition would help taxpayers assess their exposure as well as assist labor markets in evaluating the performance of top government officials. In particular, Kane recommends implementing some mechanism that would encourage production and dissemination of private information about the performance of the deposit insurer. He argues that "the trick would be to make sure that projected cash flows respond to loss exposures occasioned by inadequacies in federal loss-control and pricing policies" (1995, 454). However, while his specific proposals would produce direct information on individual banks or subsets of banks, they would produce only indirect information on the fund per se. These proposals are essentially substitutes for FDICIA's approach to dealing with individual bank risk and do not constitute backups.[17] The proposal that follows is a low-cost backup system.

A Plan for a Low-Cost Backup System

The plan outlined here calls upon the deposit insurer to issue capital notes as a mechanism for signaling taxpayers about the riskiness of the deposit insurance fund. Subsequent discussion explains the reason for the plan's structure, shows how the plan will meet its goals, and analyzes some potential problems.

1. The FDIC's insurance fund would issue coupon notes that pay interest and principal except in circumstances stipulated below. These notes would vary in maturity from one to five years. New note issues would occur at least semiannually.
2. Interest payments would be suspended if the fund received a loan from the government to finance the resolution of failing banks. If such a suspension occurred then insurance premiums would automatically increase to a historically high level (such as a minimum premium of $0.25 per $100 of deposits).
3. The capital notes' right to interest (future and cumulative unpaid interest from prior periods) would be terminated when the fund reaches zero, and any source of funds other than depository insurance premiums would be appropriated by Congress to absorb deposit insurance losses.
4. The quantity of capital notes would be determined by the FDIC, based on the goal of maximizing the information content of the notes about the health of the insurance fund. Depositories, their affiliates, and the accounts they manage for other parties (such as trust accounts and mutual funds) would not be permitted to hold the notes as an investment. Small inventories of the notes for securities affiliates that act as market makers would be permitted.
5. Every time the FDIC issued new notes it would report on the status of the fund and the risks facing the banking system. The report would also contain an estimate of the distribution of potential losses to the insurance fund (under at least three sets of economic assumptions) and a description of the methods used to estimate losses. Further, if the yield to maturity at the time of issue of a note exceeded that of comparable maturity investment-grade securities, then three reports would be required.[18] First, the FDIC would be obligated to report to Congress on the risk that the insurance fund would become inadequate, on any steps the agency planned on taking to reduce the risk, and on any additional legislation that would be helpful in reducing the risk to the insurance fund. Second, the Secretary of the Treasury would be required to report on the budget implications of the risk to the fund. Finally, the General Accounting Office (GAO) would be required to review the problems, regulatory responses, and any appropriate congressional responses.
6. Part of the pension plan provided for the FDIC directors would be invested in capital notes while the directors were in office; for example, one-quarter of a director's contribution to the pension fund during his or her term would be automatically invested in the notes. A director would be able to sell the notes over some time period after retiring from office.[19] In order to reduce the exposure to banks not directly under its regulation, the FDIC would have the authority to examine any insured bank at its sole discretion.
7. The proceeds from the capital note issue would go to repaying FICO bonds.[20] The premiums levied on banks to pay the interest and principal on FICO bonds would be proportionately reduced.

The plan outlined here relies on signals from market pricing to indicate when the insurance fund is likely to be under stress. The reason for requiring the FDIC to return to the financial markets at least every six months to issue new securities is that an issue of long-term capital notes could have an illiquid secondary market so that signals obtained from note prices could contain considerable noise. The provision forcing the FDIC to sell notes regularly gives the financial markets a periodic opportunity to provide information about the quality of the insurance fund.

Notes are issued at several maturities to provide a time profile of the risks facing the insurance fund. For example, suppose investors thought banks were taking excessive risks but believed these risks would not become apparent until the next recession. In this case, notes maturing in one year may show very little, if any, risk premium, but notes maturing in five years would trade at

substantially higher yields than comparable Treasury securities, reflecting concerns about future losses.

Not only would requiring the FDIC to provide an evaluation of the fund's status with each new issue help noteholders and independent analysts in assessing the adequacy of the fund; it would also provide a way to review the regulatory agencies' outlook on the current condition of the banking system and suggest how they might handle problem banks.

The capital notes are intended to measure the insurance fund's solvency, but payment of interest on the notes would be suspended if the fund had to turn to the Treasury to obtain sufficient liquidity.[21] Suspension of interest payments is designed to ensure that solvency problems are not hidden by the FDIC under the pretense that the only issue is the liquidity of the fund. The Treasury, as supplier of these funds, should charge interest for providing the required liquidity. However, capital noteholders would retain their claim to future interest in this case so long as Congress did not appropriate taxpayer funds to cover failed banks' losses.[22]

Stipulating that directors of the FDIC invest in the capital notes would give them an added incentive to follow market signals.[23] The optimal amount of investment for directors would balance their incentive to protect the taxpayers from deposit insurance losses with not giving them such a stake that they would avoid using the fund when failure to do so would have adverse consequences for the overall economy.[24] This part of the proposal would expose the directors of the FDIC to the risk of loss and thereby reduce the expected value of their compensation. This reduction should be offset with higher salary or benefits unless some evidence indicates that FDIC directors are currently overcompensated.

How the Proposal Would Reduce Taxpayers' Risk

A key concern in issuing capital notes is whether they would actually reduce the risk that the deposit insurance fund would require taxpayer support. Three aspects of this question will be considered in the following discussion: First, how would the notes contribute to better decisions by the regulatory agencies? Second, how would the notes increase the probability that Congress would take appropriate oversight actions if the need arose? Finally, what limitations might adversely impact the informativeness of the pricing signal?

Capital Notes and the Regulatory Agencies. Because the capital note plan lacks a mechanism to compel changes at the regulatory agencies, to what extent would the plan, in practice, change regulators' actions? If regulators always use their discretion in a manner contrary to the interests of taxpayers, then a plan that fails to force changes in regulators' behavior cannot help protect the taxpayers. However, existing theory does not indicate that regulatory agencies must always act contrary to taxpayers' interests; theory merely states that conflicting incentives will sometimes produce suboptimal results. Regulators' preferred policies will in many cases be optimal, especially if timely information allows them to prevent a problem from occurring. In other cases, while the

17. Kane discusses two specific alternatives: "marketing cash flows from uninsured funding instruments [for example, subordinated debt] or FDIC coinsurance agreements" (1995, 454). These alternatives would provide information about the performance of the various individual banks or groups of banks that constitute the portfolio of exposures facing the deposit insurer. As such, they would require changes in the way losses are currently distributed when a bank fails and might entail changes in the way the closure decision itself is made.

18. This provision could be strengthened by including a stipulation that would automatically increase deposit insurance premiums when capital note rates exceeded those of investment grade notes. An increase in insurance premiums might not be the most efficient way to reduce the risk that taxpayer funds would be used to resolve bank failures. However, the prospect of higher premiums could help regulators and banks reach a consensus on which measures (such as higher capital requirements or implementation of least-costly resolution) would best reduce risk to the fund.

19. For example, the directors could sell the notes evenly over a four-year period, with 25 percent of the notes eligible for sale after one year, 50 percent eligible after two years, 75 percent after three years, and the entire investment eligible after four years.

20. Alternatively, the funds could be used to bolster the insurance fund if the plan were adopted in a country other than the United States.

21. The FDIC currently has the authority to borrow from the U.S. Treasury, but the insurance fund is obligated to repay the loans. A congressional appropriation is required for the FDIC to obtain funds from the Treasury that the insurance fund would not be obligated to repay.

22. For example, suppose the fund had $20 billion in assets and faced immediate liquidity needs from the failure of some depositories of $40 billion but would also acquire a claim on the failed institutions' assets with a current market value of $35 billion. In this case the fund might need a loan of approximately $20 billion to resolve the depositories, but, after selling off the assets the fund should have approximately $15 billion.

23. The use of the regulators' pension fund as a mechanism for generating financial accountability follows a recommendation by Kane (1996).

24. The claim that failures in the financial sector could spill over with adverse consequences for the real economy is controversial. For example, Benston (1995) and Kaufman (1996) argue that deposit insurance is not needed to protect against systemic risk. The link between FDIC directors' compensation and note values could be strengthened if one did not believe such a spillover is possible.

personal benefit of pursuing a suboptimal strategy will dominate under the current incentive system, it will be less likely to dominate under some other incentive structures. Capital notes are likely to influence regulatory actions both by providing the agencies with additional information and by changing their incentives.

Risk premiums on the notes would serve as signal about a number of different problems that could be addressed by the regulatory agencies.[25] An increase in risk premiums (a decrease in note prices) could be a signal that the riskiness of the banking system has increased. For example, changes in regulation or technology could allow banks to expand their product offerings into riskier financial activities. In this case regulators could seek to insulate the fund more effectively from the additional risk, or they could limit banks' ability to take the additional risk. The risk premium might also increase in response to a reduction in the market's confidence that the FDIC would follow least costly resolution. In this case, the regulatory agencies might wish to review the feasibility of their strategies to implement least costly resolution and then better advertise their plans to financial markets. A third possibility is that deposit insurance premiums or the insurance fund have become inadequate in relation to the level of risks facing banks. In this case, the FDIC could choose to increase its insurance premiums or, if the fund has reached its maximum permissible level (as has recently been the case), could seek permission from Congress to increase the fund's size.

The capital note proposal would prompt investors to scrutinize the underlying economic realities facing the fund and ignore disinformation proffered by those with a stake in a misinformed public.

Admittedly, these market signals to the regulatory agencies about problems facing the fund are unlikely to alert regulators to completely unrecognized problems. However, an increase in the risk premium would provide independent information about the severity of a threat to the insurance fund. This independent information could be useful both for setting priorities within the regulatory agencies and for helping to overcome political opposition to measures the regulators deem necessary to protect the fund.

The plan changes the FDIC directors' incentives to engage in forbearance in several ways. First, the proposal imposes costs on regulators while they are in office, especially FDIC administrators, by requiring reports from the FDIC and an examination by the GAO if the yield on notes exceeds that of comparable maturity investment-grade securities. Few administrators like to be forced to discuss publicly possible problems that are occurring on their watch, and even fewer would want the GAO to second-guess their past policies and their plans for future action.

Second, senior regulators, including FDIC directors, could not expect to be able to hide their mistakes until either they had found new employment, leaving their successors to clean up the problem, or banks had become healthy as a result of taking large gambles. The price or rate on capital notes would serve as a clear signal to Congress and potential employers of significant problems facing the insurance fund while the regulators were still in office, as suggested by Kane (1995). Thus, senior regulators who engaged in forbearance could not count on leaving their regulatory agency with their good reputations intact.

Third, requiring directors of the FDIC to own capital notes would put part of their own wealth at risk if the FDIC engaged in forbearance. As noted above, the amount of notes held by the FDIC's directors might be restricted to serve the social goal of not excessively discouraging the FDIC from invoking the systemic risk exception in severe cases, even if that action bankrupts the fund. Another limitation of this advantage is that the FDIC shares regulatory responsibility over banks with the OCC and the Federal Reserve. The FDIC has the unconditional right to enter any bank it insures and is thus able to protect the fund from forbearance by these other agencies.

Further, the proposal creates subtle changes in regulators' incentives to deal with emerging problems before they threaten to impose significant losses on the fund. The potential cost to regulators if notes should start trading at a substantially lower level becomes an incentive to prevent note prices from falling. One way regulators might address this incentive would be to deal more aggressively with potential threats to the insurance fund before economic losses occur. They might also try to reduce the risk premiums on the notes by assuaging market uncertainty about the state of the fund with more information. This impetus to disseminate information would be reinforced by the requirement that the FDIC report on the state of the insurance fund each time it issues new notes. The process of providing additional information will further encourage timely action by regulators: not only will it force them to recognize potential threats at an earlier stage, but it will also help Congress and taxpayers to monitor the regulatory process.

Capital Notes and Congress. Issuing capital notes would give voters and their representatives a clear signal about the health of the deposit insurance fund. Banks in weak financial condition have a strong incentive to produce accounting numbers that give a misleading impression of good health. Bank auditors have mixed incentives but they are hired by the banks, so they have a strong

motivation to approve the rosiest picture possible of opaque financial information as long as the analysis is consistent with the legal standards for auditors' performance. The three federal bank regulatory agencies also face conflicting incentives, but experience around the world shows that when serious financial problems arise, regulators often look for ways to defer taking action. In contrast, this capital note proposal would prompt investors to scrutinize the underlying economic realities facing the fund and ignore disinformation proffered by those with a stake in a misinformed public. Potential investors in the notes stand to suffer substantial losses if they underestimate the likelihood that payments will be deferred or eliminated. Thus, the price or rates set on these notes could serve as a more accurate signal about the true condition of the fund than reports from banking and regulatory systems might provide.

The capital note proposal would encourage timely oversight and legislation by Congress because it would lower the cost of obtaining information and thus reduce congressional members' incentive to remain uninformed (or underinformed) about the state of the deposit insurance fund. Members may choose to remain underinformed if obtaining information about the true condition of the fund is costly and the likely political benefit from obtaining the information is small.[26] Capital notes could serve as a low-cost warning signal that would allow legislators to focus attention on the fund primarily during periods when gains from legislative changes would be the largest. The benefits to Congress from note price signaling are reinforced by the stipulation that would require mandatory reports by the FDIC, the Treasury, and the GAO should the notes be issued at rates exceeding those of comparable investment-grade securities.

Congressional members' incentives to monitor the condition of the deposit insurance fund is affected by the capital note plan in two ways. First, by reducing the cost of recognizing when the fund poses a threat to the taxpayers, the proposal makes it harder for legislators to plausibly deny their responsibility to take action to reduce the threat. The rates charged on capital notes send a signal that may be more easily understood by the electorate than the conflicting testimony of "experts." In this way the rates may be used in political campaigns by challengers to bolster their chances of defeating members who shirk their obligations to taxpayers.

Second, capital noteholders could also provide a political counterweight to lobbying depositories. In the early stage of a threat to the insurance fund, noteholders would have an incentive to lobby for more aggressive regulatory action to preserve the value of their claims. While appealing in principle, this advantage of the plan is only of second-order importance because banks would probably retain greater political clout and, if the insurance fund becomes sufficiently weak, noteholders' primary aim becomes persuading Congress to bail them out along with the fund.

The Pricing of Capital Notes. All of the arguments for the advantages of the capital note proposal depend on the prices of the notes sending a clear signal about the condition of the fund. But both the FDIC and Congress could take steps that would reduce the information content in the notes' prices. The FDIC could mislead capital noteholders by withholding information to prevent the notes from signaling most potential problems. This scenario is unlikely, however. Regulators collect and publish a substantial volume of data on banks' financial condition, and most of the banking system's assets are in publicly traded banks that are already closely watched by stock analysts. Further, bond rating agencies currently evaluate the credit quality of many bank debt issues, including those of virtually all of the very large banking organizations, and this knowledge could be applied to rating notes issued by the bank insurer. Thus, the FDIC would have a very difficult time concealing unrealized losses to the banking system that would threaten the fund's solvency.[27]

A more serious threat to the effectiveness of the plan is the potential for Congress to bail out the capital noteholders along with the deposit insurance fund. There is no way to prevent noteholders from petitioning for a bailout or to bind the hands of future Congresses. However, capital noteholders are being paid specifically to accept the risk that the FDIC fund could become impaired, and, in general, these noteholders would be capable of bearing that risk. Thus, as a group, the capital noteholders would not have a strong case for a bailout. Even given the potential for a bailout of noteholders, the price of the notes would remain depressed until the bailout became a certainty, so prices could still be used as a signal that problems remained. The primary limitation of such signals would be in interpreting changes in capital note prices and rates when the value of deposit insurance claims has a substantial probability of exceeding the fund's assets. These changes could reflect variations both in the fundamental condition of the fund and in the probability of a bailout.

25. For a survey of the evidence that various market signals contain information about banks' financial condition, see Gilbert (1990) as well as a more recent study by Flannery and Sorescu (1996). For a contrary opinion, see Simons and Cross (1991) and Randall (1993).

26. For example, in those states where no congressional action is appropriate, the political benefit of obtaining additional information about the state of the fund may be close to zero.

27. An example (perhaps the only example) of such a deception would be a large bank taking very substantial losses from undisclosed fraud or unauthorized risk taking that was recognized by the examiners but not the bank's auditors.

Potential Disadvantages of the Capital Note Proposal

Probably the biggest disadvantage of the plan outlined here is that the FDIC would bear a continuing responsibility to pay interest on the capital notes, implying a need for higher deposit insurance premiums for depositories. However, even if higher premiums were a pure loss to depositories, it could be argued that the gains to taxpayers from better regulatory decisions and improved congressional oversight would exceed the loss if banks passed the higher premiums to their customers. Moreover, the net cost to depositories from the issuance of capital notes is likely to be small. The proceeds from the note issue would go to pay down the FICO note issue and reduce insurance premiums on those notes. What cost, if any, the plan would impose on banks depends on the amount and timing of lower insurance premiums stemming from reduced FICO obligations, the amount and timing of payments by the capital notes, and the discount rate applied to those future payments (which should reflect banks' marginal cost of funds). (Rates likely to be paid on capital notes are discussed in Box 2.)

Another possible disadvantage of the capital note plan, it might be argued, is that if the notes indicated a high degree of risk to the deposit insurance fund, the public's confidence in the deposit insurance fund could erode, thereby precipitating a systemic problem. However, the FDIC has a $30 billion line of credit at the U.S. Treasury, and Congress may appropriate additional funds as a loan or as a grant to resolve failed banks; thus, plunging capital note values would not necessarily indicate that the insurance fund would be unable to honor its obligations to insured depositors. Any public misperception that the note values measure the fund's ability to honor its claims could be corrected, providing a low-cost solution to the problem. The capital notes are a only signal about whether the insurance fund is likely to need government help, not an indication of its ability to pay off insured depositors.

Conclusion

Bank regulators and deposit insurers around the world have repeatedly failed to resolve foundering depositories in a timely manner. In the United States the risk that a financial breakdown could lead to a taxpayer bailout of the deposit insurance fund has been cited to justify current regulatory controls and the imposition of inefficient taxes for social welfare purposes. Despite some regulatory changes in the 1990s to protect taxpayers from future debacles, however, widespread failures could still expose taxpayers to losses.

The proposal outlined in this article provides a way to monitor the deposit insurance fund—through capital notes issued by the FDIC—that would better serve the interests of both taxpayers and banks. Because the interest paid on capital notes would be suspended if the fund required a loan from the Treasury or eliminated if taxpayer funds were contributed to offset deposit insurance losses, noteholders would have more incentive to take action should the risk of loss to the taxpayers become substantial. Capital notes would provide taxpayers and their congressional representatives clear signals about the health of the fund and would change the incentive structure facing senior regulators.

Banks should benefit under the capital note proposal because the receipts from issuing the notes could be used to reduce banks' insurance payment obligations. In addition, by relieving some of the concerns policymakers have about the insurance fund, the capital note plan could lead to a more deregulated environment for banks.

Finally, both regulators and Congress may profit from a better method for assessing the status of the insurance fund as they struggle to cope with safety and soundness questions arising from the integration of the banking industry with other finance-related industries.

A Rough Calculation of the Likely Interest Rate on Capital Notes

The capital notes proposed in this article are intended to be an effective, low-cost signal of the condition of the FDIC fund. Potential investors in capital notes, however, are concerned about more than the risk that the FDIC will have insufficient funds to honor its promises to the noteholders. Investors will demand that the note's pricing reflect the current value of the default-free term structure. Investors will also demand compensation for risks other than economic default, such as the possibility that notes could become illiquid or the risk that payments could be suspended or terminated for political reasons rather than because of the FDIC's inability to make timely payments. If the notes are to be an effective signal of the state of the FDIC fund, analysts need to be able to filter out most of the changes in the status of the fund from other reasons for rate changes. Further, if the notes are to be low-cost signals, then the nondefault risk premiums attached to the notes should be small.

No one can say with certainty exactly how the notes will be priced because they currently do not exist. However, varieties of notes already in the market, such as municipal revenue notes and bonds as well as corporate notes and bonds, share many of the same characteristics as capital notes. This box compares the features of capital notes with those of other types of debt securities to obtain a rough estimate of likely prices if capital notes were to be issued.

Determinants of the Prices of Capital Notes

The rate on capital notes may be reasonably approximated by the following function:

Rate on notes = f {default-free term structure, tax status, default risk premium, premium for the risk of interest deferral, information cost premium, liquidity premium, risk of political interference}.

Default-Free Term Structure. The default-free term structure represents the payment to investors for deferring consumption; it is an important element in the pricing of all fixed-income securities. The default-free term structure for obligations denominated in U.S. dollars is usually approximated by the term structure of U.S. Treasury securities. Capital notes and corporate notes of the same default risk would be expected to respond in a similar fashion to movements in Treasury securities. Municipal revenue notes also respond to movements in the Treasury rate, but their rate movements are dampened because they are not subject to federal taxation.

Tax Status. Income from ordinary corporate notes and capital notes is subject to federal income tax. However, interest on municipal notes, which are obligations of state and local governments, are not subject to federal tax. This tax break allows municipal notes to trade at lower yields, i_{muni}, than otherwise identical corporate notes and capital notes, i_{tax}. The formula for determining the lower yield is

$$i_{muni} = i_{tax}(1 - t),$$

where t is the federal income tax rate of the marginal investor.

Default Risk Premium. Municipal revenue debt issues, corporate debt issues, and capital notes are all subject to default risk, and numerous studies show that this risk is priced in the debt markets.[1] Municipal revenue securities are used to finance a specific project and are backed solely by the revenue from that project. The debt issues are expected to default if the revenues are insufficient to repay the noteholders. Corporate debt is typically backed by the cash flow of the entire corporation, but these cash flows must pay the firm's operating costs and its other debt issues. Corporate notes will default if the firm's cash flow is insufficient.

One difference among the three types of debt obligations is the potential for noteholders to hedge changes in credit risk. In theory, a corporate debtholder could perfectly hedge her exposure to changes in a firm's credit risk by taking a short position in the firm's stock. In practice such a hedge is unlikely to be perfect for a variety of reasons; for example, payments to the noteholders may depend on the decisions of a bankruptcy court (especially if the firm has multiple classes of debt outstanding), or the market value of the firm's assets may be subject to discontinuous movements. Nevertheless, a large fraction of the risk could be hedged by taking appropriate short positions in the firm's stock.

1. For example, Altman (1989) shows that bond ratings are generally negatively correlated with default probabilities and yields.

The default risk on capital notes depends on the magnitude of losses to the deposit insurer and on the insurer's ability to recover those losses via higher premiums, both of which in turn depend on the performance of a portfolio of banks. Not all banks have publicly traded stock, but the FDIC's biggest exposures are concentrated in banks with traded stocks. Thus, investors could hedge a significant portion of the default risk on capital notes. However, the fraction of risk covered by such a hedge would almost certainly be less than that for a typical corporate note of comparable risk.

Most municipal projects tend to be specialized with a high degree of idiosyncratic risk. Some revenue bonds and notes, such as those associated with hospitals or power facilities, may be somewhat correlated with the stocks of firms in the same industry, but other revenue debt issues (such as those associated with toll roads and university dormitories) may have few, if any, natural hedges. In general, the proportion of municipal revenue note default risk that can be hedged is likely to be substantially lower than either corporate notes or capital notes.

Risk of Deferral of Interest Payments. Even if investors ultimately receive full payment of interest and principal, these payments may be delayed if the issuer is in financial distress. The capital note proposal provides for a suspension of payments if the FDIC obtains a loan from the Treasury. Payments on a corporate note may be suspended if the firm enters bankruptcy proceedings. The bankruptcy court will typically place a stay on payments to the firm's noteholders, at least until either an acceptable restructuring plan has been approved by the court or the firm is liquidated. Municipal revenue note payments are also subject to holds if the project enters bankruptcy.

Information Cost Premium. Investors rarely, if ever, know the true probability of default on a debt security. Instead, they form their best estimate based on publicly available information and on the private information they collect. Each investor then determines the risk premium required to cover her private individual estimate of default. If the investor believes that other market participants (the issuer or other investors) have superior information, then she will demand a premium to cover the risk that she is being sold an overpriced security. If the competition among unaffiliated investors to produce information helps in accurately pricing debt obligations, those investors that have superior information will, at least in the long run, be the marginal buyers of an issue. However, the possibility that the issuer is acting on superior information may make prices less accurate measures of actual default risk. Issuers with superior information may sell notes when debt markets overvalue them and defer selling notes when the market undervalues the securities. Investors recognize that issuers are likely to have superior information and will demand higher prices if they believe issuers are using their information advantage to sell overvalued notes.

Corporate debt issuers have an incentive to issue overpriced notes because mispricing gains accrue to the shareholders. Furthermore, these issuers often have some discretion in the timing of their issues that would permit them to exploit mispricings. However, the value of most new corporate bonds and notes is relatively insensitive to inside information because the notes involve very low risk. Hence, the maximum possible mispricing gains are usually small.[2] Municipal project managers may also gain some operational flexibility by issuing mispriced debt issues that have too low a promised interest payment given their risk; hence, they have some incentive to time their issues to coincide with market mispricings. However, the incentive for municipal projects to issue mispriced notes is likely to be lower since the persons responsible for the issue are in a weaker position to capture part of the mispricing gains. Further, municipal projects often require some legislative approval, a stipulation that could sharply reduce the managers' scope for timing an issue. Investors in capital notes, by contrast, should have minimal concern about the FDIC manipulating the timing of its note issues, given that the proposal leaves little discretion about timing. The FDIC may have some discretion over the amount of each issue, but the directors of the FDIC have very little ability to capture any rents associated with mispriced notes.

Liquidity Premium. An important component of note pricing is investors' beliefs about their ability to sell the notes in the secondary market at a price that fairly approximates the notes' true value. While some investors buy notes with an intention of holding them until maturity, others plan on selling their holdings before the note matures. Further, even those investors that plan on holding notes until maturity will place positive value on the option of being able to sell their holdings before they mature. Thus, if two notes differ by only their expected liquidity in the secondary market, the note that promises a more active secondary market will require lower yield.

Notes and bonds tend to have far less active secondary markets than comparable stock issues, in large part because many investors follow a "buy and hold" strategy. The lack of a secondary market may be less important in short-term issues than in the longer ten- to thirty-year bonds. Shorter

maturity issues, such as with capital notes, allow "buy and hold" investors who want to cash out of the notes to receive their investment back from the issuer on a shorter time scale. Thus, the liquidity of capital notes is likely to be less important to their pricing than the liquidity of longer term securities would be.

When financial economists are analyzing the pricing of various bonds, a common proxy for the probable depth of the secondary market for a bond is its issue size. Corporate issues generally range from tens of millions of dollars to over $1 billion (in rare cases involving longer-term bonds), with larger corporations often issuing amounts exceeding $100 million. The size of some municipal revenue bonds exceeds $100 million, but many revenue bonds have a par value under $10 million.[3] The amount of capital notes to be issued will be determined by the FDIC, in large part based on liquidity considerations. The ability to issue up to $8 billion will give the FDIC considerable flexibility; for example, if the agency issued the full $8 billion, sold notes every six months with each sale consisting of five issues maturing annually over the next five years, then each issue could be over $250 million.[4] Thus, based on the issue's size, the liquidity premium on capital notes may not be any larger than on comparable corporate or revenue notes (after tax adjustment).

Risks about the Amount and Timing of Payments. In most cases, payments received by noteholders fairly reflect borrowers' ability to make full and timely payments in accordance with their debt contract. However, under certain circumstances, noteholders may not receive full and timely payments even though the note issuer has the economic capacity to make the payments. Conversely, in rare cases noteholders may receive larger and more timely payments than the economic capacity of the issuer would permit. Investors will demand a risk premium to cover the potential that the issuer will default for reasons other than economic capacity, and they will accept a lower rate to the extent that they anticipate a bailout should the note issuer become unable to pay. Both types of distortions will reduce analysts' ability to use note rates to identify the changes in a note issuer's economic ability to pay.

Corporate notes have limited exposure to both distortions. Corporations have used bankruptcy proceedings to avoid honoring burdensome obligations (usually labor contracts or obligations arising from civil suits). Corporations also have a very small possibility of receiving a government (national or local) bailout if the political authorities are unwilling to accept the consequences of a bailout. However, the main source of distortion may be unpredictable deviations from the absolute priority rule in bankruptcy proceedings. Corporate obligations typically provide for varying degrees of seniority if the firm should fail, but this seniority is often not followed strictly; for example, equityholders may receive a payment even though the junior creditors are not fully repaid.[5] Some deviations from absolute priority are likely to be anticipated ex ante by noteholders, but certain classes of creditors may receive unexpected gains or losses due to unexpected deviations from absolute priority.

Municipal revenue bonds and notes may also suffer from both types of distortions. Local political authorities may change the ground rules that govern a project's operation in a way that reduces the revenues (for example, by allowing more competition) or increases the expenses associated with a project. Conversely, they may bail the project out by using other sources of revenue.

Capital notes are subject to both possible risks. The FDIC could suspend payments on the notes by borrowing from the U.S. Treasury when other resolution methods may have reduced the FDIC's outlays for failed bank resolutions. Similarly, Congress could appropriate taxpayer money to cover FDIC losses even though the losses could have been covered by current and future bank insurance premiums.

The one important difference between capital notes and the other two types of notes is that a suspension of payments on the other notes may trigger a loss of managerial control. The bankruptcy court will assume control over the major decisions made by a corporation or municipal project in bankruptcy, and the owners and managers of a corporation may lose total control of the firm in bankruptcy proceedings. Hence, the managers of corporations and municipal projects face potentially large costs if they enter

2. See Smith (1986) for a survey of empirical studies of corporate security issuance.

3. In a study of municipal general obligation bonds, Kidwell, Koch, and Stock (1987) examine the reoffering yield on bonds issued between 1978 and 1980. They find that the reoffering yield on issues of less than $15 million is influenced by state-specific factors but that larger issues seemed to be sold into a national market.

4. The total number of issues outstanding at any given time would be thirty. At any given time five issues would mature in six months, five issues in one year, four issues in one and a half years, four issues in two years, three issues in two and a half years, three issues in three years, two issues in three and a half years, two issues in four years, one issue in four and a half years, and one issue in five years.

5. For a recent analysis of absolute priority rule violations see Longhofer and Carlstrom (1995).

into bankruptcy to defer, reduce, or eliminate payments to noteholders. The FDIC loses no control rights over the insurance fund if it borrows from the Treasury or receives a congressional appropriation to cover losses under the capital notes proposal. If the FDIC did borrow from the Treasury, it would be subject to some costs, and the automatic increase in bank insurance premiums would probably generate political heat for the FDIC; however, these costs are likely to be less than those faced by corporate and municipal note issuers. Similarly, Congress may face political opposition to an "unnecessary appropriation" of funds to cover FDIC losses.

Thus, the odds of note payments being adjusted for noneconomic reasons appears to be greatest for capital notes. However, these risks would seem less likely to be priced in to the notes if the FDIC fund appears to be very strong and shows little probability of default for economic reasons. If the insurance fund faces minimal resolution costs relative to its existing fund, then the FDIC and Congress would have to manufacture a situation that would justify suspension or termination. However, as the cost of resolving failures rises relative to the size of the insurance fund, so does the ability of the FDIC and Congress to justify suspensions and terminations of note payments. If the fund is in sufficient financial distress, relatively small changes in the assumptions about liquidity needs and resolution costs may be sufficient to justify suspension or termination of interest payments. Thus, if default for noneconomic reasons has any significant impact on capital note pricing, it is most likely to be at a point when the probability of the FDIC needing a loan or congressional appropriation has become significant but such actions are not yet a certainty. The implication of this analysis is that if a significant premium is required for these nondefault risks, it will tend to accentuate the notes' sensitivity to economic default risks.[6]

Expected Pricing of Capital Notes

The above analysis suggests that the pricing of capital notes would probably be similar to that of similar corporate and municipal revenue notes after adjusting for tax differences, with comparable default risk ratings. According to this analysis, corporate notes seemed least subject to various nondefault risks. Corporate notes may have slightly higher risk premiums because of the risk that their issuers have superior information, but otherwise corporate notes have equal or lower risk levels (for any given note rating class). Capital notes may have more political risk than municipal revenue notes in some cases, but otherwise their risk premiums would appear to be equal or lower than comparably rated revenue notes. Thus, this analysis indicates that, to a first approximation, capital notes with low default risk ought to trade at rates somewhere between comparably rated corporate notes and revenue notes, after adjusting for their varying tax status.

6. An offsetting influence would be the potential for a congressional bailout of the capital noteholders. However, the noteholders' case for a bailout is weakened by the fact that they are being paid to bear this risk. Further, noteholders' prospects for a bailout are likely to be unclear until the need for a congressional appropriation to cover FDIC losses becomes apparent. Thus, if noneconomic risks are significant, the risk that noteholders will get less than they deserve will probably dominate when the FDIC fund's condition first starts to deteriorate. This situation implies that capital notes will be sending the desired signal while there may still be time to reduce the fund's losses. However, changes in the note rate may be a less reliable indicator of the FDIC fund's condition in the later stages of financial deterioration when the fund becomes very weak.

REFERENCES

ACHARYA, SANKARSHAN, AND JEAN-FRANCOIS DREYFUS. 1989. "Optimal Bank Reorganization Policies and the Pricing of Federal Deposit Insurance." *Journal of Finance* 44 (December): 1313-33.

ALTMAN, EDWARD I. 1989. "Measuring Corporate Bond Mortality and Performance." *Journal of Finance* 44 (September): 909-22.

BENSTON, GEORGE J. 1995. "Safety Nets and Moral Hazard in Banking." In *Financial Stability in a Changing Environment,* edited by Kuniho Sawanmoto, Zenta Nakajima, and Hiroo Taguchi. New York: St. Martin's Press.

BENSTON, GEORGE J., ROBERT A. EISENBEIS, PAUL M. HORVITZ, EDWARD J. KANE, AND GEORGE G. KAUFMAN. 1986. *Perspectives on Safe and Sound Banking: Past, Present, and Future*. Cambridge, Mass: MIT Press.

BENSTON, GEORGE J., AND GEORGE G. KAUFMAN. 1988. "Risk and Solvency Regulation of Depository Institutions: Past Policies and Current Options." Monograph Series in Finance and Economics, no. 1. Salomon Brothers Center for the Study of Financial Institutions and Graduate School of Business Administration, New York University.

BERGER, ALLEN N., KATHLEEN KUESTER KING, AND JAMES M. O'BRIEN. 1991. "The Limitations of Market Value Accounting and a More Realistic Alternative." *Journal of Banking and Finance* 15 (September): 753-83.

CALOMIRIS, CHARLES W. 1990. "Is Deposit Insurance Necessary? A Historical Perspective." *Journal of Economic History* 50 (June): 283-95.

CARGILL, THOMAS F., MICHAEL M. HUTCHISON, AND TAKATOSHI ITO. 1995. "Lessons from Financial Crisis: The Japanese Case." In *The New Tool Set: Assessing Innovations in Banking*, 101-109. Proceedings of the Thirty-First Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago.

CHAN, YUK-SHEE, STUART I. GREENBAUM, AND ANJAN V. THAKOR. 1992. "Is Fairly Priced Deposit Insurance Possible?" *Journal of Finance* 47 (March): 227-46.

COLE, REBEL, AND ROBERT A. EISENBEIS. 1996. "The Role of Principal-Agent Conflicts in the 1980s Thrift Crisis." *Real Estate Economics* 24 (Summer): 195-218.

DAVIES, SALLY M., AND DOUGLAS A. MCMANUS. 1991. "The Effects of Closure Policies on Bank Risk Taking." *Journal of Banking and Finance* 15 (September): 917-38.

DE KRIVOY, RUTH. 1995. "Lessons from Financial Crisis: Evidence from Venezuela." In *The New Tool Set: Assessing Innovations in Banking*, 162-70. Proceedings of the Thirty-First Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago.

DEMSETZ, REBECCA S., MARC R. SAIDENBERG, AND PHILIP E. STRAHAN. 1996. "Banks with Something to Lose: The Disciplinary Role of Franchise Value." Federal Reserve Bank of New York *Economic Policy Review* 2 (October): 1-14.

ELY, BERT. 1994. "Financial Innovation and Deposit Insurance: The 100 Percent Cross-Guarantee Concept." *Cato Journal* 13 (Winter): 413-36.

FLANNERY, MARK J. 1994. "Debt Maturity and the Deadweight Cost of Leverage: Optimally Financing Banking Firms." *American Economic Review* 84:320-31.

FLANNERY, MARK J., AND SORIN M. SORESCU. 1996. "Evidence of Bank Market Discipline in Subordinated Debenture Yields: 1983-1991." *Journal of Finance* 51 (September): 1347-77.

GALL, NORMAN. 1996. "Behind the World's Biggest Bank Failure." *Institutional Investor* 30 (September): 83-95.

GILBERT, R. ALTON. 1990. "Market Discipline of Bank Risk: Theory and Evidence." Federal Reserve Bank of St. Louis *Review* (January/February): 3-18.

GREENBAUM, STUART I. 1996. "Twenty-Five Years of Banking Research." *Financial Management* 25 (Summer): 86-92.

JONES, DAVID S., AND KATHLEEN KUESTER KING. 1995. "The Implementation of Prompt Corrective Action: An Assessment." *Journal of Banking and Finance* 19 (June): 491-510.

KANE, EDWARD J. 1989a. "Changing Incentives Facing Financial-Services Regulators." *Journal of Financial Services Research* (September): 265-74.

———. 1989b. *The S&L Insurance Mess: How Did It Happen?* Washington, D.C.: Urban Institute Press.

———. 1995. "Three Paradigms for the Role of Capitalization Requirements in Insured Financial Institutions." *Journal of Banking and Finance* 19:431-59.

———. 1996. "Foundations of Financial Regulation." In *Rethinking Bank Regulation: What Should Regulators Do?* 308-33. Proceedings of the Thirty-Second Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago.

KANE, EDWARD J., JAMES C. HICKMAN, AND ALBERT E. BURGER. 1993. "A Plan for Private-Federal Deposit-Insurance Partnership." Center for Credit Union Research, University of Wisconsin-Madison, Working Paper.

KANE, EDWARD J., AND GEORGE G. KAUFMAN. 1993. "Conflict in Deposit-Institution Regulation: Evidence from Australia." *Pacific-Basin Finance Journal* 1 (March): 13-29.

KANE, EDWARD J., AND MIN-TEH YU. 1995. "Measuring the True Profile of Taxpayer Losses in the S&L Insurance Mess." *Journal of Banking and Finance* 19:1459-77.

KAUFMAN, GEORGE G. 1996. "Bank Failures, Systemic Risk, and Bank Regulation." *Cato Journal* 16 (Spring/Summer): 17-45.

KEELEY, MICHAEL. 1990. "Deposit Insurance Risk and Market Power in Banking." *American Economic Review* 80 (December): 1183-1200.

KIDWELL, DAVID S., TIMOTHY W. KOCH, AND DUANE R. STOCK. 1987. "Issue Size and Term-Structure Segmentation Effects on Regional Yield Differentials in the Municipal Bond Market." *Journal of Economics and Business* 39 (November): 339-47.

KUMAR, RAMAN, AND GEORGE E. MORGAN. 1994. "Bank Regulatory Triage: Optimal Closure Rules and an Economic Explanation for Forbearance." Virginia Polytechnic Institute and State University, Working Paper 93-15, June.

LITAN, ROBERT E. 1987. *What Should Banks Do?* Washington, D.C.: Brookings Institution.

LONGHOFER, STANLEY D., AND CHARLES T. CARLSTROM. 1995. "Absolute Priority Rule Violations in Bankruptcy." Federal Reserve Bank of Cleveland *Economic Review* 31 (Fourth Quarter): 21-30.

MAILATH, GEORGE J., AND LORETTA J. MESTER. 1994. "A Positive Analysis of Bank Closure." *Journal of Financial Intermediation* 3 (June): 272-99.

NOE, THOMAS H., MICHAEL J. REBELLO, AND LARRY D. WALL. 1996. "Managerial Rents and Regulatory Intervention in Troubled Banks." *Journal of Banking and Finance* 20:331-50.

OSTERBERG, WILLIAM P. 1996. "The Impact of Depositor Preference Laws." Federal Reserve Bank of Cleveland *Economic Review* 32 (Quarter 3): 2-11.

PEEK, JOE, AND ERIC S. ROSENGREN. 1996. "The Use of Capital Ratios to Trigger Intervention in Problem Banks: Too Little, Too Late." *New England Economic Review* (September/October): 49-58.

PIERCE, JAMES L. 1991. *The Future of Banking*. New Haven, Conn.: Yale University Press.

RAJAN, RAGHURAM G. 1996. "Why Banks Have a Future: Toward a New Theory of Commercial Banking." *Journal of Applied Corporate Finance* (Summer): 114-28.

RANDALL, RICHARD E. 1993. "Lessons from New England Bank Failures." *New England Economic Review* (May/June): 13-38.

SIMONS, KATERINA, AND STEPHEN CROSS. 1991. "Do Capital Markets Predict Problems in Large Commercial Banks?" *New England Economic Review* (May-June): 51-56.

SMITH, CLIFFORD W., JR. 1986. "Investment Banking and the Capital Acquisition Process." *Journal of Financial Economics* 15 (January/February): 3-29.

WALL, LARRY D. 1989. "A Plan for Reducing Future Deposit Insurance Losses: Puttable Subordinated Debt." Federal Reserve Bank of Atlanta *Economic Review* 74 (July/August): 2-17.

———. 1993. "Too-Big-to-Fail after FDICIA." Federal Reserve Bank of Atlanta *Economic Review* 78 (January/February): 1-14.