Analysis of Proposals for a Minimum Subordinated Debt Requirement

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Abstract

Increasing the effectiveness of market discipline in regulated financial markets has emerged as a major policy issue for banking regulators. Perhaps the most prominent proposal for increasing market discipline is the proposal to require banks to issue publicly held subordinated debt. Subordinated debt holders can discipline banks either directly by demanding higher yields for riskier institutions or indirectly by means of market signals. This paper explores the fundamental rationale behind mandatory subordinated debt proposals, and discusses the advantages and disadvantages of the most prominent proposals. To more clearly focus the analysis, the paper concentrates on proposals for requiring publicly traded subordinated debt, and therefore our analysis is relevant only to relatively large institutions that can feasibly issue such securities. The paper does not consider the various alternative proposals for issuing subordinated debt specifically designed for small institutions.

Our analysis indicates that a subordinated debt requirement will only modestly increase the risk sensitivity of bank costs at most large banks; however, we argue that there are substantial benefits to using subordinated debt as a market-based trigger for regulatory action. While we favor a mandatory requirement to issue subordinated debt, such a requirement should not eliminate separate minimums for equity capital, as some proponents of subordinated debt suggest.

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I. Introduction

Increasing the effectiveness of market discipline in regulated financial markets has emerged as a major policy issue for banking regulators. For example, the recent Basel Committee consultative paper on reforming the international regulatory framework for bank capital cites market discipline as one of three pillars of the regulatory framework.

Perhaps the most prominent and potentially far-reaching proposal for increasing market discipline would require banks to issue publicly held subordinated debt that is unsecured, uninsured, and junior to bank deposits. While the recently passed Gramm-Leach-Bliley Act doesn't require banks to issue subordinated debt, it requires the 50 largest banks to issue long-term, unsecured debt rated in one of the top three investment grades if these banks control a financial subsidiary. National banks among banks ranked 51 to 100 in size must meet the same or "comparable standards" to control a financial subsidiary. However, the Gramm-Leach-Bliley Act does not require the debt to be publicly held.

This paper explores the fundamental rationale behind the various mandatory subordinated debt proposals, and discusses the advantages and disadvantages of these proposals. Since a number of existing proposals have received attention, the paper covers what we believe are the core issues associated with subordinated debt without comprehensively discussing all the nuances of the different proposals. To give the paper greater focus, we concentrate the analysis on proposals mandating the issuance of publicly held subordinated debt securities, i.e., tradable public debt securities that are held by nonaffiliated third parties. Concentrating on the issuance of publicly held securities allows us to avoid many of the complex issues of designing a rule for privately held subordinated debt. As we discuss below, it is unlikely that small banks can feasibly issue such securities, and therefore our analysis will

only be relevant for large institutions. We defer discussion of the various proposals for a subordinated debt rule specifically for small institutions.

Our paper concentrates on whether or not, as a matter of policy, large banks should be required to hold subordinated debt. Mandatory subordinated debt proposals aim to create a class of financially sophisticated creditors who are subject to loss if a bank becomes insolvent and who are unlikely to be protected by implicit government guarantees. These creditors would have a substantial financial incentive to monitor, assess, and price bank risk. Proponents argue that higher levels of subordinated debt increase market discipline by making the bank's costs more sensitive to risk, and that, for regulators, yields in the subordinated debt market will be clear signals of the private market's view of the bank's risk. These proponents say that, in the absence of the strong market discipline and clear signals that subordinated debt holders can provide, the banking system must rely too much on supervisory examinations to monitor banking risk and too much on regulation to control it. They add that subordinated debt is, like equity, a cushion against a bank's losses for the deposit insurance fund and uninsured depositors.

In order to provide a bank with market discipline and give signals about the bank to regulators, private investors must hold instruments whose value is threatened when an institution takes risk. Why is subordinated debt so sensitive to risk? Subordinated debt is both uninsured and unsecured. If a bank fails, subordinated debt holders receive payment only after all senior creditors, including insured and uninsured depositors, receive complete payment. The subordinate position of the claim thus increases the severity of loss in the event of a bank failure.

From this vulnerability to loss flows the incentive to discipline. In principle, holders of subordinated debt can impose market discipline on a bank directly or indirectly. They can discipline directly, for example, by raising the cost of newly issued subordinated debt. They can discipline indirectly when signals from the subordinated debt market raise the firm's other costs. For example, if yields on long-term subordinated debt rise, a bank might experience an increase in the cost of short-term funding or such funding might be more difficult to obtain.

Indirect discipline can also arise if an increase in subordinated debt yields leads bank regulators to take action. Many subordinated debt proposals include explicit rules that would require regulators to use pricing information on subordinated debt. These proposals suggest that yield spreads or credit agency ratings could be either regulatory triggers, similar to the prompt corrective action triggers in the Federal Deposit Insurance Corporation Improvement Act (FDICIA), or factors in setting deposit insurance premiums and capital requirements. These proposed rules would not only explicitly require regulators to use the market signals but would also minimize the potential for political considerations intruding on the regulatory process. Proponents of subordinated debt argue that publicly traded debt provides a particularly valuable signal since its yields are timely and easily observable. Market-based rules implicitly recognize that while the market may be an effective evaluator of bank risk, government regulators have leverage the market lacks: enforcement actions and the ability to close a bank.

Proponents of mandatory subordinated debt (among them prominent economists and policy makers) argue that by providing effective market discipline and providing signals to regulators, subordinated debt holders effectively protect the interests of depositors, the FDIC, and other senior

creditors. They see the market's role as disciplinarian and guide increasing as modern banks become larger and more complex.

The remainder of the paper is organized as follows: Section 2 discusses incentives to monitor and how government policies have affected these incentives over time. Section 3 discusses the policy questions raised by subordinated debt proposals. In conclusion, section 4 discusses why we favor a subordinated debt requirement.

II. Market Incentives and Government Regulation

How are private market incentives distorted by the current regulatory system?

The problem of controlling excessive risk-taking does not exist at banks alone. But the circumstances are simpler at firms whose equity holders and debt holders cannot depend on some form of government protection. When any firm increases risk, the change typically represents a potential gain for equity holders and loss to debt holders. This disparity exists because equity holders obtain the full upside gain over and above their debt payments if risky investments prove successful, but the downside risk is limited to their equity stake. Debt holders also can lose all of their investment if a firm is declared insolvent, but their upside is limited to a fixed payment that doesn't increase with additional returns once returns are sufficient to meet the debt obligations.[1] While the potential for "moral hazard" or "risk-shifting" behavior exists at any leveraged firm, private markets have mechanisms to prevent such

[1] More formally, equity holders can be thought of as owning a call option on the assets of the firm with a strike price equal to the outstanding debt obligations of the firm, while the debtors have sold this option. Standard options pricing theory shows that a call's value to the holder increases (decreases to the writer) as the underlying assets grow more volatile.

behavior. For instance, creditors have financial incentives to monitor firms and to impose costs on the firm if its risk profile increases. Thus, a firm that lowers its equity or increases the riskiness of its income stream will have to pay higher interest rates on newly issued debt instruments. In more severe cases, the firm may find additional borrowing restricted or even unavailable.[2] Bondholders may also require restrictive covenants that will protect them from later changes in the firm's risk profile.

The existence of explicit government deposit insurance and implicit government guarantees protecting the holders of bank debt weakens market incentives for controlling risk-taking. Federal deposit insurance creates a large class of creditors (insured depositors) who lack the incentive to monitor bank risk-taking. Consequently, interest rates on these deposits do not reflect the riskiness of the institution.[3] The higher the proportion of insured deposits in total liabilities, the more bank regulators are solely responsible for disciplining risk-taking.

In principle, holders of uninsured deposits or other uninsured bank liabilities have incentives to monitor and price bank risk. However, if they believe that an implicit government guarantee will protect them from any loss, then the responsibility for monitoring and disciplining bank risk will again fall entirely to banking regulators. The success of any subordinated debt proposal depends on contract provisions that let subordinated debt holders know that they will not be protected under any circumstances if their

[2] For example, the firm might be able to borrow at higher cost from a private lender, but may not be able to raise funds in the public debt market. Alternatively, the firm might not be able to find financing for long-term debt instruments.

[3] Opponents of government-backed deposit insurance noted this problem in 1933 during the debate over the formation of the FDIC. In principle, risk-based deposit insurance premiums could substitute for the risk insensitivity of insured deposits, and current regulations do allow for some adjustments based on an institution's riskiness.

bank becomes insolvent.

Regulators attempt to offset the market distortions created by insured deposits and the possibility of government rescues by using regulatory tools for controlling risk-taking at individual institutions. Risk-based capital standards and risk-based deposit insurance premiums are regulatory devices designed to impose higher costs on banks that increase risk. More generally, safety and soundness supervision can be thought of as a means by which the government makes up for the absence of private market mechanisms for reining in bank risk by imposing implicit or explicit costs on bank activities that increase risk.

However, there may be significant problems in relying exclusively on bank regulation and supervision to monitor and discipline bank risk. First, the monitoring and analysis of bank risk is a complex and difficult task that is growing more complex over time. Private markets apply large amounts of highly paid resources to the task of pricing risk. It is obviously helpful to the mission of bank safety and soundness if these private market forces are brought more fully to bear on the task of monitoring and controlling bank risk.

Another disadvantage to exclusive reliance on regulatory discipline is that it is difficult for regulators to "fine tune" the costs imposed on banks for increasing risk. While bank regulators have fairly broad authority to invoke sanctions, they generally prefer to do so in response to a clear violation of an objective rule or standard rather than because of a subjective assessment that bank risk has increased. Given the complexity of risk, it is difficult to write objective rules and standards that respond flexibly to marginal changes in a bank's risk profile. Risk-based deposit insurance premiums and risk-based capital standards, for example, adjust only across very broad classifications of risk.

In addition to the operational complexities of regulatory controls, there may be times when the incentives of government regulators are at odds with the mission of disciplining bank risk-taking. Policy makers may wish to forbear if they perceive a political or social benefit from delaying the recognition of bank failures. A policy of regulatory forbearance greatly exacerbates the incentive problems discussed above because it allows banks to continue operating with very low or negative net worth.

Governments have also engaged in bailouts of large banks in order to prevent what they believe will be systemic disruptions to the financial system. While there is a controversy over the extent of systemic risk, it is clear from the experience in the U.S. and internationally that the political calculus creates strong pressures to intervene to prevent systemic problems.

Apart from the potential problem of special interest groups influencing the political process, combating systemic risk through bailouts is a classic example of what economists call the "time inconsistency" problem. The time inconsistency problem arises because it may be socially desirable in the near-term to act to prevent a systemic crisis when faced with a failure of one or more very large banks. However, the likelihood that the government may choose to bail out failing institutions may itself be a causal factor generating high-risk banks. For these types of time inconsistency problems, the optimal policy often requires the establishment of *ex ante* rules that credibly eliminate or reduce the ability of policy makers to influence decisions to close banks.

Many of the regulatory reforms embodied in FDICIA – e.g., prompt corrective action and the requirement for least-cost resolution – were attempts to create rules that would lower the probability of regulatory forbearance and government bailouts. Proposals to tie regulatory action to signals from the subordinated debt market would be an expansion of this approach.

The empirical evidence supports the view that the regulatory reforms of the last decade have increased market discipline. Several empirical studies indicate that uninsured bank creditors have reacted more strongly to bank risk-taking since the passage of FDICIA, which attempted to bring the too-big-to-fail era to an end.[4] However, despite the positive impact of FDICIA in reducing implicit government subsidies, it is likely that bank creditors, particularly creditors of very large banks, still believe that there is a substantial probability that the fear of systemic problems will lead the U.S. government to protect them.

III. Subordinated Debt Policy Issues

In this section, we evaluate the core policy questions and the economic rationale for the main provisions of the mandatory subordinated debt proposals. While we will discuss specific features of some of the proposals, we concentrate on the issues that are central to whether some type of mandatory subordinated debt proposal is desirable. We begin the section by outlining our view of these core issues, and then we address them one by one.

Outline of the Central Issues Concerning Subordinated Debt

- Does the private market discipline bank risk-taking?
- Is subordinated debt feasible for all banks?
- Is the market discipline imposed by current uninsured creditors inadequate?
- Does subordinated debt provide a valuable market-based signal for regulatory action?

[4] For example, see Flannery and Sorescu (1996).

- Can subordinated debt replace equity as bank capital?
- What is the appropriate amount of subordinated debt?
- Should the bank or the bank holding company issue the subordinated debt?
- Are maturity restrictions necessary?

Does the Private Market Discipline Bank Risk-taking?[5]

Equity owners and owners of uninsured bank liabilities such as subordinated debt and uninsured deposits are the potential sources of private market discipline. Insured depositors with $100,000 or less have no financial incentive to monitor bank risk-taking. While equity holders may have incentives to decrease risk-taking, they can sometimes gain from increasing risk. This suggests that creditors holding subordinated debt and large CDs may be more dependable sources for monitoring and disciplining risk taking by banking organizations in the absence of implicit government guarantees.

Two types of empirical studies have looked at the role of private market discipline in banking. One approach has looked for evidence of a link between asset risk and liability costs. The other approach compares information available to regulators with that available to the private market.

The first approach has looked for evidence of market discipline in the relationship between bank liabilities and various measures of bank risk. These studies compare equity prices, interest rates paid on large uninsured certificates of deposit, or interest rates on subordinated debt to measures of bank risk.

[5] Parts of this section borrow from reviews of empirical studies of market discipline available in Federal Reserve System (1999, pp. 18-27), Gilbert (1990, pp. 12-17), and Flannery (1998).

Effective market discipline implies higher interest rates on large CDs and subordinated debt at banks with higher measured risk. Market discipline suggests that higher risk may also lower equity prices. These studies have found evidence of market discipline in equity prices and, recently, in rates on large CDs and subordinated debt.

Ten out of the eleven studies reviewed by Gilbert (1990) that looked at the market for bank equity found evidence of a relationship between share prices and measures of risk. For instance, Beighley, Boyd, and Jacobs (1975) found that banks with higher capital ratios and lower loss rates tended to have higher equity prices. Other equity studies looked at how the composition of assets, e.g., energy loans and Latin American loans in the early 1980s, affected shareholder returns. These studies suggest that moral hazard problems notwithstanding, equity holders generally react negatively to increased risk at solvent banks. However, a recent paper by Hughes, Lang, Moon, and Pagano (1999) find that this negative relationship between risk-taking and market values changes sign for highly leveraged banking firms. This suggests that movements in the market value of equity can be a misleading indicator of changes in bank risk.

Most studies that look for discipline in the market for uninsured deposits and subordinated debt find evidence of such discipline only after the mid-1980s. For the years 1983-84, Avery, Belton and Goldberg (1988); Gorton and Santomero (1990); and Flannery and Sorescu (1996) all conclude that bank-specific measures of risk did not account for risk premiums on a bank's subordinated debt. Flannery and Sorescu, however, extended the sample period and found significant and positive correlation between risk and spread after 1989. This later period corresponded to a government commitment to end the policy of too-big-to-fail, culminating with the enactment of FDICIA in 1991.

Results from these studies suggest that more effective market discipline emerged as the 1980s banking crisis worsened, implicit government guarantees diminished, and uninsured creditors became more sensitive to risk.

Although research has recently focused on market discipline in the subordinated debt market, uninsured deposits can apply powerful market discipline. The uninsured deposit market is much larger than the subordinated debt market. As table 1 shows, at the end of 1998 there was approximately $73 billion of outstanding subordinated debt and almost $1.5 trillion in uninsured deposits. Table 2 shows the share of uninsured deposits in total deposit liabilities. As this share increased from 32 percent in 1991 to 40 percent in 1999, its influence on banks' costs and availability of funds had a commensurate increase.

Table 2 also shows that uninsured deposits are an important source of market discipline for small banks. While only a few small banks have issued subordinated debt, as of mid-1999 uninsured deposits accounted for over 13 percent of total deposit liabilities at banks with under $100 million in assets. Of course the share of uninsured deposits at large banks is much greater. At banks with at least $1 billion in assets, uninsured deposits account for almost half of all deposit liabilities.

To appreciate the dramatic effect that uninsured depositor discipline can have on a bank, one need only recall six large bank failures that occurred between 1984 and 1992. Marino and Bennett (1999) studied how liabilities shifted at these six large banks prior to their failure. They found that each bank's liability structure changed considerably as it neared failure. Uninsured and unsecured liabilities fell relative to insured deposits and foreign deposits fell. Indeed, researchers generally cite the sudden departure of uninsured foreign and domestic deposits from Continental Illinois beginning in May 1984 as

precipitating that bank's failure. Marino and Bennett argue that because of depositor preference rules and FDICIA, uninsured depositors and unsecured creditors now are likely to be more skittish and may precipitate a liquidity failure more rapidly than prior to enactment of the new laws.

Questions about the opaqueness of banks and bank assets motivate the second type of market discipline study. These studies examine the information available to private market monitors and bank regulators and attempt to determine whether any differences help one group to make more accurate assessments of a bank's condition. Most of these studies have found that information available to regulators through on-site examinations give regulators a temporary information advantage that lasts for several months. For instance, DeYoung, Flannery, Lang, and Sorescu (1998) found that CAMELS ratings contain private information about a bank's condition that is not available to financial markets for several months. A study by Berger, Davies, and Flannery (1998) found that each group had information that the other group incorporated only after a lag.

Finally, Morgan and Stiroh (1999) look at how a bank's asset portfolio affects market discipline. While they find that the market disciplines banks for holding risky portfolios, a higher ratio of trading assets in particular, the degree of discipline is weaker at the largest banks. Pointing to these results, Morgan and Stiroh suggest that either a lack of information or lingering notions of implicit government guarantees may make it more difficult for markets to accurately assign risk premiums to the largest banks.

To summarize, most recent empirical research suggests that uninsured bank creditors do price risk to some degree, but several studies suggest that a lack of information or implicit government guarantees can undermine the market's attempts to apply appropriate risk premiums to uninsured bank

liabilities. Moreover, the distortions caused by implicit government guarantees limit our ability to evaluate the effectiveness of market discipline.

Is Subordinated Debt Feasible for All Banks?[6]

Proposals to mandate issuance of publicly held subordinated debt securities generally would apply the requirement only to large banks. Although these proposals define small banks differently, most subordinated debt proposals agree that small banks should be exempted. For instance, the proposal of the Shadow Financial Regulatory Committee (SFRC, 2000) suggests exempting banks with assets under $10 billion, while Evanoff (1991) would exempt banks up to $1 billion in assets. Federal Reserve Governor Meyer has also suggested exempting small banks from any subordinated debt requirement (Meyer, 1999). Governor Meyer points to the relative lack of complexity of small banks and argues that only large banks can issue subordinated debt in amounts capable of generating enough critical mass to ensure a liquid secondary market for the debt. He also makes the practical point that because many large banks have already voluntarily issued subordinated debt, applying a mandatory policy to large banks alone would cut the cost of the requirement considerably.

Another argument for exempting small banks is that the bulk of the benefits of increased market discipline are likely to accrue from its application to large complex banks. A relatively small number of institutions hold the bulk of banking assets in the U.S., and financial problems at these large institutions

[6] While we are concentrating in this paper primarily on the U.S. market, feasibility issues will also arise in the international context. For instance, bond markets in most other countries are not as developed as the bond market in the United States.

are the source of concern over systemic crises. In addition, some analysts have argued that the risks at large complex banks are less evident than at smaller institutions. For instance, the limited derivative activity of most small banks is one reason why they are less complex and their risks easier to discern. However, Morgan (1999) reports empirical findings that associate smaller asset size and high loan-to-asset ratios with less discernable risks. Moreover, as we will point out in the next section, because small banks rely heavily on insured deposits, the disincentive to monitor risk because of deposit insurance affects a greater share of liabilities at small banks than at large banks.

Although banks of any size can apply subordinated debt toward their Tier 2 capital requirements, data suggest that small banks prefer not to issue subordinated debt. Given the opportunity to use subordinated debt to meet current capital requirements, small banks have not done so. At the end of 1998, while 45 of the largest 50 commercial banks (48 out of the largest 50 bank holding companies) had issued subordinated debt, only 61 of 8,159 banks with assets of less than $500 million had done so. Table 3 shows that while 80 percent of commercial banks with assets of $10 billion or more had subordinated debt outstanding at the end of 1998, less than 1 percent of commercial banks with assets less than $150 million had issued subordinated debt.

Table 4 shows that the difference in subordinated debt issuance by institutions of different sizes applies also to bank holding companies. Nearly 90 percent of bank holding companies with assets of $10 billion or more had issued subordinated debt, but only 6 percent of bank holding companies with assets between $150 million and $500 million had done so. Nonetheless, Evanoff (1991) suggests that there is a market for the subordinated debt of small banks. He reports that some investment bankers expressed an interest in establishing mutual funds to invest in the subordinated debt of small banks,

although he did not indicate how small.

Because small banks rely heavily on insured deposits, applying a subordinated debt requirement to small banks would have significant positive benefits. We believe, however, that the financial burden of issuing publicly held debt securities requires an exemption for smaller banks. Most subordinated debt proponents concede that there are scale economies in issuing debt and that the costs of offering public debt securities may be prohibitively higher for small banks. However, some proponents have offered variations of subordinated debt that could be feasible at small banks. For example, some proposals would allow the subordinated debt requirement to be satisfied through direct loans from other banks. Such proposals generally introduce additional complexities into subordinated debt rules that go beyond the scope of this paper.

Is the Market Discipline Imposed by Current Uninsured Creditors Inadequate?

Discussion of the need for mandatory subordinated debt usually concentrates on the moral hazard associated with government deposit insurance. However, large banks that are the most likely subjects of a subordinated debt proposal do not rely principally on insured deposits as a source of funding. As table 5 shows, as of the third quarter of 1999, estimated insured deposits at banks with more than $1 billion in assets were only 37 percent of total liabilities. This contrasts with an 82 percent share at banks with less than $100 million in assets, and a 72 percent share in banks with assets between $100 million and $1 billion. Table 6 shows that the banking system's reliance on insured funds has decreased significantly since 1991.

Given the reliance of large banks on uninsured liabilities, we believe that incentive problems at

these banks arise principally from market perceptions concerning implicit government guarantees rather than the moral hazard associated with deposit insurance. FDICIA's restrictions on the use of brokered deposits at banks that are not well capitalized strengthens our argument, since troubled banks cannot easily substitute insured funds for large outflows of uninsured funds.

Since the total amount of uninsured funds at large banks is already many times larger than any proposed subordinated debt requirement, most of these banks could satisfy a mandatory minimum for subordinated debt by substituting one form of uninsured liability for another. While we will discuss possible arguments on why such a substitution might be desirable, it is important to understand that a subordinated debt requirement is unlikely to change materially the proportion of bank liabilities that are in principle subject to loss and therefore sources of market discipline.

If uninsured creditors and subordinated debt holders have similar financial incentives to control bank risk-taking in the absence of too-big-to fail, will adding a mandatory subordinated debt requirement increase the risk sensitivity of bank costs at large banks? There are several reasons why subordinated debt might help to improve market discipline even though most of a bank's existing liabilities are uninsured:

- Subordinated debt acts as a buffer to protect the more senior FDIC-insured and uninsured deposits. This buffer also protects the FDIC and taxpayers and provides an incentive for the FDIC to act quickly to close a failed bank before losses erode the buffer.
- Subordinated debt has a longer maturity than most large CDs and other uninsured bank

liabilities.[7] So, subordinated debt is a more stable source of funding, and might increase the cost of increased risk taking without precipitating bank runs by uninsured depositors.

- The longer maturity of subordinated debt also makes these instruments more responsive than short-term debt to bank actions that increase risk over the longer term.
- A subordinated debt proposal can be written to limit the likelihood that subordinated debt holders will be subject to government protection at troubled institutions. However, if most of the bank's liabilities receive implicit government protection, then a requirement to hold subordinated debt will only have a modest impact on the risk sensitivity of the bank's market cost of funds.

On balance, we believe that a mandatory subordinated debt requirement will increase market discipline. However, we believe that this increase will be modest, since a mandatory subordinated debt rule will not significantly lower the proportion of liabilities derived from insured sources, nor will it significantly check the dampening effects of the possibility of large bank bailouts on the market's incentives to control risk-taking. Nonetheless, as we discuss in the next section, publicly traded subordinated debt can have important value as a market-based signal for regulatory action.

Does Subordinated Debt Provide a Valuable Market-based Signal for Regulatory Action?

While a mandatory subordinated debt requirement might not substantially increase the sensitivity

[7] Large CDs with a maturity of less than one year accounted for more than 80 percent of all large CDs at banks with more than $1 billion in assets.

of market costs to risk, a subordinated debt requirement may still lead to potentially important improvements for the bank regulatory system. Trading prices of public debt instruments can provide timely and accurate market assessments of bank risk and can be a useful "early warning" tool for bank regulators. As triggers of regulatory action, yields on subordinated debt could complement the accounting-based triggers in current capital standards.

There are several advantages to using subordinated debt yields as market-priced triggers:

- Under normal market conditions, the market yields on subordinated debt are easily observable indicators of the market's evaluation of risk at the institution.
- Current capital triggers depend on accounting rules rather than market rules.
- Even if current triggers used market values for firms with traded equity, regulatory capital rules also rely on calculations of risk exposure (e.g., risk-weighted assets) to determine capital adequacy. The prices of traded debt are direct measures of the market's assessment of the debtor's risk exposures.
- Rules governing subordinated debt could minimize any potential distortion in market prices from implicit government guarantees. For example, the subordinated debt contract might require subordinated debt to lose value in the event of an assisted bank resolution.
- While the private marketplace may be a relatively efficient evaluator of bank risk and can discipline banks through changes in market prices, the regulator's ability to take legal enforcement actions may at times be more effective in changing bank behavior.[8]

[8] DeYoung, Flannery, Lang, and Sorescu (1998) found significant "regulatory discipline" effects at troubled banks. Tougher regulatory responses resulted in improved bond prices over time for

- The existence of a subordinated debt rule would not eliminate the protections provided by the rules on Tier 1 capital and overall capital, nor would it prevent regulators from acting when supervisors uncover troubled banks with low subordinated debt yields.

It is useful to consider the advantages and disadvantages of subordinated debt under two potential scenarios:

Case 1. Regulators believe bank risk warrants action, but subordinated debt prices do not fall below the trigger values.

Case 2. Subordinated debt prices fall below trigger values, but bank regulators believe that actions are unwarranted.

Case 1 isn't a problem because a rule making subordinated debt a trigger would not necessarily restrict regulatory discretion nor require elimination of other regulatory rules. Subordinated debt prices could simply be part of the information that supervisors would use when evaluating a bank.

It is case 2 that holds the potential for conflict between discretionary regulatory policy and a market-based trigger rule. Critics of triggers tied to market signals often argue that market prices overreact to temporary disruptions and that a rule would generate unwarranted actions which might harm an otherwise healthy bank. A recent example, often used to support this assertion, is the sharp general rise in subordinated debt yields following the Russian crisis of 1998, when the market could not

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surviving institutions.

immediately discern the exposure of individual institutions.

Although there is considerable controversy over whether regulators or market participants can better determine a bank's "true" condition, we believe that the potential for temporary contagion in asset markets warrants making provisions for some regulatory discretion. While it is difficult to measure the gains from increased supervisory flexibility and the costs of increasing the likelihood of forbearance, in our judgment a subordinated debt rule should allow regulators to override any triggers for corrective action. However, bank supervisors should override triggers only after they issue a finding that the bank's risk and capital condition does not warrant imposing the required sanctions.

Can Subordinated Debt Replace Equity as Bank Capital?

The current capital framework embodies a clear supervisory preference for equity capital over subordinated debt. Under current law, insured depositories must meet three conditions in order to be well capitalized. They must have total capital equal to at least 10 percent of risk-weighted tangible assets, core (Tier 1) capital equal to at least 6 percent of risk-weighted tangible assets, and core capital equal to at least 5 percent of unweighted tangible assets (Tier 1 leverage ratio). Total capital is equal to the sum of core and supplementary (Tier 2) capital.[9]

[9] Tier 1 capital is equal to common stockholder equity, plus qualifying cumulative and noncumulative perpetual preferred stock (limited to 25 percent of the sum of common stock, minority interests, and qualifying perpetual preferred stock), plus minority interest in equity accounts of consolidated subsidiaries, minus goodwill and other ineligible intangible assets. Other intangible assets include mortgage servicing rights, purchased credit card relationships (servicing rights), favorable leaseholds, and core deposit value.

Tier 2 capital consists of subordinated debt and intermediate-term preferred stock with an original weighted-average maturity of at least five years (limited to 50 percent of core capital and

The Shadow Federal Regulatory Committee's recent subordinated debt proposal reverses this preference by calling for minimum subordinated debt standards and the elimination of the separate Tier 1 minimums. The idea behind such a proposal is that the interests of debt holders align more with the regulators' incentives to control risk, whereas equity holders may have incentives to prefer risk.[10]

The assertion that substituting subordinated debt for common stockholder equity will increase market discipline and bank safety is questionable on theoretical grounds and unproven empirically. In theory, the substitution of subordinated debt for equity capital has two opposing effects on incentives for risk-taking. On the one hand, subordinated debt holders have a stronger incentive to control risk than do equity holders. On the other hand, a lower level of equity invested in the bank provides the bank's owners with a greater incentive to take risk. Under some standard assumptions these two effects cancel each other out, and the ratio of subordinated debt to equity has no impact on risk-taking behavior.[11] Theoretical models with alternative assumptions might show a gain from substituting subordinated debt for equity, but we know of no convincing empirical evidence to validate the assertion that substituting subordinated debt for equity capital reduces incentives for risk-taking.

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amortized for purposes of inclusion in capital as it approaches maturity); allowance for loan and lease losses (limited for inclusion in capital to 1.25 percent of risk-weighted assets); perpetual preferred stock; hybrid capital instruments; perpetual debt; and mandatory convertible securities. To meet the Aadequately capitalized@ threshold, depositories must have total capital equal to at least 8 percent of risk-weighted tangible assets with at least 4 percent core capital and up to 4 percent supplementary capital.

[10] As a technical matter, subordinated debt holders can sometimes benefit from an increase in a bank's risk. This is so only when there is a very high probability of default at the bank. We do not see this as a substantial practical problem for regulators because it occurs only when debt markets have already signaled regulators that the institution is in trouble.

While the impact on risk-taking of substituting subordinated debt for equity is uncertain, subordinated debt has two distinct disadvantages to equity. First, if a bank operates with lower equity capital, and there is little or no change in the owners' incentives to take risks, then substituting subordinated debt for equity capital raises the probability of bank insolvency. Because there are potential dead weight losses from resolving insolvent institutions, regulators have a concern for the insolvency rate of institutions as well as the overall rate of losses on bank assets. Second, subordinated debt holders do not suffer losses unless the bank fails, while equity holders suffer losses if the bank performs poorly but does not fail. If the perception of an implicit government guarantee for bank creditors persists despite the explicit terms of the subordinated debt contract, higher levels of subordinated debt will not reduce incentives for risk-taking. However, higher levels of equity will still act as a deterrent because equity holders will be placing more wealth at risk.

Although legislation and government pronouncements have greatly reduced the probability of a government bailout of subordinated debt holders, the possibility can never be completely eliminated. The Federal Deposit Insurance Corporation Improvement Act (FDICIA) reduced the likelihood of regulatory forbearance by establishing prompt corrective action rules (PCA) that trigger specific actions by regulators. In addition, FDICIA reduced the likelihood that uninsured bank creditors would be protected by implicit guarantees through mandating "least cost resolution" for assisted resolutions.

While FDICIA limited the government's implicit protection of bank creditors, it did not eliminate the possibility of forbearance and bailouts. Congress intentionally provided for exceptions to the

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[11] Levonian (1999) contains such a theoretical model.

prompt corrective action triggers when bank failures could pose a substantial risk to the overall financial system. Moreover, Congress always retains the right to bail out whatever institution it chooses whenever it sees fit. While congressional rescues are rare, loan guarantees to the Lockheed Aircraft Corporation in 1971 and the Chrysler Corporation in 1979 are proof enough that Congress is also a potential lender of last resort.

Rule-makers can lessen this concern by setting certain terms on the use of subordinated debt as capital. For example, they could require subordinated debt holders to suffer losses whenever there is an assisted resolution. However, we should not rule out the possibility of implicit government guarantees supporting subordinated debt holders.

If a subordinated debt requirement also eliminated minimum equity standards, while government bailouts remained a possibility, the incentives for risk-taking could increase. In our view, a prudent approach would be to continue to require minimum standards for equity as well as subordinated debt.

What is the Appropriate Amount of Subordinated Debt?

The Shadow Financial Regulatory Committee (SFRC) recommends 2 percent as the minimum ratio of subordinated debt to assets. Part of the appeal of 2 percent is that it is close to the average amount of subordinated debt outstanding that large banks and large bank holding companies have already issued voluntarily. The question arises whether a mandate for subordinated debt should call for a greater or lesser amount.

An advantage of 2 percent is that at larger banks this amount should be sufficient to maintain adequate market depth and liquidity in the secondary market. Ensuring adequate liquidity in the subordinated debt market is particularly important if subordinated debt prices are used as regulatory

triggers. Greater liquidity and smoother trading will generally enhance the quality and clarity of price signals and thus help avoid false alarms because of poor signals.

In certain circumstances, rule-makers might be able to require less subordinated debt without diminishing the quality of the signal. If banks provided market participants with more and better information about their assets, for example, the improved quality of the signals from the subordinated debt market could allow the system to work well with a 1 percent requirement.[12]

In our view, a 2 percent ratio has considerable appeal since it roughly conforms to current market practice, suggesting that such a rule would not be excessively burdensome. Moreover, current practice would also suggest that a minimum 2 percent ratio could be mandated without requiring the elimination of minimum equity rules or a change in overall capital requirements.

Should the Bank Issue the Subordinated Debt, or Should the Holding Company Do So?

Many subordinated debt proposals recommend that banks, rather than bank holding companies, issue subordinated debt. Their reasoning is usually that the rule's aim is to discipline banks rather than bank holding companies (primarily because the banks are the ones with access to the federal safety net).

Federal Reserve Governor Laurence Meyer takes this position (Meyer 1999). He also points out that a market signal about the commercial bank would be more beneficial to bank regulators since the commercial bank is the object of supervision. He adds that bank-issued subordinated debt provides

[12] See Federal Reserve System (1999) for a discussion of public disclosure in banking.

more direct protection for the deposit insurance fund and that focusing on banks rather than bank holding companies would emphasize to market participants that only the bank has access to the safety net.

While also arguing that the bank rather than the holding company is the appropriate object of the subordinated debt requirement, the Shadow Financial Regulatory Committee (SFRC) admits that focusing on the bank may encourage risk-shifting within the bank holding company. Nonetheless, they conclude that current firewalls restricting lending by banks to affiliates and limiting bank dividend payments to the holding company are adequate to prevent nonbank affiliates from suddenly shifting their risk to banks.

We agree that banks should issue subordinated debt since insured depositories are the focus of safety and soundness regulations. When the bank comprises a very large share of holding company assets, there is probably little difference between bank-issued and holding company-issued debt. Nevertheless, a single rule requiring bank issue avoids the inevitably arbitrary process of determining which banks are or are not eligible to issue at the holding company level.

Are Maturity Restrictions Necessary?

Subordinated debt proponents seem to disagree about the appropriate maturity of subordinated debt. While Keehn (1989) recommends a minimum maturity of five years with 10 percent to 20 percent of the debt maturing each year, the SFRC recommends a minimum remaining maturity of one year. The SFRC also recommends that banks with thinly traded debt should have 10 percent of their outstanding debt mature each quarter.

Maturity provisions are important because they limit the ability of subordinated debt holders to flee from potential loss when a bank gets into trouble. Proponents of longer maturity argue that the longer the maturity, the longer subordinated debt holders are tied to the bank and the more they risk by not monitoring. While those holding long-term debt may have greater incentives to monitor bank risk-taking, short-term debt may better discipline bank risk-taking because it reprices more often than long-term debt. Thus, a troubled bank with short-term debt will have to confront its inability to roll over debt sooner than a troubled bank with long-term debt.

We believe that there are several good reasons for requiring that subordinated debt have relatively long maturity. First, long-term debt would provide information over a horizon that is complementary to the information provided by short-term uninsured bank liabilities. Second, long-term debt cannot cause a bank to collapse because of an irrational short-term run on the bank. Third, instruments with longer maturities would tend to reduce the transaction costs of the bank's debt rollovers.

One of the reasons that Governor Meyer and others favor short-term debt is that the quality of the market signal improves when debt rolls over more frequently. While rollovers undeniably bring increased disclosure, we do not see this disclosure as a strong argument for requiring frequent rollovers – assuming that there is an active secondary market.[13] There is little evidence to suggest that secondary market prices are "overly" optimistic when compared with prices for newly issued instruments. In fact, there is some evidence that the secondary market prices debt at a deeper discount than newly issued

[13] Frequent rollover provisions would be necessary if the subordinated debt requirement applies to smaller banks.

instruments.

Finally, all subordinated debt proponents agree that a bank's subordinated debt should be held by independent third parties. This provision is crucial to ensure that subordinated debt holders= interests differ from those of equity holders and bank insiders.

IV. Conclusions and Recommendations

Making subordinated debt mandatory will have two benefits. First, a bank's market cost of funds will be more sensitive to risk. Second, yields on the debt will provide market-based signals for regulatory action.

In our view, the first of these gains is likely to be minimal at large U.S. banks. *In the absence of government bailouts,* the existing uninsured creditors at most large banks have significant market incentives to monitor and control bank risk-taking. Conversely, subordinated debt will add little to a bank's cost of funds if governments routinely bail out most of the creditors of large banks. While subordinated debt does generate some market discipline advantages over other types of uninsured bank liabilities, we do not believe that there will be a substantial increase in the sensitivity of bank costs to risk-taking resulting from a mandatory subordinated debt requirement at large banks.

However, we believe there can be substantial gains from a subordinated debt requirement accompanied by a rule that ties regulatory action to subordinated debt yields. Such a requirement would complement the existing accounting-based capital rule and provide a trigger that is tied to a clear signal of the market's assessment of risk at an institution. We believe that such a rule can have substantial benefits and that a flexible and modest subordinated debt requirement would not impose

significant regulatory burdens on large, well-run institutions.

While we believe the overall impact of a subordinated debt requirement on the risk sensitivity of bank costs will be modest, there are some advantages to increasing the share of subordinated debt relative to other types of uninsured debt. Because subordinated debt is junior to uninsured deposits, subordinated debt holders are more motivated to carefully monitor the riskiness of individual institutions. Subordinated debt is also a protective cushion for the deposit insurance fund. And because the maturity of subordinated debt is longer than that of most other uninsured nondeposit liabilities at banks, subordinated debt gives its holders a longer horizon for the assessment of bank risk. The longer maturity of subordinated debt also avoids problems from irrational short-term "bank runs." Furthermore, a subordinated debt rule could include language that minimizes the possibility that government bailouts will protect subordinated debt holders. For example, the subordinated debt rule could mandate that debt contracts stipulate that subordinated debt holders suffer losses in any assisted resolution.

We favor a subordinated debt requirement primarily because the yields on such debt can be a market-based "early warning" signal for regulatory action. The use of subordinated debt for this purpose has several advantages: yields on publicly traded debt will be timely and easily observable, and a subordinated debt rule can include language that minimizes the ability of issuing banks to manipulate yields.

While not foolproof, debt yields are a strong indicator of market perceptions about risk. A subordinated debt rule would function as a valuable complement to (not a replacement for) current accounting-based capital rules. To account for the possibility of temporary market crises, a rule based

on subordinated debt yields could allow regulators to override its provisions. However, such provisions should be overridden only when supervisors establish that the bank's risk and capital condition do not warrant the triggering of certain regulatory action.

While we favor a mandatory requirement to issue subordinated debt at large banks, we oppose eliminating separate minimum requirements for equity capital as some subordinated debt proposals recommend. These proposals are based on the assumption that a bank's incentives for risk-taking will decrease if the bank substitutes subordinated debt for equity in the capital structure. While subordinated debt holders have strong incentives to control risk-taking, reducing the equity-capital-to-asset ratio tends to increase bank managers' incentives to take risk. The net effect on incentives for risk-taking thus is uncertain.

Given the possibility of government bailouts, allowing unlimited substitution of subordinated debt for equity in the capital structure could increase moral hazard and compromise safety and soundness. For a given level of volatility in bank earnings, a lower level of equity capital also increases the probability of insolvency. Minimum equity provides incentives for bank owners to control risk even in the presence of explicit or implicit government guarantees. Substituting a subordinated debt standard for a minimum equity standard could lessen market discipline in some circumstances.

Finally, the significant fixed costs associated with issuing publicly traded securities suggest the need to exempt small banks from any requirement to issue publicly held subordinated debt securities. However, this doesn't rule out the possibility of developing alternative proposals for market-based discipline specifically designed for smaller institutions.

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Table 1. Subordinated Debt (SD) and Estimated Uninsured Deposits (EUD)
(Fourth Quarter except as noted, amounts in billions of dollars)

Year	Total Commercial Banks		Assets Less than $100 Million		Assets $100 Million to $1 Billion		Assets $1 Billion or More	
	SD	EUD	SD	EUD	SD	EUD	SD	EUD
1991	24.9	859.9	.1	27.6	.6	92.6	24.2	739.7
1992	33.7	846.2	.1	28.8	.5	96.5	33.1	720.9
1993	37.4	910.0	.0	30.3	.5	98.7	36.9	780.6
1994	40.7	992.5	.0	29.3	.4	95.9	40.3	867.3
1995	43.5	1,069.3	.0	28.3	.3	99.4	43.2	941.5
1996	51.2	1,195.3	.0	29.2	.4	105.3	50.8	1,060.8
1997	62.0	1,331.4	.0	29.5	.4	115.1	61.6	1,186.8
1998	72.8	1,475.1	.0	28.7	.4	119.6	72.4	1,326.9
1999:Q3	75.8	1,499.5	.0	28.3	.4	122.7	75.3	1,348.5

Note: Estimated uninsured deposits are equal to the difference between total deposit liabilities and estimated insured deposits.

Source: FDIC, *Statistics on Banking*

Table 2. Estimated Uninsured Deposits as a Percent of Total Deposit Liabilities
(Fourth Quarter except as noted)

Year	Total Commercial Banks	Assets Less than $100 Million	Assets $100 Million to $1 Billion	Assets $1 Billion or More
1991	32.0%	8.8%	15.9%	41.3%
1992	31.4%	9.3%	16.4%	39.9%
1993	33.0%	10.3%	17.1%	41.4%
1994	34.5%	10.6%	16.7%	42.8%
1995	35.3%	10.9%	17.0%	43.1%
1996	37.4%	12.0%	17.7%	44.9%
1997	38.9%	12.8%	19.1%	45.8%
1998	40.1%	13.3%	20.0%	46.3%
1999:Q3	40.5%	13.6%	20.3%	46.7%

Table 3. Subordinated Debt Issued by Commercial Banks
(Fourth quarter, 1998; dollars in thousands)

	Total Commercial Banks	Assets Less than $150 Million	Assets $150 Million to $500 Million	Assets $500 Million to $10 Billion	Assets $10 Billion or More
Number of Institutions	8,817	6,593	1,566	588	70
Number of Banks Issuing Subordinated Debt	226	35	26	109	56
Percentage of Banks Issuing Subordinated Debt	2.56%	0.53%	1.66%	18.54%	80.00%
Dollar Amount of Subordinated Debt	$72,145,499	$34,896	$84,058	$6,432,026	$65,594,519
Average Ratio of Subordinated Debt to Total Assets	.0168	.0148	.0116	.0170	.0202

Source: Federal Reserve

Table 4. Subordinated Debt Issued by Bank Holding Companies (BHCs) with Consolidated Assets of Greater than $150 Million
(Fourth quarter, 1998; dollars in thousands)

	Total Top Tier BHCs	Assets $150 Million to $500 Million	Assets $500 Million to $10 Billion	Assets $10 Billion or More
Number of BHCs	1,521	1,039	420	62
Number of BHCs Issuing Subordinated Debt	167	63	49	55
Percentage of BHCs Issuing Subordinated Debt	10.98%	6.06%	11.67%	88.71%
Dollar Amount of Subordinated Debt	$102,790,000	$137,223	$1,875,695	$100,780,000
Average Ratio of Subordinated Debt to Total Assets	.0122	.0076	.0110	.0185

Source: Federal Reserve

Table 5. Deposits, Liabilities, and Estimated Insured Deposits
(Third Quarter, 1999; dollars in millions)

	Total Commercial Banks	Assets Less than $100 Million	Assets $100 Million to $1 Billion	Assets $1 Billion or More
Number of Institutions	8,621	5,241	2,989	391
Total Deposits	$3,702,516	$207,946	$604,346	$2,890,224
Total Liabilities	$5,037,977	$218,632	$673,000	$4,146,346
Estimated Insured Deposits	$2,203,006	$179,637	$481,676	$1,541,693
Insured Deposits as a Percent of Total Liabilities	44%	82%	72%	37%

Source: FDIC, *Statistics on Banking*

Table 6. Estimated Insured Deposits as a Percent of Total Liabilities
(Fourth Quarter except as noted)

Year	Estimated Insured Deposits as a Percent of Total Liabilities			
	Total Commercial Banks	Assets Less than $100 Million	Assets $100 Million to $1 Billion	Assets $1 Billion or More
1991	57.1%	89.1%	79.0%	46.6%
1992	57.1%	88.6%	78.6%	47.1%
1993	54.1%	87.4%	77.3%	44.3%
1994	50.9%	86.5%	76.6%	41.5%
1995	49.4%	86.5%	77.1%	40.5%
1996	47.6%	85.2%	75.6%	39.3%
1997	45.5%	84.1%	74.0%	37.9%
1998	44.3%	83.3%	73.2%	37.5%
1999:Q3	43.7%	82.2%	71.6%	37.2%

Note: Estimated insured deposits is equal to the sum of all deposit balances in accounts of less than $100,000 plus $100,000 times the number of accounts with balances greater than $100,000.