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Banking Theory, Deposit Insurance, and Bank Regulation*

I. Introduction

The last several years have seen extensive change in the U.S. banking industry.[1] In the 1950s and 1960s the banking industry was a symbol of stability. By contrast, recent years have seen the greatest frequency of bank failures since the Great Depression. During the same period, the banking environment has undergone the most significant changes since 1933, when the Glass-Steagall Act laid down the ideas underlying the modern regulatory environment. The recent changes include new competitors to banks, new technology, new floating rate contracts, increases in interstate banking, and various regulatory reductions and changes. Some of these changes are accelerated by the current high rate of bank failure; many of the changes are driven by technology and competition and are inevitable. One implication of all these changes is that we now face policy decisions that will affect the future course of the banking industry. Since the current environment is largely outside our past experience, we need theory to extrapolate from past experience to our current situation. The purpose of this paper is to summarize the policy implications of existing economic models of the banking industry and to examine some current recommendations in light of the theory. Our conclusions contrast with the traditional view in economics and with several conclusions in Kareken's (in this issue) lead piece in this symposium.

Most references to banks in the microeconomics literature have not looked at banking at the industry level. The bank management litera-

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1. When we discuss the banking industry, we include thrifts (savings and loans) as well as commercial banks.

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ture has considered the management problems faced by individual bankers. This literature is of pragmatic value to practitioners but is not flexible enough to evaluate policy changes since it takes as given the existing banking environment.

The macroeconomics literature, on the other hand, has focused on banks' effects on the macroeconomy, with special emphasis on their role in determining the money supply. The banking industry's involvement in the money supply process is obviously an important consideration in bank regulatory policy. However, regulatory policy motivated only by macroeconomic goals may destroy banks by preventing them from providing the services that are the raison d'être of banks. Some regulatory policies based solely on macroeconomic goals go so far as to suggest implicitly that we have no need for banks at all since banks can be replaced by other existing institutions (e.g., mutual funds). One purpose of this paper is to illustrate the danger of this position.

A third literature focuses directly on the banking industry and, in particular, on the services provided by banks. This literature is in the spirit underlying some of the recent deregulation (e.g., the removal of Regulation Q or the move toward interstate banking), which is motivated by a desire to improve the overall welfare of bank customers by making banks more competitive. Instead of relying on general economic notions, such as efficiency of competition, the recent literature focuses on a more detailed underlying analysis of the services offered by banks, at a level similar to the level of analysis used by economists to derive conditions under which competition is efficient. Since this literature is still young, the models have had limited empirical verification and cannot yet lead us to a specific regulatory strategy. The literature has, however, generated some important ideas. These ideas demonstrate that some of the currently proposed policies are flawed and may have an effect opposite of what is intended.

Here are some policy implications of our observations.

1. Proposals to impose market discipline on banks by limiting deposit insurance or requiring banks to have uninsured subordinated short-term debt are bad policy. These proposals would be ineffective in changing bank behavior and would destabilize banks, thus reducing the effectiveness of deposit insurance in preventing runs.
2. Banks should be prevented from using insured deposits to fund entry into new lines of business, such as investing in real estate or underwriting equity issues, that are characterized by risk taking and not primarily by creation of liquidity. Permitting unlimited entry into these lines of business undermines the viability of deposit insurance, which is perhaps our only effective tool for preventing bank runs.

3. Proposals to move toward 100% reserve banking would prevent banks from fulfilling their primary function of creating liquidity. Since banks are an important part of the infrastructure in the economy, this is at best a risky move and at worst could reduce stability because new firms that move in to fill the vacuum left by banks may inherit the problem of runs.
4. Deposit insurance premiums should be based on the riskiness of the bank's loan portfolio to the extent that the riskiness can be observed. While this policy cannot prevent banks from taking on too much risk, it could reduce the incentive to do so. For example, the deposit insurance premium should be increased for banks with many nonperforming loans, banks that have previously underestimated loan losses, and banks paying markedly above-market stated rates to raise money.

These are some of our main policy conclusions; other comments appear throughout the paper.

To understand the services provided by banks, it is useful to start with a typical bank's accounting balance sheet. We will take a simplified view of the balance sheet so that we can understand bank services at a basic level.[2] Deposits are the bank's principal liability. A few banks (primarily large money market banks) also have a significant net liability to other banks in federal funds ("fed funds"). (The fed funds market is the market in overnight loans between banks.) The other main entry on the liability side of the balance sheet is owners' equity.

Loans are the bank's principal asset. Almost all banks, except a few of the largest (the money market banks that are net borrowers), also lend money to other banks through the fed funds market.[3] Reserves, namely, vault cash and non-interest-bearing deposits, are another important entry on the asset side of bank balance sheets.

The main functions of banks can be described in terms of the balance sheet items described above. Asset services are provided to the "issuers" of bank assets (the borrowers); these services include evaluating, granting, and monitoring loans. Liability services are provided to the "holders" of bank liabilities (the depositors); these services include holding deposits, clearing transactions, maintaining an inventory of currency, and service flows arising from conventions that certain

2. One important part of the bank we are ignoring is the government securities portfolio. Currently, such a portfolio can and should be financed using repurchase agreements (repos) and other sources of funds not treated like deposits (i.e., not requiring reserves [see Stigum 1983]).

3. As an aside, the existence of the fed funds market calls into question the self-serving arguments of small banks that the entry of large out-of-state banks into their markets would cause funds to flow out of the community.

liabilities are acceptable as payments for goods. Transformation services require no explicit service provision to borrowers or depositors but instead involve providing the depositors with a pattern of returns that is different from (and preferable to) what depositors could obtain by holding the assets directly and trading them in a competitive exchange market. Explicitly, this means the conversion of illiquid loans into liquid deposits or, more generally, the creation of liquidity.

The fed funds market is the market for liquid funds within the banking industry. Generally small "deposit-rich" banks have more funds than are demanded by their customers, and the excess funds are lent to the generally large "deposit-poor" banks. The large banks lend out the money they borrow. Since the loans of large banks are illiquid and the fed funds they borrow are liquid (they can be converted to cash at full value on one day's notice), the large banks are performing the transformation service. In this operation the small banks are not performing a transformation service since they are "converting" liquid loans (in fed funds) into liquid deposits. The price of liquidity in the banking industry is reflected in the interest rate in the fed funds market. While the fed funds market is effective in facilitating the sharing of liquidity within the banking industry, it is important to recognize its limitations. In particular, the fed funds market cannot absorb economy-wide risk or provide insurance for banks whose fundamental soundness is in question.

In Section II we give our own admittedly biased perspective on some of the important ideas in the existing academic literature on the banking industry, with a discussion of some of the more obvious policy implications of the ideas. In Section III we use these ideas to give a detailed examination of two policy proposals (100% reserve banking and using market discipline on large incompletely insured deposits or subordinated short-term debt). We conclude that both proposals are dangerous. Section IV closes the paper.

II. Synthesis of Banking Theory and Policy

Asset Services

Existing models of asset services focus on the role of banks' information gathering in the lending process. What is particularly important is information that cannot easily be made public.[4] This includes both information gathered while evaluating the loan (to limit adverse selection) and information gathered in monitoring the borrower after a loan

4. The ideas discussed in the text conform most nearly with Diamond (1984). Several papers extend this approach under alternative private information structures, and we draw on some of these results as well. See Ramakrishnan and Thakor (1984) and Boyd and Prescott (1985).

is made (to limit moral hazard). In these models, getting a loan from a bank dominates a public debt offering when the cost to the public of evaluating and monitoring the borrower is high. Getting a loan from a bank dominates borrowing from an individual because bank lending can keep both risk-sharing (diversification) costs and information (evaluation and monitoring) costs low.

If there were many small investors, there would be duplication (and free riding) in the gathering of information, and there would be insufficient monitoring to uphold the value of the loan. The centralization of ownership and information collection to a diversified financial intermediary provides a real service, and because of the private information, the intermediary assets are "special" in the sense that they are not traded in markets and are thus illiquid. One interesting result of the analysis is that, because the intermediary's information is private, the provision of incentives for a bank implies that the claims (deposits) outsiders hold on the bank optimally do not depend on the bank's private information about performance of the loan portfolio since the bank cannot credibly be expected to be unbiased in their reporting of such information. This precludes the possibility of an equity-like contract when the bank itself is "making the market" in its own asset, which it must do when part of what the bank is providing is liquidity.[5] Therefore this theory can be used to provide one possible link between asset services and the liability side.

In deciding how to regulate banks, it is important to consider the effect on the provision of asset services. In other words, we want to choose a regulatory policy that will give banks the incentive to give loans to profitable projects, to deny loans to unprofitable projects, and to perform the optimal level of monitoring. (We should also be concerned about the effect on competition and the pricing of the asset services. We will not focus on this issue.) For example, if a bank's liabilities are deposits insured with fixed-rate Federal Deposit Insurance Corporation (FDIC) deposit insurance, it is well-known that the bank may have an incentive to select very risky assets since the deposit insurers bear the brunt of downside risk but the bank owners get the benefit of the upside risk.[6] Since fixed-rate insurance is necessarily underpriced for banks taking large enough risks, banks can have an incentive to pay above-market rates of return to attract large quantities of deposits to scale up their investment in risky assets. If there were no regulation, much of the risk in the entire economy would be transferred to the government via deposit insurance. (Why should the government

5. Loans to firms with credit ratings near AAA involve few asset services, and in fact there are active secondary markets for such loans. In this section we refer to the monitoring of loans to firms with lower credit ratings.

6. This point is made forcefully by Kareken and Wallace (1978). See also Dothan and Williams (1980).

insure deposits at all? We will address this question in the section on transformation services.)

There are many potential solutions to the problem of banks granting loans that are too risky. These solutions run parallel to private-sector solutions to similar moral hazard problems.[7] If there is a good reason for the government to be in the deposit insurance business, there is a good reason for its regulators to be just as active as their private-sector counterparts. One solution is to impose restrictions on what banks can do. This solution is essentially like restrictive covenants included in bond contracts. Another solution is to make the insurance premiums variable, just as insurance companies charge lower health insurance premiums to nonsmokers than to smokers and lower auto insurance premiums to people who have had no accidents. A third solution is to monitor the banks continually and to make suggestions on how to reduce risk, just as insurance companies do for commerical fire and accident insurance. These three solutions are closely related, and we see no compelling reason to pick only one approach. Another private sector solution is the threat of loss of business due to loss of reputation. This solution is inconsistent with fixed-rate deposit insurance since deposit insurance ensures that even banks with unsound loan portfolios can raise deposits, and the fixed rate means that not even the deposit insurance costs can rise.

The riskiness of loan portfolios is a critical issue. Most of the recent bank failures were related, in part, to banks holding risky loans that went into default. Furthermore, many of the banks were actively and rapidly expanding their deposit bases to finance the risky loans. In principle bank failures may seem no worse than other business failures, but in fact bank failures can do substantial damage in terms of interrupting profitable investment by bank customers. In dealing with the riskiness of loan portfolios, bank regulators have focused on restrictions on bank behavior and careful monitoring of banks but have been resistant to introducing a risk adjustment to deposit insurance premiums. There are several practical reasons why risk-sensitive insurance premiums would be difficult to implement, especially for government. It is hard to get good information about the quality of those bank loans for which there is no secondary market, let alone objective information that could justify a governmental policy choice.[8] In spite of

7. For an illuminating discussion of the lessons about proper bank regulation that one can learn by examining how credit contracts are written and enforced in the private sector, see Black, Miller, and Posner (1978).

8. Since a government agency is legally required to be concerned about fairness, it can have only minimal discretion over apparently healthy banks and must rely instead on objective information. In addition, it is doubtful that the government could reliably collect large amounts of subjective information. A private deposit insurance company would not be so constrained from using discretion and subjective ex ante information but would leave the banks subject to runs if it lost its credibility, unless itself insured by the government.

these practical problems, some movement in the direction of risk-adjusted insurance premiums (and other aspects of regulation) based on objective information, while not a cure-all, would improve the incentive structure.

One example of objective information that would be useful in regulation or insurance pricing is the interest rates paid on deposits, particularly if the rates exceed Treasury security rates for a given maturity. There is even a good case to be made for limiting interest payments to the level of Treasury securities since insured deposits are almost Treasury securities themselves, with an additional convenience service flow. Another potentially useful variable is the interest rate charged on loans. In each case, high rates are indicative of high risk, although they might also be consequences of high costs associated with a given loan or deposit or of rents. Since it is difficult to penalize banks who do poorly ex post (because their resources are already depleted), these ex ante variables have some promise in controlling risk. These schemes will require careful execution, as the true interest rate may be hard to observe because of tie-in sales of other bank services: recall all the creative techniques (e.g., giveaways and compensating balance requirements) used by banks to circumvent loan and deposit interest rate ceilings in the last decade.

The riskiness of bank assets is the crucial issue in another policy question, namely, whether banks should be allowed into other lines of business. One argument in favor of such a move is that, since other institutions are going into some bank lines (especially in transaction clearing), it is only fair for banks to be admitted into their lines. Currently, there is pressure and some movement toward allowing banks to enter such lines of business as underwriting stock issues and speculating in real estate. The problem is that all these lines of business give the bank opportunities to use insured deposits to take on large amounts of risk that is not easily observed and to circumvent any of the policies to limit risk discussed above. Therefore deposit insurance ends up insuring risky lines of business unrelated to the bank's primary functions. While it is difficult to insulate deposits and the deposit insurance fund from the risks of holding company subsidiaries, this must be done if entry into new and risky lines of business is to be allowed.

Liability Services

The clearing of transactions and the holding of currency inventories are the most important bank services associated with the liability side of the balance sheet. Traditionally, macroeconomists have focused on liability services because of the linkage between demand deposits and the money supply.[9] Money market funds, brokers' asset management

9. For example, the monetary approach of Fisher (1911) assumes that bank assets are not any different than traded assets, but bank liabilities are special because they serve as

accounts, and credit cards have competed more or less directly with the banks in the market for provision of secure and liquid stores of funds and in the market for clearing transactions. These changes in the payments technology have weakened the link between the money supply and bank deposits. This fact has two types of implications for macroeconomics. One is that banks need not be so important to macroeconomics as they were before since close substitutes exist in the provision of payment and other liability services. The other (antithetical) implication is a potential policy goal of trying to repair the money supply linkage by tightening bank regulation and keeping nonbanks out of the liability service businesses.

The important observation is that, even if banks were no longer needed for liability services and if they were constrained from performing their role in controlling the money supply, then important policy questions concerning banks would still arise since banks provide other important services. In other words, the banking system is an important part of the infrastructure in our economy.

Transformation Services

Converting illiquid assets into liquid assets is the bank service associated with both sides of the balance sheet. This transformation service is the most subtle and probably the most important function of banks. It is hard to model and understand transformation services because we cannot simplify our analysis by looking at one side of the balance sheet in isolation. Conversion of illiquid claims into liquid claims is related to, but not the same as, the "law of large numbers" property of averaging out the withdrawals of large numbers of individual depositors, allowing the transfer of ownership without transferring the loan-monitoring task.[10] It is also related to the fact that risk sharing can be improved if we allow such withdrawals at prices different from what would arise with a competitive secondary market in claims on the bank.

The recent literature on transformation services shows that there is an intimate relation among improving risk sharing, fixed claim depos-

money. We can also think of intermediary liabilities as imperfect substitutes for monetary assets. See Gurley and Shaw (1960), Tobin (1963), Tobin and Brainard (1963), and Fama (1980).

10. One can think of publicly owned corporations as providing this "law of large numbers" service by holding illiquid physical capital. The important distinction with banks is that bank assets are similarly illiquid, yet their composition can be changed quickly relative to the physical capital of a nonfinancial corporation. Ability to change asset composition quickly explains the larger moral hazard problem faced by banks. This argument applies equally to many other financial institutions: the ability to change the composition of assets quickly and secretly was definitely a factor in many recent failures of government security dealers.

its, and bank runs.[11] Specifically, this literature shows that bank runs can be a consequence of rational behavior by depositors and that runs can occur even in a healthy bank. All that is required to make a run possible is that the liquidation value of the loan portfolio is less than the value of the liquid deposits. This is precisely what is needed if banks are to provide liquidity since the value of liquidity is in the ability to cash in one's assets early without sacrificing too much value. Socially, we can view the value of liquidity as an improvement in risk sharing—the increased flexibility favors the people who are worst off, namely, those who have an urgent need to withdraw their funds before the assets mature.

The newly demonstrated tie between the creation of liquidity and bank runs is in contrast to traditional theory. By definition, bank runs are caused by depositors trying to get out to avoid a loss of capital. Under the traditional theory, runs are set off by expectations of reduced value of the bank assets, which might happen, for example, when deposits and loans are fixed nominal claims and when unanticipated deflation causes higher than expected loan losses. Higher loan losses lead to more bank failures and decrease the money supply, adding to unanticipated deflation. This cycle feeds on itself if the monetary authority does not react appropriately.[12] This traditional theory may be an important component of runs, but its validity as a complete description of runs appears to be contradicted by recent empirical evidence from the Great Depression.[13] It also does not explain the existence of fixed short-term nominal claims in the first place: slightly more complicated claims could avert runs and improve efficiency of risk sharing at the same time.

The recent literature on transformation services shows that the existence of bank runs does not require any loss in value of the underlying assets. Even without exogenous fluctuations in the real or nominal value of bank assets, runs can occur since the cost of liquidating assets can make a run self-fulfilling. If there are other reasons for runs (such as exogenously risky assets and fixed debt liabilities), providing transformation services implies that such runs have social costs. Given the obvious importance of these other reasons for runs, policies to avoid or minimize the costs of runs are worth considering.

The theoretical literature focuses on several closely related solutions to bank runs, all of which have been used in practice. Deposit insurance, lending from the government to cover large withdrawals (the

11. Our discussion of transformation services is based on Diamond and Dybvig (1983) and important extensions by Jacklin (1983*a*, 1983*b*) and Haubrich (1985). For a somewhat different viewpoint, see Bryant (1980).

12. For the deflation description of runs, see Fisher (1911), and for a description of the consequent monetary problems, Friedman and Schwartz (1963).

13. See Bernanke 1983.

"discount window"), and suspension of convertibility of deposits into currency are three ways to stop or avert runs. In each case, the solution removes the incentives for the depositors to take out their funds. Deposit insurance ensures that depositors will be made whole even if there is a run; the discount window and the suspension of convertibility both ensure that the loan portfolio need not be liquidated at unfavorable terms. Each of the solutions, if doubted, could again lead to a run. Suspension of convertibility provides only temporary relief, not a solution to runs, unless there is a credible commitment to tie up depositors' assets for an unreasonably long time (until the bank's assets mature). In the recent runs on Ohio savings and loans, depositors ran on banks because they lost confidence in the ability of a private deposit insurer to pay off on deposit insurance claims. Similarly, if the fed does not have a firm commitment to lend at the discount window, then there could be a run if depositors doubted the fed's intention to lend funds, as could plausibly be the case on discovery (or rumor) of negligence by bank managers. On a related note, one aspect of the Continental Illinois failure exhibited the worst of both worlds: the government paid off all the large deposits, but since they did not credibly promise to do so in advance, they did not prevent a run. In other words, they incurred the expense of deposit insurance without the benefits.

To summarize, the recent literature suggests several important ideas that should be considered when evaluating any policy proposal for the banking industry.

1. Banks are subject to runs because of the transformation services they offer.
2. Bank runs do real damage because of the interruption of profitable investments.
3. Federally sponsored deposit insurance has been the most (the only?) effective device for preventing runs. Privately provided insurance and the discount window have not been credible sources of confidence to depositors. Suspension of convertibility interrupts bank services and only defers the problem until banks reopen.
4. Banking policy must preserve the basic function of banks, that is, the creation of liquidity. In particular, any device to prevent runs must not simultaneously prevent banks from producing liquidity.
5. The bank-run problem is exacerbated when banks can take on arbitrarily risky projects. Given deposit insurance (or the discount window or suspension of convertibility), it is important to keep banks out of risky outside businesses.

III. Existing Proposals for Reform

In Section II we discussed some basic ideas from the economic literature on banking and some policy implications of those ideas. In this

section we use the same ideas to give a more detailed analysis of two particular policy proposals. See Kareken (in this issue) for some opposing views on these proposals.

One Hundred Percent Reserve Banking

One proposal is to impose a 100% reserve requirement, that is, a requirement that intermediaries offering demand deposits can hold only liquid government claims or securities, for example, Treasury bills or Federal Reserve Bank deposits (which might pay interest). This proposal specifically restricts banks from entering the transformation business (they cannot hold illiquid assets to transform into liquid assets), and therefore the proposal precludes banks from performing their distinguishing function. If successful, this policy would remove the purely monetary causes of bank runs by limiting banks to performing liability services. The net effect of such a policy is to divide the banking industry into two parts. The regulated part of the industry would still be called banks but would be effectively limited to providing liability side services. The other part of the industry would be an unregulated industry of creative firms exploiting demand for the transformation services previously provided by banks but that banks could no longer supply under 100% reserves. Even if banks would still be viable without the rents to providing the transformation service, the proposal would just pass along the instability problem to their successors in the intermediary business. The instability problem arises from the financing of illiquid assets with short-term fixed claims (which need not be monetary or demand deposits).[14] Existing open-end mutual funds (and especially money market funds) are essentially 100% reserve banks. They issue readily cashable liquid claims, but, unlike existing banks, they hold liquid assets, as would 100% reserve banks. The mutual fund claims are cashable at a well-defined net asset value. They provide the "law of large numbers" service, and to some extent they provide transaction clearing services.[15] Given the success and stability of mutual funds, it is tempting to conclude incorrectly that they would be a good substitute for banks. Of course, this incorrect conclusion ignores the value of the transformation services (creation of liquidity) provided by banks.[16]

If banks adopted this structure, who would hold the illiquid assets (loans) currently held by banks? If some other type of intermediary

14. Recall that the run on Continental Bank involved uninsured short maturity time deposits.

15. Net asset value is essentially the liquidating value of assets, so they should not be subject to runs. The few runs on mutual funds have occurred because of a failure to adjust net asset value to reflect true market value.

16. Or this conclusion could be based on an assumption that there would be enough liquidity in the economy even without banks. This assumption seems unlikely to be valid, and in any case it would be reckless to base an extreme policy change like 100% reserve banking on this sort of unsupported assumption.

provides transformation services, the other intermediary would be subject to the same instability problems as banks. If the replacement intermediary provided no transformation services, it might resemble current venture capital firms. Venture capital firms hold very illiquid assets and have liabilities that are equally illiquid, namely, equity claims and long-term (private placement) debt. There is insufficient information about asset value for a liquid, open-ended structure. Similarly, the replacement intermediaries who hold current the illiquid assets of banks will offer illiquid claims unless they perform the transformation service.

Commercial banks are an important part of the economy's infrastructure. A drastic change like 100% reserve banking would affect even borrowers who currently do not appear to be dependent on banks for liquidity. For example, almost all corporations issuing commercial paper to raise short-term cash obtain backup lines of credit from banks. The line of credit gives the corporations an emergency source of funds to circumvent a potential liquidity crisis that could prevent them from rolling over their commercial paper. If the replacement intermediaries did not take on fixed claims, such as lines of credit, the workings and liquidity of the commercial paper market could be changed profoundly. Firms that issue substantial quantities of commercial paper would be subject to runs (liquidity crises) when they tried to roll it over. Similarly, existing money market funds themselves use banks as sources of liquidity: their assets often include large quantities of bank certificates of deposit (CDs).

Offering binding lines of credit that are not fully collateralized by the liquidation value of assets is one way of providing the transformation service "through the back door" since, from the customer's perspective, holding illiquid assets but having access to a binding line of credit is functionally equivalent to holding liquid assets like demand deposits. Just like banks, providers of this transformation service are subject to runs: the holders of lines of credit may draw down their lines in anticipation if they believe others will do the same.

In conclusion, 100% reserve banking is a dangerous proposal that would do substantial damage to the economy by reducing the overall amount of liquidity. Furthermore, the proposal is likely to be ineffective in increasing stability since it will be impossible to control the institutions that will enter in the vacuum left when banks can no longer create liquidity. Fortunately, the political realities make it unlikely that this radical and imprudent proposal will be adopted.

Competitive Discipline: Subordinated Short-Term Debt or Limiting Deposit Insurance

A requirement that banks issue some minimum fraction of their liabilities as uninsured short-term debt is essentially a requirement that

some "deposits" be uninsured. This is similar to setting some upper limit on deposit insurance. The argument given in favor of this proposal is related to the usual one for using deductibles in insurance. The more risk the bank pays for (from facing market pricing of its deposits), the more concerned it will be with efficient risk choice and cost minimization. An implicit assumption is that less deposit insurance leads to less risk to the deposit insurance fund and only a little more risk to the bank. Because the owner of a deposit faces a very low cost of withdrawal, even a small chance of a loss can cause a run because the uninsured deposits are junior to the insured deposits. If the fraction of uninsured short-term deposits is large, such a run will be costly. In addition, as recent experience has demonstrated, the government has a hard time leaving claims on large banks uninsured, ex post. Explicitly insuring such deposits can reduce the cost of a run. If the amount of deposit insurance is to be varied, there is a much stronger case for 100% deposit insurance than for limiting insurance, especially if the alternative is for regulators to retain their discretion to in fact insure most "uninsured deposits."

Requiring banks to issue some minimum quantity of uninsured claims is a good idea, but the requirement ought to be to issue long-term claims, such as equity or long-term debt. Even the usefulness of long-term debt is in question given current law, as illustrated by the way many long-term debt holders in Continental Bank's holding company are being paid off in full, due to regulator's need to avoid encumbering lawsuits.

IV. Summary and Conclusions

In summary, banks perform valuable services. Any complete bank policy has to prevent costly bank runs while allowing banks to continue provision of their various services. The transformation service of creating liquidity seems to be provided almost exclusively by banks, and, consequently, it is particularly important to preserve the ability of banks to create liquidity. Deposit insurance is the only known effective measure to prevent runs without preventing banks from creating liquidity, and, consequently, bank policy issues should be considered in the context of deposit insurance. With deposit insurance in place, banks no longer bear the downside risk of their positions since the deposit insurer bears that risk. Consequently, there are natural incentives for banks to take on too much risk, and bank policy should be designed to counteract those incentives.

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