

How Should Financial Institutions and Markets Be Structured?

Analysis and Options for Financial System Design

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The structure of a nation's financial markets and institutions is widely considered to be of greater policy importance than structures in other sectors of the economy for a number of reasons. Financial institutions and, in particular banks, encourage, collect, and transfer the savings necessary to finance the nation's economic growth. In addition to marshaling

savings, banks and other financial institutions are an integral part of the monitoring of private enterprises and, to varying degrees, the system of corporate governance that affect the productivity of resources in the economy. Numerous studies have provided evidence that the degree of development and efficiency of the banking system is a key contributor to overall economic growth (e.g., King and Levine 1993, Levine 1996, and Jayaratne and Strahan 1996). These institutions also play a fundamental role in the transmission of the government's (or central bank's) monetary and credit policies to the rest of the economy through both their deposit and lending activities and their role in the nation's payments system.

Because banks have a unique financial structure and a central place in the economy, however, problems at banking and financial institutions are widely believed to be more likely to spread quickly throughout the financial sector and then broadly throughout other sectors and the macroeconomy as a whole. To maintain stability and to mitigate potential adverse spillovers, virtually all governments have placed a regulatory safety net under banks, either implicitly or explicitly. Such regulation, however, has not prevented, and may even have exacerbated, financial fragility. A recent survey, for example, found that 131 of the 181 IMF member countries reported some form of serious banking problems or failures in recent years (Lindgren, Garcia and Saal 1996). The costs of many of these crises has been substantial. As a percent of GDP, the estimated costs to governments of resolving the bank failures ranges from more than 40 percent in Argentina (in the early 1980s) and Chile; between 20 and 40 percent in Israel and Uruguay; between 10 and 20 percent in Argentina (late 1980s), Bulgaria, Mexico, Spain, and Venezuela; and 2.5 percent in the U.S. (Rojas-Suarez and Weisbrod 1996, Lindgren, Garcia, and Saal 1996, and Caprio and Klingebiel 1996).

Both high performance and stability thus are viewed as particularly important in the financial sector. This paper analyzes the impact that alternative organizational structures of financial institutions have on achieving these goals. The first section describes the broad objectives of efficiency and stability in financial system design and considers the challenges posed by the special structure of banks and the financial system. The next section evaluates the effectiveness of different organizational forms of banks -- from *Anarrow@* to *Auniversal@* banks -- in achieving the goals of the financial system.

In section three, we analyze the consequences (both economic and political) of the interaction between alternative safety net regulations and alternative banking structures for efficiency and stability. In the final section we present our recommendations. Because financial institution structure evolves dynamically with the overall economic and legal system, we do not conclude with a *Aone size fits all@* option for all countries but rather with a framework for understanding the effects of the alternative structures in countries with different economic, regulatory, and political characteristics.

I. OBJECTIVES OF THE FINANCIAL SYSTEM AND THE SPECIAL FINANCIAL STRUCTURE OF BANKS

The design of financial institutions cannot be considered in isolation from the context in which these institutions will operate. The "optimal" structure in a country depends on a rich variety of factors including the development of financial markets in that country, the system of corporate law and governance, the system of contract enforcement and bankruptcy, the regulatory setting, and the susceptibility of the economy to domestic and international monetary and fiscal shocks. Financial structures are dynamic and evolve through time, interacting with the above factors and both shaping and being shaped by them. The key to financial system design is to understand the goals of the economy as a whole and to explore how different combinations of pieces of the system can best achieve those goals.

The primary role of the financial sector is to bring together savers and borrowers in order to allocate capital to its most productive uses and, in the process, maximize the risk-adjusted returns to savers. Financial markets may transfer funds directly between the two parties through, for example, the stock and bond markets. Financial intermediaries, however, play the important role of interposing themselves between the savers and borrowers to transform one security into another, for example, a demand deposit into a longer-term mortgage loan. This transformation helps to increase the efficiency of the flow of funds for investment. Rather than make decisions individually about which projects to invest in directly, savers can use financial intermediaries as delegated monitors who specialize in analyzing expected returns from various projects (e.g., Diamond 1984). These intermediaries typically enjoy scale and scope economies in investment analysis, information processing, and risk diversification, so that it is efficient for many individual savers to pool their resources in intermediaries than to invest on their own.

As with any sector of the economy, the more efficient is the structural organization of the industry, the greater is the contribution of the sector to overall economic welfare. Free competition is traditionally the most effective means of achieving efficiency.¹ Competition among financial institutions and capital markets should provide the incentives for financial

¹This is true unless strong economies of scale in production lead to *Anatural@* monopoly, but scale economies in banking appear to be very weak after banks achieve a relatively small size (see Humphrey 1992) and Saunders and walter 1994).

entrepreneurs and engineers to develop the most efficient organization of institutions and markets. In most countries, however, the financial sector, particularly banking, is heavily regulated. As a result, regulation, rather than competition, often determines the products and services banks may offer, the types of assets and liabilities that banks may hold, the legal structure of the banking corporation, the extent of control of non-financial firms by banks and of banks by non-financial firms, and, in some countries, even the number and geographical locations of banks' offices.

One of the key rationales generally given for not allowing unregulated competition in financial services, and thus not allowing the standard method of achieving the goal of efficiency in this sector, is a concern for economic and financial stability. In an undistorted system, private owners of firms have the appropriate incentives to choose the financial structure that permits the (privately) "optimal" amount of stability. The owners and managers of the firm decide the degree of risk of loss they will tolerate for a given expected level of return. The optimal amount of stability in any industry including the financial system does not imply no failures or closures. Any healthy and dynamic competitive sector will have firms entering and leaving the industry. Competition ensures efficiency precisely through a winnowing process that eliminates firms that have poor management or experience bad luck.

Stability in the financial sector, however, is widely perceived to be a distinct public concern because of a fear that the owners of individual institutions will not take into account the possibility that a failure of one institution might cause failures elsewhere. Such linkages could lead to a system-wide financial panic or "meltdown," which in turn might cause a broader macroeconomic decline. Bank owners may not take this adverse externality into account in pricing risk and determining the appropriate amount of private capital to invest. The socially optimal capital ratio thus may be greater than the privately optimal one. Since the benefits of system-wide stability accrue to all economic agents, not just the banks, it may not be appropriate to have only the bank shareholders bear its cost. This potential negative externality provides the justification for government intervention.

Financial institutions, particularly banks, are viewed as more fragile than other firms. This perception is due mainly to two features of a typical bank's financial structure. First, banks and financial institutions tend to be highly leveraged, that is, they have a low capital to assets ratio compared with nonfinancial firms. Consequently, they have a relatively smaller cushion against insolvency than do nonfinancial firms. Second, they typically hold a low ratio of liquid assets relative to their highly liquid liabilities. By providing demand and other short-term deposits on a fractional reserve basis, banks have a much greater liquidity and duration mismatch between assets and liabilities than do nonfinancial firms. This mismatch makes banks particularly sensitive to abrupt large withdrawals of funds (bank runs) that cannot be met in full and on time by the banks' cash holdings and thus may require the hurried sale of earning assets. To the extent that these assets are not traded in highly liquid markets, the banks may suffer fire-sale losses that may exceed their small capital base and drive them into economic insolvency. The duration mismatch also exposes banks to interest rate risk so that abrupt changes in interest rates can induce (realized and unrealized) losses that can quickly exceed their capital.

Not only are banks thought to be fragile individually, but the banking system is seen as particularly fragile due to the close interconnectedness of banks through interbank deposits and lending. Losses at any one bank may thus produce losses at other banks, which can cascade throughout the banking system. Moreover, if depositors are unable to differentiate among the financial health of individual banks, troubles at one or a few institutions could spread quickly throughout the system as uninformed depositors withdraw funds indiscriminately from depository institutions regardless of their financial fundamentals. In the absence of offsetting actions by the central bank (and for smaller, open economies a decline in the exchange rate), such runs from deposits at domestic banks into either currency (or for smaller, open economies into foreign currency deposits abroad) will worsen fire-sale losses, increase the number of bank failures, and cause a multiple contraction of money and credit and macroeconomic instability. In addition, the loss of the banks' information and monitoring services could make it more difficult for firms to re-establish lending relationships, thereby slowing recovery (e.g., Bernanke 1983).

Concerns about the fragility of banks and the banking system in the absence of a government safety net, however, may be overstated. First, bank failures become potentially contagious only if losses exceed a bank's capital by enough to produce losses at creditor banks that exceed their capital and, in turn, force them into insolvency and so on down the chain. If losses associated with individual insolvencies could be minimized, the likelihood of contagion or systemic risk would be greatly reduced. As we discuss below, delays which have permitted financial institutions to become deeply insolvent before closure are primarily due to regulatory, not market, failure (e.g., see Benston and Kaufman 1995, Garcia 1996, Kane 1989, Kaufman 1995, and Kroszner and Strahan 1996).

Second, prior to the introduction of the lender of last resort in the US, the failure rate of banks was actually lower than that of non-financial firms, and losses to depositors and other bank creditors were lower than for creditors of non-financial firms (Kaufman 1996a). In addition, U.S. banks held higher capital to asset ratios prior to safety net regulations. Recent international experiences suggest that banks substitute government deposit insurance or public capital for private capital

(Peltzman 1970, Garcia 1996, and Kroszner and Strahan 1996). Again, the safety net may have had the unintended consequence of making banks more, not less fragile.

Third, Baer and Klingebiel (1995) examine in detail five historical episodes in developing and developed countries and find little or no evidence of an adverse macroeconomic impact from imposing losses on depositors at insolvent institutions when this was done as part of a comprehensive government program in which only economically solvent and well-capitalized institutions are permitted to remain in operation.

II. ALTERNATIVE BANKING STRUCTURES: MEETING THE OBJECTIVES

Although evidence of "market failure" in banking is unclear, stability and efficiency may be taken as the key objectives of financial institution design. This section describes alternative structures and evaluates how well they achieve these broad objectives by focusing on how the different structures fulfill more specific goals.

Alternative bank structures form a continuum, ranging from "narrow banks" to broad "universal banks" (see Cowen and Kroszner 1990 and 1994, Kroszner 1996a, and Kroszner and Rajan 1994 and 1996). In a narrow bank, the assets of the bank are strictly circumscribed, usually to no or very low credit risk, short-term, and highly liquid investments. In most versions, narrow banks are prohibited from making commercial and industrial loans or mortgage loans. Finance companies or other nondepository institutions, perhaps even in the same holding company as the narrow bank, would then make such loans. Narrow banks would provide demand deposits, participate in the payments system, hold high-grade short-term instruments, but not themselves be involved in any other aspect of financial services.²

At the other end of the spectrum, universal banks are full financial supermarkets that offer a wide range of financial services, including providing both demand and time deposits, lending to all types of borrowers for all or any type of purpose, underwriting and trading securities, and providing insurance, brokerage, and trust services. Universal banks might own and operate nonfinancial firms and may in turn be owned by nonfinancial firms. With this structure, there is little distinction between "banking" and "commerce." Banking structures in most countries range between these two extremes. No country, for example, restricts banks to only high quality, short-term assets. Among the OECD countries, the narrowest banks would tend to be found in the U.S. and the broadest banks in Germany and Switzerland.

Each form of banking structure has its advantages and disadvantages with respect to satisfying the objectives of efficiency and stability in the financial system (e.g., Steinherr 1996). Each of these broad goals has numerous components, which we now consider in turn. The relationship between the structure of banking and the different financial sector objectives is summarized in Table 1.

Stability and Fragility: In principle, narrow banking proposals are designed to minimize the sources of the perceived fragility of banks and the banking system discussed above. First, by requiring that the assets be highly liquid, the problem of liquidity mismatch and the attendant concerns about having to sell assets at fire-sale prices largely disappear. Second, by restricting banks to only high credit quality debt of short duration, potential losses associated with credit and interest-rate risk are largely eliminated. The high leverage of banks, thus, poses little problem since there would not be much need for a solvency cushion when the assets are low risk. Finally, given the asset and liability restrictions, there would be little reason to shift funds among the banks. With only limited losses and little interbank lending and deposits, problems at one institution thus are unlikely to cause problems at others.

In practice, however, a narrow banking regime may not enhance financial stability. Because narrow banks by definition cannot accommodate all of the demands for traditional banking services, provision of the unmet needs will be shifted to other institutions that may be independent firms or affiliates of the narrow banks through common ownership, e.g. holding companies. These entities may be at least as risky as traditional banks and their insolvency could involve similar negative externality problems. In addition, given the asset restrictions, narrow banks are likely to be able to afford to pay only very low interest rates on deposits. Other intermediaries will have an incentive to issue deposit-like liabilities offering higher returns which, if widely accepted, would leave few funds in the narrow banks. Safely-backed deposits then might constitute a very small part of the system. Risk is not eliminated but simply shifted to other institutions. If there is a concern about the stability of the issuers of close substitutes for deposits, a complex regulatory framework may be required to monitor

²Narrow banks, however, should not be confused with specialized banks, such as savings and loan associations in the U.S., that also face asset and liability restrictions but may assume substantial credit or interest rate risk.

the non-bank competitors of the narrow banks, even though supervision of the narrow banks themselves would be relatively straightforward.

Universal banks would be allowed to have much riskier assets on their balance sheets and be involved in much riskier activities than would narrow banks; however, this does not imply that broader banks are necessarily less stable than narrower ones. The overall risk of an institution is determined not only by the riskiness of its individual permissible activities, but by the covariances or interrelationships among these activities. Additional powers can facilitate diversification that may lower an institution's riskiness. On the other hand, universal banks are closely interconnected to the rest of the financial system and to individual firms, so the potential concerns about externalities may be greater than in narrow banks.

The historical evidence in the U.S. before the Glass-Steagall Act forbade commercial banks from underwriting private securities suggests that banks engaged in a broad range of securities activities had lower variance in their cash flows, lower likelihood of failure, and higher capital ratios than did banks which chose not to be involved in the securities markets (White 1986). More recently, simulations of the variance of cash flows and probability of failure for combinations of commercial banks, investment banks, insurance companies, and other financial firms has given less clear-cut results (Boyd and Graham 1993, Saunders and Walter 1994, Benston and Kaufman 1995b). Current international experiences also provide a mixed picture. Countries such as Germany and Switzerland, which have long had broad universal banks, have had very little banking instability. In contrast, Spain, which also had permitted banks to have broad powers, has experienced serious banking problems. As we discuss in detail in section III, instability and depositor losses may have more to do with the safety net regulations and bank closure procedures in a country than the structure of the banks.

Economies of Scope: Narrow banks by their nature are denied the opportunity to take advantage of scope economies in providing a variety of financial services simultaneously. One of the few studies of the costs of separating deposit-taking from lending for U.S. banks estimated that the efficiency losses from narrow banking would be quite small (Pulley and Humphrey 1993). Since no bank in the U.S. (or in other countries) has voluntarily chosen to structure itself this way, however, bankers clearly believe that there is value in providing these services jointly. Even if the costs to the banks themselves were low, there could be efficiency losses to the financial system. This can occur if the borrowers enjoy cost savings from dealing with credible commercial banks or other financial institutions that make loans and monitor them continuously, rather than issue bonds in the public markets (see Billett, Flannery, and Garfinkel 1995, James 1987, Lummer and McConnell 1989, and Preece and Mullineaux 1994).

Universal banks, on the other hand, have the greatest opportunity to realize economies of scope. They may be efficient at providing a basket of financial services most conveniently for customers through Aone stop shopping.@ The close relationships they develop with firms may minimize monitoring costs for both the financial institutions and the firms, thereby making financial intermediation more efficient and reducing credit constraints on firms. Economists, however, have not been able to find strong evidence of the existence of such scope economies in universal banks (e.g., Saunders and Walter 1994).

Competition, Concentration, and Regulatory Capture: Restricting commercial bank powers and fragmenting the financial system generally will result in less concentration in the financial sector. Although this may come at the cost of scale and scope efficiencies discussed above, it may bring the benefit of less likelihood of regulatory Acapture@ by the banks.

Some argue that the German financial system is one of the most protected and least competitive systems in any major developed nation. The universal banks dominate not only banking but, through their relationship with the Bundesbank and the other financial regulators, also appear to have been able to hobble the growth of market for short-term paper as well as the broader equity and debt markets.

A potential silver lining in the Acloud@ of the Glass-Steagall Act, which separates commercial banks from investment banks in the U.S., may be that a rich set of alternative financial services providers and contractual innovations -- from leveraged buy-outs to venture capital firms to markets such as NASDAQ -- has sprung up and flourished, competing with the banks not only in the marketplace but also in the regulatory arena (Kroszner 1996a). In countries with broad banks, financial institutions and markets not controlled by banks tend to be less developed (Prowse 1996). As Table 2 illustrates, German firms obtained 88 percent of their external funding from banks and only 6 percent through bond issues. In contrast, U.S. firms received only 36 percent of their external funding from banks but more than half from bond issues. While regulatory capture is by no means a necessary part of universal banking, there does appear to be a high correlation. Special attention thus should be paid to the connection between the government and the banks in a universal banking regime.

By protecting banks from competition, the regulators may create or help to enforce a cartel among the banks. Such regulation generates a stream of rents for the cartel members. To avoid losing the excess profits stream, banks may choose a lower risk profile, e.g., high capital ratio or safer loans, than in a competitive environment (see Keeley 1990). Protective

regulation, thus, could lead the banks to be more stable, and at least some element of this may account for the stability of the universal banking regimes in Germany and Switzerland. Such stability comes at the cost of monopoly profits and inefficiency in the financial system; however, regulatory capture by large and politically powerful broad banks may increase the likelihood of costly Atoo big to fail@ bailouts of depositors and even share holders.

Political Manipulation: Not only may the banks capture the regulatory system and use it to their own benefit, but politicians and government officials may try to manipulate the financial sector for political ends. One example is the Basle Accord capital standards, which provides risk-weight classifications of bank assets. By defining major countries= central government debt to be riskless, the Accord reduces the capital requirement for government debt, thereby providing a strong incentive for commercial banks to hold it.

Similarly, narrow banks may be subject to manipulation since regulators or legislators determine the definition of "safe" assets that such banks may hold. These decision-makers may be, and frequently are, tempted to define these assets for political and social as well as prudential reasons. Narrow banks thus could become instruments for government credit allocation. Broader banks also may be subject to such manipulation. The government may encourage, explicitly subsidize, or mandate the banks to allocate credit to targeted firms or sectors or to provide services a below-market prices to targeted groups.

Conflicts of Interest: The narrower and more restricted is a bank=s set of activities, the fewer opportunities there are for conflicts of interest to arise. Potential conflicts issue may arise even for narrow banks, however, when such a bank is part of a larger financial conglomerate. A financial system with narrow banks thus does not necessarily minimize potential conflicts.

The diverse activities of universal banks present many potential conflicts of interest. A bank may have an incentive to underwrite a security for a client firm which experiences a negative shock, have the firm use the proceeds to repay its bank loan, but not adequately disclose the information about the firm=s troubles to the public. While possible in theory, historical data from the U.S. demonstrates that broad commercial banks do not appear to have succumbed to such conflicts when they were permitted to engage more fully in securities underwriting (Benston 1990 and Kroszner and Rajan 1994). Competition will lead universal banks to adopt safeguards and structures to minimize conflicts that may arise when the same entity can both make loans to firms and sell securities of those firms to the public. Before the structure of such activities was regulated in the U.S., for example, competitive pressures led banks voluntarily to set up separately incorporated and capitalized subsidiaries for securities underwriting (Kroszner and Rajan 1996). More recently, as the long-protected German financial system has begun to be opened to competition, Deutsche Bank has moved its merchant banking operations out of Frankfurt and into its Morgan Grenfell subsidiary in London.

Another form of potential conflict of interest is the tying of products or services, whereby a bank may require as a condition of a loan, for example, that a borrower purchase another service from it or an affiliated company that the borrower otherwise may not wish to buy or not to buy at the price offered. The ability to force tie-in sales generally can arise only when the bank has some degree of monopoly power in at least one of the product or service markets. If a narrow bank is affiliated with a larger holding company, the potential for forced tie-in sales may not be greatly different than in universal banks.

Corporate Control and Management of Financial Distress: Narrow banks, even ones which can make business loans but which cannot take equity stakes in firms or be directly involved in firm management, may not be able to play a large role in corporate control or in the management of financial distress. In the U.S., for example, it is not only the prohibition against bank equity ownership (except in special situations) but also the interpretation of the bankruptcy statutes that affects the banks= governance role. Due to the legal doctrine of Aequitable subordination,@ banks that become actively involved in the management of a firm trying to avoid bankruptcy will lose the priority of their loans in bankruptcy and have their claims subordinated down to the level of equity holders.

In contrast, Japanese main banks, which may own equity in nonfinancial firms, become actively involved in the working out of a firm experiencing trouble, often sending its own officers to run the company, writing a new business plan, taking a larger equity stake, and negotiating with the firm's other creditors on its behalf (see Sheard 1994). In Germany, directors of universal banks typically sit on the Asupervisory@ boards of the firms in which they have stakes and continuously take part in the management of the firm, becoming especially active when a firm is in financial distress.

When the contract enforcement system, including the bankruptcy laws, are unstable or very costly and slow to use, a universal bank has more flexibility than a narrow bank to ensure repayment. Since a universal bank may own equity and take an active role in the management of the firm, it is more likely to be able to develop an ongoing relationship with the enterprise. Repeat dealing then may be able to substitute at least partially for third party contract enforcement (Klein and

Leffler 1980, Shapiro 1982, and Kroszner and Stratmann 1996). An uncertain or inefficient bankruptcy system can disrupt the intermediation or, for that matter, any lending process. The system of corporate law and bankruptcy affects the role of banks in corporate governance and thus the desirability of different bank structures.³

Monetary Control: The organizational structure of banking also may affect the degree of monetary control enjoyed by the central bank. Monetary policy generally involves changing the quantity of reserves in the banking system, the cash reserve requirement ratio, and/or the rate charged by the central bank for discount loans. In a fractional reserve system, banks can exercise an independent influence on the supply of money and credit through the choice of cash reserves to hold in excess of the required minimum. Changes in excess reserves are mirrored directly in the amount of total assets that a bank invests in earning assets rather than in cash. The ability of banks to change their excess reserves weakens, or at least complicates, the central bank's control over monetary policy.

One way to eliminate the possibility of the banking system's independent influence on monetary policy is to prohibit banks from holding any non-cash assets, that is, require 100 percent reserves (see Simons 1948, Friedman 1960). Every change in the quantity of reserves initiated by the central bank is then reflected in an equal change in bank deposits and the money supply. In addition, the public cannot affect the money supply by changing its choice of holding currency rather than bank deposits. The central bank thus has complete monetary control.

³For an analysis of the appropriate corporate governance system that the banks should adopt for themselves, addressing the question of *Who monitors the monitors?*, see Kroszner (1996b).

One hundred percent reserve banking is an extreme form of narrow banking. In this regime, banks could not hold non-central bank interest-bearing assets. They would simply be warehouses for holding and transferring cash. Such banks would have low costs and low risks -- restricted primarily to operating risks and fraud. Since they can earn little, if any, interest from assets or loans, they would be likely to impose service charges and not pay interest on their deposits in order to earn a competitive return. Such restrictions would lead to a high demand for deposit-substitutes of other institutions and, as noted above, an Aend run@ around the narrow banks that would leave few deposits in them.⁴

To increase the viability of narrow banks, most such proposals allow them to invest in relatively riskless or "safe" earning assets. If banks are permitted to do so, however, they are no longer 100 percent reserve banks because their cash reserves become smaller than their assets. All of the central bank's monetary control problems due to fractional reserve banking return. Once banks are permitted to invest in earning assets of any type, other than cash or reserves at the central bank, the loss of total control by the central bank is independent of the "narrowness" of the banks.

III. INTERACTION OF BANKING AND SAFETY NET STRUCTURES

Effectively all countries have positioned either explicit or implicit safety nets under their banks and, in some instances, under their entire financial system. Although details of the safety net vary from country to country, the nets generally include (explicit or implicit) deposit insurance and lender of last resort facilities by the central bank. In some countries, they also include central bank finality in payments system settlements. In this section, we analyze how moral hazard problems of deposit insurance can be reduced and how this affects alternative banking structures.

While in principle, safety net measures could increase the stability of the system, in practice it has proven difficult to design a safety net that does not undermine both efficiency and stability. Improperly designed safety nets may encourage behavior by both the insured banks and their regulators that through time is likely to prove far costlier than the benefits they may generate. As has been clearly demonstrated in almost all countries in recent years, poorly designed and implemented deposit insurance, for example, has greatly reduced depositor discipline of banks and thereby encouraged them to engage in moral hazard behavior, both through assuming greater credit and interest rate risk exposure in their asset and liability portfolios and through maintaining lower capital ratios. Insured depositors have little incentive to punish risky, distressed, or insolvent institutions with withdrawals and to reward safe and sound institutions with deposits. Rojas-Suarez and Weisbrod (1996), for example, found that risky banks in Mexico expanded much faster during the crisis years (1991-1994) than did the safer banks. This mirrors the experience found in other countries.

By short-circuiting the market discipline that such deposit flows bring, deposit insurance also allows bank regulators to engage in regulatory forbearance, delaying the imposition of sanctions on troubled banks and permitting even economically insolvent institutions to continue to operate. The costs of forbearance can be and have been very large (e.g., Kane and Yu 1994, Kaufman 1995, and Kroszner and Strahan 1996).

In the absence of deposit insurance, insolvent banks could not stay in business long. Banks receiving low ratings from depositors as well as independent private rating agencies would either have to compensate depositors with higher interest rates or see funds flow out of the bank. Withdrawals by informed depositors might force troubled banks to sell assets quickly and perhaps experience fire-sale losses. If the bank could no longer satisfy the depositors' demands in full and on time, it would close (suspend operations) either voluntarily or at the order of their regulators. In addition, without the strong "heads I win, tails you lose" character of the safety net, the bank owners might have chosen a different initial risk profile for the bank. As noted above, prior to the introduction of the lender of last resort in the U.S., bank failure and loss rates were lower than those for non-financial firms.

The moral hazard problems associated with the safety net are not unique but also exist in many market contexts, so it is valuable to understand how the market deals with such problems. Tension exists, for example, between equity and debt holders in a firm, particularly one experiencing financial distress (Jensen and Meckling 1976). The two types of claimants

⁴An alternative, more radical variation on 100 percent reserve banking would be pure mutual fund banking in which the deposit contract would be an equity claim, not a debt claim, on the bank's portfolio. The value of such contracts would vary with the performance of the underlying portfolio, rather than remain constant at their par value. These would effectively be 100 percent capital banks. On the viability and stability of mutual fund banks and their consequences for monetary control, see Cowen and Kroszner (1990).

have different pay off functions. Equity holders participate in the upside of risky gambles that pay off and do not have to pay all of the losses under limited liability. In contrast, bond holders do not participate in the upside beyond the pre-specified interest and principal payments and may receive nothing if the gamble does not pay off. When negative shocks reduce the market value of the equity holders' investment in a firm, the equity holders have greater incentives to increase the firm's riskiness since they now have less to lose. Bond holders have precisely the opposite desire because they simply want to protect the value of the debt. The equity holders wish to play *Aheads I win, tails you lose* with the bond holders' money, paralleling the moral hazard problem of insured banks gambling with taxpayers' money.

In contrast to regulators, private markets address this problem through debt covenants which tend to prevent rather than provide forbearance for excessive risk-taking (Kroszner and Strahan 1996). Debt covenants are explicit provisions in the debt contracts that restrict the firm's behavior and ability to take risks. Covenants are triggered as soon as earnings or capital fall below pre-specified levels or leverage rises above such levels. In some cases, covenants allow the debt holders to seize control of the firm as the firm experiences financial distress. Covenants thus prevent a distressed firm from continuing to operate as it had before and attempt to prevent it from increasing its risk exposure.

When there is explicit or implicit government deposit insurance, regulatory discipline should be structured to mimic the way in which the market deals with the moral hazard problem (Benston and Kaufman 1988 and Kroszner and Strahan 1996). Rather than permit regulatory forbearance, the government should require that the regulators follow clearly defined practices to restrict the risk-taking activities of banks experiencing financial distress and to resolve banks before they are permitted to become deeply insolvent. In parallel to private debt covenants, intervention by the regulators could be related to capital ratios or other performance and solvency measures. Such regulatory discipline would prevent depositor (and taxpayer) losses at individual institutions from mushrooming and, as discussed in section I, possibly causing system-wide problems.

A deposit insurance system with an effective and credible set of rules for intervention and closure can mitigate its moral hazard problems. Because these rules would lower the losses to the deposit insurance agency, actuarially-fair deposit insurance premia could be reduced. It may be desirable to scale the premium for each insured institution to the agency's difficulties in monitoring the economic condition of that bank as an indicator of the risk a particular bank represents to the insurance fund by not being able to resolve the institutions in a timely manner before losses become large.

The intervention and closure rules could be equally effective for all banking structures, narrow or broad. Only the level of the capital ratio for triggering action, for example, would need to be changed for different structures depending on the ability to mark the assets and liabilities (both on- and off-balance sheet) to market, the ability and frequency of the regulators to monitor the bank, and the probability of abrupt, large changes in net worth. To some extent, private markets already impose such discipline since the market generally will require higher capital ratios for broader than narrower banks to provide a greater cushion against insolvency. The broader the bank and the more difficult it is to monitor, the higher the critical capital ratios should be for intervention and closure. Increasing restrictions should be imposed on activities as capital or other performance measures decline. In effect, the system would force a broad bank to become narrower as its capital declines, so the bank's structure would depend upon its capital.

An effective and credible set of intervention and closure rules would allow the stability of the banking system to be largely independent of its structure. These rules would thus reduce the likelihood of special *too big to fail* treatment. To be effective, the closure rule must be explicit and applied consistently. If banks are owned by nonbanks, they (or any activities subject to the rule) would need to be organized as separately capitalized subsidiaries. If banks could own nonbanks, they would need to be subject to the same capital rules or subject to market-determined capitalization as separate subsidiaries of the bank.

It is important to note two additional key aspects about the intervention and closure rules. First, the risk of a bank's capital declining below the critical capital cutoff ratio and even imposing losses on depositors and other creditors depends less on the riskiness of a bank's assets than on the regulatory agency's ability to monitor their current market value and their willingness to intervene. Second, any positive capital that remains after resolving a bank whose capital has declined below the critical cutoff point is returned to the initial share holders. There should be no expropriation of private capital. To the extent share holders believe that government resolutions may deplete existing capital more than necessary, however, they may have an incentive to recapitalize solvent institutions before their capital threatens to fall below the critical threshold. Concerns about arbitrary expropriation, however, would lead to little willingness to invest in banks at all.

The appropriate capital ratios for triggering intervention and closure are may be expected to differ from country to country. The critical values would depend, among other things, on the degree of macro instability in the country, the liquidity of the financial markets, and the sophistication of the bankers and the regulatory agencies. While estimating the correct values is difficult, indirect estimates may be obtained from observing the capital ratios maintained by firms that compete with

the banks in the same country, but that are not explicitly or implicitly insured, e.g., finance companies, etc. The latter institutions' capital ratios are set by the marketplace and can, at first approximation, be used for insured banks. Other aspects of deposit insurance schemes that focus on effective closure, including the appropriate insurance coverage and regulatory sanctions designed to prevent banks from sinking abruptly to the closure threshold, are discussed in Benston and Kaufman (1988) and Kaufman (1995 and 1996b). The Federal Deposit Corporation Improvement Act of 1991 (FDICIA) in the U.S. provides an example of how such intervention and closure rules might be structured.

Finally, such rules can be credible and effective only in a banking system in which the individual banks, including any state owned or operated banks, have capital equal to or above the critical closure ratio. Otherwise, the rule is violated at the start and cannot expect to be effective in the future. If all banks are not solvent, it is still possible to introduce a closure rule but with a specified transition period during which the critical capital ratio is progressively increased from a negative value to a positive value. Such a program, however, requires a concurrent program for recapitalizing or resolving the insolvent banks (Kaufman 1997).

IV. CONCLUDING REMARKS AND RECOMMENDATIONS

This paper has analyzed the consequences of alternative financial structures for the twin objectives of financial efficiency and stability. The focus has been on the organizational structure of banks, which ranges from "narrow" banks that are restricted to hold only liquid, high-grade, short-term assets to broad "universal" banks that face few, if any, restrictions on their activities. The different structures each have advantages and disadvantages for the efficiency and stability of the financial system.

The key to understanding which structures are most beneficial for a particular country or region depends upon the context in which they will operate. The state of development and competitiveness of domestic financial markets, the system of corporate law and governance, the system of contract enforcement and bankruptcy, the sophistication of the bankers and their regulators, the extent of the political connections between the institutions and the government, and the susceptibility of the economy to domestic and international economic shocks are crucial to evaluating what structures are most appropriate for a country. Because financial structures and these other factors are interlinked and evolve simultaneously, the structural reforms should depend upon the initial conditions in the country enumerated above (existing financial structures and markets, legal background, macroeconomic stability, etc.)

Different countries may adopt different structures to best achieve the objectives of efficiency and stability outlined in Table 1, so no one reform is appropriate for all countries. Countries, for example, with relatively narrow banks and relatively developed securities markets may wish to introduce measures to broaden the powers of their banks short of the point of encouraging monopoly pricing and/or regulatory capture. Countries with weak bankruptcy laws and contract enforcement systems may also wish to encourage broad banks, and so on. On the other hand, countries where banks have been able to retard the development of financial markets and alternative institutions may wish to curtail the power of broad banks to impede the establishment and growth of their competitors. No single structural reform, however, guarantees that the objectives will be attained or continue to be attained over time. Financial sector reforms should not lock in one particular structure but through time allow alternative forms to emerge as the underlying economic and political conditions change.

One of the most important factors that shapes and is shaped by the organization of financial institutions is the country's existing regulatory system, particularly the implicit or explicit safety net. Since the banking system is heavily regulated in most countries, the regulatory system and the incentives it generates often affect the efficiency and stability of the financial system more than the banking structures per se. As discussed above, in practice, safety net measures such as deposit insurance have tended to reduce rather than promote stability and not to enhance efficiency. Design of the safety net, thus, is of primary importance and greatly affects the appropriateness of alternative financial structures.

Because explicit or implicit deposit insurance is likely to generate agency and moral hazard problems, regulatory discipline should follow as closely as possible the ways in which the market deals with these problems. A structure of regulation that commits the regulators to a credible set of intervention and closure rules parallel to those found in private debt covenants would be an important step in this direction. With fewer distortions from the regulatory system, the structure and breadth of the bank will be determined by market forces. A bank's structure would become endogenous because, for example, market forces (e.g., debt covenants) may force a broad bank to become narrow as its performance and capital decline. The more regulatory forces resemble market forces, the more will the characteristics of the country and its institutions and markets themselves determine the most efficient and stable form for the financial structure to take.

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TABLE 1

RELATIONSHIP OF FINANCIAL (BANKING) STRUCTURE AND OBJECTIVES

FINANCIAL SECTOR OBJECTIVES	BANKING STRUCTURE		
	<u>Narrow</u>		<u>Broad</u>
Stability <i>Without Effective Intervention and Closure Rule</i>	Fewer bank failures and lower losses to bank depositors due to restricted bank portfolio, but may not provide greater overall financial stability.	6	Larger losses possible as permissible activities widen and assets become more volatile, but diversification can promote stability.
<i>With Effective Intervention and Closure Rule, when Net Worth > 0</i>	Few failures and low losses overall, but the effect of structure depends on ability to monitor: If rules are credible and monitoring is largely independent of riskiness of assets, no relationship between structure and stability. If risky assets more difficult to monitor, greater losses for broader banks. Broader banks may require more sophisticated supervisors.		
Economies of Scale and Scope	Less likely, particularly scope economies.	6	More likely to be realized.
Competition	Less concentration likely, but greater segmentation of markets.	6	Higher concentration and likely.
Avoid Regulatory Capture	Less likely, if bank is not part of a financial conglomerate.	6	More likely to try to stifle competition from new institutions and markets. Greater potential for too big to fail.
Avoid Conflicts of Interest	Less potential if bank is stand alone.	6	More potential without privately chosen or mandated firewalls.
Avoid Political Manipulation	Susceptible to credit control from definition of safe assets.	6	Susceptible to credit control for implicit industrial policy.
Corporate Control	Weak role for banks.	6	Important role for banks, particularly in managing financial distress.
Monetary Control	No relationship to structure, except for 100 percent reserve narrow banks which		

offer the central bank total monetary control.

TABLE 2

COMPOSITION OF COMPANIES' CREDIT MARKET DEBT IN 1985
(Percentage of Total Credit Market Debt)

	<u>United States</u>	<u>Japan</u>	<u>Germany</u>
Securities	55	9	6
Intermediated debt	45	91	94
from banks	36	NA	88

Notes: Credit market debt excludes trade debt. Intermediated debt refers to loans from financial intermediaries. Securities includes commercial paper and other short-term bills and long-term bonds.

Source: Stephen D. Prowse, "Corporate Finance in International Perspective" (1996), p. 6.