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Financing the American Corporation: The Changing Menu of Financial Relationships

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The history of the financing of the American corporation can be described along many dimensions—variation in the relative importance of particular contracting forms (e.g., debt vs. equity) as marginal sources of funds, changes in the use of retained earnings vs. external finance, shifts in the relative importance of lending from commercial banks or similar intermediaries (sometimes referred to as "insider" lending) vs. financing from public markets. Each of these potential measures of the historical evolution of corporate finance has been used by financial historians to address particular questions. For example, variation in the relative importance of debt, preferred stock, and common stock as sources of external finance can help gauge the effects of innovations in bankruptcy laws on corporate finance costs. Reductions in the role of banks in financing corporations, often induced by regulatory change, can help measure the importance of regulatory restrictions on banks for corporate finance costs. Changes in the relative cost of external finance through public markets can be related to institutional factors that reduce the costs of public securities offerings.

Our central point in this paper is that there is a single general historical pattern that lies behind each of these three measures of historical change in corporate finance (contracting form, reliance on funds from in-

termediaries, and costs of external finance). In essence, the history of American corporate finance along all three dimensions is the history of altering the range of feasible relationships between corporations and particular intermediaries, which in turn redefines the cost-minimizing means of financing the corporation.

Virtually every financial transaction involves at least one intermediary. Indeed, the distinction between using intermediaries and using "the market" is a false dichotomy. Public securities issuance requires the reliance on intermediaries (investment bankers, commercial paper dealers) to perform services similar to those provided by banks making loans, life insurance companies holding private placements of corporate debt, or venture capitalists investing in corporate equity. Each of these intermediaries can be seen as one of many mechanisms for solving a combination of problems or reducing "frictions"—communicating information, controlling the use of funds, and physically transacting with corporations—all of which arise from a corporation's financing needs.

The fundamental problem of the corporation is to secure funding from people who are not directly in control of the use of those funds. Ultimate suppliers of funds typically lack knowledge about the corporation's ex ante creditworthiness, lack the means of observing or controlling the actions of the firm once it obtains their funds, and lack a convenient means of transferring the funds physically. In the face of these information and transaction costs, suppliers of funds may not find it worthwhile to transfer their savings to corporations, even though corporations have access to worthwhile (positive net present value) investment projects. Intermediaries of all kinds exist to help overcome these obstacles. Of course the services of intermediaries are not supplied gratis. The fees (and other costs) of using any of these intermediaries can be significant, and reflect the costs of investing resources in information processing, information signaling (marketing), physical transacting, and controlling corporate management.

Presumably, the variation across corporations and over time in the reliance on different intermediation relationships reflects variation across firms and over time in the costs and benefits of those relationships. Firms should choose the profit-maximizing relationship, after taking into account all the benefits and costs associated with the various choices.

The menu of financial relationship choices available to firms varies over time. That changing menu, we argue, has been the driving force behind the history of American corporate finance. A survey of the history of changes in the feasible ranges of relationships between nonfinancial corporations and intermediaries reveals how transformations have occurred, and

what the consequences of those developments have been for corporate financing costs. Changing ranges of relationships have sometimes been dictated by conscious regulatory policy, and sometimes by "induced" private financial innovations. In the latter case, innovations have often been the unintended consequence of other government actions (notably, regulations of intermediaries or financial markets, wars, tax policies, and bankruptcy rules). The changes in the range of feasible relationships have evolved as a historical, and therefore "path-dependent," process. New relationships grow out of the combination of preexisting relationships and new circumstances.

This survey shows how the relative importance of certain intermediaries, the relative reliance on outsiders, and the forms of financial claims often reflect restrictions placed on the range of relationships. The peculiarities of U.S. corporate finance along several dimensions are, we argue, traceable to the same underlying regulatory distortions that limited the range of bank-firm relationships. In large part, the history of institutional change and financial innovation in the United States has been the history of attempts to work around costly restrictions on relationships not faced by corporations in most other countries.

We begin with a theoretical survey of the financial frictions that make financial relationships necessary, and we argue that breadth and continuity in financial relationships ("universal banking") has many desirable features. We trace the way financing frictions have been addressed over the course of American history with a changing set of financial relationships, and consider the merits and limitations of each. We conclude by considering the potential benefits and likelihood of current reforms of the banking system in the light of theoretical and historical lessons.

Finance Theory: The Menu of Intermediary Relationships

Financial Frictions and the Role of Intermediaries

What would prevent a corporation with a worthwhile project from being able to secure financing? Five broad categories of frictions can prevent efficient capital allocation from taking place. First, suppliers of funds may not be able to identify "good" firms. If so, "bad" firms may have an incentive to pretend to be good firms. The difficulty of distinguishing good from bad firms raises the cost of borrowing for good firms and may even lead to a collapse of the market for funds to the pooled class of firms.[1]

Second, even if firms seeking to raise funds are ex ante identical, and even if firms have access to profitable projects, managers may not have the necessary incentives to invest in those projects once they have received funding. For one thing, successful investment may require costly managerial effort, which the manager may wish to withhold. Furthermore, after contracting with fund suppliers, managers may find it in their interest to choose an inferior project as a result of the incentives created by the contract between fund suppliers and the firm. For example, managers who are also residual claimants to firm profits (either directly as stockholders, or indirectly through bonuses) may prefer to allocate funds suboptimally (investing in projects of lower or even negative net present value) because doing so substantially increases their share of the (smaller) pie. Financing choices often involve a trade-off between these two incentive problems. Debt contracts tend to provide greater incentives for managerial effort (by making managers residual claimants), but they also provide incentives to managers to prefer projects that deliver large "upper tails" (low-probability large payoffs) to superior projects with smaller upper tails.[2]

Third, even if firms' types are known and the investment choices of managers can be controlled easily by suppliers of funds, managers may be able to exploit the fact that it is costly to verify the outcome of the investment on which the financial claims of suppliers are based.[3] That is, managers may try to "hide" profits to reduce the profit-contingent payments they have promised suppliers of funds. Knowing this, suppliers of funds cannot trust the reports of managers, and will have to invest in "costly state verification" (which can be thought of as requiring a court audit or bankruptcy proceeding to verify outcomes). Debt contracts can minimize these costs by reducing the number of states of the world in which verification must occur (i.e., no verification occurs so long as the promised payment is made).

Fourth, managers can do damage ex post by "absconding," which we will define as any wasteful action by the manager after the outcome has occurred that has the effect of increasing the manager's wealth. Models of such behavior sometimes assume that managerial waste from absconding is proportional to the wealth of the firm, and that the manager is a residual claimant of the firm (through stock ownership or bonus schemes). This in turn implies that the manager's incentive to abscond is greater when outcomes are poor. Preventing such behavior requires the observability of the state (on which the manager's absconding decision is based), and an effective enforcement technology for preventing absconding.[4]

Finally, market segmentation (due, e.g., to natural boundaries that impose physical barriers between savers and investors) can prevent efficient

transfers of funds from occurring, even in the absence of the problems of information and control discussed earlier. Moreover, such physical costs also imply related problems of information and control. To the extent that ultimate suppliers of funds are scattered and distant from ultimate users, information and control costs will be exacerbated. Problems of market segmentation have been particularly severe in the United States, because of its highly fragmented commercial banking system. Such segmentation is reflected in substantial variation across locations in the cost of funds and the profits of corporations historically.[5]

Of course, if funds suppliers could costlessly transfer funds, screen applicants accurately, monitor the actions of managers and the outcomes of investments, and write contracts to enforce penalties against improper investment or absconding behavior by managers, then there would be no need to invest resources in the financial system. In such a world all positive net present value investments would be realized, and intermediaries would have no active role in corporate finance. Such is not the world in which we live.

The role for intermediaries comes from advantages of appointing a specialist to transfer funds, screen applicants, monitor managerial performance and firm profits, and design and enforce specific contractual covenants that discipline managers. Virtually every model of a "bank" has as its fundamental features some advantage from delegating decision making to a specialist, and the need to ensure that the "delegated monitor" faces incentives to behave appropriately. A useful definition of a viable financial intermediary is a financial agent that reduces net incentive and control problems—the sum of those that result from the frictions outlined earlier and those that are *added* as the result of the actions of the intermediary.

Why is it beneficial to use an intermediary? First and foremost, given the multiple suppliers of funds to any use, intermediaries avoid redundancy of screening, monitoring, and enforcement costs, and enjoy physical law-of-large-numbers economies in cash management (netting of transfers). Given transaction costs in securities markets, intermediaries also offer low-cost portfolio diversification. The concentration of claims in the hands of an intermediary also avoids coordination costs in the relationship between firms and their funds suppliers. For example, debt renegotiation costs are much lower when the number of parties to the renegotiation is small.[6] Information costs and coordination costs are often related. If a banker has all or most of the outstanding debt of the firm, then it pays for the banker to invest more in monitoring the firm because the banker's ability to make use of information is greater when he can act with greater authority in a renegoti-

ation/bankruptcy. Firms with large numbers of claimants can play one off against the other, and can reduce the benefit to any claimant of investing effort in monitoring the firm.

From the standpoint of a firm in need of funds, the menu of intermediaries and contracting forms offers alternative "mechanisms"—each is an answer to the question of how one might raise funds, and presumably the least costly mechanism is chosen by the firm, after taking account of and weighing the advantages and disadvantages of each potential relationship along a variety of dimensions. Some forms of intermediation cost more "up front" than others. For example, some intermediaries charge higher fees, or restrict the behavior of the firm more with strict debt covenants, or create a powerful new outside stockholder with direct control over management—and these restrictions may inhibit some potentially profitable behavior.[7] But those higher up-front costs may be warranted if those restrictions imply significant *contingent benefits* to the firm (like low costs of finance contingent on a decline in earnings in the future), or if other forms of finance are more costly to the firm because they do not resolve incentive and control problems facing the firm.

For firms that have a wide range of choices about which intermediation relationship or financing mechanism to use (say, large, well-established firms with access to many financing vehicles), choosing the optimal mechanism requires estimating the probabilities of many potential states of the world, and estimating the benefits of each possible mechanism in each potential state. For example, hiring an underwriter to place a widely held bond issue may offer the advantage of a higher price of debt (or larger amount of debt) than could be secured from a bank. On the other hand, in states of the world where the firm enters financial distress (where it is unable to cover its interest expenses with current income), the costs of that distress (reduced investment and other disruptions) will likely be greater if its debt is in the form of a widely held bond issue. The costs of financial distress may differ according to firm characteristics (e.g., firms with clearly observable profitable investment opportunities would suffer less costs than others). Thus one possible interpretation of a firm's decision to use public debt as opposed to bank loans is that it perceives the likelihood and anticipated costs of financial distress to be low.

There are many other contingencies to consider, and there are many more dimensions to corporate finance choice than the decision over whether to use public debt or bank loans. Financial distress is an extreme case. More generally, firms will be concerned about the implications of their financing relationships for the costs of finance when they experience

a sudden decline in internally generated earnings. Firms are aware, for example, that short of financial distress they may face constraints on access to funds because of the costs of external finance. Several studies have measured the importance of internally generated funds in firms' investment decisions, and have traced that importance to the high costs of financing activity from external sources.[8] The higher the shadow cost of external finance (which reflects the extent to which firms are vulnerable to the various frictions mentioned earlier), the greater the excessive sensitivity of investment to cash flow.[9]

For our purposes, what is most important about the potential costs of external finance is their connection to choices about financial relationships. From this perspective, two important points have been stressed in the literature. First, firms facing the greatest frictions in capital markets tend to rely more on close relationships with intermediaries. Some markets—notably the public bond and commercial paper markets—are not accessible to all firms because of the prohibitive costs of financial frictions. Firms tend to progress through a financial "life cycle." They begin with access only to the endowments of a close-knit group of entrepreneurs. Over time they rely on lending from banks or venture capitalists, which retain close control over the firm. Later, as firms' prospects become a matter of common knowledge, and as their internal resources become larger relative to their funding needs, firms can rely on "outside" sources of funds in public markets, and intermediaries take on the role of underwriters rather than suppliers of funds through loans or equity investments.

Second, a firm's ability to raise funds during times when cash flow is small relative to investment opportunities depends importantly on whether it has a preexisting financing relationship, and on the strength of that relationship. The uniqueness of bank lending relationships has been the subject of many recent studies of banking. Other banklike intermediaries (finance companies and life insurance companies) engage in lending agreements similar to bank loans, and monitor and control firm behavior through the verification and enforcement of covenants. Studies of these intermediaries have found that they, like banks, have access to special information and control devices, and are therefore properly viewed as "insider" lenders.[10]

Lest one be carried away by the wonders of "discipline," it is worth bearing in mind that discipline has its costs, which explains why it is not the preferred means of financing relationship for all firms. In Japan, for example, firms sometimes opt out of close firm-bank relationships, and in doing so increase their reliance on internal funds to finance investment.[11] Given

that many of those firms were closely controlled by banks prior to the decision to break off the close relationship, it is hard to argue that Japanese firms cut their ties to banks because the firms' managers wish to avoid efficient discipline in order to abuse "free cash flow." Why would value-maximizing firms voluntarily increase their costs of raising external funds in the future? One simple explanation is that there are fixed costs to establishing and maintaining financing relationships—for example, the costs of designing and enforcing appropriate standards of behavior. Another cost to buying discipline may be the inflexibility of the disciplinarian. For example, financial covenants are a form of regulation that could be viewed as a substitute for constant scrutiny of the firm. By establishing a set of easily verified covenants, the firm is able to reduce the costs charged by the intermediary for monitoring. Other covenants typically restrict the use of funds, as well as changes in the operations of the firm. Despite the obvious benefits of such covenants in reducing costs of control, they may be costly by limiting the flexibility of the firm to respond to changing circumstances. Thus, as firms reach the advanced stage of the financial life cycle and become seasoned credit risks with smaller relative reliance on external finance, the costs of strong relationships may be greater than the attendant benefits and they may choose to switch to financing relationships that entail weaker ties to intermediaries. There is empirical support for the notion that stronger banking relationships entail higher costs.[12]

Intermediaries in Securities Markets

Intermediaries specializing in the creation of insider debts of corporations—commercial banks, finance companies, and life insurance companies—are not the only intermediaries that develop beneficial relationships with firms. Investment bankers in the pre–World War I era (and J. P. Morgan, in particular) developed close relationships with their clients—involving underwriting, assistance in corporate reorganization, and involvement in corporate boards of directors. De Long (1991) and Ramirez (1995) have argued that the "Morgan collar" was a source of discipline that removed financial constraints on firms that were willing to "wear" it with pride.

Calomiris and Raff (1995) argue that the rise of institutional investors (pensions and mutuals) since the 1950s—which own large shares of corporate equity and participate actively in initial public offerings—was among the most important "intermediary innovations" of the post–World War II era. The rise of pensions and mutual funds as large block purchasers of eq-

uity in primary and secondary markets dramatically reduced the costs of placing equity and produced a permanent shift toward common stock issues by industrial firms.

The role of investment bankers and institutional buyers of securities in facilitating the marketing of securities has received less attention from finance economists than the role of intermediaries as lenders. Theoretical models of investment banking tend to stress the importance of the investment bankers' information and sales networks and the development of long-term relationships and reputation. Empirical analyses of the variation across firms and over time in the costs of securities flotations emphasize the importance of information cost and marketing in explaining flotation cost differences. This literature emphasizes that continuing relationships among buyers and investment bankers, and concentrations of shares (and voting power) in small numbers of investors (pensions, mutuals, and trusts) help to reduce issuing costs by reducing information problems ex ante and corporate control costs ex post.[13]

Relationships and the Forms of Claims

In emphasizing firm-intermediary relationships as the defining aspect of the corporate finance decision, we are not arguing that the form of financial claims is irrelevant to financing cost. But the benefits of choosing a particular form of claim depend on the relationship that gives rise to the financial contract. Mackie-Mason (1990) finds that the firm's choice of financing relationship (whether to rely on private or public sources of funds) is more closely related to inherent characteristics of the firm than the choice of financing with debt or equity.

Other studies have found that the importance of the form of the claim issued depends on the relationship chosen. The effectiveness of debt or equity as a disciplinary device depends on the concentration of debt or equity holdings, and the concentration of claims depends on the financing relationship. Bank lending permits concentration of debt holdings, which provides incentive for the monitoring and enforcement of lending covenants, and avoids free-rider problems in the event a "workout" is necessary. Concentrated equity holdings—a central feature of German and Japanese banking, and an important consequence of the rise of institutional investors in the United States after the 1950s—allow stockholders (or their agents) to exert more control over managerial decision-making. While the form of the optimal claim on the firm likely depends on which of the "five frictions" outlined previously is most important, the concentration of claims has an

important influence on the costs of achieving the desired disciplinary advantages from any financing arrangement.

Also, requiring an insider lender to own junior claims on the firm can strengthen the lender's incentives to monitor the firm or to honestly reveal the firm's characteristics when underwriting a public offering of stock.[14]

American Financial Fragmentation and Relationship Constraints

One of the most remarkable features of American finance—perhaps the single feature that has set American financial history apart from that of other countries—is the number and variety of intermediaries available and their independence from one another. Unlike in other countries, the American corporate financing system is not organized around a set of "universal banks" performing a variety of functions for their clients.

We will argue that limits on the size and scope of banks in the United States have placed important constraints on the feasible menu of financing relationships of corporations. In the United States, it has been harder to concentrate financial claims on firms. The concentration of debt claims has been limited by the size of banks (due to restrictions on branching and consolidation). Furthermore, intermediaries have been prohibited from involvement in selling, managing, and holding large interests in firms, sometimes by limitations on the size and geographic range of intermediaries, and sometimes by limits on the equity-holding powers of intermediaries. Finally, government restrictions that forced intermediaries to specialize in particular functions have limited the beneficial combining of activities within the same intermediary.

In discussing the costs of prohibiting "universal banking" in the United States, it is useful to consider the advantages that other countries have enjoyed from such a system. "Universal banking" takes different forms in different countries, and there is no clear agreement regarding the essential, defining characteristics of universal banks. For our purposes we define universal banks to be intermediaries with three sets of characteristics: (1) they operate large networks over a wide geographic range (they are large and locationally "universal"); (2) they provide customers with access to a wide scope of activities, including lending, underwriting, portfolio management, and deposit taking; and (3) they are permitted to hold a variety of types of claims (e.g., debt and equity) on their corporate customers. In our historical discussion of the United States, this definition will prove useful for distinguishing between the U.S. and German banking systems, and for distin-

guishing between "full-fledged" universal banking in Germany and partial and intermittent attempts to concentrate and combine financial services historically in the United States.

The benefits of universal banking divide usefully into four categories. First, there are the simple benefits of concentration that come from allowing banks to be large—reducing costs of coordination among claimants and thus strengthening the intermediary's incentives to screen, monitor, control, and negotiate with the firm efficiently.[15]

Second, there are information and network economies from combining various functions within the same intermediary. Intermediaries that can combine different functions can save on information and enforcement costs and "brick and mortar" costs by spreading fixed costs over more transactions.[16]

Third, there are incentive and signaling benefits from combining activities. Providing a variety of services and holding various claims on a firm can strengthen the incentives of intermediaries to monitor and enforce properly, and can improve their ability to signal information to outsiders when marketing securities. A bank may find it easier and more desirable to monitor a borrower in which it maintains a junior stake.[17] Also, it may be easier for a bank to underwrite equity of a firm in which it also has a stake. For example, if a bank holds (or controls for its trust customers) stock in a corporation, the bank stands to lose from managerial errors or misbehavior of that corporation (i.e., lost profits on stock or disgruntled trust customers). Potential buyers of equity are more likely to trust the opinion of a universal bank underwriter that is taking a junior stake in the firm whose shares are being sold, especially if the underwriter retains significant control of the firm after the issue.[18]

Fourth, universal banking can promote low-cost diversification of the intermediary, and thereby reduce its cost of funds. Eugene White (1986) and Elijah Brewer (1989) have argued from the evidence of limited universal banking in the United States (historically and currently) that universal banks are better able to diversify because the incomes from the various services they offer are not highly correlated.[19]

From the perspective of these theoretical arguments, regulatory restrictions on the geographic range and scope of activities of intermediaries may be very costly. Indeed, we will argue that such costly restrictions explain the peculiar history of the development of American financial intermediaries, and the high costs of industrial finance in the United States.

Summary

Corporate finance theory seeks to explain financing decisions as choices among the menu of available intermediation mechanisms in the presence of financing frictions. Cross-sectional differences in those choices reflect the differing importance of particular frictions for particular firms, which in turn is closely related to the firm's financial maturity. Possible intermediation arrangements include insider lending from banks, finance companies, and life insurance companies, venture capital finance, or public debt or stock issuance through an investment bank (and its network of institutional dealers and purchasers).

Regardless of the form of financial claim chosen, the concentration of claims and transactions in large-scale, "universal banks" tends to facilitate several functions of intermediaries—especially monitoring, corporate control, and signaling. Limitations on concentration have been a hallmark of the American financial system, and an important constraint on the development of firm-bank relationships. The U.S. financial system has been unusually restrictive, both in allowing the concentration of claims, and in allowing particular intermediaries to be involved in a variety of types of financial transactions.

In the next section, we analyze the historical circumstances that gave rise to the peculiar constraints of American corporate finance, discuss their costs, and describe the forces that changed those constraints over time. We argue that during its early history (prior to the Civil War), the United States was able to develop a very efficient intermediation system, particularly in New England. In many respects, that system enjoyed the advantages of a universal banking system by virtue of the close ties among industrial borrowers, commercial banks, underwriters, and securities portfolio managers. But that system of "insider finance" broke down by the 1890s in the face of restrictions on bank branching and consolidation and the expansion in the scale of industrial firms. Further limitations on bank involvement in boards of directors (the Clayton Act of 1914) and the forced separation of commercial and investment banking (the Glass-Steagall Act of 1933) further limited intermediaries' abilities to reap the gains outlined earlier.

The subsequent history of American financial intermediation—or the history of the menu of financial relationships available to corporations—can be described as the history of finding "second-best" solutions in the face of these restrictions, which entailed the creation of new intermediaries and new financial claims (commercial paper houses and commercial paper, insurance companies and private placements, pensions, mutuals and ven-

ture capitalists participating in venture capital funds and investment banking syndicates).

These financial developments involved new methods of cooperation among intermediaries (especially among venture capitalists, trusts, pensions, and investment bankers) that had some elements in common with early arrangements in New England and universal banking systems. Today commercial banks themselves have become involved in these new coalitions of intermediaries, and may become the platform on which true American universal banks will be built. Some of these changes after the Great Depression were direct reactions to regulatory restrictions, while others were largely the unintended benefits of developments that had other sources.

American Corporate Finance: A Changing Menu of Relationships

Corporate Chartering, Bank Chartering, and Limited Entry: The "Mercantilist" System

The defining characteristic of a corporation, as opposed to a proprietorship or partnership, is the structure of its financial claims and the limited liability of corporate shareholders. Limited liability is a useful device for financing large-scale corporations for two reasons. First, "outside" shareholders in a world of asymmetrical information and imperfect corporate control will be reluctant to purchase shares in a risky venture if there is no limit to downside risk. Second, risk-averse outside and inside shareholders alike benefit from limiting the risk of ownership.

Governments understood that corporate chartering was an effective means of attracting funds to new, risky ventures. The mercantilist strategy had corporations at its center. By restricting the number of corporations, monarchs were able to give "charter value" to the corporations they permitted to form. These corporations were typically given monopoly rights too, which added to their charter values. Charter values served as a "bootstrapping" device for financing the development of the empire. Newly formed corporations could lever their charter capital values by borrowing or floating shares publicly. Restricting chartering of enterprises was an effective means to channel private funds to the government's top priorities—which included banks and various trading companies designated to capture foreign markets.

Thus the financial relationships of the mercantilist corporation were largely a matter of government policy—selecting a set of activities to receive special access to the privilege of incorporation, which implied special access to sources of funds. This mercantilist tradition was well understood in the American colonies, and underlay part of the conflict between the British empire and the colonies. The chartering of banks was viewed by colonists like Benjamin Franklin (in his classic 1738 pamphlet on the topic) as an important means for promoting the development of the economy and expansion westward. Franklin advocated land banks as a means to convert illiquid claims on the future (future returns from land) into current liquid funds that could be used to import needed capital from abroad, and to encourage immigration. Such plans were thwarted by the crown, which saw the chartering of banks, and the orientation of commerce toward interior development, as contrary to British interests. The crown wanted the credit supply to remain in the hands of British merchants (providing trade credit for exports), and wanted to restrict autonomous economic development on the frontier. After all, the purpose of the colonies from the perspective of the crown was to serve as a source of exports for the empire, not to become an economically self-reliant group of settlements demanding ever more expensive protection from the French and Indians on the western frontier. The conflict over corporate chartering, and bank chartering in particular, reflected the central conflict between the interests and aspirations of the colonists and those of the empire.[20]

The mercantilist view of corporations as a privilege to be conferred by the government to achieve government priorities extended into the early history of the new nation. The Constitution did not centralize authority over the chartering of corporations or banks. The federal government experimented with the chartering of two banks (the Bank of the United States and the Second Bank of the United States) from 1791 to 1811 and 1816 to 1836 respectively. These banks were founded to serve the financial needs of the federal government—as a source of revenue, as a means of collecting taxes, and as a network for placing government securities. The main chartering authorities for banks prior to the Civil War were the individual states. During the early antebellum period (prior to the late 1830s), most bank charters were granted to finance particular needs, and were acts of the state legislatures. Sometimes banking powers were attached to other corporate authorities—for example, to build canals, roads, or water systems.[21]

The restriction of bank charters was an important source of charter value that helped banks raise additional funds, and thereby helped the corporations that were connected to those banks gain access to funds. Models

of the "delegated monitoring" problem of a bank have the common feature that an insufficient amount of insider capital can limit the amount of funds banks can raise from outside shareholders or depositors, and those models consider alternative means to solve the delegation problem.[22] From this perspective, because charter value helped to create an instant concentration of wealth in the hands of bank insiders (a fact that led to much political controversy over who would obtain a charter), it had a positive allocative role in capital markets.

By the 1820s, the need for creating concentrations of wealth through limited chartering to "bootstrap" banks was no longer as necessary. The transformation of merchant capital into industrial uses and banking during the period of national isolation produced by the Napoleonic Wars saw the creation of a new class of banker-industrialists—a large number of wealthy industrial-financial entrepreneurs. It is understandable, therefore, that free entry into banking (and into corporate chartering more generally) would be considered increasingly desirable, and that the 1830s would see major changes in the form of the "free banking" era (the unlimited chartering of banks under a common set of regulations).

The Mature Antebellum System: Pseudo-Universal Banking in New England

New England banking and financial markets were the best developed during the antebellum period, and recent empirical work has emphasized the relative efficiency of New England banks. Perhaps surprisingly, New England enjoyed a universal banking system of a sort long before "true" universal banking was established in Germany in the last three decades of the nineteenth century. The relationship between the nonbank corporation and the bank remained the focus of the corporation's financial relationship, but that relationship became increasingly complex, and involved securities flotations and investments by related intermediaries (savings banks), as well as funding by commercial banks.[23]

New England's antebellum banks were a primary source of funding for New England industrialists. The links between industry and banking in New England were very close, and the banks were closely affiliated with other financial institutions that underwrote securities issues and managedsecurities portfolios. The banks were chartered to provide credit to their industrialist founders. In many cases the officers and directors of the banks were their principal borrowers. Like German universal banks, and unlike U.S.

banks later in the nineteenth century, the stock of antebellum New England banks was widely issued.

New England banks were able to attract large numbers of outside stockholders and pay lower returns on equity than other banks because their institutional arrangements mitigated information problems. Each bank's borrower-insiders had strong incentives to monitor one another to ensure the continuation of the flow of credit to their own enterprises in the future. Moreover, interbank relationships ensured monitoring among members of the Suffolk system and among commercial banks and savings banks (which financed much of commercial banks' activities).[24]

Postbellum Industrial Finance and the Shrinking Role of Commercial Banks

Postbellum industrialization posed new challenges for the financial system, and these challenges seem not to have been met as effectively as before by banks. As Alfred Chandler (1977) and others have stressed, the "second industrial revolution" of the postbellum era saw the creation of whole new industries (electricity, steel, and chemicals), the development of a transcontinental network of railroads, and the creation of the large modern corporation, vertically and horizontally integrated, and controlled by a large bureaucratic managerial hierarchy.

Two of the most important roles of a financial intermediary are to reduce the degree of asymmetrical information between lenders and borrowers, and to provide a credible means for controlling management's use of the funds allocated to it. In a rapidly growing industrial economy, with many new products, new forms of producing, organizing, and distributing products, and an enormous increase in the scale of production, the challenges faced by the financial system to resolve information and control problems were enormous.

Financial and economic historians generally have argued that the U.S. financial system faced problems in adapting to these new challenges. U.S. regional financial markets remained largely isolated from one another during the late nineteenth century, and financial markets were slow to channel funds from low-growth sectors to high-growth sectors. Large, persisting regional differences in interest rates—an indication of a fragmented financial system—were a unique feature of American financial markets. Although these differences declined over time, they remained large relative to those of other countries before and after World War I. As late as the

1920s, bank loan interest rate differentials across regions on similar types of loans were as large as 3 percent. Interestingly, antebellum interest rate data do not show similar regional differences. Apparently, postbellum economic growth—with its new geographic frontiers and new industrial sectors—brought increasing capital market segmentation.[25]

Evidence from the profitability of manufacturing firms confirms the impression that there were significant impediments to moving capital across regions and across sectors from low-profit to high-profit uses. In a unique study of census data on manufacturing establishments during the postbellum period, Atack and Bateman (1994) examine profit differences across regions and sectors and find large persistent differences in profitability.

Evidence on the role of commercial banks in the industrialization process is consistent with the view that sources of funding for industrial firms were inadequate. Links between industrial firms and banks were much weaker in the United States than in other countries (notably, much weaker than in Germany's universal banking system). This reflected primarily the small size of incorporated banks relative to the large needs of industrial borrowers. There were more than twenty-six thousand banks operating in 1914, and the overwhelming majority of these were not permitted to operate branches, even within their home state. Small banks operating in a restricted location simply were incapable of financing, monitoring, and disciplining large industrial borrowers operating throughout the nation.

To the extent banks were involved with industrial finance, much of bank financing of firms occurred without any direct (much less ongoing) relationship between the bank and the firms it financed. Intermediaries' claims on firms primarily took the form of corporate bond holdings placed through syndicates. According to Raymond Goldsmith, for the period 1901–1912, bonds held by all intermediaries accounted for 18 percent of funds supplied by external sources (that is, excluding retained earnings) to nonfinancial firms. Commercial banks accounted for two-thirds of corporate bond holdings by intermediaries in 1912. Based on flow-of-funds accounting, bank loans (for all purposes) accounted for 12 percent of externally supplied funds for 1901–1912. For this period, bank loans amounted to roughly 10 percent of firms' debts, and less than 5 percent of firms' assets. Bonds and notes accounted for roughly half of firms' debts, and trade debt constituted 15 percent.[26]

Reliance on bank loans was relatively high for small firms. Large, established manufacturing firms relied more on bond issues as a means of indirect bank finance and less on loans from banks as a source of financing,

especially prior to the 1940s.[27] Of course, under a unit banking system, large-scale firms operating throughout the country would have had to borrow from many small unit banks simultaneously. Bond market syndications facilitated this transaction by providing a means for banks to share risk and coordinate capital allocations.

A study of funding sources for a sample of fourteen large manufacturing firms from 1900 to 1910, based on accounting records of sources of net inflows of funds, indicates little reliance on bank lending. For the period 1900 to 1910 these firms reported a total financial inflow of $1.2 billion, of which $357 million came from external finance. Of this only $29 million was in the form of short-term debt. Some bank loans during this period also took the form of long-term debt, but long-term loans from commercial banks were relatively uncommon around the turn of the century.[28]

While small firms relied more on banks, it does not follow that banks contributed to the financing of industrial capital expansion by small firms any more than they did to that of large firms. Two detailed studies of the sources of capital in manufacturing provide a glimpse of the contribution of banks to industrial expansion in Illinois and California in the middle to late nineteenth century.[29] In the case of California, thirty-three of seventy-one manufacturing firms studied over the period 1859 to 1880 financed their investment entirely from internal sources. The others incorporated, took in partners, and supplemented these sources with earnings of existing partners from other sources, sale of stock or real estate, "eastern capital" (in three cases), and loans from a private banker (the same banker in both instances). Clearly, commercial banks had no role in the expansion of manufacturing capital in California prior to 1880.

Illinois' experience was similar, but the role of banks in financing industrial expansion may have been greater. The rapid expansion of manufacturing in Illinois began in the 1860s. From 1860 to 1870, manufacturing production and capital each increased sevenfold, and employment increased sixfold. From 1870 to 1880, manufacturing production doubled. The personal and business histories of fifty entrepreneurs show that these firms were financed initially from accumulated savings of would-be manufacturing entrepreneurs, or by entrepreneurs taking on a partner with savings. Subsequent funding typically was provided by retained earnings. Occasionally, this was supplemented by the sale of entrepreneurial assets, the expansion of the partnership, or incorporation. In twenty-six out of fifty cases, manufacturing entrepreneurs of relatively mature firms used profits to invest in an interest in a bank, which "marked the beginning of more rapid success for them. They owned in part or had access to, funds, either

large or small, which would enable them to grow and to progress." This was especially important in the 1860s because manufacturing was moving rapidly toward mechanization and opportunities for expansion outpaced accumulated profits.[30]

To summarize, firms progressed up the financial "pecking order" as they matured. Entrepreneurs sometimes secured access to external funds by investing in banks, on which they could rely for limited funding. While the experience of Illinois' entrepreneurs does indicate a role for banks in industrial finance, it says as much about the limits of that role as it does about banks' potential importance. Access to bank funds was extremely limited, and bank stockholders were given preference as bank borrowers. While banks may have played some role in financing industrial expansion in Illinois and elsewhere, the importance of this role was greatest during the "adolescent" stage of the firm's life cycle—after the firm had become mature enough to invest in becoming a bank insider but before it had become too large to rely on a bank for its funding needs. Even this role of bank lending in industrial finance is apparent only in the histories of roughly half of the case studies examined.

Why were commercial banks unable to expand to meet the challenges of financing the new large-scale industrial producers? Naomi Lamoreaux's (1991a, 1991b, 1994) studies of New England banking provide an interesting perspective on that question. She shows that large-scale banking would have been profitable in New England, but that profitable consolidation was not permitted by bank regulators. Many New England banks wanted to merge in response to the growing scale of firms, and the consequent economies of scope and scale in providing industrial finance. When banks were able to merge, their profits increased substantially. Ultimately, however, national and state banking laws stood in the way of bank mergers or branching, as unit bankers blocked attempts to liberalize branching laws and prevented attempted mergers. The economic costs of the political power of small unit bankers is an important theme throughout the history of American financial regulation.[31]

Regulatory barriers on the scale of banking changed the functions of New England banks. As already discussed, New England banks had been important sources of finance, monitoring, and control for antebellum industrial enterprises, and the manager/owners of those enterprises were bank "insiders." Those arrangements changed by the late nineteenth century. By 1900, New England's banks had moved toward financing the commercial (rather than industrial) undertakings of bank outsiders. These changes reflected the growing mismatch between large-scale firms, and in-

herently small unit banks. As firms became larger, small banks found it increasingly difficult to satisfy the investment-financing needs of large customers, given the desirability of maintaining a diversified loan portfolio.

Filling the Gap: The Dawn of "Financial Capitalism"

The fragmented banking system's inability to finance industrial growth induced innovative new financing methods for corporate borrowers. These included the development of a market for commercial paper (a short-term, highly liquid debt instrument, mainly held by banks), and the rise of investment banking syndicates. Both of these financing mechanisms were available only to the largest, most established firms. Syndicates were used to finance corporate consolidations and reorganizations, as well as to market new issues of bonds and preferred stocks.

The commercial paper market (a unique innovation of the American financial system) met the short-term borrowing needs of large, high-quality borrowers. From humble beginnings in the 1870s, it reached its pre–World War II peak in 1920 at $1.3 billion, consisting of the debts of over four thousand borrowers.[32] Commercial paper houses provided a means for the highest-quality borrowers to locate cheaper sources of funds outside their local markets. Commercial paper brokers received short-term bridge financing from local banks, which was repaid once they had sold their paper (generally to banks in relatively low-credit-demand locations).

The commercial paper market was not open to all firms and was not useful for all purposes. Because commercial paper was used as a money substitute (essentially, a form of interest-bearing bank reserves), only the lowest-risk borrowers were permitted to enter the market, and the maturity of paper was kept short. These restrictions ensured that credit risk was very small in the market, and made it easier to sell paper in the secondary market.[33] Even for high-quality borrowers, the high costs and high frequency of rollover in the commercial paper market meant that long-term financing needs could not be addressed adequately through commercial paper finance.

The vehicle for long-term finance was the investment banking syndicate. Investment banking syndicates operated as multitiered financing mechanisms. At the top were Wall Street investment bankers who planned, priced, and underwrote the issue. Sales occurred through a network of local dealers, many of whom maintained close ties with local commercial banks, who bought securities for themselves and for their customers. As Vincent Carosso (1970) points out in his classic study of investment bank-

ing, this selling network developed during the Civil War as a means of placing large issues of government bonds. The network of relationships remained after the Civil War, and provided a basis for continuing distributions of private securities.

The central challenge facing an investment banking syndicate is convincing buyers to purchase the securities of firms about which they know little or nothing. How could a Wall Street financier assure potential American (and foreign) investors that American railroad and industrial securities were sound investments? Why should buyers believe that investment bankers or their dealers will truthfully identify which are the good companies and which are the bad ones?

Clearly, reputation building, effective signaling, and information sharing are the key ingredients to resolving the problems of marketing securities to outsiders.[34] The marketing of securities also can be enhanced by the continuing involvement of the investment banker with the issuing firm. As noted in our theoretical discussion, some of the frictions that discourage outside investors from financing firms come from the inability of outside investors to prevent firms from misusing funds (e.g., taking on excessive risk after placing a large debt issue). For investment bankers to be successful in marketing securities, they must be able to convince outside investors that they possess and accurately communicate information about firms ex ante, and the value of the securities sold will be enhanced if bankers can limit opportunistic behavior by firms ex post.

An important tradition in American corporate finance emerged as a response to these concerns—the presence of a powerful financier on the board of directors of a corporation seeking funding through an investment banking syndicate. This became a prevalent practice during the last two decades of the nineteenth century. Indeed, the rise of "financial capitalism"—as this practice came to be known—has its American origins with the railroad financings of the 1870s and '80s.

Investment Banking and Corporate Finance Prior to World War I

The rise of the modern industrial corporation during the last quarter of the nineteenth century encouraged this type of affiliation between bankers and companies to make the rapid industrial growth of that period feasible. Spectacular growth of "mass production" with "mass distribution" took place during the 1890s and the first decade of the twentieth century. This process required huge outlays of capital—more than any single lender

could command or risk. The challenge to financing such growth on such a large scale was to find a means to intermediate between creditworthy firms and a large number of uninformed suppliers of funds—to design an effective mechanism to screen, monitor, and control large-scale users of funds raised in centralized capital markets.

The growth of financial capitalism reflected other changes in the economy in addition to the growth of new large-scale industries. Three other influences were particularly important, and operated largely through the incentives that they created for developing means of restructuring existing financial claims on existing real assets, rather than creating new claims to finance new assets. These include changes in law—especially bankruptcy law—that promoted innovations in financial instruments (preferred stock issues) and encouraged the restructuring of corporate balance sheets; episodes of macroeconomic financial distress that encouraged corporate restructurings and consolidations; and the incentives for consolidation created by the Sherman Antitrust Act of 1890.[35] These three influences not only created increased demand for securities marketing by investment banks; they increased the need for involvement of investment bankers in corporate decision making.

For most of the nineteenth century the United States lacked a comprehensive law on bankruptcy. The frequent episodes of financial distress that resulted in a large number of railroad failures had not influenced policy makers enough to motivate the formation of a bankruptcy law until 1898. The process of equity receivership underwent constant change in response to ongoing legal innovations in the bankruptcy process. Revisions in the nineteenth-century legal process included (1) the right of receivers to issue claims with a seniority level higher than the prior senior claimants; (2) the right of courts to secure the claims of unsecured debtholders; and (3) the imposition of "fees" on stakeholders as a method of raising funds to complete the reorganization.

Along with these legal innovations in the bankruptcy process, new methods of financial reorganization were being introduced during this period. These methods included the more frequent use of preferred stock, the collection of assessments to raise cash during reorganizations, and the use of voting trusts. These developments occurred partly as a response to the recurring financial problems from which most corporations were suffering. Preferred stock, for example, was more frequently used during the reorganizations of the 1890s, as bond financing and floating debt used during previous organizations only resulted in an increased chance of default. After the unsuccessful reorganizations of the 1870s, railroad financiers and in-

vestors experimented with different, innovative methods of reorganization designed to reestablish the financial health of their troubled companies. The Wabash experience of the 1880s served as a successful model of reorganization for other firms.[36]

Extensive use of the voting trust along with the more widespread use of preferred stock as a tool for raising capital in external markets increased the demand for banker representation on the boards of directors of client corporations. The complexity of these financial innovations, and the use of (riskier) preferred stock rather than simple debt magnified the importance of investment bankers as advisers and controllers of corporate decision making.

Clearly, episodes of financial distress furthered the movement toward investment banker involvement in corporate management by encouraging the legal innovations of the late nineteenth century and the financial innovations that responded to them. Experiences with distress also taught firms the potential advantages of maintaining an ongoing relationship with an investment banking firm as a form of insurance against the costs of future financial distress. The investment banker's role in this respect depended on his ability to buy and sell large amounts of securities in a short period of time. In times of precarious financial conditions such as the panics of 1861, 1873, and 1893, prestigious investment banking firms were very much in demand for representation and financial advice. During economic downturns, when the rate of railroad and commercial failures increased, reorganizations and necessary mergers were more easily performed by a financial expert who was "inside" the corporation.

The Sherman Antitrust Act of 1890 also added to the demand for investment bank involvement in corporate management. The Sherman Act did not explicitly prohibit the formation of holding companies. Banker representation facilitated the circumventing of new regulations by creating legal holding companies to replace the now illegal trusts. Thus the Sherman Antitrust Act encouraged the biggest merger movement in U.S. history. Perhaps as much as one-half of U.S. manufacturing capacity took part in the merger during the years 1898–1902.[37] The U.S. Steel merger, orchestrated by J. P. Morgan and Company was by far the largest of these in capitalization.

More formal empirical analysis of financial capitalism confirms its importance in facilitating the financing of industry. Recent studies have shown that maintaining a close relationship with a major investment banking house was associated with improved corporate performance and greater access to external finance. DeLong (1991) finds that the performance of

firms affiliated with Morgan was higher than that of nonaffiliated firms, and Ramirez (1995) finds that Morgan firms did not display the excessive cash-flow sensitivity of investment found in other firms.

Although financial capitalism was evolving during the last two decades of the nineteenth century and the first decade of the twentieth, it never developed into universal banking in the German sense, nor the zaibatsu system that existed in Japan prior to World War II. Despite its successes, in comparison to the German universal banking system the American system entailed high costs of external finance for all corporate borrowers, and especially high costs for immature firms, which lacked access to the high-flying financial capitalism of Morgan and his counterparts.

Calomiris (1995) argues that the relatively high costs of American corporate finance are visible in a number of comparisons between German and American corporations. In particular, the high fees for issuing common stock in the United States and the paucity of stock issues (especially of common stock) by American firms indicate that information and control problems were better solved by German capital markets. German firms issued far more public equity than debt, most of which was in the form of new common stock issues. American firms issued very little common stock on the public market prior to World War I. The commissions on common stock flotations charged by German universal banks were roughly 4 percent and did not significantly vary by the size of the firm or the size of the issue. In the United States, commissions averaged above 20 percent, and the costs were prohibitive for any but the largest firms.

The paucity of equity issues and the high commissions charged on junior instruments (common stock issues) in the United States reflected the difficulty of credibly communicating information about firms and controlling corporate behavior. J. P. Morgan was willing to make a large investment in information about and control over its established industrial clients. But U.S. industry in large measure was left behind by the capital markets. In Germany the situation was different. Even small firms and firms in growing industries could gain access to capital markets, typically through stock issues. The key difference between the German and American financial systems was that German universal banks could take deposits, lend, underwrite securities, place issues, and manage portfolios all within the same financial institution, and that institution could operate throughout Germany. Because German banks could branch freely, they were able to use the same network of offices for all these functions. This allowed them to "internalize" the costs and benefits of monitoring and controlling their industrial clients. Before underwriting a security, they had

lent to, and developed a relationship with, the issuing firm for some time. After underwriting the issue, they placed it internally with their own trust customers. After placing an equity issue, the bank retained control over the votes of the shareholders, which concentrated control in the bank.[38]

German banks thus had preexisting knowledge at the time of the underwriting that helped to reduce information costs. More important, the bank's function as a portfolio manager gave it a way to control the subsequent behavior of the firm, and a continuing incentive to monitor and signal the quality of its industrial clients honestly (since it competed with other banks for the privilege of managing customers' portfolios).

Another indicator of the high relative cost of finance in the United States is the choice of factors of production. The U.S. tendency to avoid fixed capital in the production process has been widely discussed by economic historians, and linked to the high cost of external finance. Firms facing high external finance costs may rely more on liquid assets in the production process (materials) because liquid assets are easy to sell during a cash crunch, and they command better terms as collateral for bank loans. Historical analysis of the U.S. production process has stressed the reliance placed by the United States on substitutes for capital in the production process, especially natural resources. The reliance on substitutes for fixed capital increased during the late nineteenth and early twentieth centuries. By 1928, resource intensity of exports was 50 percent higher than its 1879 level.[39]

The historical literature on U.S. factor choice shows that the reliance on resources was not exogenously determined. America's natural resource base is not among the richest in the world. Rather, the American reliance on natural resources, the development of production techniques that were resource-intensive, and the emergence of high-throughput production and distribution processes were induced in part by the high cost of raising capital.

Studies of variation in asset structures across firms using post–World War II data are also consistent with this argument. These studies find that high fixed capital intensivity is associated with lower-cost access to external finance (as measured either by cross-sectional differences in underwriting costs or by differences in access to bond and commercial paper markets).[40]

Changes in Financial Capitalism During the Interwar Era

The initial failure of universal banking in the United States, we have argued, was attributable to constraints on the ability of commercial banks to branch, since this limited any intermediary's ability to lend to (much less

underwrite for) large-scale firms on a national scale. But those initial barriers were not the only limitations that would be imposed on the relationships of financial capitalism. In the wake of populist congressional "investigations," first in 1912, later in 1932, Congress acted to circumscribe banking powers and limit financial capitalism. The second intervention, in 1933, was the more important. The early legislation had little effect, and other trends began to favor the development of "incipient" universal banking in the 1920s—notably, the wave of deregulation of bank consolidation and branching during the 1920s. The restrictions imposed by the Banking Act of 1933 and the revival of protection for unit banks brought an end to these experiments.

During the first decade of the twentieth century there was a growing public perception that financial capitalism was growing too concentrated and that a "Money Trust" had been formed among the few and powerful investment banking houses during the period. This negative view of financial capitalism was magnified by the panics of 1902 and 1907. This concern became the source of a bitter political debate that culminated in a congressional investigation of the so-called Money Trust. Progressives such as Arsene Pujo, a Louisiana representative who chaired the Money Trust investigation, together with Samuel Untermyer (chief counsel of the committee), and Louis D. Brandeis, a very influential and ambitious Boston lawyer (who would later become a Supreme Court justice) questioned the influence and power that these few investment banking houses had over a large sector of the economy. The committee cross-examined members of the largest investment banking houses and their client firms during the hearings. Although they never accomplished it, their intention was to show the existence of trusts that controlled a substantial share of capital and abused their strategic position.

Mark Roe (see chapter 4 in this volume) points out that U.S. regulation evolved largely in response to public perceptions of who or what was wrong in the existing system. The Pujo investigation of 1912 and the enactment of the Clayton Act of 1914 were clearly products of this public outcry. Public sentiments had been stirred up after the Panic of 1907 and were further highlighted when Brandeis held J. P. Morgan and Charles Mellen (CEO of the New York, New Haven, and Hartford Railroad) responsible for the deteriorated financial condition of the railroad. "The evils of monopoly" caused the New Haven to go into receivership in 1914, according to Brandeis's *Other Peoples' Money*.

But the momentum of legislation from the Progressive Era waned substantially after 1914 due to the involvement of investment banks in the war effort. The perception changed in favor of Wall Street once again, as it

came to be viewed as a major contributor to the financing of the Allies' war expenditures. During this period the role of the investment and commercial bankers shifted from financing domestic corporations to financing domestic and foreign governments. In the wake of these changes, there was little effort to enforce and strengthen the Clayton Act's weak limitations on bank involvement in boards of directors.

Two mutually reinforcing developments during the 1920s changed the menu of feasible relationships between financiers and corporations, and led to "incipient" universal banking. First, partly as a consequence of how the war was financed, the American public had increased its appetite for financial securities. Even small, unsophisticated investors wanted to partake in the securities boom of the 1920s. Second, largely in response to a wave of bank failures (produced by agricultural income declines after World War I), many states liberalized their regulations on bank branching and consolidation. From 1920 to 1929, nearly four thousand banks were absorbed by merger. The number of bank offices operated by branching banks rose from 1,811 to 4,117.[41]

This meant a substantial increase in the scale and geographic range of many U.S. banks. It also meant that many commercial banks were becoming large enough to reap the advantages of scope from becoming universal banks. Commercial banks were not permitted to sell or own stock directly but could do so through wholly owned affiliates that effectively operated as organs of the bank. The first three investment affiliates of national banks were organized between 1908 and 1917, and served as models for the growth of affiliates in the 1920s. By 1929, 591 banks operated affiliates.[42]

In 1929, securities market optimism was suddenly shattered. The stock market crash and the subsequent Great Depression left a bitter taste with the public, and once again, the negative sentiments against the financial community had been awakened. The investment and commercial banking industry had few political defenders in Washington. Soon another congressional investigation was initiated, this time under the chairmanship of Ferdinand Pecora. This investigation intended to show that rampant abuses, fraud, and conflict of interest had resulted in the systematic fooling of securities investors.

These critics argued for the end of bank affiliates because they believed that preexisting (senior) debt obligations of issuing firms, if held by the bank managing a new issue, created a conflict of interest. It was argued that banks had an incentive to mislead investors when selling junior securities of the firm because doing so would increase the value of existing bank-held debts of issuing firms. Other opponents to affiliates based their opposition

on the supposed connection between the stock market collapse and subsequent bank failures. The investigation was a biased search for embarrassing examples, not a scientific analysis of the operation of bankers and investment bankers.[43]

These hearings, unlike their Progressive Era predecessor, did culminate in far-reaching regulations in the financial community. These included the Securities Acts of 1933 and 1934 (which required complete disclosure of financial information) and the (Glass-Steagall) Banking Act of 1933 (which separated commercial banking activities from investment banking, created federal deposit insurance, and imposed Regulation Q ceilings on bank deposits).[44]

From the standpoint of incipient universal banking, these changes meant the end of a brief experiment. That was clearly the intent of Congress. The Banking Act of 1933 was a compromise among various positions, and there were great differences between Glass's and Steagall's regulatory goals. The compromise they reached was intended to reverse the demise of small banks and to remove commercial banks from their connections to securities markets. Deposit insurance (Representative Steagall's hobbyhorse) was understood to be a mandated subsidy from large banks to small banks, and was viewed as an alternative to expanding branching and consolidation as a means to stabilize the banking system. The separation of commercial and investment banking followed from Glass's view that the stock market had been the ruin of the banking system. Glass pushed for Regulation Q as a further means to insulate banks from securities markets. He argued that removing interest on deposits would discourage banks from reserve pyramiding in New York, and thereby break the link between the banking system and the call loan market for brokers and dealers on Wall Street.

It is ironic how this "new" negative perception in Washington contrasts with the one prevalent during the Progressive Era. During the Pujo investigations, Brandeis focused on the oligopolistic behavior of the financial community as the main source of evil that plagued the industry. Indeed, the concept of a "Money Trust" was specifically derived from the public perception that the financial industry was too concentrated, and thus easily controllable by a few influential financiers. The Pecora investigation of the 1930s, by contrast, indirectly highlighted more the competitive scenario of the securities industry as a direct or indirect cause of the "evils" that beset the market during the late 1920s. Typical accusations alleged that bank affiliates were unloading securities of poor quality onto the innocent public largely through "misleading" advertisements. But these advertisements

were a symbol of the increased competition and entry that had taken place in the 1920s.

The principal accusations of the Pecora hearings have been discredited by recent research. Benston (1989) criticizes the methods of the hearings and finds no evidence to support their "findings." White (1986) finds that banks that operated affiliates had lower failure propensities than other banks, and traces this fact to the income diversification that nonbank activities offered. Kroszner and Rajan (1994) argue that the alleged conflicts of interest that supposedly led bank-affiliated investment bankers to cheat their clients did not exist. They show that the securities promoted by commercial bank affiliates were of comparable quality to those underwritten and sponsored by investment banking houses. Bank affiliates likely avoided conflicts of interest, in part, by themselves purchasing sufficient quantities of junior issues for sufficient lengths of time to quell any suspicions of an incentive to overprice issues. For example, Harris Bank and Trust in Chicago prided itself on its willingness to purchase shares that it underwrote, and incorporated that fact into its motto ("we sell and hold"). Furthermore, reputational considerations discourage underwriters from overpricing securities. Such behavior would be punished by less demand for purchases in the future, and by the loss of trust accounts of securities purchasers who suffered loss on the transaction.

Ramirez and DeLong (1994) argue that New Deal reforms undermined beneficial relationships between firms and their bankers. Benefits to corporations from being affiliated to a bank prior to the banking reforms of the New Deal were reflected in a higher market value of affiliated firms. After the New Deal reforms, bank-firm relationships did not have any significant effect on firms' market values. From this standpoint, the enactment of the New Deal reforms imposed significant financing costs on corporations.

What is the mechanism behind Ramirez and DeLong's findings? New Deal reforms limited the relationship between financial intermediaries and corporations. By separating investment banking from commercial banking, the Glass-Steagall Act reduced the influence that both commercial and investment banks had over client corporations. For commercial banks this was clearly the case since now they were not allowed to own corporate stocks as assets. It also reduced the influence of investment banks since the contacts and financial resources that connected them to the commercial banks had been eliminated. Investment bankers had to rely solely on their ability to search for individual clients to purchase securities, and not on the financial backing of commercial banks that stood ready to purchase blocks of securities. For the client corporation, it indirectly increased the cost of

raising funds in external markets. To the extent that financiers were representing shareholders, the separation of ownership and control over the resources of the corporation had become more acute (see Berle and Means, 1932).

There is also indirect evidence supporting the claim that the cost of raising funds in public financial markets increased in the aftermath of New Deal financial reforms. Private placements (private debt issues held by life insurance companies) increased dramatically after the 1930s. Other factors may have contributed to the long-term growth of private placements during the late 1940s and '50s, but the timing of the early growth spurt in the late 1930s and early 1940s supports the notion that private placements were favored by the rising cost of issuing public securities.[45]

The financial devastation of the Great Depression (and the restrictive financial regulations that followed) increased the cost of corporate finance and reduced the relative importance of finance from sources other than retained earnings.[46] Flow-of-funds data indicate that the corporate sector as a whole obtained more than 100 percent of its financing from retained earnings. There was a net repayment of debt claims and virtually no stock issues during this period. Over the period 1940–1945, retained earnings still accounted for 80 percent of corporate finance sources. For periods of similar length prior to and after the Great Depression, internal funds typically provided between one-half and two-thirds of funding.[47]

To the extent that sources other than earnings were forthcoming in the late 1930s and '40s, they increasingly took the form of private placements. From 1934 to 1937, private placements accounted for 12 percent of a small total of corporate offerings. By 1951, private placements accounted for 44 percent of all corporate offerings, 58 percent of all debt issues, and 82 percent of all debt issues of manufacturing firms. From the beginning, life insurance companies accounted for the overwhelming majority of these purchases (93 percent in 1947, 83 percent in 1950) with the remainder held largely by banks (2.7 percent in 1947, 12.1 percent in 1950). For the period 1990–1992, life insurance companies and banks (broadly defined) maintained respective shares of 83 and 11 percent of the private placement market.[48]

Bank loans also increased in importance in the 1940s and '50s. Indeed, the growth in private placements during the 1940s was matched by growth in commercial bank lending to corporations. From 1939 to 1952, life insurance company outstanding holdings of corporate debt rose from $10.4 billion to $34.7 billion. From 1939 to 1952, total outstanding loans from operating commercial banks to nonfinancial corporations increased from

$6.2 billion to $21.9 billion. Over that same period, bank holdings of bonds and notes rose little by comparison—from $3.0 billion to $3.4 billion. Over this period, during which bank and insurance company holdings of corporate debt tripled, producer prices roughly doubled; thus real growth in inside debt was significant.[49]

Regressive Changes in Financing Relationships After the 1930s

Although inside debt was the most active margin of external finance during the 1940s, the growth of inside debt from the 1930s to the 1950s did not provide an adequate substitute for predepression financial relationships under "incipient" universal banking, as indicated by Ramirez and DeLong's (1994) evidence on the weakening of banking relationships after 1933. Why were private placements and bank debt inadequate substitutes for earlier financial arrangements? There are two (closely related) potential explanations—inside debt was in the form of the most senior obligations of corporations, and inside debt remained small relative to assets. These explanations are related because debt seniority is enhanced when senior debt remains small relative to total assets. The information and control requirements of relationships that entail the supply of small quantities of senior debt are very limited. Banks and insurance companies are able to protect themselves by restricting debt ratios, holding secured (collateralized) debt, and designing and enforcing financial and behavioral covenants defined in ways that are relatively easy to observe.

Those financial relationships, however, will not necessarily guarantee that management will be effectively disciplined to avoid conflicts of interest between managers and stockholders. As Michael Jensen (1986) has stressed, absent large quantities of debt (which force managers to maximize operating profits to avoid financial distress), managers will be able to use the "free cash flow" of firms at the expense of stockholders. Banks and insurance companies holding small amounts of corporate debt (relative to assets) are, therefore, no substitute for universal banks, which are both junior and senior stakeholders in the firm, and which control a significant share of the voting power of the stockholders.

Thus a lack of discipline over managers was especially likely in the 1940s and '50s—after the collapse of "incipient" universal banking and during an era of high cash flow and low debt. The 1940s and '50s were a time of unusually low debt ratios when compared with earlier or later periods. For example, data on the ratio of the market value of corporate debt to

the market value of corporate assets indicate debt-to-asset ratios during the 1940s and '50s of roughly 15 percent. Another measure, based on different estimates, shows an average ratio of 18 percent for the 1950s. Estimates for the same measure average 32 percent for four selected years between 1900 and 1929. Leverage rose significantly beginning in the 1960s and reached ratios in the 25 to 40 percent range for most of the 1970s and '80s.[50] The 1940s and '50s were a time of unusually low debt ratios historically, and senior, inside debt relationships were an imperfect substitute for the richer corporate finance relationships of the predepression era.[51]

To summarize, in the immediate postwar period, the continuing growth of the size of corporations and the lack of any external concentration of power to control corporate decision-making weakened the efficiency of capital market allocations and increased the costs of corporate finance. The concentration of power over the resources of the corporation had shifted somewhat from the hands of owners (and their financier agents) to those of management.

Institutional Investors and the New Financial Capitalism

The relative importance of retained earnings and senior inside debt finance during the 1940s and '50s was a short-lived phenomenon.[52] Private placements as a percentage of securities offerings peaked in the mid-1960s. The resurgence in public offerings of bonds and stocks, beginning in the 1950s, reduced the share of private placements to only 14 percent of total securities issues by 1970.[53] That trend accelerated in the early 1970s, and continues into the present, with dramatic growth over the 1980s and '90s in public issues of debt and equity, and a relative decline in the share of inside debt relative to total financing sources. What caused this resurgence of public debt and equity issuance?

The boom in equity issues, beginning in the 1960s, was so dramatic that in 1971 the Securities and Exchange Commission published an enormous multivolume study and Congress held hearings examining these changes. That study concluded that, in the market for new common stock issues, institutional investors (pensions, mutuals, and trusts) had changed the way equity issues were sold.[54] By acting as purchasers of large amounts of stock, particularly in unseasoned companies, they reduced the marketing costs normally associated with placing such stock. The Securities and Exchange Commission found that institutional investors accounted for 24 percent of all purchases of 1,684 initial public offerings (IPOs) of common

stock from January 1967 to March 1970. Despite enormous short-term profits that some investors realized from rapid sales of initially underpriced IPOs, most institutional investors bought stocks in the primary market to hold as long-term investments.[55] Seventy percent of institutional IPO purchases remained unsold after twelve weeks. Institutional investors did not discriminate in their purchasing according to the size of the issuer, but did tend to deal only with the largest underwriters.[56]

Involvement by institutional investors has been an important contributor to the decline in the cost of public issues of equity after the 1950s. As one study argued, "These institutions, which first sparked the cult of common stocks, later attracted public attention to 'growth' stocks and created the fashion for instant performance. Innovative and inventive, institutional money managers have ventured into areas where older and more prudent investment men feared to tread, *taking positions in the stocks of unseasoned companies*, setting up hedge funds, devising new types of securities" (emphasis added).[57] Part of the Securities and Exchange Commission's (1971) study focuses on the impact of institutional investors on corporate issuers. It emphasizes that, by selling in block to institutional buyers of primary public common stock offerings, investment bankers could economize on the costs of marketing securities. It was easier for underwriters to credibly communicate the characteristics of issuers to a few block buyers, especially if those block buyers were institutional investors with large trust accounts managed by New York banks. Additionally, the concentration of stockholdings of unseasoned firms may have facilitated control over management, and thus reduced the potential risk of stock purchases and the need for information about the firm at the time of the offering.

The Securities and Exchange Commission argued that the benefits of institutional purchasing for reducing issue costs on public equity exceeded the direct consequences of placing shares in the hands of institutional investors. The participation of institutional buyers in an offering also made it easier to sell the remainder of the offering to individual investors:

> Retail members of the syndicate have been known to advise their customers in advance of the offering that institutions have indicated their intent to buy the issue. . . . While this knowledge of institutional interest may increase the public's appetite for any stock, the effect is greater for small, less established issuers than for large established issuers and still more so for first offerings of such small companies . . . The possible public impression that institutions, with their purported research capabilities and sophistication, would not allow themselves to be bilked helps explain individual investors' attitudes toward institutional interest. The result, then, of supposed or revealed institutional interest in an offering is to enhance retail interest as well.[58]

More formal empirical studies of issuing costs have confirmed the importance of institutional investors in reducing costs, and have shown that small, unseasoned issuers were among the largest beneficiaries. Mendelson (1967) and Calomiris and Raff (1994) argue that the costs of public common stock issues (measured by underwriting commissions, or commissions plus expenses) fell dramatically from 1950 to 1970, and that this decline was especially pronounced for small, relatively unseasoned firms (those for which information problems and marketing costs were greatest). These authors relate the decline in the costs of public issues to the role of institutional investors making block purchases of stock, which reduced costs of information and control in the market for public securities.[59]

The growth of pension funds' and mutual funds' holdings of equity in the late 1950s and '60s was dramatic. In 1946, investment companies (mutual funds) and private pension funds held 2.0 percent and 0.8 percent respective shares of corporate equities. By 1970, those shares had risen to 5.3 and 7.8 percent, respectively. By 1980, private pensions held 10.4 percent of corporate equity, while investment companies held 4.6 percent. The growth of equity holdings by pension funds reflected more than the 17-fold growth in total assets of these intermediaries from 1950 to 1971. Private pension funds' holdings of common stock grew from 12 percent of their total assets in 1951 to 68 percent in 1971.[60]

Did these intermediaries arise in response to high corporate finance cost, or for other reasons? The answer seems to be the latter, but their continuing growth, in part, reflected their unique abilities and incentives to invest in information and control corporate performance. The principal sources of early growth in pension funds were the wage controls of World War II (which favored the use of nonwage compensation for employees) and the tax exemptions enjoyed by pensions, which became increasingly valuable during the 1960s.

Institutional investors were very active in the venture capital market as well. In addition to their $1.4 billion in public IPO purchases during the period 1967–1970, institutional investors purchased $3.5 billion of nonpublicly traded "restricted" securities (venture capital investments in equity or debt with equity features), which mainly benefited small, young firms.[61]

Venture capitalists provide a combination of discipline and funding for a class of firms very different from those affiliated with Morgan in the pre–World War I era (which were among the largest and best-seasoned credit risks in the economy). Venture capitalists finance unseasoned firms that lack access to public markets and play an important role in managing the financial arrangements of these firms.

Venture capital funds, which became especially popular in the 1970s,

operate as two-tiered sets of relationships with spillover effects over the firm life cycle. Large institutional investors hold shares of the fund, which invests in many firms. The venture capitalist also retains a stake in the fund. Large institutional investors (especially private pension funds) learn about the firms being financed by the venture capital fund through their participation in the fund. Those same institutional investors often participate in the initial public offerings of the firms that they helped finance earlier.

Government policy has had important influences on the venture capital market, and on the involvement of institutional investors and commercial banks in venture capital funds. The history of modern American venture capitalism begins with the formation in 1946 of the American Research and Development Corporation. The investment of this firm in Digital Equipment Company during the late 1950s remains one of the great success stories of venture capitalism. Regulatory changes that favored limited commercial bank entry into equity funds to finance small businesses (under the Small Business Investment Company Act of 1958) provided an early impetus for expansion. In 1971 the Bank Holding Company Act further relaxed restrictions on bank entry into venture capital, and there was a significant influx of bank capital into venture capital affiliates. Pension companies had initially been slow to involve themselves in venture capital funds. Trustees faced the threat of personal liability for "imprudent" activities (which seemed to include venture capital investments). Reforms to the Employee Retirement Income Security Act (ERISA) in the late 1970s, however, redefined the "prudent man rule" to emphasize overall portfolio diversification rather than individual investments, and this encouraged substantial entry during the 1970s (with pensions typically holding 5 percent of their assets in venture funds).[62]

The growth of new institutional investors after the 1960s brought with it a new scope to financial relationships—one very reminiscent of predepression financial capitalism. A multitiered intermediation arrangement involving institutional investors, trust bankers, venture capitalists, large commercial banks, and investment bank underwriters became involved in long-term relationships among themselves, and with corporations in need of funds. While these arrangements are still a far cry from universal banking, they share some important advantages. The scale of funding sources is large relative to the needs of firms (which economizes on the costs of placement), there is often continuity in the relationships between firms and intermediaries over time, and intermediaries are junior as well as senior claimants of the firm (which provides incentives and means for intermediaries to monitor and control corporations).

Other Developments in Corporate Finance and Control Since the 1960s

The growth of institutional investors and of venture capitalists are two important institutional developments that have helped reduce financing costs associated with asymmetrical information problems and potential conflicts between managers and shareholders. Other market-driven mechanisms that have become increasingly important since the 1960s include increased product market competition; the use of takeovers as a mechanism for corporate control; increased reliance on debt finance; and incentive-based management compensation packages.

The first of these mechanisms, product market competition, helps to impose discipline on managerial behavior by exposing managerial errors more quickly and making financial distress a more likely outcome of managerial errors. A seemingly unimportant managerial mistake can have catastrophic consequences for a firm in a highly competitive industry. For example, even a company with an efficient production process may lose substantial market share to its competitors due to a marketing error.[63] Naturally, companies under poor management are much more likely to lose out to their competitors.

Product market competition has become increasingly important during the last twenty years, partly as a result of the heightened foreign competition facing American enterprises. During the last three decades many nations, notably Japan and other Asian countries, have improved their production processes and increased their productivity levels dramatically. Accompanying this trend was the steady reduction of tariff barriers in the United States and in other industrialized countries.

It is hard to measure the extent to which foreign competition has improved managerial discipline. Nevertheless, casual empiricism suggests that it has been substantial, especially when one considers the structural changes that have taken place in American corporations in recent years. "Reengineering," "downsizing," and "restructuring" are all part of the transformation companies have experienced recently as a response to the challenge to become more competitive in the world market. The internal organization that seemed to have served the American company well forty or fifty years ago is now seen as an inefficient system that creates layers of unnecessary managerial staff.

While competition helps to expose managerial waste and increases the chance that inefficiency will translate into financial failure, takeovers improve stockholders' abilities to discipline wasteful managers without de-

pending on competition-induced financial distress.[64] If the market perceives that a company is undervalued because of poor managerial talent, a successful takeover can replace management and increase the market value of the targeted firm. Even the management of a company that is not taken over is affected by the new takeover technology; the threat of a takeover itself reduces managerial incentives to invest company resources in value-reducing ways.[65]

Have takeovers been beneficial to society as a whole (including shareholders and employees of the targeted firm and those of bidding firms), or have they only benefited shareholders of targeted firms at the expense of other groups? Evidence indicates that takeovers have brought net economic gains. Michael Jensen estimates that the net gain to society from the takeover activity during the 1977–1986 period has been in the neighborhood of four hundred billion dollars (1986 dollars).[66] The gains are highest when a well-managed firm makes a bid for a poorly managed one. By contrast, they are lowest (even negative) when a poorly managed firm intends to take over a well-managed one.[67]

Although takeovers in general are motivated by one of the world's great constants—the search for profit—the wave that came in the 1980s seems to have been facilitated by the relaxation of restrictions on mergers that antitrust regulators would have opposed in earlier periods. In fact, industries that experienced a great deal of deregulation, such as transportation, gas and oil, and financial services, also experienced an increase in the level of merger activity during the 1980s.[68]

Jensen (1986) argues that actual or potential takeovers can reduce managerial incentive problems. For example, if managers were motivated by the objective of maximizing the value of their firms, then any cash flow left over after all positive net present value projects have been financed should be distributed in the form of dividends or stock buybacks to shareholders. The "free cash flow problem" arises because managers who have discretion over these funds may instead have an incentive to use "excess funds" to finance the acquisitions of other businesses, including those producing different products or operating in different industries.[69] Even if doing so reduces the value of the firm, increasing firm size and reducing firm risk may increase managers' perquisites and reduce the risk of firm failure (i.e., unemployment of the manager). In a recent study Lang and Stulz (1994) report evidence for the 1970s and '80s indicating that the market places a higher value on single-industry firms than on conglomerates with diversified portfolios of businesses. In other words, a firm that pursues a diversification strategy tends to be penalized in financial markets with a re-

duced market value. This evidence suggests that conglomerate acquisitions may serve the interests of managers at the expense of stockholders.

It follows that a takeover can add economic value by taking control of an inefficient, diversified firm away from its management, and selling its divisions as independent businesses. Because creating a conglomerate is a reversible corporate strategy, takeovers provide a means to improve efficiency, which may make takeover threats sufficient to discourage some managers from pursuing wasteful strategies in the first place.[70]

As mentioned earlier, one well-documented trend of the past thirty years has been the rise of corporate debt relative to equity.[71] There are many reasons why companies might find debt issuance appealing. Among them, debt financing carries attractive tax advantages over equity financing.[72] Others have emphasized the advantages of debt as a disciplinary device. By taking on debt, managers increase their debt service relative to operating profits, and thereby constrain themselves to maximize profits and avoid abusing "free cash flow" (using cash flows to finance endeavors that give the manager a personal benefit but do not increase the value of the firm). From this perspective the rise in corporate leverage may have been induced, in part, to reverse the post-1930s trend toward managerial autonomy and away from supervision and control by shareholders.

Gertler and Hubbard (1990) argue that tax advantages have been the more important motivation behind the run-up in corporate debt. They point to offsetting costs of debt that may outweigh the disciplinary advantages stressed by Jensen. Debt increases the potential for financial distress because the firm's promised payments are not indexed to the state of the economy. Furthermore, Gertler and Hubbard argue that the disciplinary advantages of debt could be achieved, and much of its financial distress costs eliminated, by choosing an alternative contracting structure that shares features of both debt and equity and indexes firms' payments to observable macroeconomic state variables.

Gertler and Hubbard (1990) may be right to attribute most of the run-up of debt to tax considerations, and to emphasize the costs of financial distress wrought by debt financing.[73] Nevertheless, whether or not the debt run-up was designed as a disciplinary device, greater corporate discipline has been a by-product of higher leverage. It is an open question whether those benefits outweigh the other corporate finance costs of higher leverage, which include physical costs of financial distress, forgone investments that result from financial distress, and negative spillovers in financial markets as intermediaries become more concerned about the fragility of the financial system, and thereby apprehensive about the issuance of new debt.

The design of the management compensation contract is another device the market uses to alleviate the conflict of interest between managers and shareholders. To the extent that these contracts include incentives to induce managers to undertake actions in the interest of shareholders, they can reduce the need for monitoring and control of managers by stockholders. By tying the financial remuneration of senior management (the CEO, for example) to a measure of company performance (such as accounting earnings or the market value of the firm), the CEO's stake in the corporation is more directly related to that of shareholders.

Pay-for-performance contracts can take many different forms and may differ in the types of incentives they offer. These incentives include performance-based bonuses and salary increases, and stock options. Often implicit in such contracts is the possibility of removal from a senior position due to poor performance. In a recent study Jensen and Murphy (1990) estimate the sensitivity of managerial incentives to shareholder wealth (a variable directly proportional to the market value of the firm) and conclude that the total CEO compensation package changes by $3.25 for every $1,000 change in shareholder wealth. This sensitivity measure is significantly lower for larger firms ($1.85 per $1,000 for the top half of their sample versus $8.05 per $1,000 for the bottom half).

The lower estimated sensitivity for larger firms could be justified in theory as the result of managerial risk aversion—especially if executive compensation (and wealth) is not strictly proportional to firm size. As the size of the firm becomes larger, maintaining the same sensitivity of managerial earnings to firm earnings requires greater variation in managerial earnings. Another explanation for Jensen and Murphy's finding might be that monitoring costs are not important enough to render pay-for-performance contracts necessary. A third possibility is that managers of large firms are more insulated from stockholder discipline, and thus are able to avoid making their salaries as sensitive to firm performance. Finally, Jensen and Murphy argue that some of the low sensitivity of managerial compensation to performance reflects other external factors. Political and regulatory issues inside and outside the corporation seem to play an important role in the construction of CEO compensations.

In summary, market-driven mechanisms that grew in importance after the 1960s have mitigated asymmetrical information problems and shareholder-management conflicts to some extent. In our view, however, such devices are imperfect substitutes for properly structured universal banking relationships. First, although product market competition can expose man-

agerial incompetence or waste, and may punish inefficiency by making financial distress a more likely outcome, this is an indirect and costly means of discipline. This mechanism imposes costs not only on the management but also on other constituents of the corporation, including its stockholders, employees, and creditors. Frequent restructuring and reorganization in response to product market conditions is socially costly.

As for takeovers, it is important to understand that they are effective only to the extent that management behavior is observable. The trouble is that management actions and decision making may be observable to outsiders only dimly and only after the fact. If value-reducing actions are reversible, such as in the case of diversification mergers, a takeover might undo them successfully. However, if they are not, all that a takeover can do is prevent continuing losses from those actions. In addition, it is important to consider the social readjustment costs of a takeover, since they might also be expensive for the employees and the community, and can impose large transaction costs on shareholders. Being able to undo investments that should never have been undertaken is not as beneficial as being able to prevent value-reducing investments from being undertaken in the first place—one of the potential advantages of a universal banking relationship.

Neither is debt an effective substitute for the benefits provided by universal banking. As discussed earlier, debt might alleviate the free cash flow problem, but it creates other problems. In particular, it increases the probability and the costs of bankruptcy.

Pay-for-performance as a device to influence managerial incentives would seem to be less wasteful than product market competition, takeovers, or high leverage to improve managerial behavior. The trouble is that the available evidence indicates that there are practical limits to the extent to which pay-for-performance schemes can reduce the conflict between managers and shareholders. Managers are risk-averse, and this places limits on feasible incentive schemes in their compensation packages.

Most importantly, managerial compensation—like the other three market-driven mechanisms—can solve problems of managerial misbehavior but does nothing to mitigate financing costs that result from asymmetrical information between insiders and outsiders. Even if firms are perfectly controlled by stockholders, they will face financing costs associated with lack of information about the value of their opportunities and the potential for stockholders to act in their own self interest and contrary to the interest of their creditors. Universal banking, however, can address conflicts of interest both between managers and shareholders, and between informed share-

holders and uninformed creditors or potential shareholders, and can do so without the large transaction costs, information costs, and disruption inherent in other potential mechanisms for solving those problems.

Financial Innovations and Relationships

It has become a commonplace to argue that the rapid growth in securities transactions during the 1980s, domestically and internationally, is evidence that financial relationships matter less than they used to. Such arguments usually point vaguely toward computers as the source of the new technological breakthroughs (reflected in common stock market growth in developing countries; in the surge in bank loan sales, syndications, and asset-backed securitizations in the United States; and in the growth of derivative transactions worldwide). Some would argue that innovation has made it possible to resolve information and control problems without resort to traditional relationships. We believe this view that "transactional" intermediation is replacing "relationship" intermediation in American corporate finance is flawed for several reasons.

First, one of the main indicators of the demise of relationships—the decline in domestic commercial bank holdings of corporate debt—has been misinterpreted. While it is true that foreign bank entrants and asset-backed securities significantly increased their asset market shares of corporate debt during the 1980s, for many borrowers those changes in the identities of ultimate holders of debt did not imply changes in their banking relationships. Domestic banks often originated and sold loans to foreign banks, or managed syndicated loans in which foreign banks participated. Similarly, asset-backed securitizations require origination, and often "credit enhancement." Bankers change the packaging of the credit service, but fulfill essentially familiar roles as screeners, monitors, and marketers for their client firms. Foreign bank entry into loan origination during the 1980s was largely confined to large, creditworthy firms with access to public debt markets, not to the vast majority of firms, which lack such access and which depend on continuing relationships with intermediaries to meet their financing needs economically.[74]

Computers have not single-handedly repealed the laws of economics. They have not provided any new, magical solutions to creditors' problems of monitoring and controlling the behavior of owners, or to stockholders' problems of controlling managers. Computers have facilitated the dissemination of statistical credit analysis, and thus encouraged financial innovations that allow the sharing of risk among institutions, nationally and internationally.

But they have not fundamentally changed the fact that corporate finance (for the vast majority of firms) is relationship-based.

Indeed, one could argue that new financial innovations are more rapidly propelling financial intermediaries toward universal banking. Once the fixed costs of providing multiple products are reduced, there is more room for "relationship economies of scope" to influence the structure of the financial services industry. By expanding the feasible menu of services that any intermediary can deliver, technological progress may enhance the strength of long-term relationships between clients and their intermediaries.

Universal Banking in the 1990s?

The most recent important change in corporate finance technology has come from relaxation of restrictions on bank scale and scope. Limits on branching—the single most important impediment to an efficient system of corporate finance throughout American history—have been eliminated. Banks have gained entry to nontraditional banking activities—including securities underwriting, derivatives sales, mutual fund management, and venture capital finance. As Kaufman and Mote (1990) show, most of the expansion in banking powers has followed discretionary relaxation of regulatory policy rather than legislative action, and there are still some important barriers to true universal banking. Although important political obstacles remain, the tide clearly has turned, and many academics and regulators have come out in support of removing existing barriers.[75]

Why the sudden change? As in the 1920s (the earlier period that witnessed widespread relaxation of branching and consolidation restrictions and expanded bank powers), regulators and politicians responded to a crisis. The collapse of small, rural banks brought on by the agricultural bust of the 1920s prompted a bank consolidation movement (which, in turn, encouraged the expansion of powers). Most states relaxed branching laws between 1920 and 1939 to encourage entry by banks amid widespread economic distress. In the 1980s, once again it was the collapse of many small banks and thrifts that prompted action. Between 1979 and 1990 most states significantly relaxed their internal branching laws prior to any federal action.[76]

Federal regulators—notably Allan Greenspan—were also concerned about declining profits of banks in the late 1980s and the increased competition banks faced from abroad, which was the single most important source of lost commercial and industrial lending business for domestic banks. Regulators argued that expanded powers were necessary to level the

playing field between universal banks in other countries and American commercial banks. The United States followed a pattern similar to many other countries of deregulation in response to global competition in financial services.[77]

An emphasis on the relationship benefits of universal banking raises interesting issues for current regulatory reform. For example, it may be that a repeal of restrictions on equity holdings by banks (which might reduce costs of corporate governance and financial distress for bank clients) would have greater benefits for corporate finance than allowing banks to sell insurance (which receives comparatively greater attention in most of the current discussions of universal banking). Furthermore, repealing underwriting restrictions may imply greater relationship-cost savings if banks are also allowed to sell the issues they underwrite to their own customers (contrary to current regulations) and thus retain control over stock voting rights of client firms (as German banks do).

Conclusion

The history of the American financial system, and of corporate financial relationships within that system, reflects the interplay among financial frictions (information and control costs of corporate finance), government policies (bank and financial market regulations, tax policies, pension laws, bankruptcy laws), financial crises, and financial innovations. These influences together determine the "menu" of financial relationships available to corporations over time. With respect to the ability of the financial system to mitigate frictions due to problems of asymmetrical information and corporate control, the history of American institutional and regulatory change has seen moments of progress, as well as reversals. Three relatively successful cases—the antebellum New England system, incipient universal banking in the 1920s, and the "new" financial capitalism—are separated by periods that offered poorer menus of financial relationships. While over the very long run there may be a tendency for efficient financial relationships (like universal banking) to be allowed by government, over significant intervals (many decades) government interventions have stood in the way of these beneficial relationships. Thus, history has not been a process of steady or rapid convergence toward the most efficient set of relationships.

Whether recent trends toward the expansion of the scale and scope of commercial bank operations will usher in a new, lasting era of true universal banking in the United States, and its accompanying benefits for the

costs of corporate finance, remains an open question. We suspect that the road ahead will be as bumpy as that which has already been traversed. The future menu of relationships is hard to predict; institutional change is path-dependent and subject to the unforecastable influences of financial crises and government policy. Despite the potential for improvement in banking regulation brought by global competition, for example, the next financial crisis—possibly a costly insolvency of a financial intermediary involved in complicated derivative transactions—could reverse much of the progress that has been made in broadening banks' involvement in nontraditional corporate finance. Just as important, government policies not directed toward financial markets or intermediaries (like tax or health care policies) may have important unforeseen consequences for corporate financing arrangements.

Notes

The authors thank Carl Kaysen and other contributors to this volume for helpful suggestions in revising this chapter.

1. See Akerlof (1970); Stiglitz and Weiss (1981); Myers and Majluf (1984); and Calomiris and Hubbard (1990).

2. The classic statements of these problems can be found in Jensen and Meckling (1976) and in Myers (1977).

3. The connection between costly verification and debt is studied in Townsend (1979); Diamond (1984); and Gale and Hellwig (1985).

4. Our definition of absconding subsumes managerial waste of "free cash flow," as discussed in the classic work by Berle and Means (1932), and emphasized recently by Jensen (1986). For a discussion of how absconding incentives may increase during times of poor performance, and the role of debt in mitigating such problems, see Calomiris and Kahn (1991).

5. See Atack and Bateman (1994) for a discussion of regional differences in manufacturing profits historically, and Calomiris (1993a) for a review of similar regional differences in interest rates.

6. Gilson, John, and Lang (1990) examine the factors determining successful restructurings of distressed firms, and find that bank involvement and the concentration of debt make success more likely.

7. As we argue later, intermediaries may choose to "regulate" as an alternative to investing in information, or may lack the special skills of the entrepreneur and may impose excessively conservative rules on entrepreneurial behavior. Thus, there may be deadweight losses associated with discipline, as well as advantages.

8. Excess sensitivity of fixed capital investment and working capital investment is measured after controlling for fundamental firm investment opportunities

using either a sales-accelerator model or a Tobin's Q model of investment. Recent contributions to this literature include Fazzari, Hubbard, and Petersen (1988); Himmelberg (1990); Whited (1992); Gilchrist and Himmelberg (1993); Himmelberg and Petersen (1994); Calomiris and Hubbard (1995); Calomiris and Himmelberg (1995); and Calomiris, Himmelberg, and Wachtel (1995).

9. In addition to a dependence on inside lenders, unseasoned credit risks tend to exhibit other related behavioral characteristics. Because of their financing constraints they tend to substitute liquid capital for fixed capital and maintain higher ratios of inventories and liquid assets to sales. This behavior allows the firms to self-insure against shortfalls of cash flow, and provides them with highly liquid collateral that can help reduce the costs of borrowing from inside lenders (Fazzari and Petersen, 1993; Calomiris and Hubbard, 1995; Calomiris, Himmelberg, and Wachtel, 1995; Calomiris and Himmelberg, 1995).

10. For empirical evidence that banks maintain close relationships with relatively "unseasoned" credit risks, and produce unique information about their creditworthiness, see James (1987); Mackie-Mason (1990); Best and Zhang (1993); Billett, Flannery, and Garfinkel (1995); and Petersen and Rajan (1994). For evidence on the characteristics of firms with access to public debt markets, see Calomiris, Himmelberg, and Wachtel (1995). For qualitative discussions of the financial "life cycle" of firms, see Butters and Lintner (1945).

A subset of the new literature on bank lending relationships has shown that not all bank relationships have the same consequences for firm financing costs. Morgan (1993) finds that the cash flow sensitivity of investment for bank borrowers is significantly reduced if borrowers are willing to accept the discipline of financial covenants (restrictions on leverage, dividend payments, and ratios of liquid to illiquid assets). Slovin, Sushka, and Polonchek (1992) find that when Continental Bank faced the threat of liquidation in 1983, the stock values of borrowers that relied on their relationship with Continental fell significantly, while those of other Continental borrowers (those with many other bank relationships, and those with access to public markets) did not react to the threat to Continental. Hoshi, Kashyap, and Scharfstein (1990a, 1990b, 1991) find that when Japanese firms are willing to become part of a *keiretsu*—which entails a very close relationship with the *keiretsu*'s main bank, including lending, stock ownership, and involvement by the bank in the board of directors of the firm—their cash-flow sensitivity of investment (controlling for opportunities) is reduced, as is the cost of financial distress (measured by investment contractions during distress episodes).

11. See Hoshi, Kashyap, and Scharfstein (1990b).

12. For a complementary perspective on the change from a bank to a nonbank financing choice, see Diamond (1991). This model emphasizes the role of banks in helping firms generate information about themselves that can be of use in moving to securities markets later. For evidence on the transfer of information from prior bank lending to securities markets, see James and Wier (1990) and Booth (1991).

Weinstein and Yafeh (1994) present evidence consistent with the notion that bank lending in close firm-bank relationships is relatively costly. They find that

Japanese "main bank" relationships entail higher interest costs than other Japanese bank loans. They use this evidence to challenge the benefits of main bank lending, but in fact their evidence is quite consistent with beneficial main bank relationships. Higher interest likely reflects greater costs of lending (more intensive monitoring and control) rather than rent extraction by banks. As Rajan (1992) shows, even if close bank relationships do give banks the power to extract quasi rents (which would show up as higher interest costs on loans), those quasi rents will be bid away at the time the bank relationship is established, if the market for relationships is competitive ex ante.

13. Theoretical models include Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Chemmanur and Fulghieri (1994). Studies of post–World War II flotation costs include Mendelson (1967), Hansen and Torregrossa (1992), and Calomiris and Himmelberg (1995). Analyses of cross-country differences and changes in costs over time in the United States are provided in Calomiris (1995) and Calomiris and Raff (1995).

14. Rajan (1994) shows that a banker with a debt claim on a firm may have an incentive to misrepresent the firm's financial position to potential purchasers of new shares in order to raise the value of the firm's debt. So long as the banker also subscribes to a sufficient amount of the stock, however, that potential conflict of interest will not arise.

15. E.g., Gorton and Schmidt (1994) relate the size of the equity stakes of German universal banks to the performance of their corporations.

16. Network economies can be particularly important when securities must be sold to many ultimate holders. Restrictions on commercial bank branching, for example, may make universal banking infeasible. If banks are not allowed to develop nationwide networks for taking deposits, as was the case in the United States, they may find the costs of setting up a network of branches throughout the country to sell securities, manage portfolios, and make loans prohibitively high. Calomiris (1995) emphasizes the importance of network economies for explaining some of the advantages of universal banking in Germany. He finds that underwriting fees charged by German banks were much smaller than those charged in the United States. That cost difference may reflect a variety of economies of universal banking. Calomiris also finds no significant cost difference in placing large and small issues in Germany. In the United States, in contrast, the size of issues is the single most important predictor of the underwriting commission rate. Calomiris argues that the ability of universal banks to place securities internally within their network of securities purchasers explains this fact.

17. See Sheard (1989) and Hoshi, Kashyap, and Scharfstein (1990a, 1990b) for evidence of the importance of bank equity ownership in its clients (a key ingredient in the Japanese "main banking" relationship) in reducing the costs of raising funds from the bank.

18. Calomiris (1995) argues that network, information, and signaling economies can explain the low costs of equity flotation in Germany historically under universal banking.

19. Some commentators on universal banking have argued that there are disadvantages to concentrating so much power within one intermediary or a small set of intermediaries. It is argued that financial intermediaries may become oligopolistic if there are too few of them, or that a few powerful intermediaries may help to enforce cartels among industrial firms (as a device for coordinating penalties to be imposed on firms that deviate from the cartel's agreement). But pointing to such costs of universal banking does not amount to an indictment of universal banking per se. First, fragmentation of financial services may create more monopoly power by banks than universal banking. Recent research on the United States and Canada, for example, indicates that the concentrated Canadian banking system prices more competitively than its American counterparts (Calomiris 1993a; Shaffer 1993). Unit banking protects banks from competition, while branch banking promotes competition among several banks. Second, with respect to banks' abilities to enforce industrial cartels, bank enforcement is neither a necessary nor a sufficient condition for successful cartelization. In the United States, cartels developed in the absence of universal banking. Moreover, aggressive antitrust enforcement can overcome industrial cartelization effectively, whether or not universal banks exist.

20. For a review of banking and finance during the colonial and early national period, see Perkins (1994).

21. For discussion of the connection between banks and other special-purpose corporations, see Knox (1900); Legler, Sylla, and Wallis (1990); and Schweikart (1988).

22. See Campbell and Kracaw (1980); Diamond (1984); and Calomiris and Kahn (1991).

23. Calomiris and Kahn (1996) argue for the relative efficiency of New England banks. Davis (1957, 1960) and Lamoreaux (1991a, 1994) provide detailed analyses of the links between New England banks and industrial enterprises.

24. It is interesting to note the many similarities to the German system, including the close relationships between banks and firms, and the use of savings institutions as investors in industrial banks. Savings institutions (Kreditgenossenschaften) were large depositors in the German credit banks (Riesser, 1911, pp. 198–202).

25. Baskin (1988), Davis (1966), and Calomiris (1993a, 1995) describe the development of American capital markets and their limitations. Davis (1963, 1965), Sylla (1969), James (1978), and Calomiris (1993a) examine data on postwar interest rate differences relevant for commercial and industrial lending. Riefler (1930) provides data on actual bank lending rates during the 1920s. Bodenhorn (1990) examines regional interest rate differences during the antebellum period.

26. Goldsmith (1958, pp. 222, 335) gives intermediaries holdings of bonds. On pages 339–40 he provides data on commercial banks' bond holdings, decomposed according to type of issuer. Goldsmith, Lipsey, and Mendelsohn (1963, p.146) provide data on composition of debts for nonfinancial corporations.

27. Goldsmith (1958, pp. 217–18).

28. Goldsmith (1958, pp. 335, 339) is the source for data on short- and long-

term lending by commercial banks. The study of large manufacturing firms is described in Dobrovolsky and Bernstein (1960, pp. 141–42).

29. Marquardt (1960) studies enterprises in Illinois, while Trusk (1960) studies firms in California.

30. Marquardt (1960, p. 507).

31. See Calomiris (1993a) and Calomiris and White (1994).

32. For reviews of the history of the commercial paper market, see Greef (1938); Foulke (1931); and Selden (1963).

33. For a discussion of the theoretical connection between low risk and liquidity, see Gorton and Pennacchi (1990). For an empirical study of the characteristics of issuers, see Calomiris, Himmelberg, and Wachtel (1995).

34. Theoretical models of investment banking include Benveniste and Spindt (1989); Benveniste and Wilhelm (1990); and Chemmanur and Fulghieri (1994).

35. For a discussion of the origins of preferred stock, see Tufano (1992). Campbell (1938) and Carosso (1970) discuss the importance of restructurings, and Smith and Sylla (1993) provide a lively analysis of the biggest of these cases—the formation of U.S. Steel. Bittilingmayer (1985) and Cleveland and Huertas (1986) discuss bankruptcy law changes and the Sherman Act.

36. See Martin (1972).

37. Bittilingmayer (1985, p. 77).

38. The failure of the U.S. banking system to develop German-style universal banking cannot be attributed to ignorance. The successes of German banking were widely appreciated by contemporaries from an early date (e.g., Jeidels, 1905). Jacob Riesser's (1911) classic study of German banking—which focused on advantages from corporate control by universal bankers—was commissioned by the U.S. National Monetary Commission as part of its study of alternative financial arrangements. But in drafting its proposals for what would become the Federal Reserve System, the National Monetary Commission took as given the fragmented structure of the American banking system and the lack of universal banking.

39. Wright (1990, p. 658) notes that U.S. exports had far higher resource content than imports and that the resource intensity of exports increased substantially during late nineteenth-century industrialization. Wright follows Piore and Sabel (1984) and Williamson (1980) in linking the American utilization of resources with the "high throughput" system of manufacture emphasized by Chandler (1977), which Field (1983, 1987) points out is a means to economize on capital costs.

40. Calomiris, Himmelberg, and Wachtel (1995); and Calomiris and Himmelberg (1995).

41. Calomiris (1995).

42. Peach (1941, pp. 18–20, 61–64).

43. Benston (1989) provides a detailed critique of the hearings.

44. See Carosso (1970); Smith and Sylla (1993); Calomiris and Raff (1995); and Calomiris and White (1994) for descriptions of the New Deal financial market and banking reforms and their effects.

45. For detailed discussions of the rise of private placements, see Carosso (1970); Jarrell (1981); and Calomiris and Raff (1995). The growth of life insurance companies (the primary holders of private placements), and the advantages of concentrated control in private placements of debt, were also important in explaining their growth. Private placements permitted the writing and enforcing of covenants that were not feasible for public bonds. The concentration of control in private placements implied far greater incentives for holders of debt to collect and use information to control corporate behavior and limit risk.

46. See Bernanke (1983); Calomiris (1993b); and Calomiris and Raff (1995).

47. Data on the shares of external and internal funding are from Taggart (1985, p. 26). Part of this reliance on retained earnings during the early 1940s may reflect the crowding out of corporate fund-raising by government bond issues. Much of the growth in insurance company holdings of private debt in the late 1940s and '50s, for example, coincided with a decline in holdings of government debt.

48. Data on private placements are from Securities and Exchange Commission (1952, pp. 3–6); and Carey et al. (1993).

49. Data on bank holdings of bonds and notes are from Goldsmith (1958, 339, 364). Producer price data are from Council of Economic Advisers (1974, p. 252).

50. Data on debt ratios are from Taggart (1985, pp. 24–28).

51. Myers (1976) points to unprofitable mergers as an example of lack of discipline over corporate management during the 1960s.

52. The discussion in this section borrows heavily from Calomiris and Raff (1995).

53. Jarrell (1981).

54. In the secondary market, institutional holders gave rise to the "two-tier" market for equity trading. In addition to the traditional small transactions for individual holders, a new market arose in block trades among large money managers, which included pension fund managers or their investment managers (particularly, Morgan Guaranty, Bankers Trust, and Citibank, which collectively managed 80 percent of the trust accounts of employee benefit plans—Munnell, 1982, p. 121). The main advantages of this development were improvements in market liquidity, as it became much easier to move large amounts of shares over small periods of time. See also Blume, Crockett, and Friend (1974).

55. Those that sold immediately after buying primary issues reaped similar profits to other IPO purchasers (a capital gain averaging 18 percent for the first week after the issue).

56. Securities and Exchange Commission (1971, pp. 2348–56).

57. Friend, Blume, and Crockett (1970, p. vii).

58. Securities and Exchange Commission (1971, p. 2393).

59. In a study of the determinants of underwriting fees for recent common stock issues, Hansen and Torregrossa (1992) show that institutional investor purchases of common stock issues are associated with lower issuing fees.

60. Useful studies of the development of institutional investors include Andrews (1964); Greenough and King (1976); Ture (1976); and Munnell (1982).

61. Securities and Exchange Commission (1971).

62. Bank-holding-company-owned venture capital affiliates have been playing an increasingly important role in the growth of private equity finance.

63. Kremer (1993) refers to O-ring defects in the *Challenger* disaster as an example of the low tolerance for managerial error in modern production processes.

64. A takeover of a targeted company is initiated when a potential acquirer makes a tender offer to its shareholders. If the shareholders accept the offer, the company changes ownership and the takeover is completed.

65. To be sure, takeovers are not exclusively done to enforce managerial discipline. There are other important considerations. For more on this see Brealey and Myers (1991).

66. See Jensen (1988, pp. 21–22).

67. This and other evidence is found in the studies of Lang, Stulz, and Walkling (1989), Shleifer and Vishny (1990, 1992), Servaes (1991), and Healy, Palepu, and Ruback (1992). These figures, however, do not say anything about the substantial amount of redistribution that takes place after a takeover is completed. There are many aspects which we do not address, as they would take us beyond the scope of our discussion. For a comprehensive evaluation of the consequences of takeovers, see Auerbach (1988).

68. See Jensen (1988) and Jarrell, Brickley, and Netter (1988) for a more detailed discussion of these issues.

69. Managers typically justify such acquisitions with two arguments. First, by acquiring other lines of businesses, firms can exploit economies of scale and scope. Second, by organizing an internal capital market, the firm will presumably be more efficient at allocating capital resources than an external market. For a comprehensive discussion, see Brealey and Myers (1991) and Morck, Schleifer, and Vishny (1990).

70. Indirect evidence of this can be found in Bhagat, Shleifer, and Vishny (1990); Kaplan and Weisbach (1992); and Mitchell and Lehn (1990); all of whom report that it is common to observe substantial sales of assets after a takeover. More direct evidence is presented by Berger and Ofek (1995), who find that the probability of a takeover increases with the amount of value destroyed by a diversification strategy.

71. This trend is emphasized by Taggart (1985) with respect to the 1960s and '70s, and by Friedman (1986) and Bernanke and Campbell (1988, 1990) for the 1970s and '80s. See also Jefferis (1990) and Gertler and Hubbard (1990).

72. See Miller (1977) and Auerbach (1981).

73. Indeed, Warner (1977) and Calomiris, Orphanides, and Sharpe (1994) find that these costs are substantial.

74. For a bold prediction that relationships are in decline, see Crook (1992).

For the opposite point of view, see Calomiris and Carey (1994); Boyd and Gertler (1994); and Calomiris (1996).

75. The most important obstacle to deregulation of bank powers is finding a way to limit the risks faced by the deposit insurance system from allowing banks to engage in nontraditional activities.

76. See Mengle (1990).

77. See Calomiris and Carey (1994) for a discussion of foreign bank entry into commercial and industrial lending. Crook (1992) discusses the forces behind global deregulation of financial markets.

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