



**ALTERNATIVE METHODS OF CORPORATE
CONTROL IN COMMERCIAL BANKS**

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Abstract

Unique factors in commercial banks' environment may influence the nature and effectiveness of their corporate control mechanism. I investigate this issue in a sample of U.S. bank holding companies (BHCs) by analyzing how many underwent a change in corporate control by hostile takeover, friendly merger, management turnover by the board, or intervention by regulators. I examine the relative importance of these different methods and whether they differ from those employed in nonfinancial firms. I also relate the use of these different methods to BHC board and ownership structure, and performance. I find that the the most important corporate control mechanism among BHCs is intervention by regulators, suggesting that the corporate control problem in banks may be more severe than in other firms. I also find that the primary *market-based* mechanism of corporate control for BHCs is action by the board. Overall, however, BHC boards are much *less* assertive than their counterparts at nonfinancial firms. I examine reasons for this.

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Alternative Methods of Corporate Control in Commercial Banks

This article investigates the corporate control mechanism that operates in commercial banks. The term corporate control mechanism refers to the various methods by which bank owners attempt to force bank management to follow value-maximizing policies. Various devices can motivate such managerial discipline. External devices--the market for takeovers, external capital, and the final output of the firm--can all in theory discipline managers by threatening them with replacement or bankruptcy of their firm. Internal devices consist of direct monitoring performed by boards of directors and large shareholders, and the management compensation contract, which can provide incentives to maximize value by giving managers equity-like shares in the firm. This paper analyzes the use of some of these corporate control devices in banks.

Although the research on the corporate control mechanism in nonfinancial firms is vast, there is surprisingly little research on the corporate control mechanism operating in banks. Yet, analysis of the corporate control mechanism in banks is important for a number of reasons. First, despite its supposed decline in recent years, banking remains an extremely important industry, that acts as the main interface between savers and investors.

Second, such analysis contributes to our understanding of the different ways in which corporate control mechanisms operate in firms under different legal and regulatory environments. The considerable differences between the legal and regulatory environment of banks and nonfinancial firms may imply substantial differences in the nature and effectiveness of their respective corporate control mechanisms. In particular, federal and state restrictions on the market for corporate control for banks and the oligopolistic advantages that commercial banks have in issuing insured debt may mean that important external market mechanisms for disciplining managers--the takeover and product market--are significantly weaker for banks. The regulatory environment of the commercial banking industry may substitute to some degree for the weaker

market mechanisms of corporate control. However, intervention by the regulatory authorities is widely regarded as a poor, more costly substitute for market control mechanisms, both because of bureaucratic and political problems that interfere with the efficient functioning of regulatory agencies and because maximizing shareholder value (the objective of market mechanisms) is not the same as minimizing the probability of failure (the regulator's objective). This article addresses the question of whether these differences in the regulatory environment of banks relative to nonfinancial firms have produced greater reliance on internal devices for corporate control--active boards and large, active shareholders--or, if not, whether the corporate control problem is simply more severe in commercial banking.

Third, such analysis may provide information on whether commercial banks suffered from a corporate control problem in the 1980s, as some researchers have recently proposed (see, for example, Gorton and Rosen (1992)). Many analysts claim that over the past ten to fifteen years the U.S. commercial banking industry has suffered a significant decline in performance, including a loss in market share to nonbank competitors (such as securities markets, mutual funds, insurance companies, finance companies and foreign banks), substantial falls in bank profitability, and a skyrocketing bank failure rate.¹ All this has occurred despite intense merger and acquisition activity among banks that was supposed to improve productivity and cost efficiency. Many researchers believe that the reasons for this decline are secular in nature; and that the recent recovery in bank profitability will prove to be only a temporary phenomenon with commercial banking continuing to decline relative to other financial institutions over the long term.

Researchers have proposed numerous reasons for the commercial banking industry's woes in the 1980s. Greater competition from nonbanks and a heavier federal regulatory burden are often

¹For some documentation of these trends see Gorton and Rosen (1992). Note that the claim that the banking industry is in decline is by no means universally accepted. On this issue see Boyd and Gertler (1994), Levonian (1995), Kaufman and Mote (1994), and articles in the Federal Reserve Bank of Chicago (1994).

put forward as reasons for this apparent decline.² Others point to the moral hazard problems that appear particularly severe in the banking industry.³ This article addresses another possible reason for the relative underperformance of banks: that the corporate control mechanism in commercial banks is less effective than in nonbank firms.

Finally, from a public policy viewpoint, examination of the corporate control mechanism in banks may be useful in evaluating the industry's current legal and regulatory environment, and also some of the recently proposed banking legislation that may amend or eliminate provisions in the Glass-Steagall Act. While much of the current and proposed legislation has been evaluated in terms of the desirability of allowing commercial banks to engage in securities underwriting or in selling insurance, there has been little analysis in terms of the effects on the corporate control mechanism that operates in banks, even though some of the proposed changes in banking law would loosen the restrictions on bank ownership, with potential effects both on the structure of bank ownership and the bank takeover market. In this article, I attempt to provide such analysis.

I analyze the corporate control mechanism in U.S. commercial bank holding companies (BHCs) over the period 1987-1992 using data on the number of managers versus outsiders on a BHC's board of directors, the ownership structure of the BHC including directors' shareholdings and the stakes of the BHCs largest shareholders, and various measures of bank performance. I relate these variables to five types of corporate control change a BHC could undergo over the sample period: hostile takeover, friendly acquisition, removal of top management by the board of directors, intervention by regulators, and no control change. I use these data to examine the relative importance and effectiveness of the different methods of disciplining managers in BHCs and how they differ from those employed in nonfinancial firms.

²See, for example, Ely (1992).

³See Keeley (1990) and McManus and Rosen (1991).

Some questions this article addresses are: what are the primary means by which managers are disciplined in commercial banks? What is the frequency and effectiveness with which these means are used? For example, what is the frequency of top management turnover in commercial banks? Is turnover related to measures of bank performance? How important are boards of directors in disciplining top management relative to alternative control devices such as hostile takeovers, friendly acquisitions and intervention by regulators? What is the structure of ownership in commercial banks and is it related to bank performance? As mentioned above, many of these questions have been addressed for U.S. nonfinancial firms (see for example, Morck, Shleifer and Vishny (1989) and Jensen and Murphy (1990)), so some standards are available with which results for the banking sector can be compared. This study borrows in particular the method employed in Morck, Shleifer and Vishny (1989) (MSV) for their sample of manufacturing firms.

In the next section of this article I outline the factors that are unique to the commercial banking sector that may affect the nature and the effectiveness of its corporate governance mechanism and I survey the academic research on corporate governance problems in commercial banks. The subsequent section describes the data and discusses the empirical results. The final section concludes.

The corporate control mechanism in commercial banks

Does the legal and regulatory environment of U.S. commercial banks today imply a different system of corporate governance than is observed in other sectors of the economy? Many unique factors in the commercial bank operating environment may influence the nature and effectiveness of the corporate control mechanism in commercial banks.

The first unique factor is federal regulation of the takeover market. The threat of a takeover of a firm, in which management usually is replaced, can discipline managers to act in the interests of shareholders. Restrictions on the type or number of potential acquirers of the firm

make takeovers less likely and thus limit the credibility of the takeover threat. In the banking sector, there traditionally have been significant restrictions on the takeover market. For example, the Bank Holding Company Act (as amended in 1970) and the National Banking Act generally require that the acquirer of a commercial bank also be a commercial bank or bank holding company--mergers between nonbank corporations and commercial banks are prohibited--and there are more general restrictions on the ownership of banks by nonfinancial corporations.

In addition, federal regulation may make permitted hostile takeovers *within* the commercial banking sector much more expensive and time consuming than in nonbank sectors of the economy. Interstate banking regulations may for example prohibit many possible bank mergers. In addition, bank takeovers typically face extensive delays. This tendency may lower the frequency of hostile takeovers, which typically depend for their success on the ability to close the transaction quickly. Bank takeovers require prior approval from one of the three federal bank regulators--the Comptroller of the Currency, the Federal Deposit Insurance Corporation (FDIC) or the Federal Reserve Board--and state authorities (see Baradwaj, Fraser and Furtado (1990)). After approval is granted there is a thirty-day waiting period so the Justice Department can scrutinize the takeover attempt. In all, the takeover process can last four months or longer. In many cases, these restrictions may make the threat of a takeover in commercial banking insufficient to discipline managers.

Such restrictions may also influence the ownership structure of commercial banks. Currently, nonfinancial corporations and firms in important financial sectors such as the insurance industry are prohibited from owning commercial banks. To a large extent, the law restricts ownership commercial banks to individuals and other commercial banks. To the degree that this restriction reduces the likelihood that banks will have equity holders with large stakes at risk, it also may reduce the effectiveness of one mechanism of corporate control: the monitoring and oversight

performed by shareholders motivated by their large holdings.

Another unique factor is the effect of deposit insurance on the moral hazard problem in banking. As is the case with any limited liability firm with debt outstanding, bank stockholders have incentives to take on inefficient risk. However the problem is more acute in commercial banks where stockholders are in addition subject to the distorting incentives arising from the existence of fixed price deposit insurance premia. These premia result in a subsidy to bank shareholders that increases in value with the riskiness of the bank. Thus bank shareholders have even stronger incentives to take on inefficiently risky investments that benefit themselves at the expense of the deposit insurance fund and the taxpayers that back the fund.⁴

Competition in the product market can play a role in reducing the extent to which managers shirk from value maximization goals. Together with thrifts, credit unions and government sponsored enterprises, commercial banks have traditionally had strong oligopolistic advantages on the liabilities side of their business--the issuance of insured debt. This oligopolistic position may have given banks the scope to be more inefficient in some aspects of their business, for example, in the degree to which managers follow value maximizing policies, yet still be competitive with other financial institutions that have not had the benefit of issuing liabilities backed by a federal guarantee. However, the advantages from issuing insured debt for banks likely have declined over recent years with the emergence of numerous good substitutes, such as money market mutual funds.

Federal regulation and moral hazard clearly play a role in shaping the corporate control mechanism that operates in banks, and in particular are likely to make it operate significantly differently from the corporate control mechanism at work in other firms. Nevertheless, there is only a relatively small amount of literature, particularly of recent vintage, that attempts to document

⁴Risk-based deposit insurance premiums were introduced by a provision of the FDIC Improvement Act in 1993. This change does not effect my empirical results since my sample period ends in 1992.

empirically the existence of corporate control problems between bank shareholders and managers. Much of this work uses data from the 1970s and earlier and thus has an uncertain relevance to the banking industry as it now is configured.⁵

Another set of work analyzes differences in the effectiveness of the corporate control mechanism between banks in states with different regulatory attitudes towards bank merger activity. For example, Schranz (1993) finds that banks in states with less burdensome takeover regulations are more profitable. In states where takeover activity is more restricted, Schranz observes the increased use of other corporate control mechanisms, such as concentrated equity ownership and management ownership of stock, but these alternative mechanisms appear to have a smaller effect on profitability and therefore do not completely compensate for the more restricted merger environment. Hubbard and Palia (1995) find that in states with a more competitive bank merger market, CEO pay is higher and more tightly related to performance.⁶

While Schranz and Hubbard and Palia provide evidence that the corporate control mechanism in banks differs across states with different merger regulations, they say nothing about the effectiveness of the governance mechanism in banks as a whole relative to nonbanks. Given that there are severe *federal* restrictions on the banking merger market one might expect this to be translated into differences in the way banks are governed relative to nonbanks, much as Schranz found that restricted merger market in some states resulted in the increased use of other mechanisms of corporate control among banks. This paper addresses this issue.

Allen and Cebenoyan (1991), Gorton and Rosen (1994) and Houston and James (1993) present evidence on the behavior of commercial banks in the 1980s that is consistent with a

⁵See for example Edwards (1977), Glassman and Rhoades (1980), Hannan and Mavinga (1980) and Smirlock and Marshall (1983).

⁶James (1984) and Brickley and James (1987) perform similar studies using data from the 1970s.

corporate control problem. Allen and Cebenoyan find that banks with entrenched management tend to engage in the most active acquisition programs, consistent with the view that such programs are designed to increase the perquisites available to management (which vary directly with the size of the firm) rather than to increase profitability. Gorton and Rosen present evidence that entrenched managers may be a more important problem in banking than the moral hazard associated with deposit insurance. The authors find that banks that are characterized as having managements that are relatively free from outside shareholder control make the riskiest and most unprofitable investments. Finally, Houston and James find that bank CEOs have lower levels of compensation, hold less stock and exhibit a weaker pay-performance relationship than CEOs in other industries.

While these studies all find evidence of a corporate control problem in banks in the 1980s, none of them identifies the aspects of commercial banks' corporate control mechanism that may be deficient nor why these deficiencies may occur. This article attempts to provide an initial pass at such an analysis by examining the frequency of different types of corporate control change among BHCs in the late 1980s and their relationship with the ownership, board structure and performance of the BHC.

Data and empirical results

Frequency of corporate control changes. I analyze the frequency with which corporate control changes occur in a sample of BHCs over the period 1987-92, and the relative importance of those corporate control mechanisms that precipitate such action, such as hostile takeovers, other mergers, internally driven board turnover of the management team and intervention by regulators. To analyze the frequency of alternative control changes, I follow the Morck, Shleifer and Vishny (1989) method in their study of Fortune 500 manufacturing firms.

I collected data on the following characteristics of BHCs that existed in 1987: accounting

data from COMPUSTAT (from 1987-92) and stock return data from the CRSP tapes (from 1983-86). In addition, I collected data on the composition of the BHC's board of directors between insiders and outsiders and their shareholdings in 1987, and the shareholdings of greater-than-5% owners of the BHC in 1987 from the 10-K, Annual Report, or other Securities and Exchange Commission (SEC) filings. I was left with 234 BHCs in the sample, including all the largest ones.

Of the 234 BHCs in the sample, twenty-nine were acquired by third parties during 1987-92, based upon an examination of Securities Data Corp.'s Mergers and Acquisitions database. Four transactions appear to have started as hostile takeovers and twenty-five as friendly mergers. Following MSV, I record an acquisition as hostile if the initial bid for the target was unsolicited and not accepted by the board in its initial form.⁷ Targets that were not classified as hostile were recorded as friendly. Hostile takeovers almost by definition involve changes in current management and therefore can be viewed as a change in corporate control. The degree to which friendly mergers can be so regarded is somewhat more doubtful. Friendly mergers may be motivated for reasons other than disciplining management to increase shareholder value--for example, they may be motivated by a desire to diversify across state lines or capitalize on another bank's customer base. And the fact that a friendly merger offer is not contested by current management may mean managers believe their jobs are secure. However, this belief may not prove true. In any case, the acquiring firm may keep current management but force it to make policy changes that it otherwise would not have made. For these reasons I consider friendly mergers as potential mechanisms of corporate control change, although of a different nature from hostile takeovers.

⁷MSV are interested, as I am, in the firm characteristics that sparked the initial bidding and therefore classify acquisitions as hostile or friendly based on the initial mood of the bidding process. MSV thus take any of the following as evidence of a bidder's hostility: initial rejection of the bid by the target's board, escape to a white knight, or a management buyout in response to unsolicited pressure. Thus, MSV's definition of a hostile acquisition does not necessarily require the successful acquirer to be the initial bidder (in the case of escape to a white knight, for example). In fact, in my sample of bank holding companies, of the 4 acquisitions classified as hostile, all resulted in eventual acquisition by the initial bidder.

I attempt to classify those BHCs in my sample that have experienced a top management turnover. Again, following MSV, I define management turnover as a complete change between 1987-92 in the list of officers signing the letter to shareholders in the annual report. A BHC experiences a management turnover if none of the officers who signed the annual report in 1992 also signed five years earlier. I consider such turnover to be the result of disciplinary management changes forced by the board of directors.⁸ A BHC that has experienced a management turnover prior to being acquired is classified as an acquisition, not a turnover. This happens in four cases, in each of which the subsequent merger is friendly. As MSV note, while the board is arguably trying to deal with management problems, the BHC's subsequent acquisition is evidence that the board's action is not providing an adequate solution. This definition of top management turnover yields twenty-four cases of management turnover.⁹

The final category of corporate control change I consider is intervention by regulators. Intervention may be viewed as a "last resort" mechanism for those BHCs that may or may not have undergone previous corporate control changes yet have continued to perform poorly. Each federal banking agency, as well as each state banking authority, can impose a broad range of enforcement actions on management. Both formal and informal regulatory enforcement actions are a response to poor performance by the BHC in some aspect of its operations. These actions involve directing current management to attain specific capital ratios, suspend dividends, rectify loan quality

⁸Following MSV, I focus on *complete* rather than *partial* turnover of the signers of the annual report over a five-year period because I am interested in disciplinary management changes forced by the board. Most of the changes in which one cosigner of the annual report replaces another (partial turnover) likely represent ordinary succession rather than disciplinary action by the board. Of course, counting as disciplinary turnover all cases where the list of signers in 1987 was completely different from the list in 1992 may include some cases where there were two or more ordinary successions (partial turnovers) within the five-year period that resulted in none of the 1987 signers being signers in 1992. This multiple partial turnover phenomenon in fact occurs in only two cases in my sample. When making comparisons with the frequencies reported by MSV, I count these two cases as management turnover in order to maintain consistency with MSV's definition. I do not count these cases as management turnover in the remainder of this article.

⁹Twenty-two when the two multiple partial turnover cases are excluded.

problems, address liquidity and concentration problems and the like. They can therefore be seen as a last-resort, nonmarket-based external mechanism of management discipline.

Since some informal enforcement actions are never made public, there is a problem in identifying those BHCs that are subject to regulatory intervention.¹⁰ One solution is to use the BOPEC rating--the rating assigned to the BHC by Federal Reserve bank examiners--and to assume that those BHCs rated unfavorably were subject to some form of regulatory intervention.¹¹ I assume that a BHC comes under regulatory intervention starting in the year that it first receives a composite BOPEC rating of four or five.¹² This definition yields forty-five cases of regulatory intervention.¹³ BHCs that underwent a management turnover before receiving a BOPEC rating of

¹⁰Enforcement actions can be formal or informal. Formal actions range from cease and desist orders to civil money penalties on managers and directors. Formal actions are regulators' most severe forms of action and are always made public by regulators. Informal actions range from *commitment letters*--which set forth the reforms the BHC needs and the time frame within which those reforms are to be achieved--to *memorandums of understanding*, a document drafted by regulators and signed by every member of the BHC board. Informal actions are not made public by the regulatory authorities. In some but not every case, informal actions will be disclosed by the BHC itself if it is making a security offering and the enforcement action is deemed to be material information to potential investors. See Rockett (1994).

¹¹The composite BOPEC rating reflects evaluations on a scale from 1 (strongest) to 5 (weakest), and is arrived at by combining the individual ratings assigned to the BHC in five different component areas (each of which contributes a letter to the acronym BOPEC); namely, the Bank subsidiaries, Other nonbank subsidiaries, the Parent company, the level of consolidated Earnings and the level of Capital adequacy. As such, the BOPEC rating system for BHCs is structured very much like the CAMEL rating system for individual banks. The decision to impose specific enforcement actions generally depends on the composite BOPEC rating the institution receives in its periodic examination by regulators. If an examination results in a composite BOPEC rating of 3 or below, then the BHC is likely to require "more than normal" supervision by the regulatory authorities (see Federal Reserve Regulatory Service, vol. 2, paragraph 4-865).

¹²While a composite rating of three, four or five is likely to generate some supervision by regulators, I restrict my definition to include only the most egregious cases (those BHCs rated four or five) that require regulatory intervention of a degree that is likely to constitute a change in corporate control.

¹³I have experimented with other definitions of the regulatory intervention group. Defining the group to consist of BHCs that received a BOPEC rating of three, four or five increases the number of BHCs in the group to 89. When defined as consisting of those BHCs that, in any one year of the sample period placed in the bottom decile of the sample ranked by the percentage of total assets in the form of nonperforming or greater-than-ninety-days-past-due loans, there are 33 BHCs in the group. While there are marked differences in terms of the numbers of BHCs in the regulatory intervention group, the characteristics of the group as measured in table III, and the regression coefficients and estimated probabilities from the multinomial logit model as reported in tables IV and V do not differ significantly from those reported here.

four or five are classified as being in the regulatory intervention category, not the turnover category. Again, the argument is that while the board may be trying to deal with management problems, subsequent intervention by regulators is evidence that the board's action is not an adequate solution. This happens in eight cases.

Table I lists the frequency of these various corporate control events, with those of the MSV study of manufacturing firms as a standard of comparison. First note that, in terms of percentages of the sample size, total corporate control changes (defined to include intervention by regulators for the BHC sample) appear to be only slightly more frequent among BHCs relative to manufacturing firms. However, the composition of total control changes between the various alternatives differs dramatically between the two groups. Market-based corporate control changes (excluding control changes owing to regulatory intervention) are about two-thirds as frequent among the sample of BHCs as they are for nonfinancial firms.¹⁴ It appears that the primary mechanism of corporate control change among BHCs in this period was in fact intervention by regulators.

Looking at the relative frequency of the market-based control mechanisms--which is invariant to the size of the regulatory intervention group--while friendly mergers are slightly more frequent among the BHC sample, hostile takeovers and management turnover are markedly less frequent. For example, MSV record forty hostile takeovers representing 8.8 percent of their sample of nonfinancial firms. Similarly, 20.5 percent (ninety-three cases) of their sample undergoes an internally precipitated management turnover. In my sample of BHCs, only 1.7 percent (four cases)

¹⁴Of course, comparing frequencies of total corporate changes assumes that firms in the two samples are subject to the same degree of corporate control problems ex ante the use of corporate control mechanisms considered in the article. In other words, that management is being disciplined to the same extent by other corporate control mechanisms not considered here, such as pay-for-performance compensation packages and competition in product markets. On this point, Houston and James (1993) present evidence that the sensitivity of CEO pay to firm performance is significantly lower in banks than among nonbanks. This finding, combined with the traditional partial insulation from competition in product markets that banks enjoy owing to their ability to issue insured liabilities, suggests that the need for the corporate control mechanisms considered in this article may be *greater* in banking than in other industries.

undergo a hostile takeover, while 10.2 percent (twenty-four cases) of the sample undergoes a management turnover.¹⁵ Thus hostile takeovers are over five times more frequent among manufacturing firms than among BHCs, confirming the conventional wisdom. In addition, however, management turnover by the board appears twice as frequent in nonfinancial firms as in BHCs. Thus the lower frequency of hostile takeovers among BHCs does not appear to be reflected in a greater tendency by boards to remove management at BHCs than at manufacturing firms.¹⁶ Indeed, boards at BHCs appear to be *less* active in removing management for disciplinary reasons.

The following sections attempt to shed some light on these observations by examining the characteristics of BHCs employing different corporate control mechanisms.

Characteristics of firms subject to different control changes. I focus on a number of performance, ownership and board characteristics of BHCs on the assumption that these variables may determine which (if any) control devices are used. Definitions and sources for these variables are given in Table II.

I use two different measures of performance of the BHC under existing management: stock market abnormal returns and a return on equity accounting measure. The *stock market measure of performance (RETURN)* is the cumulative abnormal return over the period 1985-86, calculated using the capital asset pricing model (CAPM) parameterized over the four-year period 1983-1986.¹⁷ The data for returns are the standard monthly series from the CRSP tapes. This performance

¹⁵My measure of turnover here includes the two previously noted cases of multiple partial turnover in order to maintain consistency with the definition used by MSV.

¹⁶Houston and James (1993) use a different measure of management turnover and find that management turnover in banks is somewhat less than in a sample of nonbanks, but that the differences are not statistically significant.

¹⁷I restrict myself to the period 1983-86 to parameterize the CAPM because Kane and Unal (1988) identify a break in the return-generating process for banks in 1982 related to changes in the regulatory and financial environment of banks during that year.

measure is calculated over a period prior to 1987 to avoid capturing any effects of the market's anticipations of future corporate control changes. Doing so means it is more likely that my measure is capturing the market's expectations of future profitability of the BHC under current management, not the expected premium from a control change. The *accounting performance measure (ROE)* is the average return on equity from COMPUSTAT over the period 1987 to the date of any control change, or 1992 if there was no control change.¹⁸ Since this is an accounting measure of performance there is no contamination from the market's expectations about future control changes and so no need to calculate the measure over a period prior to 1987.

Ownership characteristics include the equity holdings of insiders (*INSIDE*) and outsiders (*OUTSIDE*) on the board of directors in 1987 as a percentage of total outstanding shares. Equity holdings of insiders may proxy for the entrenchment of current management and their financial incentive to accept a friendly offer. Outsider equity holdings proxy for the incentive that outside board members have to perform monitoring duties on current management. Insiders are defined as those members of the board that are also members of current management. Outsiders are defined as those board members that are not insiders and also not employees of firms that may have business dealings with the bank. Outsiders include primarily academics, retirees who are not previous employees of the bank, individuals, and those listed as chairman of investment groups with their own name.¹⁹ In addition, the cumulative shareholdings--as a percentage of total outstanding shares--of those shareholders holding greater than 5 percent stakes in the BHC in 1987 are reported as large shareholders' holdings (*LARGE*). The greater are large shareholder's stakes in the company, the greater their incentive to ensure that management is maximizing profits. These data

¹⁸ROE is defined as income before extraordinary items divided by common equity.

¹⁹This follows Hermalin and Weisbach (1988) and Byrd and Hickman (1992) who define an outsider more narrowly than just those who are not insiders.

are obtained from 10-Ks, proxies and other SEC filings.

Management characteristics include a dummy (*FF*) indicating whether any signer of the annual report is from the founding family. Top officer members of the founding family were identified from old annual reports and various editions of *Who's Who in American Banking*. Members of the founding family that are part of the top management team may have a special ability to resist challenges to their control even without a substantial ownership stake by virtue of having handpicked the board over a long period of time.²⁰ In addition, following MSV, I record a dummy variable (*BOSS*) indicating if only one executive signs the annual report and no other executive holds the title of chairman, chief executive officer or president of the BHC. The *BOSS* variable tries to identify top executives who either completely dominate the management of the BHC or else have no clear replacement, and who therefore may be particularly protected from disciplinary action by the board. This variable is constructed from data from the annual report.

Table III presents the means of performance measures and ownership and board structure characteristics for five categories of firms in my sample. The first four categories include BHCs that experienced one of the four types of corporate control change: management turnover, hostile takeover, friendly acquisition and regulatory intervention. The fifth category includes the remaining ("no control change") BHCs that did not experience any control change. Asterisks indicate the statistical significance of differences in the means of the control change groups relative to the no control change group.

Table III indicates that firms experiencing management turnover or regulatory intervention have abnormal stock market returns of -11.5 percent and -12.9 percent respectively in the period 1985-86, compared to -1.9 percent for firms experiencing no control change. Targets of friendly bids

²⁰For this reason, I set *FF*=1 for those BHCs for which a signer of the annual report was related to an immediate previous signer of the annual report, regardless of whether they were members of the founding family.

have abnormal returns of +9.5 percent, while targets of hostile bids have abnormal returns of +5.3 percent. Each group's performance is statistically different from that of the no control change group, except for the hostile group.²¹ The same pattern of performance between corporate control groups is exhibited when the measure of performance is *ROE*: BHCs in the regulatory and management turnover group show significantly poorer performance than the no control change group, whereas BHCs subject to a friendly merger show significantly better performance than the no change group. Performance in the hostile takeover group is not statistically significantly different from that of the no control change group.

As expected, performance is relatively poor among those BHCs that ultimately undergo either management turnover or regulatory intervention. While the motivation for regulatory action makes this result for the regulatory group almost a truism, it is also clear that boards of banks do respond, however weakly, to poor performance.

The finding that both the stock market and accounting measures of performance are significantly better at BHCs that undergo a friendly merger than at those undergoing no control change suggests that the motivation for such mergers may not be the expectation of better performance resulting from a change in poor managerial policy. Mergers may, for example, be more motivated by the acquirer's desire to diversify operations across state lines or capitalize upon another bank's customer base. In these cases, BHCs may look for potential targets that fit their desire to diversify but that are already performing well and do not require the bidder to engage in the costly process of restructuring the bank's operations and turning the bank around.

Table III also suggests that size matters in determining the type of corporate control change.

²¹Since the hostile takeover group consists of only four BHCs, it is hard to get statistically significant differences between it and the no control change group in all but a few variables. Nevertheless, the higher abnormal return posted for this group may reflect some contamination from investor's expectations of a future control change.

For obvious reasons, it appears easier to acquire smaller BHCs, either through friendly merger or hostile takeover.

The equity stakes of large shareholders, board insiders and board outsiders are all lower in those BHCs that undergo regulatory intervention than those that do not experience a control change, consistent with the notion that smaller equity stakes lead to lower incentives to ensure the success of the firm or react to poor performance by changing management or management policies.

Equity stakes held by board outsiders are higher and stakes held by board insiders are lower in BHCs that undergo management turnover relative to the no control change BHCs. This is consistent with the notion that board insiders in these firms are less entrenched and board outsiders more determined to enact change in response to signs of poor performance. In addition, the higher equity stakes held by insiders in BHCs that were the target of friendly offers relative to no control change BHCs is consistent with the notion that insiders with large equity stakes may have financial incentives to acquiesce to merger offers that do not involve their immediate removal.

The zero-one dummy variable *FF* has a mean value of 0.09 for a BHC experiencing a management turnover, versus 0.15 for a BHC experiencing no control change. In other words, a BHC that undergoes a management turnover is about 60 percent as likely to have a member of the founding family in a top management position than a no control change BHC. Similarly, no BHC that experienced a hostile takeover had a member of the founding family as a member of top management. Family founders may be more entrenched managers because they typically have higher equity stakes and also have had influence over the selection of the board over a long period of time.

Similarly, the zero-one dummy variable *BOSS* has a mean value of 0.10 for a BHC that experiences a management turnover versus 0.17 for a no control change BHC. Thus, a BHC that undergoes management turnover is about 60 percent as likely to be run by a one-man management

team (a *BOSS*) as a no control change BHC. In contrast, targets of hostile takeovers and friendly mergers are about 1.5 times more likely to be run by one-man management teams than no change BHCs. BHCs that undergo regulatory intervention are also more likely (about 1.4 times) to be run by a *BOSS*.²²

This evidence suggests that ownership and board structure are important in determining the form of corporate control change. While the scarcity of hostile takeovers in the sample make it difficult to identify specific characteristics of BHCs more likely to be subject to a hostile takeover, it is easier to identify distinguishing characteristics of BHCs in the three other corporate control change groups. For example, Table III suggests that management teams of those BHCs that own large equity stakes, consist of family founders and/or one-man management teams, and whose outside directors hold relatively small equity stakes may be entrenched enough to avoid internal discipline by their board of directors.²³ In addition, those BHCs for which market-based corporate control mechanisms fail to operate and who thus become subject to intervention by regulators clearly exhibit lower ownership concentration by large equity holders and by inside and outside board members. Market-based measures of corporate control may fail in these cases because there is no agent in management, on the board, or among shareholders that has a large enough equity stake to provide adequate incentives to monitor the performance of the BHC and take appropriate action when performance begins to deteriorate.

The following section investigates whether these conclusions are robust to multivariate analysis.

Multivariate analysis of corporate control changes. I present four-choice logit estimates of the determinants of the form of control change. The four choices are: complete management turnover,

²²Although note that these last two differences are not statistically significant.

²³These are essentially the conclusions of MSV from their analysis of a sample of manufacturing firms.

friendly merger, regulatory intervention, and no control change. I delete the hostile takeover choice from my universe since there are so few of these observations (four) in the sample. Table IV presents the multinomial logit models for two different specifications using two different measures of performance (*RETURN* and *ROE*) along with measures of inside board ownership (*INSIDE*), large shareholder ownership (*LARGE*), the natural log of BHC size (*LN SIZE*), and whether there was a one-man management team in place (*BOSS*).²⁴ In each case, the coefficients on the variables for the no control change group are normalized to zero. Table V presents the implied probabilities from the logits for the specification using *ROE* as a measure of performance.²⁵

Columns 1 and 2 of table IV show that using either return on equity (*ROE*) or abnormal stock return (*RETURN*) as a measure of performance, relative to the probability of being a no control change BHC, the probability of top management turnover is higher when the BHC is not run by a one-man management team, when board insiders hold smaller equity stakes and when the return on equity is lower. The log odds of a management turnover versus no outcome is not significantly affected by the size of the firm or by the combined equity stakes of all greater-than-5 percent shareholders. In terms of probabilities, column 1 of table V indicates that starting from a "base case" in which *LN SIZE* and *BOSS* are set equal to their mean and *INSIDE*, *LARGE* and *ROE* are set equal to their medians, when *ROE* falls to the top of its lowest quartile, the estimated probability of a management turnover rises from 11.7 percent to 16.1 percent.²⁶ The estimated

²⁴A number of other specifications were tried. The family founder dummy (*FF*) showed the same sign and significance pattern as the *INSIDE* variable when used in the specification in place of *INSIDE*. When included together with the *INSIDE* variable, *FF* became insignificant.

²⁵The implied probabilities for the alternative measure of performance—abnormal returns—were little different from those presented here.

²⁶I must start from a set of initial conditions—a "base" case—since the marginal effects of the regressors upon the implied probabilities in a multinomial logit model depends upon the initial values of all the independent variables. See Maddala (1983).

probability drops from 11.7 percent to 7.4 percent in the presence of a *BOSS*, whereas it rises to 14.9 percent in the absence of a *BOSS*. Similarly, the estimated probability of a management turnover rises from 11.7 percent to 14.6 percent as the insider equity stake (*INSIDE*) falls from its median to the top of its lowest quartile. These numbers suggest that *ROE*, *BOSS* and *INSIDE* are economically important as well as statistically significant in determining which BHCs undergo a management turnover.

Columns 3 and 4 of table IV show that the log odds of a friendly acquisition relative to no outcome is significantly negatively related to the size of the BHC, but to nothing else--in particular the existence of a one-man management team, board insider and large shareholder equity stake and either measure of bank performance (*ROE* or *RETURN*) have no statistically significant influence on the log odds of a friendly acquisition relative to no control change.

Consistent with the earlier evidence from the univariate analysis, columns 5 and 6 of table IV show that the log odds of regulatory intervention versus no outcome increase with the size of the firm and decrease with the equity stakes of insiders and large shareholders. As one might expect, the odds of regulatory intervention also increase with poorer performance as measured by *ROE* or *RETURN*. Column 3 of table V implies that, of these factors, the strongest effects lie in the extent to which large shareholders and insiders own big stakes in the BHC. Starting at the base case, the probability of regulatory intervention increases from 19.6 percent to 26.8 percent as the equity stake held by large shareholders (*LARGE*) falls from its median value to the top of its lowest quartile value. The probability of regulatory intervention increases from 19.6 percent to 28.9 percent as the equity stake held by insiders (*INSIDE*) falls from its median to the top of its lowest quartile. Thus large shareholder and insider equity stakes appear to be important in determining whether or not a BHC undergoes regulatory intervention.

Conclusions

In this article, I explore the effectiveness of various corporate control mechanisms in the banking industry. My analysis suggests that while the market-based mechanisms of corporate control in BHCs appear to operate in the same broad fashion as in manufacturing firms, there may be weaknesses in the effectiveness of two aspects of the corporate control mechanism in BHCs: hostile takeovers and intervention by the board of directors. These weaknesses may make the corporate control problem in banking more severe than in nonbank sectors.

My analysis confirmed the conventional wisdom that hostile takeovers do not play an important role in disciplining management in BHCs. I found little evidence of the disciplinary role of friendly mergers, which appeared to take place primarily among BHCs that were performing well. This result suggests that the main motivation for friendly acquisitions may be for reasons other than disciplining current management to increase shareholder value. If so, the primary responsibility for disciplining managers at BHCs rests with boards of directors.

Boards of BHCs (like those of manufacturing firms) *do* appear to respond to poor performance. Both the univariate and multivariate analysis imply that poor performance increases the probability of disciplinary action by the board on current management. Overall, however, boards appear to be *less* assertive in their corporate governance responsibilities than in manufacturing firms. Board-induced turnover of current management in my sample of BHCs is half as frequent than in MSV's sample of manufacturing firms.²⁷

Why might this be the case? Recall that, like boards of manufacturing firms, bank boards appear weaker in disciplining management when managers are entrenched because of relatively high levels of insider ownership or low levels of board outsider ownership, or when one-man

²⁷One manifestation of this weakness may be in the fact that boards of BHCs are about 50 percent larger than boards of nonfinancial firms. The mean number of directors in my sample of BHCs is 18.0, compared to 12.1 for Byrd and Hickman's (1992) sample of nonfinancial firms. Large boards are likely more unwieldy and less capable of responding quickly to management problems. If management realizes this, then they may seek to entrench themselves by increasing the size of the board.

management teams are in place. Thus, management may be more insulated from board action in banks if bank managers hold more equity than do managers at nonbanks, if one-man management teams are more frequent among BHCs than they are among nonbanks, or if outside board member ownership is lower at banks. The evidence suggests that at least the first two factors cannot explain the weakness of bank boards. One-man management teams appear no more frequent among BHCs than among manufacturing firms. In MSV's sample of manufacturing firms, one-man management teams occurred with a frequency of 23.3 percent, while they occur with a frequency of 19.7 percent in my sample of BHCs. Similarly, insider equity stakes do not appear larger in banks than in nonfinancial firms. Byrd and Hickman (1992) report that the mean and median insider equity stakes for their sample of nonfinancial firms are 10.9 percent and 2.0 percent respectively, compared with 4.1 percent and 1.3 percent for my sample of BHCs.

Outside directors, however, *do* appear to take larger stakes in nonfinancial firms than in banks, judging by a comparison with the Byrd and Hickman study. They found the mean and median equity stake held by board outsiders in their sample of firms was 2.0 percent and 0.08 percent respectively, compared to 1.0 percent and 0.05 percent for my sample of BHCs. Thus boards conceivably may be weaker in banks because outside directors hold less equity and are presumably less motivated to impose disciplinary measures on management.

Whatever the reason for weaker boards among BHCs, when combined with the regulatory impediments on hostile takeovers, they may contribute to a corporate governance mechanism in banks that is not as efficient at disciplining managers as those mechanisms in other sectors. For example, MSV found that corporate boards were particularly weak in removing unresponsive managers in manufacturing firms that were in declining sectors and that required radical downsizing and restructuring. In these sectors, the restructuring function was primarily performed by hostile takeovers. MSV term this situation a third-best solution, on the grounds that internal control

devices are inherently cheaper to operate and more conducive to long-term planning than are hostile takeovers. In the banking industry, however, while boards are even weaker than in manufacturing sectors, the use of hostile takeovers as an important method of restructuring is also ruled out. By default, this void has given regulators a primary role in providing a last-resort control mechanism--what might be termed a fourth-best solution, since takeover by regulators is almost certainly far more costly than any market-based alternative.

These results suggest that policymakers should take corporate control issues seriously when considering legislative alternatives to the current system of bank regulation and organization. In particular, the finding that banks that have undergone regulatory intervention have markedly lower ownership concentration than other banks suggests that higher ownership concentration among banks might improve performance by motivating greater oversight and monitoring by large stakeholders and their representatives on the board of directors. If so, current restrictions on potential owners of commercial banks may have costs. Some of the proposed banking legislation in Congress could also be evaluated in this light, since different proposals vary quite substantially in the degree to which they relax the current restrictions on permissible bank owners.

In addition, the absence of a credible takeover threat among banks appears to have a marked influence on the effectiveness of the corporate control mechanism operating in banks. While regulators have been careful not to discriminate actively against bank mergers on the basis of whether they are hostile or not, the long regulatory process that all bank mergers have to go through tends to make hostile takeovers much more difficult to achieve than friendly mergers. This suggests that there may be beneficial effects on the corporate control mechanism in banks from removing some of the more obvious obstacles to hostile takeovers in banking by, for example, relaxing interstate banking regulations and increasing the speed with which regulators process merger applications.

References

- Allen, L., and A. S. Cebenoyan (1991), Bank Acquisitions and Ownership Structure: Theory and Evidence, *Journal of Banking and Finance* 15
- Baradwaj, B. G., Donald R. Fraser, and Eugene P. H. Furtado (1990), Hostile Bank Takeover Offers: Analysis and Implications, *Journal of Banking and Finance* 14, 1229-1242.
- Boyd, J. H., and M. Gertler (1994), Are Banks Dead? Or are the Reports Greatly Exaggerated?, Federal Reserve Bank of Chicago, *Proceedings of a Conference on Bank Structure and Competition: The Declining Role of Banking?* 85-117.
- Byrd, J., and K. Hickman (1992), Do Outside Directors Monitor Managers? *Journal of Financial Economics* 32, 195-221.
- Edwards, F. R. (1977), Managerial Objectives in Regulated Industries: Expense Preference Behavior in Banking, *Journal of Political Economy* 85
- Ely, B. (1992), Commercial Banks are not Obsolete and the Federal Government should stop trying to make them so, Federal Reserve Bank of Chicago, *Proceedings of a Conference on Bank Structure and Competition: Credit Markets in Transition*, 356-90.
- Federal Reserve Bank of Chicago (1994), *Proceedings of a Conference on Bank Structure and Competition: The Declining Role of Banking?*
- Glassman, C. A., and S. A. Rhoades (1980), Owner vs. Manager Control Effects on Bank Performance, *Review of Economics and Statistics* 62
- Gorton, G., and R. Rosen (1992), Corporate Control, Portfolio Choice and the Decline of Banking, *NBER Working Paper #4247*
- Hannan, T. H., and F. Mavinga (1980), Expense Preference and Managerial Control: The Case of the Banking Firm, *Bell Journal of Economics* 11
- Hermalin, B. E., and M. S. Weisbach (1988), The Determinants of Board Composition, *RAND Journal of Economics* 19, 589-606.
- Houston, J., and C. M. James (1993), An Analysis of the Determinants of Managerial Compensation in Banking, unpublished manuscript, University of Florida.
- Hubbard, R. G. and D. Palia (1995), Executive pay and performance: Evidence from the U.S. banking industry, *Journal of Financial Economics* 39, 105-130.
- Jensen, M. C., and K. J. Murphy (1990), Performance Pay and Top-Management Incentives, *Journal of Political Economy* 98, 225-264.
- Kane, E., and H. Unal (1988), Change in Market Assessments of Deposit-Institution Riskiness,

Journal of Financial Services Research 1, 207-30.

Kaufman, G., and L. Mote (1994), Is Banking a Declining Industry?: A Historical Perspective, *Economic Perspectives 18*(3), 2-21.

Keeley, M. (1990), Deposit Insurance, Risk and Market Power in Banking, *American Economic Review 80*, 1183-1200.

Levonian, M. (1995), Why Banking Isn't Declining, *Federal Reserve Bank of San Francisco Weekly Letter #95-05*.

Maddala, G. (1983), *Limited Dependent and Qualitative Variables in Econometrics*, Cambridge University Press.

McManus, D., and R. Rosen (1991), Risk and Capitalization in Banking, Federal Reserve Bank of Chicago, *Proceedings of a Conference on Bank Structure and Competition: Rebuilding Banking*, 296-321.

Morck, R., A. Shleifer, and R. Vishny (1989), Alternative Mechanisms for Corporate Control, *American Economic Review 79*

Rockett, J. M. (1994), Understanding Regulatory Enforcement Actions, *The Bankers Magazine*, January.

Schranz, M. S. (1993), Takeovers improve firm performance: Evidence from the banking industry, *Journal of Political Economy 101*, 299-326.

Smirlock, M., and W. Marshall (1983), Monopoly Power and Expense Preference Behavior: Theory and Empirical Evidence to the Contrary, *Bell Journal of Economics 14*

Table I
Frequency of Alternative Corporate Control Changes
(Percent of total sample)

	In MSV's Sample of 454 Manufacturing Firms	In 234 Bank Holding Companies
Hostile Takeover	8.8	1.7
Management Turnover	20.5	10.2
Friendly Merger	7.5	10.7
Market-Based Control Changes	36.8	22.6
Regulatory Intervention	0	19.2
Total Control Changes	36.8	41.8

Table II
Data Definitions and Sources

Variable	Definition
<i>RETURN</i>	Cumulative abnormal return, 1985-86 from the monthly CAPM, estimated over 1983-86. Source: CRSP
<i>ROE</i>	Annual average return on equity, 1987 to year of control change, or, if no control change, to 1992. Source: COMPUSTAT
<i>INSIDE</i>	Equity stakes of insiders (current management team) on the board of directors in 1987 as a percent of total outstanding shares. Source: SEC filings
<i>OUTSIDE</i>	Equity stakes of outsiders on the board in 1987 as a percent of total outstanding shares. Source: SEC Filings
<i>LARGE</i>	Combined equity stake of greater than 5-percent shareholders in 1987 as a percent of total outstanding shares. Source: SEC filings
<i>FF</i>	Dummy = 1 if any signer of the annual report is member of the founding family or of the family of a previous signer of the annual report. Source: Annual reports, <i>Who's Who in American Banking</i>
<i>BOSS</i>	Dummy = 1 if only one executive signs the annual report and no other executive holds the title of chairman, CEO or president. Source: Annual reports
<i>SIZE</i>	Market value of equity in 1987 in millions of dollars. Source: COMPUSTAT

Table III
Performance, Management, and Ownership Characteristic Means by Control Outcome in 234 Bank Holding Companies

	Management turnover	Hostile takeover	Friendly merger	Regulatory intervention	No control change
Number of BHCs	22	4	25	45	150
<i>Performance (in percent)</i>					
RETURN	-11.5%*	5.3%	9.5%***	-12.9%*	-1.9%
ROE	5.1%*	12.2%	13.8%***	0.2%***	10.2%
<i>Firm Size (in \$ millions)</i>					
SIZE	630.2	354.1*	438.1*	915.6	717.4
<i>Ownership Structure (in percent)</i>					
LARGE	15.1%	38.2%*	15.9%	11.2%*	15.0%
OUTSIDE	1.8%*	1.0%	1.2%	0.3%*	0.9%
INSIDE	2.9%*	1.2%**	5.0%	2.5%*	4.4%
<i>Management Characteristics (zero-one dummies)</i>					
Family founder on management team (FF)	0.09*	0	0.11	0.03*	0.15
One-man management team (BOSS)	0.10*	0.25	0.26	0.24	0.17

For definitions of variables, see Table II.

*, **, *** indicate means are significantly different from the no-control change category at the 10 percent, 5 percent, and 1 percent levels respectively.

Table IV
Multinomial Logit Models of Control Outcomes

Four-choice logit estimates of the determinants of the form of control change, using two different specifications. The four choices are: management turnover, friendly merger, regulatory intervention and no control change. Each specification uses a different measure of performance (RETURN or ROE) along with measures of inside board ownership (INSIDE), large shareholder ownership (LARGE), the natural log of bank holding company size (LN SIZE) and whether there is a one-man management team in place (BOSS). In each specification, the coefficients on the variables for the no-control change group (not shown) are normalized to zero. Absolute values of *t*-statistics are in parentheses. ***, **, and * indicates statistical significance at the 1 percent, 5 percent, and 10 percent levels.

	Management turnover		Friendly merger		Regulatory intervention	
<i>INTERCEPT</i>	.05 (.20)	.15 (.38)	-.11 (.31)	-.20 (.38)	-1.21 (1.3)	-1.42 (1.4)
<i>LN SIZE</i>	-.03 (.54)	-.04 (.80)	-.09* (1.7)	-.07* (1.7)	.039* (1.9)	.05* (1.9)
<i>BOSS</i>	-6.2* (1.9)	-.53* (1.8)	-.06 (.62)	-.06 (.56)	-.04 (.29)	-.08 (.42)
<i>INSIDE</i>	-.09** (2.3)	-.07* (1.7)	.001 (.18)	-.001 (.21)	-.12*** (3.9)	-.08** (2.2)
<i>LARGE</i>	.004 (1.4)	.005 (1.5)	-.003 (1.1)	-.003 (.88)	-.08*** (4.8)	-.05*** (3.8)
<i>ROE</i>	-.09*** (3.6)	-	.004 (1.0)	-	-.02*** (2.7)	-
<i>RETURN</i>	-	-.35** (2.6)	-	.01 (.15)	-	-.05** (2.7)

Table V
Estimated Probabilities from Multinomial Logit Model*

Estimated probabilities for three types of control change--management turnover, friendly merger and regulatory intervention--from the multinomial logit model estimated in table 4 using ROE as the measure of performance. The "base case" is estimated for the case where *LN SIZE* and *BOSS* are at their means for the entire sample, and *LARGE*, *INSIDE* and *ROE* are at their medians. The rows following the base case are estimated probabilities evaluated at various points, differing from the base case only in the value of the indicated independent variable.

	Probability of		
	Management turnover	Friendly merger	Regulatory intervention
Base case	.117	.095	.196
<i>BOSS</i> present	.074	.096	.198
No <i>BOSS</i> present	.149	.094	.192
<i>ROE</i> at top of lowest quartile	.161	.088	.197
<i>LARGE</i> at top of lowest quartile	.110	.095	.268
<i>INSIDE</i> at top of lowest quartile	.146	.088	.289

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