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# ECONOMIC POLICY REVIEW

SPECIAL ISSUE:

CORPORATE GOVERNANCE:  
WHAT DO WE KNOW,  
AND WHAT IS DIFFERENT  
ABOUT BANKS?

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# FEDERAL RESERVE BANK OF NEW YORK ECONOMIC POLICY REVIEW

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## SPECIAL ISSUE: CORPORATE GOVERNANCE: WHAT DO WE KNOW, AND WHAT IS DIFFERENT ABOUT BANKS?

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Benjamin E. Hermalin and Michael S. Weisbach

The authors identify the primary findings of the empirical literature on boards of directors. Typically, these studies have sought to answer one of the following questions: How are the characteristics of the board related to profitability? How do these characteristics affect boards' observable actions? What factors affect board makeup and evolution? Across these studies, a number of regularities have emerged—notably, the fact that board composition does not seem to predict corporate performance, while board size has a negative relationship to performance. The authors note, however, that because there has been little theory to accompany these studies, it is difficult to interpret the empirical results, particularly with respect to possible policy prescriptions.

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# INTRODUCTION

Few issues in the literature on corporate finance and organizational behavior have received as much attention in recent years as corporate governance. In the United States and in other countries, there is new interest in how firms' decision-making structures are organized, the priorities of these structures, and the structures' effect on shareholders. The term "corporate governance" essentially refers to the relationships among management, the board of directors, shareholders, and other stakeholders in a company. These relationships provide a framework within which corporate objectives are set and performance is monitored.

In the financial services industry, boards of directors face additional expectations imposed by their regulators. These are usually expressed in the form of laws, regulations, or guidance, and reflect the public interest in safe and sound financial institutions. This special public interest stems from the unique role played by financial institutions—particularly banks—in the U.S. economy: they are an important source of liquidity in times of crisis, they provide access to the nation's payment systems, and they maintain federally insured deposits. Yet surprisingly, the effect of corporate governance on the performance and overall health of firms in the financial services industry has typically received less academic scrutiny than it has in other industries.

After the thrift and banking problems of the 1980s and early 1990s, regulators and academics today agree that poor governance and poor management remain at the heart of most

serious banking problems. The record number of savings-and-loan and bank failures in those years spurred legislative action—in the form of the Federal Deposit Insurance Corporation Improvement Act of 1991—to strengthen bank boards and board committees with the goal of holding them more accountable for performance. Supervisory guidance since then has further underscored the responsibilities of boards for fostering sound bank management. Institutional and functional consolidation in financial services—both within and across national boundaries—also heightens the importance of effective governance.

Accordingly, financial regulators are continuing to increase their emphasis on corporate governance as a crucial element in promoting sound institutions. Academic researchers, too, are stepping up their efforts to add insight to corporate governance.

The identification of key issues in governance is an important step toward achieving soundness. This special volume of the *Economic Policy Review* is designed to foster a better understanding of corporate governance—particularly as it applies to banking firms—among regulators, investors, researchers, and the interested public. The contributors to the volume, specialists in governance, analyze the topic from many perspectives, including law, financial accounting, and financial economics. As they summarize and synthesize a vast literature on vital governance issues, the authors present a framework for understanding corporate governance and identify key areas of future research.

Hamid Mehran is an assistant vice president at the Federal Reserve Bank of New York.  
<hamid.mehran@ny.frb.org>

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## CRITICAL THEMES IN CORPORATE GOVERNANCE

The volume is divided into two complementary parts. The first consists of four articles that summarize the literature in several critical areas of corporate governance: the role of the board of directors, compensation issues, monitoring by outside blockholders (holders of large percentages of stock), and corporate disclosure. The framework of these articles follows the agency-theoretic literature—that is to say, the literature that argues that corporate managers may be self-interested, and, if operating independently, could make decisions that shareholders consider less than optimal. Boards of directors, compensation, and block ownership, according to this literature, are solutions that mitigate these conflicts of interest.

Researchers view the board of directors as the shareholder's first line of defense against potential conflicts of interest in firms. Accordingly, **Benjamin Hermalin and Michael Weisbach** begin the volume with an analysis of the corporate governance role of boards. The authors survey the wide range of economic studies that have centered on three key issues: the link between board characteristics and profitability, the effect of board characteristics on boards' observable actions, and the factors that influence board makeup and evolution. Among the empirical results documented by Hermalin and Weisbach are the findings that board composition does not seem to predict firm performance and that board size has a negative relationship to performance. However, the authors observe that because little theory exists to accompany the studies they examine, interpreting the empirical results—particularly with respect to possible policy prescriptions—can prove difficult.

Equity-based compensation and equity incentives are components of corporate governance that are of special interest to investors and regulators. **John Core, Wayne Guay, and David Larcker** synthesize the broad literature in this field and conclude that research on stock-based compensation and incentives has generated many useful insights. By the same token, they contend that the performance consequences of equity-based compensation, as well as of equity ownership, raise fundamental questions yet to be answered by the literature. For example, the authors find support for the proposition that performance-based compensation contracts, such as stock options, motivate top executives to enhance firm value. However, they also caution against making normative statements—such as option repricings are linked to weak governance—without fully accounting for the objectives of shareholders, the characteristics of managers, and other factors that influence the decision-making process.

Some researchers argue that investors with a large block of shares in a company have sufficient incentives to absorb the

cost of monitoring its management team. Others, however, contend that these investors could benefit themselves to the detriment of minority shareholders. **Clifford Holderness** adds to this body of research by reviewing the empirical literature on blockholders in public corporations. He focuses on four key topics: the prevalence of blockholders; the motivation for block ownership; the effect of blockholders on executive compensation, leverage, takeover incidence, and a wide range of corporate decisions; and the ways in which large-percentage shareholders can affect firm value. Perhaps the most striking result obtained by Holderness is that most corporate decisions are unaffected by the presence of blockholders. In accordance with that finding, the author suggests that large-percentage shareholders are not likely to consume corporate resources to such an extent as to harm a firm. Thus, small investors and policymakers should have little cause for concern—or comfort—over the presence of blockholders.

Investors, regulators, and other corporate stakeholders value financial accounting information on firms because it enables them to monitor the actions of corporate insiders, thereby promoting enforceable contractual arrangements. The paper by **Robert Bushman and Abbie Smith** examines the central role played by credible financial accounting information in the governance of publicly traded firms. Bushman and Smith provide a basis for understanding how such information operates in an economy, discuss a range of research findings, and offer a conceptual framework for characterizing and measuring corporate transparency at the country level.

Taken together, these articles provide an essential context for the second set of studies in the volume, which focus on governance in the banking industry. The results in these studies shed light on why banks may differ in their corporate governance from firms in other, unregulated industries. These differences, in turn, present their own challenges for bank managers, regulators, investors, and depositors.

The challenges are first examined in the work by **Jonathan Macey and Maureen O'Hara**, who argue that commercial banks pose special corporate governance problems not only to managers and regulators, but also to claimants on the banks' cash flows. The authors contend that bank officers and directors should be held to a broader, if not higher, set of standards than their counterparts at unregulated, nonfinancial firms. Moreover, they recommend that the scope of the fiduciary duties and obligations of bank officers and directors be broadened to address the interests of fixed as well as equity claimants. Top bank executives, in the authors' view, should take solvency risk explicitly and systematically into account when making decisions.

**Kose John and Yiming Qian** consider another important theme in the corporate governance of banks: the effect of the

incentive features built into the compensation plans of bank chief executives. One theory popular in the literature is that shareholders want boards of directors to compensate CEOs with equity-based plans, such as stock options, because the plans strengthen the relationship between CEO pay and firm performance, known as pay-performance sensitivity. Stock options, however, can motivate CEOs to pursue riskier investment strategies. If a firm has debt in its capital structure, riskier strategies benefit stockholders at the expense of debtholders. This, in turn, gives rise to a debt premium. To reduce the cost of debt, leveraged firms are more likely to curtail their use of stock options. John and Qian find that, consistent with this economic theory, the pay-performance sensitivity for bank CEOs is in fact lower than it is for CEOs of manufacturing firms. They attribute the difference largely to the higher leverage of banks.

Renée Adams and Hamid Mehran focus on the differences between the corporate governance of banking firms and manufacturing firms. They find that the most significant differences relate to board size, board makeup, CEO ownership and compensation structure, and block ownership. These differences across banks and manufacturing firms, according to Adams and Mehran, support the theory that governance structures are industry-specific. The differences also raise the question of whether they arise more from the effects of regulation or from the particular characteristics of banks.

## CONCLUSIONS AND IMPLICATIONS

Several important conclusions—each with implications going forward—can be drawn from this collection of studies:

- Thus far, research on the corporate governance of public institutions has raised more questions than answers. In particular, the causes of problems and the consequences of governance structures remain elusive.

- One cannot evaluate the weakness or strength of an organization's governance by examining only a subset of factors affecting the governance structure. All corporate governance components are ultimately part of an interrelated system that determines the value of a corporation and the allocation of such value among various claimants. Empirical studies and regulatory changes need to consider these interrelationships in order to achieve their respective goals.
- The components of a firm's governance structure are determined by many factors: by the nature of the firm's assets, such as business risk, real assets, leverage, and cash-flow patterns, as well as by firm size, industry, and regulations. These complex interactions influence the equilibrium of firms' governance structures and give rise to different structures in different industries—and even in the same industry. Thus, reforms that do not take into account industry differences may not have the same intended effect across industries.

It is worth noting that most of the articles in this volume were completed before the many 2002 public and private initiatives for corporate governance reforms. Nevertheless, it is fair to say that the conclusions drawn remain fresh. Specifically, this volume focuses on economic or market-based solutions to a persistent problem inherent in the nature of corporations: the conflict of interest between managers and shareholders. The recent round of reforms and regulations aimed at addressing this problem will likely improve the governance of some institutions. However, only through an ongoing process can any universal benefits of reforms be realized.

It is also fair to say that researchers have further to go in explaining how governance works and in advancing the consensus on optimal corporate governance practices. Over the next few years, analyses of the effects of the 2002 governance reforms will likely contribute substantially to the understanding of corporate governance. We hope that this volume will assist practitioners and academics in those efforts.

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PART 1

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A REVIEW OF THE LITERATURE  
ON CORPORATE GOVERNANCE

PAPERS BY

Benjamin E. Hermalin and Michael S. Weisbach

John E. Core, Wayne R. Guay, and David F. Larcker

Clifford G. Holderness

Robert M. Bushman and Abbie J. Smith

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# BOARDS OF DIRECTORS AS AN ENDOGENOUSLY DETERMINED INSTITUTION: A SURVEY OF THE ECONOMIC LITERATURE

## 1. INTRODUCTION

Most organizations are governed by a board of directors. In fact, having a board is one of the legal requirements for incorporation. Many nonincorporated entities also have a governing board of some sort, such as a state university's board of regents. Given the myriad boards in place today, it is reasonable to ask, Why do they exist? What do they do? Can they be "improved"? These questions are at the heart of governance and, to a certain extent, management. As such, they have motivated much of the research on this topic.

This paper surveys the research on boards of directors in the economics and finance literature. Boards of directors are an economic institution that, in theory, helps to solve the agency problems inherent in managing an organization. Although boards satisfy numerous regulatory requirements, their economic function is determined by the organizational problems they help to address. Yet formal economic theory on boards has been quite limited. For example, the characteristics of agency problems that could lead to boards being the equilibrium solution have not yet been specified. Similarly, the conditions under which regulation of boards will lead to improvements are unknown.

Despite the absence of formal theory, we have a strong intuitive sense of the problems facing boards. A major conflict *within* the boardroom is between the CEO and the directors. The CEO has incentives to "capture" the board, so as to ensure that he can keep his job and increase the other benefits he derives from being CEO. Directors have incentives to maintain their independence, to monitor the CEO, and to replace the CEO if his performance is poor.

To some extent, the vacuum in formal theory has been filled by empirical work on boards. The "cost" associated with this approach, however, is that little of the empirical work on boards has been motivated by formal theory. Rather, it has sought to answer one of three questions:

1. How do board characteristics such as composition or size affect profitability?
2. How do board characteristics affect the observable actions of the board?
3. What factors affect the makeup of boards and how do they evolve over time?

A key issue in this empirical work is how to proxy for the board's degree of independence from the CEO. Much of this work starts from the sometimes implicit assumption that

Benjamin E. Hermalin is the Willis H. Booth Professor of Banking and Finance at the University of California at Berkeley; Michael S. Weisbach is the I. B. E. Distinguished Professor of Finance at the University of Illinois and a research associate at the National Bureau of Economic Research.

<http://www.haas.berkeley.edu/~hermalin/>

<http://www.staff.uiuc.edu/~weisbach/>

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EXHIBIT 1

Heuristic Illustration of the Distinction between Out-of-Equilibrium and Equilibrium Explanations for Certain Empirical Results



observable board characteristics such as size or composition are related to the level of board independence.<sup>1</sup>

Research thus far has established a number of empirical regularities. First, board composition, as measured by the insider-outsider ratio,<sup>2</sup> is not correlated with firm performance.<sup>3</sup> However, the number of directors on a firm’s board is negatively related to the firm’s financial performance. Second, board actions do appear to be related to board characteristics. Firms with higher proportions of outside directors and smaller boards tend to make arguably better—or at least different—decisions concerning acquisitions, poison pills, executive compensation, and CEO replacement, *ceteris paribus*. Finally, boards appear to evolve over time depending on the bargaining position of the CEO relative to that of the existing directors. Firm performance, CEO turnover, and changes in ownership structure appear to be important factors affecting changes to boards.

Two important issues complicate empirical work on boards of directors, as well as most other empirical work on governance. First, almost all the variables of interest are endogenous. The usual problems of joint endogeneity therefore plague these studies. For instance, firm performance is both a result of the actions of previous directors and itself a factor that potentially influences the choice of subsequent directors. Studies of boards often neglect this issue and thus obtain results that are hard to interpret.

Second, many empirical results on governance can be interpreted as either equilibrium or out-of-equilibrium phenomena. While it is generally difficult to distinguish between the two interpretations in a given study, they often have drastically different implications for policy. For example, one of the most consistent empirical relationships regarding boards of directors is that board size is negatively related to

firm profitability. The out-of-equilibrium interpretation of this finding says that limits on board size should be encouraged, or perhaps even mandated. In contrast, the equilibrium interpretation of this result implies that some other factor is causing both board size and profitability, so that such regulation would be at best useless and possibly counterproductive. Exhibit 1 illustrates the two interpretations. Both endogeneity considerations and the equilibrium nature of the results should be carefully considered when evaluating any study of boards or any other aspect of corporate governance.

Despite these issues, much has been learned about boards of directors in public corporations in the past fifteen years. Yet there is still much work to be done. This literature has proceeded in the opposite direction of the scientific method archetype; the empirical literature on boards in public corporations is fairly well developed, while theory is still in its infancy. It is likely that subsequent developments in theory will lead to more sophisticated empirical analyses. In addition, the governance of organizations other than for-profit corporations is a relatively unexplored area. Both theoretical and empirical work aimed at understanding these organizations is likely to bear fruit in the near future.

Several caveats are in order. First, in surveying the literature on boards of directors, we emphasize the aspects we know best. We have tried to be fair to all authors, but nonetheless plead guilty to spending a disproportionate amount of time on our own work. We apologize if we have neglected a favorite paper or misinterpreted it. Second, boards of directors are an important topic of research in many areas, not just economics. Important research has been conducted from both managerial and legal perspectives; we have omitted discussion of these literatures entirely. Kosnik (1990), Zajac and Westphal (1994), and Rediker and Seth (1995) provide good introductions to the

management literature on boards. From the legal literature, one particularly noteworthy study is Roe (1994). Finally, boards of directors are only one element of corporate governance systems; see Shleifer and Vishny (1997) for a broader survey of corporate governance.

## 2. CONCEPTUAL ISSUES

As with so much of economics, Adam Smith (1776) appears to be the first economist to address boards of directors:

The directors of [joint stock] companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance [as owners] . . . . Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company (p. 700).

One hundred and fifty-six years later, Berle and Means (1932) took a largely similar view:

Control will tend to be in the hands of those who select the proxy committee and by whom, the election of directors for ensuing period will be made. Since the proxy committee is appointed by the existing management, the latter can virtually dictate their own successors (p. 87).

Both quotes point out the agency issues that have typically caught economists' eyes. Until recently, however, economic theory was insufficiently developed to analyze such agency problems. But a "problem" these issues clearly seemed to be, and not only to economists. Much of the regulation of boards since Adam Smith's day has been driven by a desire to solve this problem. Even today, the press regularly chides boards for being insufficiently vigilant guardians of other people's money and being too much in management's hands. Similarly, we still hear calls for "reforms." For instance, the American Law Institute (1982), Lipton and Lorsch (1992), and Jensen (1993) have each made proposals that, if adopted, would impose restrictions on the workings of boards.

Yet one does not have to hold a Chicago Ph.D. to ask, if boards are so bad, why hasn't the market caused them to improve, or even replaced the corporate form with less problematic forms of organization? Or, put differently, pointing out that an institution is not *first-best* efficient is not the same as demonstrating that outside regulation is needed.

A reasonable possibility is that boards are the second-best-efficient solution to the various agency problems confronting any organization with such a potentially large divergence in interests among its members. As a matter of economic theory, the conditions under which we could expect such regulation to be welfare-enhancing are rather limited (see, for example, Hermalin and Katz [1993]).

Perhaps, then, before we rush to regulate boards, we should step back and question what problems boards do solve. That is, why are there boards?

### 2.1 Why Are There Boards of Directors?

One potential answer to the question of why boards exist is that they are simply a product of regulation. Between state incorporation laws and the stock exchange governance requirements, most firms are required to have a board that meets a multitude of requirements: it must have at least so many members, it must meet with at least some specified regularity, it may need to have various committees, and some fraction of the directors may be obligated to have some nominal independence from management.

Yet this cannot be the entire story. Governing boards are prevalent all over the world, in a variety of for-profit and nonprofit organizations; more importantly, the existence of governing boards *predates* these regulations. Furthermore, if boards existed simply to satisfy regulatory requirements, they would represent deadweight costs to firms, which subsequent lobbying presumably would have eliminated, at least somewhere in the world. In fact, the available evidence suggests the contrary: were boards a deadweight cost to the firm, we should expect them to all be at minimum size as fixed by regulation. Yet, in practice, boards are generally much larger than required by law.

Given their prevalence over time, across boundaries, and in different organizational forms, there must be an explanation for boards other than a regulatory-based one. A more plausible hypothesis is that boards are a market solution to an organizational design problem, an endogenously determined institution that helps to ameliorate the agency problems that plague any large organization. Whatever their virtues or problems, boards of directors are part of the market solution to the contracting problems inside most organizations. We believe that viewing boards of directors from this perspective is the most useful way to study how they are structured and function.

Our point of departure therefore is that a board of directors is the equilibrium solution (albeit possibly second best) to *some*

agency problems confronting the firm. But what agency problems do they solve? And why are boards the solution?

The canonical agency problem exists between a firm's owners, its shareholders (who are generally seen as unable to control management directly), and management (who, as Smith feared, tend to be insufficiently vigilant or trustworthy when it comes to other people's property). One solution to this problem is to provide management with strong incentives contractually. But this begs the question of *who* provides these incentives and *who* ensures that the incentive contracts are structured optimally? In most large corporations, the shareholders are too diffuse, rationally plagued by a free-rider problem, and, for the same reason, too uninformed to set managers' compensation.

This problem, as well as the underlying direct control problem, could be alleviated in situations in which a large outside shareholder has sufficient incentive herself to tackle them. Consequently, many models have explored the role of a large outside shareholder (see Shleifer and Vishny [1986], for example). While there are certainly instances in which large shareholders play an important governance role, this is also certainly not a universal solution.<sup>4</sup> Moreover, the stage on which a large shareholder plays this role is often the board itself; that is, her power works through her position on the board or her control of some number of directors. Ultimately, the theoretical literature on boards will derive the board as part of the equilibrium solution to the contracting problem between diffuse shareholders and management.

One idea explaining why boards have emerged is that the directors' mutual monitoring was critical for inducing shareholders to trust the directors with their money. For example, suppose that there were  $S$  shareholder dollars that potentially could be stolen, and that the penalty to a director (monetary, criminal, or reputational) was  $p$ , with  $S > p > 0$ . In addition, suppose that any director can costlessly prevent such theft. Then,  $N$  directors will "steal" if  $S/N > p$ . Clearly, there exists an  $N > 1$  such that stealing is a strictly dominated strategy. In a similar vein, Meissner (2000) has explored the issue of how bank directors in early nineteenth-century New England limited self-dealing. His argument is that the total amount of side payments a given director would have to make to his fellow directors to bribe them to approve a bad loan on his behalf would ultimately prove prohibitive vis-à-vis the gains the given director could expect. To be sure, these ideas are neither complete models, nor do they necessarily explain the *continued* existence of boards today.

## 2.2 How Are Boards Structured and What Do They Do?

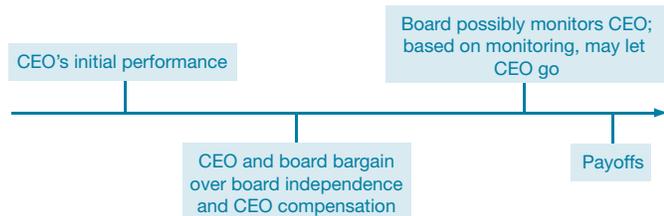
Even without a complete theory of *why* there are boards, we can still explore *how* boards are structured and *what* they do. Boards are generally made up of a mixture of insiders and outsiders; how is this mixture determined and what are the incentives of different directors? Conditional on composition, do boards function as they should? That is, is their performance optimal (at least in a second-best sense)?

One modeling approach is to see the board as the "principal" to management's "agent" in a classic principal-agent framework. Although such principal-agent modeling provides many insights, it is not particularly useful for explaining board-specific phenomena: for example, why the ratio of insiders to outsiders matters or changes, or why management seems to have such influence on the selection of directors.

Outside directors are often thought to play the monitoring role inside boards. Yet their incentives are not clear. Fama (1980) and Fama and Jensen (1983) emphasize the fact that they have incentives to build reputations as expert monitors.<sup>5</sup> However, a reputation as a director who does not make trouble for CEOs is potentially valuable to the director as well. Moreover, as Holmstrom (1999) observes, wanting to be *seen* as doing the right thing and *doing* the right thing are not always the same. The incentives facing the outside directors that result from these divergent forces are an important underlying factor in many of the studies surveyed below.

Hermalin and Weisbach (1998) offer a more board-specific model. They focus on one of the primary board tasks: the hiring and firing of management. In their model, the board must decide whether to keep a CEO or to replace him. The firm's performance provides a signal of the CEO's ability, and the board may, if it chooses, obtain an additional, costly signal. The board's inclination to obtain this signal is, in turn, a function of its independence from the CEO. A board's independence depends on a bargaining game between the board and the CEO: the CEO prefers a less independent board, while the board prefers to maintain its independence. When the CEO has bargaining power—specifically, when the CEO has demonstrated that he is a "rare commodity" by performing exceptionally well—the board's independence declines. Exhibit 2 illustrates the timing of the Hermalin-Weisbach model. Alternatively, poor firm performance reduces a CEO's perceived ability relative to that of a potential replacement, increasing the likelihood that the board will replace him.

## Timing in the Hermalin-Weisbach Model



The Hermalin-Weisbach model derives a number of predictions about the dynamics of the CEO and board's relationship. In particular, it predicts:

1. A CEO who performs poorly is more likely to be replaced than one who performs well.
2. CEO turnover is more sensitive to performance when the board is more independent.
3. The probability of independent directors being added to the board rises following poor firm performance.
4. Board independence declines over the course of a CEO's tenure.
5. Accounting measures of performance are better predictors of management turnover than stock price performance.
6. There should be long-term persistence in corporate governance.
7. The stock price reaction to management changes should be negative if the CEO is fired based on private information, but positive if the manager is fired on the basis of public information.
8. A CEO's salary should be insensitive to past performance at relatively low levels of past performance, but sensitive at relatively high levels of past performance.

There is strong empirical evidence to support the first five predictions. For instance, Weisbach's (1988) results are consistent with the first two predictions; Bhagat and Black (2000) and Hermalin and Weisbach (1988) find results that are consistent with the third and fourth predictions; and, likewise, the fifth prediction is supported by numerous studies, of which Weisbach (1988) is one example. To the best of our knowledge, the last three predictions have not been empirically tested.

There are other stylized facts about boards that do not, as of yet, arise as equilibria from formal models.<sup>6</sup> Why, for instance, are directors reluctant to challenge the CEO (see, for example, Mace [1986])? Why does board *size* appear to affect performance (Yermack 1996)? Why are boards an effective way of supplying information to management, as some suggest (see, for example, Mace [1986])? Finally, why are boards an effective way to groom future CEOs (Vancil 1987)? As the trend toward careful modeling of economic institutions continues, boards will prove fertile ground for future research.

### 3. EMPIRICAL STUDIES ON BOARDS OF DIRECTORS

In contrast to the relative paucity of theoretical work on boards, there is a large empirical literature on the subject. Excluding case-based studies (such as Mace [1986] and Vancil [1987]), this research can be broadly characterized as estimating one or more of the equations in the system:

$$(1) \quad a_{t+s} = \phi c_t + \varepsilon_t$$

$$(2) \quad p_{t+s} = \beta a_t + \eta_t$$

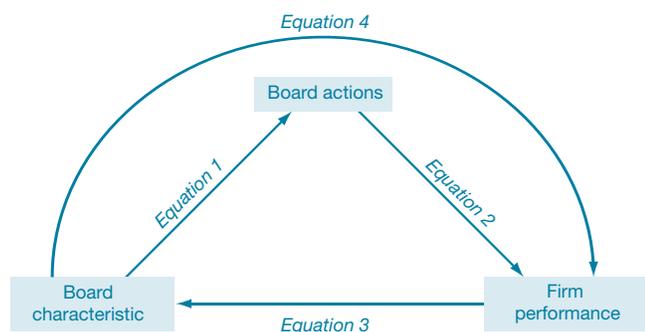
$$(3) \quad c_{t+s} = \mu p_t + \xi_t,$$

where  $c$  denotes a characteristic or characteristics of the board (such as composition or size);  $a$  denotes an action (such as dismissal of the CEO);  $p$  denotes firm performance (such as profits);  $t$  indexes time ( $s \geq 0$ );  $\phi$ ,  $\beta$ , and  $\mu$  are parameters (more accurately, function operators) to be estimated; and  $\varepsilon$ ,  $\eta$ , and  $\xi$  denote the rest of the specification (plus errors). Typically, the entire system is not estimated simultaneously, so joint endogeneity is handled using lags (that is,  $s > 0$ ) on the equation of interest. Observe, from the first two equations, that it is possible to study directly the relationship between board characteristics and firm performance; that is,

$$(4) \quad p_{t+s} = \beta(\phi c_t + \varepsilon_t) + \eta_t.$$

A number of studies have directly estimated this equation. Indeed, such studies are more prevalent than studies of the component equations (this is especially true for the "middle" equation of performance as a function of board actions).<sup>7</sup> Exhibit 3 offers a graphic illustration of these four equations.

## The Joint-Endogeneity Problem Plaguing Work on Boards of Directors



### 3.1 The Board's Influence on Corporate Performance

We begin by reviewing the literature that has estimated the “composite” equation, 4. Two board characteristics have been used as the independent variable: board composition (typically measured by the proportion of outside—nonmanagement—directors on the board) and board size.

#### *Board Composition and Corporate Performance*

Probably the most widely discussed question regarding boards is, does having more outside directors increase corporate performance? A number of papers have addressed this question using several methods. The first method has been to examine contemporaneous correlations between accounting measures of performance and the proportion of outside directors on the board. MacAvoy et al. (1983), Hermalin and Weisbach (1991), Mehran (1995), Klein (1998), and Bhagat and Black (2000) all report insignificant relationships between accounting performance measures and the fraction of outside directors on the board. A second approach, suggested by the work of Morck et al. (1988), is to use Tobin's Q as a performance measure, the idea being that it reflects the “value added” of intangible factors such as governance. Hermalin and Weisbach (1991) and Bhagat and Black (2000) use this approach and find, as with accounting performance measures, that there is no noticeable relationship between the proportion of outside directors and Q. Finally, Bhagat and Black (2000) examine the effect of board composition on long-term stock market and accounting performance. Once again, they do not find any relationship

between board composition and firm performance. Overall, there is little to suggest that board composition has any cross-sectional relationship to firm performance.<sup>8</sup>

An important issue to consider when evaluating these studies is the endogeneity of board composition. Hermalin and Weisbach (1998) suggest that poor performance leads to increases in board independence. In a cross-section, this effect is likely to make firms with independent directors look worse, because this effect leads to more independent directors on firms with historically poor performance. Both Hermalin and Weisbach (1991) and Bhagat and Black (2000) have attempted to correct for this effect using simultaneous-equation methods. In particular, these papers lagged performance as an instrument for current performance. Still, even correcting for endogeneity in this manner, there does not appear to be an empirical relationship between board composition and firm performance.

MacAvoy and Millstein (1999) argue that one reason why researchers have heretofore generally failed to detect a relationship between measures of board independence and firm performance is that they have used “old” data—that is, data that preceded boards taking an activist role. In their provocative study, MacAvoy and Millstein find evidence that CalPERS' grading of board procedures—presumably, in part, a proxy for independence—is positively correlated with accounting-based measures of performance. Although MacAvoy and Millstein could be correct in their assertion that boards have gone from being “managerial rubber-stamps to active and independent monitors,” one needs to question how the “rubber-stamp” regime could have, as they seem to assert, lasted for all but the past ten years or so of the history of the corporate form. Because CalPERS' grading of board procedures is recent, it is impossible to test directly the authors' assertion about history by applying their procedure to the “old days” considered by other researchers. Even within their time frame, it would also be interesting to see whether their results hold up using a richer set of control (right-hand-side) variables than they employ (their right-hand side is limited to year, industry, and CalPERS grade).

The generally poor results obtained in estimating the “composite equation” are not surprising—errors from both underlying equations are present, so the signal-to-noise ratio is low. In particular, firm performance is a function of so many different factors that it is difficult to imagine that the effect of occasional board meetings, etc., would be detectable (especially as the case-study literature—Mace [1986]; Lorsch and MacIver [1989]—suggests that the vast majority of these meetings result in no significant actions).

A somewhat more successful approach has been to measure the impact on firm value of *changes* in board composition. Rosenstein and Wyatt (1990) examine the stock price reaction on the day of the announcement that outside directors will be added to the board. They find that on average there is a statistically significant 0.2 percent increase in stock prices in response to the announcement of these appointments.

In many ways, the Rosenstein and Wyatt approach is a cleaner test of the relationship between board composition and ultimate value than the other studies considered above; the Rosenstein and Wyatt approach controls for all firm-specific effects and tests directly for the desired effect. Controlling for firm-specific effects is critical because—as Hermalin (1994) predicts and Kole (1997) and Hermalin and Wallace (forthcoming) confirm—there is no reason to imagine that a specific board composition (for example, percentage of outsiders) is optimal for *all* firms. Hence, the impact of board composition on performance could be difficult to identify cross-sectionally.

However, there is a potential drawback to the Rosenstein and Wyatt approach. Presumably, firms change their board structure to improve their operations and, thus, ultimately their value. Thus, all *change* announcements, to the extent that they are unexpected, should cause a positive change in the stock price. If this is true, then the Rosenstein and Wyatt results tell us nothing about the value of outsiders per se. Yet if only the addition of outsiders increased firm value, while other changes were neutral or lowered firm value, then we have to ask why this is allowed to happen and why firms do not continually add outsiders to boost value. In their follow-up paper, Rosenstein and Wyatt (1997) address some of these concerns. Overall, they find no definitive effect of adding an insider to the board. In some specifications, however, they find that adding an insider *increases* the stock price. Hence, the original Rosenstein and Wyatt effect could, as we have suggested, simply reflect value increase associated with the change, rather than anything in particular about outsiders.

These questions highlight the difficulties encountered when interpreting the results from much of the empirical literature on boards. Specifically, either these papers are estimating equilibrium phenomena or they are estimating an out-of-equilibrium situation (recall Exhibit 1 and the related discussion). If the equilibrium interpretation is correct, it is hard to explain how certain actions could consistently increase firm value. In contrast, if one believes the out-of-equilibrium interpretation, one must first address the issue of how the firms arrived at this out-of-equilibrium situation.

## *Board Size and Corporate Performance*

Board composition notwithstanding, Jensen (1993) and Lipton and Lorsch (1992) suggest that large boards can be less effective than small boards. The idea is that when boards become too big, agency problems (such as director free-riding) increase within the board and the board becomes more symbolic and less a part of the management process. Yermack (1996) tests this view empirically and finds support for it. He examines the relationship between Tobin's Q and board size on a sample of large U.S. corporations, controlling for other variables that are likely to affect Q. Yermack's results suggest that there is a significant negative relationship between board size and Q. Confirming the Yermack finding, Eisenberg et al. (1998) document that a similar pattern holds for a sample of small and midsize Finnish firms. The data therefore appear to reveal a fairly clear picture: board size and firm value are negatively correlated.

Another measure of the importance of board size is how participants in the marketplace view it. In a novel approach, Gertner and Kaplan (1996) examine the boards of a sample of reverse-leveraged buyouts. Their idea is that these firms are more likely than ongoing public firms to choose a "value-maximizing" board. Gertner and Kaplan find that, in this sample, boards tend to be smaller than in otherwise similar firms. Wu (2000) considers the evolution of board size over the 1991-95 period. She finds that board size decreased on average over this period and that the decrease can be explained at least partially by pressure from active investors such as CalPERS. Market participants seem to think that small boards do a better job of monitoring management than do large boards.

Although striking, these results nevertheless raise some questions. For instance, why, if they are destructive to firm value, do we see large boards? Perhaps large boards are uniformly bad because size exacerbates some free-riding problems among directors vis-à-vis the monitoring of management. But then why does the market permit them to exist—why hasn't economic Darwinism eliminated this unfit organizational form? These questions raise the issue of whether an equilibrium phenomenon or an out-of-equilibrium situation is being estimated—that is, are we on the left or right side of Exhibit 1? And if we are on the right side, what is the "other factor"? Sorting out the appropriate interpretation of these results on board size and corporate performance seems like a particularly useful topic for future research.

### 3.2 Boards of Directors and Particular Tasks

In addition to studying the relationship between board characteristics and firm performance, a number of studies have examined how boards accomplish some of the responsibilities commonly assigned to directors. In terms of our heuristic system of equations, these studies can be thought of as estimates of actions,  $a$ ; as a function of characteristics,  $c$  (that is, estimating equation 1).

This approach has several advantages relative to looking at the effect of boards on overall firm value. First, there are many factors affecting performance. Hence, this approach is potentially more powerful because it is less prone to unobservable factors contaminating the statistical relationship. Second, when examining particular tasks of directors, it is less likely that the endogeneity of board composition will affect the results. In general, this type of test is much cleaner than the tests relating composition to firm performance.

#### *CEO Turnover*

The most commonly discussed responsibility of the board is to choose and monitor the firm's CEO (see Mace [1986], for example). Indeed, rather than make day-to-day decisions, directors appear to play a crucial role in picking the firm's CEO and, as suggested by Mace (1986) and Vancil (1987), to view their primary responsibility as monitoring and potentially replacing him. Therefore, one way to evaluate the board's effectiveness is to look at the quality of these decisions.

A large number of papers have documented a positive relationship between CEO turnover and poor performance in large corporations as well as in other types of organizations.<sup>9</sup> In addition, Denis and Denis (1995) document that firm performance generally improves following a CEO turnover, especially a forced turnover. The standard interpretation of this relationship is that it measures the board's monitoring ability; when performance is poor, the board is more likely to find the current CEO unacceptable and make a change.

An important issue in all of these studies is the distinction between voluntary and involuntary turnovers, which is usually difficult to make and, in some cases, impossible. Studies take different approaches to dealing with the issues of voluntary turnover: some ignore the issue, some exclude observations pertaining to CEOs at retirement age, and some make a detailed effort to distinguish forced departures from voluntary turnovers. Nonetheless, voluntary turnovers are unlikely to be related to performance, and the negative relationship between performance and CEO turnover is extremely robust across samples. Therefore, the measured negative relationship

between turnover and performance probably reflects boards firing CEOs (that is, the difficulty in distinguishing the two types of turnover merely adds noise to the *dependent* variable and thus is irrelevant beyond its impact on the standard errors).

Simply documenting a relationship between poor performance and an increased probability of a CEO turnover, although suggestive of board monitoring, is nonetheless far from conclusive. After all, a sense of failure or pressure from outside shareholders could explain this relationship. To better identify the role played by the board, Weisbach (1988) interacts board composition and firm performance in a CEO turnover equation. His results indicate that when boards are dominated by outside directors, CEO turnover is more sensitive to firm performance than it is in firms with insider-dominated boards. This result holds when firm performance is measured either by market-adjusted stock returns or by an accounting measure of performance. This result is consistent with the view that outsider-dominated boards—those a priori likely to be independent of management—are responding to corporate performance when they make CEO retention decisions. In contrast, turnover in insider-dominated boards is not performance-driven, suggesting that insider-dominated boards make turnover decisions for reasons unrelated to corporate performance.

The most plausible interpretation of this finding is that boards controlled by outside directors do a better job of monitoring the CEO than do boards controlled by inside directors. However, a possible alternative explanation is that inside directors make their turnover decisions on the basis of inside information. Since by definition this information is not known to market participants, it will not be incorporated into the stock price. This interpretation implies that even though insider-dominated boards are responding to performance, the performance they are responding to is not measurable by an outside observer. A point against the inside-information explanation is that such information is likely to be correlated with measurable performance (at least ex post), suggesting that CEO turnover in insider-dominated boards would still be somewhat responsive to measured performance.

In addition, there is a theoretical reason to favor the monitoring explanation over the asymmetric information explanation. Inside directors' careers tend to be tied to the CEO's, which gives them incentives to advance the CEO's career regardless of the stock price. Moreover, any potential inside information that inside directors use to justify a firing has to reflect negatively on the CEO without reflecting negatively on them; otherwise, shareholders would likely respond to the CEO's dismissal by demanding a clean sweep of top management. Consistent with this point is evidence from

Borokhovich et al. (1996) and Huson et al. (2000), who find that outsider-dominated boards are more likely than insider-dominated boards to replace a CEO with someone from outside the firm.<sup>10</sup>

Yermack (1996) and Wu (2000) perform a similar analysis of CEO turnover, measuring the impact of board size on the relationship between CEO turnover and firm performance. These papers estimate similar equations to Weisbach's (1988), except that they substitute an interaction of the log of board size with firm performance for Weisbach's interaction of board composition with firm performance. Both Yermack and Wu find a positive and significant coefficient on this interaction term, which indicates that firms with smaller boards have a stronger relationship between firm performance and CEO turnover than firms with larger boards. This finding is consistent with the view that smaller boards are more effective overseers of the CEO than larger boards. In particular, in response to poor performance, they may not be paralyzed by free-riding or otherwise plagued with inertia in the way that larger boards are. It is also possible that smaller boards are more effective at obtaining inside information that ultimately will be reflected in measured performance. However, this analysis begs the now familiar question of whether we are observing an equilibrium or a disequilibrium phenomenon; or, put differently, could we ever observe firms with boards that are "too small," rather than just "too large"?

Perry (2000) breaks down the cross-sectional relationship between CEO turnover and firm performance by whether the outside directors are paid using incentives. He finds that the relationship between CEO turnover and firm performance is stronger when boards have incentives. This finding suggests that providing explicit incentives to directors leads them to make better decisions. It is also consistent with the view that outside directors who receive incentive pay tend to have a professional rather than a personal relationship with the CEO and thus are relatively more independent.

The key issue in interpreting these studies is whether the relationships they uncover are causal. In other words, do the particular attributes of the board—such as composition, size, or compensation—directly affect the board's monitoring? Or might boards that are independent for other reasons tend to have certain characteristics and therefore monitor more effectively? Reality is sufficiently complex that neither question can receive a simple yes or no answer. Yet because a board dominated by a CEO will not monitor regardless of its visible characteristics, we suspect that the second question is more often the one deserving an affirmative answer. That is, we tend to see independence as the true causal variable, with size, compensation, and board composition as correlates. A board made up of directors who wish to be independent of

management will prefer to be paid with incentives and to arrange themselves, in terms of size and composition, in a way that best facilitates oversight of management.

### *Evidence from the Takeover Market*

The active takeover market of recent years has provided a laboratory for studying the actions of boards and for evaluating the relative merits of different kinds of directors. Shivdasani (1993) uses the takeover market as a means to study boards and their role in corporate governance. He estimates the probability of a firm being taken over by a hostile bidder during the takeover wave of the 1980s. This is a sensible approach because boards potentially affect takeover probabilities in two ways. First, boards can affect the quality of governance and hence influence the desirability of a firm as a target. Second, they can affect the takeover process itself by controlling the ease with which a bidder can acquire the firm.

Arguably, Shivdasani's most interesting finding is that when outside directors have more additional directorships, it is less likely that the firm will be acquired in a hostile takeover. There are three potential interpretations of this finding. Higher quality directors could do a better job and hence be asked to sit on more boards. In addition, by doing a good job as directors, they reduce the likelihood of their firms' becoming takeover targets. Alternatively, directors in higher demand will turn down directorship opportunities at poorly managed firms, which are more prone to being acquired. A third, less charitable, interpretation is that outside directors who hold many directorships do so because they have established a reputation for supporting management and not "rocking the boat." A firm in which the directors will likely support management poses a tough fight for hostile bidders and therefore is a less desirable acquisition target.

In addition, Shivdasani finds that who controls board seats appears to affect the takeover process. The dominance of board seats by management and affiliated blockholders decreases the probability of a hostile bid, while significant board seat holdings by *unaffiliated* blockholders increases it. Overall, the paper suggests that boards affect takeover probabilities by influencing both the quality of the company's management and the process of a takeover.

In a paper complementing the Shivdasani study, Cotter, Shivdasani, and Zenner (1997) analyze the effect of governance on the cross-sectional distribution of target firms' abnormal returns during the tender offer process. Cotter et al. find that when a target's board contains a majority of outside directors, the target receives a return approximately 20 percentage points higher than that of a similar firm without a majority of outside

directors on the board. This finding suggests that, conditional on a firm being acquired, outside directors do a better job of negotiating on behalf of shareholders than do insiders. Together, the two papers suggest that the board composition of a potential target is an important factor in the takeover process.

Understanding the reaction of boards to takeover bids ultimately requires understanding the incentives of the directors. Harford (2000) documents that directors, in particular, outside directors, have pecuniary incentives to resist the takeover bid. Following an acquisition, target directors generally lose their seats on the board and the associated directorship incomes. Harford finds that they make up some of the financial loss through gains on the equity they hold in the firm. However, on average, the gain on the equity is too small to compensate the directors for the loss of directorship income. Therefore, Harford concludes that, at the margin, financial considerations will lead outside directors in the direction of resisting possible acquisitions that are in the shareholders' interest.

Byrd and Hickman (1992) analyze the role of boards of *acquiring* companies. They measure the stock price reaction to these firms when an acquisition is announced. Across all firms, they find an average abnormal drop in the acquirer's stock price of 1.33 percent over the two days surrounding the announcement of the acquisition. Byrd and Hickman then divide the sample according to whether the firms have boards with more than 50 percent independent directors. The subsample of firms in which at least 50 percent of the directors are independent exhibits a very small stock price drop of 0.07 percent, while the other subsample, containing a minority of independent directors, has a larger stock price fall of 1.86 percent. These two abnormal returns are significantly different from each other at the 5 percent significance level. This finding indicates that the market perceives firms with independent boards as making better acquisitions (or at least fewer bad ones).

### *Poison Pills*

Brickley et al. (1994) analyze the impact of the board on the decision to adopt a poison pill. As a matter of corporate finance theory, the impact of adopting a poison pill on firm value is ambiguous. Pills can serve to protect current management at the expense of shareholders, but they can also serve to increase the firm's (shareholders') bargaining position in the face of a potential takeover. Brickley et al. find that the stock market reaction to poison pills is positive when the board has a majority of independent directors and negative when it does not. This result suggests that firms with a majority of outside

directors—that is, with presumably more independent directors—adopt pills to further shareholders' interests, while firms with insider- (management-) dominated boards use them as a means of entrenching management at the shareholders' expense.

### *Executive Compensation*

Another role of the board is to set and oversee the firm's policies for compensating management. A view, prevalent since at least Berle and Means (1932), is that CEOs exert control or influence over their boards to extract "excessive" levels of compensation. To examine this view, Core et al. (1999) study the relationships among board composition, ownership structure, and CEO pay. Their results suggest that firms with weaker governance structures tend to pay their CEOs more. Specifically, they find that CEO pay rises with the number of outsiders appointed during the CEO's tenure, and about whose appointments the CEO therefore had a say. CEO pay also rises with variables likely to indicate a *lack* of board involvement: board size, the number of directors over age sixty-nine, and the number of "busy" directors, where busy is defined in terms of the number of *additional* directorships held by a director.

However, Hermalin and Weisbach's (1998) model predicts that a successful CEO—one who has improved his bargaining position by proving he is a rare commodity—can successfully bargain both for less board scrutiny *and* greater compensation. That is, the empirical link between an inattentive board and CEO compensation, which, in a Berle and Means view, is seen as causal, may in fact be spurious: both may be the consequence of a successful CEO exercising his bargaining position (or, correspondingly, an unsuccessful CEO incurring the cost of a reduced bargaining position). Exhibit 1 illustrates this issue (here the other factor is the CEO's previous performance, which allows him to bargain both for less board scrutiny—the board characteristic—and greater compensation—the "other" firm attribute).

In addition, both Core et al. (1999) and Hallock (1997) find that CEO pay at a given company increases when the given company's board contains directors who are CEOs of firms on whose boards the CEO of the given company sits (that is, when boards are "interlocking"). One interpretation is that there is a quid pro quo between such directors and the CEO, which leads to greater compensation. Again, one cannot dismiss the interpretation, in line with Hermalin and Weisbach's (1998) model, that the CEO of the given company is very successful and thus has sufficient bargaining power to get both higher compensation and a very friendly board of directors ("friendly")

because of the leverage over them that the CEO enjoys by sitting on their boards).

Finally, Yermack (1996) finds that the pay-performance relationship for CEOs decreases with board size, suggesting that small boards give CEOs larger incentives and force them to bear more risk than do large boards.

### Summary

In this section, we have examined empirical studies that look more directly at what boards do. More precisely, we have reviewed studies that look at the statistical relationship between what boards do and their observable characteristics (studies that estimate some operationalization of equation 1 above). In contrast to performance studies (those that estimate some version of equation 4 above), these studies of board actions have generally found significant results. In particular, these studies appear to indicate that board characteristics are important. Both board composition and size appear to affect the quality of decisions on CEO replacement, responses to a hostile takeover, adoption of a poison pill, and the design of CEO compensation schemes. As we noted, however, the plausible possibility of spurious correlation makes accepting the obvious causal interpretation questionable for some of these studies.

Why have those who have estimated some variation of equation 1 found statistically significant results when those estimating equation 4 have generally found none? One potential answer has to do with the varying roles played by the board. In particular, board independence might not matter enough on a day-to-day basis for one to find significant relationships between measures of director independence and firm performance when estimating equation 4. Board independence does, however, matter for certain board actions, particularly those that occur infrequently or only in a crisis situation. In contrast, board *activity*—especially free-riding among directors, which board size might capture—could be important both for specific actions *and* overall firm performance.

### 3.3 Factors That Affect the Board's Makeup

The final set of studies we review focuses on the factors affecting the composition of the board—that is, equation 3 from the system described above. Knowing the factors that affect board composition is clearly an important step in understanding boards and their role in corporate governance.

Perhaps the most natural way to examine board composition is to look cross-sectionally at the firm-level factors

associated with different kinds of boards. However, cross-sectional analysis of boards is limited because of endogeneity issues; any variable associated cross-sectionally with board composition is likely to be jointly determined with board composition. Despite this issue, cross-sectional correlations appear to be robust across samples and have been reported by a number of papers, including Weisbach (1988), Hermalin and Weisbach (1988), and Denis and Sarin (1999). It appears that tightly held firms—in which the founders are still active and the CEO has a large ownership position—tend to have insider-dominated boards. In contrast, larger and older firms are more likely to have professional management with small ownership stakes and outsider-dominated boards.<sup>11</sup>

### Board Dynamics

Because of the potential for joint-endogeneity problems, work on the determinants of board composition has focused on the dynamics of composition. That is, the impact of *changes* in a firm's characteristics or performance on subsequent *changes* in board composition is examined. Looking at changes in this fashion minimizes the potential for joint-endogeneity problems because of timing considerations; all that is required to avoid simultaneous-equations bias is for firm-level variables to not be affected by *subsequent* changes to the board.

Hermalin and Weisbach (1988) take this approach and estimate the factors that lead to changes in corporate boards. They find that three kinds of factors are statistically related to changes in the board. First, poor firm performance increases the likelihood that inside directors will leave the board and outside directors will join. Second, the CEO succession process appears to be intertwined with the board-selection process. When a CEO nears retirement, firms tend to add inside directors, who are potential candidates to be the next CEO. Just after a CEO change, inside directors tend to leave the board, consistent with the hypothesis that these directors are losing candidates to be CEO. Finally, Hermalin and Weisbach document that after a firm leaves a product market, inside directors tend to depart the board and outside directors tend to join.

Denis and Sarin (1999) confirm these findings on a much larger sample of firms from a nonoverlapping time period. They find that large changes in board composition tend to occur after abnormally poor performance and around the time of a CEO change. They also find that the dynamics of ownership structure and board structure appear to be related in an important way: the “derivative” of the proportion of outsiders on the board with respect to CEO stock ownership is negative. One potential explanation is that as the CEO changes his ownership stake, his voting power vis-à-vis that of the other

shareholders changes, which affects the power he has over board composition. Another possible explanation is that because changes in his ownership alter the alignment of the CEO's incentives with those of other shareholders, the importance of outside monitoring changes as the CEO's shareholdings change.<sup>12</sup>

Gilson (1990) examines the effect of bankruptcy on corporate boards. He finds that following a bankruptcy or private restructuring, banks take an active role in the firm's governance, including appointing a number of directors. Kaplan and Minton (1994) and Morck and Nakamura (1999) perform related studies of Japanese companies and the role of banks in their governance. These papers find that following poor performance, banks take a more active role in the firms' governance, including appointing a number of directors to the board. These studies are consistent with the view that creditors play a role in governance, which increases when firm performance lags and debtholders' claims become more uncertain.

### *Board Composition and the Power Struggle between the Board and the CEO*

Probably the most important factor determining a board's effectiveness is its independence from the CEO. Independence from the CEO's influence is the underlying factor in many discussions of boards and their relationship with management. However, this variable is fundamentally unobservable, and this unobservability is an important reason why empirical work on boards of directors is a challenging topic. A number of recent papers have addressed the power struggle between the board and CEO empirically in creative ways.

Hallock (1997, 1999) examines board interlocks, which occur when a firm's employee sits on another firm's board and that firm's employee sits on the first firm's board. These employees are generally the CEO or another person high in management in their respective firms. Given this type of relationship, the potential for collusive or quid pro quo behavior on the part of the "interlocked" directors is particularly high. Hallock documents that the prevalence of interlocking directorships is too high to be explained by random chance. In addition, he finds that CEOs with interlocking boards get paid more than otherwise similar CEOs. These findings are consistent with the view that interlocking directorships provide the CEO a degree of control over his board or, at the very least, that the CEO has the bargaining power to obtain a friendly board.

Shivdasani and Yermack (1999) examine the extent to which the CEO is involved in the board-selection process. This is an interesting empirical exercise because case-study evidence suggests that CEOs play an important role in selecting new board members (Mace 1986; Lorsch and MacIver 1989) and because theoretical work implies that the role of the CEO in choosing directors can have an impact on the board's effectiveness (Hermalin and Weisbach 1998). Shivdasani and Yermack construct a measure of CEO involvement in the selection process based on whether the board has a separate nominating committee, and conditional on such a committee existing, whether the CEO is on it. The authors find that this measure of CEO involvement decreases the firm's subsequent number of independent directors. Shivdasani and Yermack's results are consistent with the view that, at least in some firms, the CEO is able to use his control over the selection process to decrease the board's independence.

Baker and Gompers (2000) examine the board-selection process in a large sample of initial public offerings. They test whether factors that are plausibly related to CEO bargaining power influence the selection of board members. In particular, they argue that CEO tenure and CEO voting stake, as measured by its Shapley value, are likely to be positively related to CEO bargaining power.<sup>13</sup> In contrast, the presence of a venture capital investor, especially one with a strong reputation, is likely to decrease the CEO's bargaining power relative to the board. Empirically, Baker and Gompers find that, consistent with the bargaining framework, CEO tenure and CEO Shapley value are positively related to the number of insiders on the board, while the number of insiders decreases with the reputation of the venture capitalist financing the firm.

Overall, the literature has documented a number of facts about board dynamics. These facts can be explained reasonably well by a bargaining framework such as Hermalin and Weisbach (1998). Interested parties' control of the board appears to be a function of their bargaining power. When banks' financial claims become more uncertain and their legal rights in bankruptcy courts therefore become stronger, their representation on boards increases (Gilson 1990; Kaplan and Minton 1994; Morck and Nakamura 1999). After a period of good performance, when a CEO's perceived value relative to a potential replacement is likely to be high, he is able to add more insiders to the board (Hermalin and Weisbach 1988; Denis and Sarin 1999). Finally, direct measures of a CEO's bargaining position—such as his voting stake, the use of interlocks, his representation on the nominating committee, and his dealings with venture capitalists—appear to affect board composition in ways consistent with the bargaining framework (Hallock 1997, 1999; Shivdasani and Yermack 1999; Baker and Gompers 2000).

### 3.4 Studies of Boards Focusing on Particular Industries

Most of the literature on boards of directors has relied on samples of public industrial companies. This focus is natural given the visibility and importance of such companies. However, the diversity of firms in such studies adds heterogeneity and potential noise to the issues being addressed. A number of studies have avoided this problem by focusing on one particular industry or organizational form. This subsection surveys this work and its implications for governance more broadly.

#### *The Money Management Industry*

Two recent papers have examined boards of directors in the money management industry. Tufano and Sevick (1997) consider a sample of open-end mutual funds while Dann et al. (2000) examine the role of the board in closed-end investment companies. Open-end and closed-end funds differ organizationally, but both types of organizations seek to maximize their funds' returns. Clearly, maximizing returns implies negotiating as good a deal as possible with the portfolio managers. Both Tufano and Sevick and Dann et al. use this logic to focus on the relationship between boards and expense ratios. Both papers find that when boards are made up of independent directors, fees tend to be lower. Both papers also find that expenses are increasing with board size. These results are consistent with the literature on industrial corporations, suggesting that board size and composition are correlated with board effectiveness.

#### *Organizations with Prohibitions on Takeovers*

Two studies have used organizational restrictions on takeovers as a way of examining whether boards substitute for an external control market. Brickley and James (1987) construct a sample of banks, some of which are allowed by state law to be taken over and some of which are from states that prohibit acquisitions of banks. Mayers et al. (1997) compare stock and mutual insurance companies for the same reason, since stock companies can be acquired but mutuals cannot. Each of the papers measures the impact of these regulatory requirements on board composition; the idea is to test whether internal and external control mechanisms are substitutes. The two papers arrive at conflicting results: Brickley and James find that banks from states with takeover restrictions have fewer outside directors than banks from other states (contrary to the

substitution hypothesis), while Mayers et al. find that mutual insurance companies employ more outside directors than do stock insurance companies (consistent with the substitution hypothesis).

#### *Hospitals*

An important difference between for-profit firms and other organizations exists in the organization's objective function. For-profit firms attempt to maximize the present value of economic profits; in contrast, a nonprofit's objective function is an endogenous choice not clearly specified by economic theory. This difference has implications for governance: while the governance of a for-profit aids in the goal of profit maximization, governance of a nonprofit must both choose the objective function and decide how best to maximize it.

Understanding these issues in nonprofit governance in general seems like an important topic for both economic theorists and empiricists. Two papers—Brickley and Van Horn (2000) and Eldenburg et al. (2000)—have taken a first step in this direction, using samples of hospitals. Hospitals are a useful setting for studying the relationship between organizational form and governance because they exist simultaneously as different types of organizations but perform the same basic services.

Brickley and Van Horn estimate the relationship between CEO turnover and hospital performance and between CEO pay and hospital performance on samples of for-profit and nonprofit hospitals. They find that both relationships are similar for the for-profit and nonprofit hospitals. Consequently, they cannot reject the hypothesis that nonprofit and for-profit hospitals maximize different objective functions. Eldenburg et al. perform a similar experiment, looking at CEO and board turnover across a number of classes of hospitals, including for-profit, nonprofit, government, and religious. They find that both board turnover and CEO turnover increase with poor hospital performance, high administrative costs, and high levels of uncompensated care. The sensitivity of turnover to these factors varies across hospital types. These findings are consistent with the view that different types of hospitals maximize different objective functions.

## 4. CONCLUSIONS

Boards of directors are an integral part of the governance of large organizations, including all corporate and many noncorporate organizations. Therefore, they have attracted

considerable attention from scholars in economics and finance. In this paper, we have surveyed this research and its implications for governance.

Boards of directors are an institution that has arisen *endogenously* in response to the agency problems inherent in governing any organization. Formal theory on boards of directors has been quite limited to this point. Instead, the literature has developed as a series of empirical studies generally aimed at answering one of three questions:

1. How are board characteristics such as composition or size related to profitability?
2. How do board characteristics affect the observable actions of the board?
3. What factors affect the makeup of boards and board evolution over time?

Several key findings have been derived from the empirical literature on boards. Notably, board composition is not related to corporate performance, while board size is negatively related to corporate performance. In addition, both board composition and size do appear to be related to the quality of the board's decisions on CEO replacement, acquisitions, poison pills, and executive compensation. Finally, boards appear to evolve over time as a function of the bargaining position of the CEO relative to that of the existing directors. Firm performance, CEO turnover, and changes in ownership structure appear to be important factors affecting changes to boards.

Most research on boards begins with the assumption that the directors' effectiveness is a function of the board's independence from management. The unobservability of the board's independence, together with endogeneity issues, conspires to make empirical work on boards a challenge—first, because of the econometric issues raised, and second, because of the resulting difficulties of interpretation. Two characteristics of boards—their size and composition—are conceivably correlated with a board's independence. A number of studies have found that these characteristics are associated with boards that take better actions from the shareholders' perspective. However, lacking an adequate interpretation of these results (Are they equilibrium or out-of-equilibrium results? Evidence of causation or spurious correlation?), we are reluctant to recommend policy changes on the basis of these studies.

All of this highlights the importance of better modeling of boards and their functions. This too is a difficult task, however. First, there is an important dynamic element to the board-CEO

relationship that is missing from most principal-agent models. In this relationship, the "principal's" preferences change over time because changes in board membership mean the board becomes more or less favorably disposed to the CEO (among other possible changes in preferences). A second, and related, issue is that unlike standard agency models, the agent has some say over who his principal is. These aspects of the board-CEO relationship complicate the modeling problem in ways that have yet to be resolved.

Even if one were to resolve these modeling issues, one would still be open to the complaint that the board is being modeled as a monolithic entity. In reality, a board consists of individuals who are unlikely to share a common agenda on all matters. For instance, after a proxy fight, directors hostile to management are sometimes added to a board that is otherwise friendly with management. But less dramatic and more common examples also exist. Because each board member bears 100 percent of the cost of her effort to monitor the CEO while enjoying only a fraction of the benefit, we should expect a free-rider problem among the directors. In addition, a CEO can potentially act strategically by playing one faction or group of directors against another.

Addressing these issues requires modeling the board's inner workings. But once we treat the board as consisting of individuals, we face tremendous challenges in applying our standard game-theory modeling strategies to the problem. We are not even assured that these are the appropriate modeling strategies. Experimental and other evidence is increasingly casting doubt on the appropriateness of game theory to explain the behavior of small groups of individuals because individuals appear to be governed more by issues of emotion, fairness, and norm adherence than is consistent with standard economic models (see Hermalin [2001] for a partial survey of some of these issues). When these issues are addressed, we will have a more coherent model of the board and a better understanding of its role in governance.

Thus, while significant progress has been made in the past fifteen years, there is much more work to be done. To this point, the literature has documented a number of facts and empirical relationships, most of which are for large, publicly traded companies. Formal theory has been limited, in large part because of the modeling issues involved. We expect that in the near future, research on boards will focus on three main areas:

1. Models of the inner workings of boards.
2. Tests of the implications of particular models, rather than the "Are Outside Directors Good or Bad?" studies that we have seen so much of to this point.

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3. Studies of boards of organizations other than large publicly traded corporations. Of particular importance are small entrepreneurial firms and nonprofit organizations.

We note that a number of the recent papers surveyed above have followed one or more of these approaches. It is likely that subsequent work along these lines will add much to our understanding of boards and of governance in general.

## ENDNOTES

1. For an innovative way to assess independence—or board activism—see MacAvoy and Millstein (1999), who use CalPERS' grading of board procedures as a measure.
2. Most directors can be classified as inside directors or outside directors. Inside directors are employees or former employees of the firm. They generally are not thought to be independent of the CEO, since the success of their careers is often tied to the CEO's success. Outside directors are not employees of the firm and usually do not have any business ties to the firm aside from their directorship. Outside directors are typically CEOs from other firms or prominent individuals in other fields. Finally, about 10 percent of directors do not fall into either category; often these are attorneys or businesspeople that have a long-standing relationship with the firm. These directors are usually referred to as "affiliated" or "gray" directors.
3. Here and throughout this paper, "firm performance" will be a convenient phrase meant to capture various possible measures of firm success (for example, return to investors, profitability, successful execution of firm strategy). In many of the empirical studies we review, firm performance has been operationalized in a precise way (for example, stock return or performance on some accounting measure). In the more limited theoretical literature, firm performance has typically meant economic profits in static models or firm value—the present discounted value of economic profits—in dynamic models.
4. As their holdings have grown, institutions have played a much more active role in monitoring management governance in recent years. See Karpoff (1998) or Carleton et al. (1998) for discussion of shareholder activism and recent evidence on large institutional shareholders' efforts to change corporate governance.
5. See Kaplan and Reishus (1990) and Farrell and Whidbee (forthcoming) for evidence on the reputation argument.
6. Some other models that concern boards of directors are Adams (1998), Almazan and Suarez (2000), Hirshleifer and Thakor (1994), Raheja (2001), and Warther (1998).
7. Most of this literature focuses on the monitoring of boards of directors. Of course, boards do other things as well inside of firms. For an interesting discussion of the political role played by some directors, see Agrawal and Knoeber (forthcoming).
8. One exception is Baysinger and Butler (1985), who find that the 1970 proportion of independent directors is positively related to 1980 return on equity. However, as Bhagat and Black (1999) emphasize, these authors use only a single performance measure, and ten years seems like an implausibly long time over which to observe performance improvements from a factor such as board composition.
9. Among them are Coughlan and Schmidt (1985), Warner, Watts, and Wruck (1988), Weisbach (1988), Jensen and Murphy (1990), Barro and Barro (1990), Blackwell et al. (1994), Kaplan (1994), Brickley and Van Horn (2000), Eldenburg et al. (2000), and Huson et al. (2000).
10. A third explanation is that board composition is a function of the quality of executives just below the CEO. When there are high-quality inside alternatives to the CEO, these executives will be more likely to be directors, leading to more inside directors on average. In addition, they will tend to replace the CEO for reasons that might not be related to publicly available measures of performance, and it will be more likely in these firms that the replacement CEO will be an insider, consistent with Borokhovich et al. (1996) and Huson et al. (2000).
11. One cross-sectional study not subject to the endogeneity critique is Kroszner and Strahan (forthcoming). They find that stable firms with collateralizable assets are more likely to have bankers on their boards, potentially allowing for better monitoring of bank lending activities.
12. However, because the CEO's shareholdings in his own company are generally a disproportionate part of his portfolio, his attitude toward company risk is likely to differ from that of more diversified shareholders. That is, although increased CEO shareholdings may better align his incentives with those of shareholders on some dimensions, they may misalign them with respect to attitudes toward risk.
13. From cooperative game theory, the Shapley value to a player is that player's payoff, which equals his or her expected marginal contribution to a random coalition of players. In the context of dividing a pie, the Shapley value concept can be seen as the extension of the Nash bargaining solution concept to games with more than two players. See Hart (1987) or Myerson (1991) for details.

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# EXECUTIVE EQUITY COMPENSATION AND INCENTIVES: A SURVEY

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## 1. INTRODUCTION

Corporate governance is generally considered to be the set of complementary mechanisms that help align the actions and choices of managers with the interests of shareholders. Monitoring actions by the board of directors, debtholders, or institutional blockholders can have an important impact on the economic performance of an organization (for example, Jensen [1989], Mehran [1995], Core, Holthausen, and Larcker [1999], and Holderness [2003]). Another important and often debated component of the governance structure is the compensation contract selected for providing remuneration to managers (for example, the level of remuneration or choice of performance measures).

Executive compensation has been the subject of extensive prior research, and excellent general reviews already exist for the interested reader (for example, Murphy [1999]). For our purposes here, we will not reproduce this discussion but rather focus on the more narrow, but crucial, topic of stock-based compensation and incentives.

Stock and option compensation and the level of managerial equity incentives are aspects of corporate governance that are especially controversial to shareholders, institutional activists, and governmental regulators. Similar to much of the corporate finance and corporate governance literature, research on stock-based compensation and incentives has generated not only useful insights, but also has produced many contradictory findings. Not surprisingly, many fundamental questions

remain unanswered, and one of our goals is to highlight topics that seem especially appropriate for future research.

Within the corporate governance literature, and more specifically within the executive compensation literature, there are alternative views on the efficiency of observed contracting arrangements between firms and their executives. For the purposes of this survey and as an organizing principle of our literature review, we follow a traditional agency-theory framework and define an efficient contract as one that maximizes the net expected economic value to shareholders after transaction costs (such as contracting costs) and payments to employees. An equivalent way of saying this is that we assume that contracts minimize agency costs. Clearly, the types of contracts that are efficient at any particular time or in a particular sector of the economy are a function of various transaction costs. For instance, a contract that was efficient in the United States fifty years ago may not be efficient today because information costs have fallen greatly and the optimal organizational form has changed as a result. Over time, optimal contracting arrangements evolve with changes in contracting technology. As part of this evolutionary process, firms are experimenting with new contracting technologies. Some experiments succeed and others fail as firms update their beliefs and learn about the efficiency of their governance structures. Throughout this process, firms may be uncertain about the optimal contracting technology. As a result of this uncertainty and because of differences in beliefs about optimal incentive levels, one would expect variation in the observed contracts

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John E. Core and Wayne R. Guay are assistant professors of accounting and David F. Larcker is the Ernst & Young Professor of Accounting at the Wharton School of the University of Pennsylvania.

<jcore@wharton.upenn.edu>

<guay@wharton.upenn.edu>

<larcker@wharton.upenn.edu>

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across firms. However, unless beliefs are systematically biased, we expect that compensation contracts are efficient, on average, and that average equity incentive levels across firms are neither “too high” nor “too low.” (For an example and discussion of how an evolutionary process converges to an efficient outcome, see Lazear [1995, pp. 8-10].)

In contrast to this economic perspective, a number of scholars and practitioners either implicitly or explicitly take the view that contracting arrangements are largely inefficient and do not minimize agency costs (for example, Morck, Shleifer, and Vishny [1988], Crystal [1991], and Jensen [1993]). A view that sees most firms behaving inefficiently is hard to support. At the opposite extreme is the view that transaction costs in the labor market, the stock market, and the market for corporate control are so small that all agency costs are eliminated. Fama (1980), for instance, argues that labor market discipline eliminates agency problems with CEOs, who know that any opportunistic behavior will be punished by a complete downward revision of the value of their human capital. However, this view abstracts away from information costs, contracting costs, and frictions in the market for corporate control.

Later research (for example, Shleifer and Vishny [1997] and Zingales [1998]) develops theories that incorporate the attractive features of both of these polar extremes. This approach assumes that firms contract optimally, but that transaction costs prohibit continuous recontracting. Since contracting is not continuous, firms’ contracts gradually deviate from the optimal level. This view allows some managers to exploit shareholders because the managers have temporarily gained power, but this process is mean-reverting so that shareholders, over time, regain authority (Zingales 1998). Thus, at any point in time, the existence of recontracting costs allows some managers and firms to extract rents, but on average the system is efficient within transaction costs. Notice that this perspective does not imply that it is impossible to find examples of gross agency problems; it only suggests that these observations are “unusual” in cross section and are likely to be reduced over time. This definition of efficiency is used in our discussion.

We also concentrate our survey on literature that tests economic hypotheses within samples of U.S. firms. However, we believe that much of our discussion can be generalized to firms throughout the world. Bushman and Smith (2003) present a broad overview of how differences in country-specific factors lead to different governance and compensation structures that arise endogenously within those environments. In many other countries, investors are not as well-protected and widely dispersed ownership is not optimal. In these settings, managers and their families retain much ownership and explicit equity-based compensation may be unnecessary

(La Porta, Lopez-De-Silanes, and Shleifer 1999). Important features of the U.S. environment include a regulatory system that emphasizes the protection of shareholders and requires that each firm transparently disclose material information about its finances and its contracts, and a government that grants individuals and firms much freedom to seek their own good. These features contribute to widely dispersed ownership in many U.S. firms, in which managers own a small fraction of the equity, and where the relatively low managerial ownership levels make it potentially important to write contracts that emphasize equity ownership. As a working theoretical representation, we assume that the use of equity compensation in the United States is endogenously determined within the broad legal, regulatory, and governance environment faced by U.S. firms.

Our objective is to synthesize the broad literature on equity compensation and executive incentives. Moreover, we hope to reduce some of the unsupported rhetoric or folklore in the academic literature and practitioner discussions on equity-based compensation. There remain many unanswered questions and considerable controversy within some areas of the research with respect to theoretical assumptions and empirical approaches to testing these theories. We do not attempt to resolve all of these controversies, but instead we try to highlight areas in which research could shed light on these issues. Finally, we do not claim to provide an exhaustive review of this literature, and we admit that our views and interests influence our emphasis and inference.<sup>1</sup>

In the next section, we provide some basic institutional detail on the use of stock compensation and incentives. Section 3 summarizes research on the determinants of equity incentives and the economic effects of these choices. Section 4 details unresolved issues, controversies, and topics for future research. Section 5 provides a brief summary of our review.

## 2. INSTITUTIONAL BACKGROUND

Equity incentives and stock-based compensation are important features of the contracting environment between shareholders (as represented by the board of directors) and executives. Hall and Liebman (1998) and Hall and Murphy (forthcoming) provide evidence from samples of large U.S. firms that the overall sensitivity of CEO stock-based wealth to changes in stock price and the vast majority of this sensitivity come from CEO stock and option ownership. Hall and Murphy (forthcoming) report that in 1998, the median values of stock and options held by Standard & Poor’s industrial CEOs and Standard and Poor’s financial CEOs were

\$30 million and \$55 million, respectively. These values and sensitivities are large relative to annual flow pay. For example, Core, Guay, and Verrecchia (2000) report that the ratio of equity portfolio value to annual total pay was 30.3 on average for CEOs during the 1993-98 period.

There has been a large increase in the use of stock options to provide CEO compensation and incentives. In 1980, CEO annual flow compensation was mainly in the form of cash salary and bonus (Hall and Liebman 1998), with only 30 percent of CEOs receiving new option grants. Mean salary and bonus was \$655,000, compared with \$155,000 from new option grants. By 1994, options had become a major component of CEO flow compensation, with 70 percent of CEOs receiving new option grants, and mean option grants amounting to \$1.2 million (valued by the Black and Scholes [1973] model), compared with \$1.3 million in cash pay. In addition to being an important component of chief executive compensation, stock options are an important component of CEO equity incentives. Hall and Liebman (1998) report that in 1980, 57 percent of CEOs held some amount of options, and by 1994, this figure had reached nearly 90 percent. In Core and Guay's (1999) sample of CEOs from the 1992-96 period, options contributed approximately one-third to the value of the median CEO's equity portfolio and contributed roughly one-half of the median CEO's total equity incentives (that is, the sensitivity of portfolio value to stock price).

The use of options is pervasive but does vary across industries. Core and Guay (2001a) document cross-sectional variation in the magnitude of corporate option plans. They find that the median large firm has options outstanding that amount to 5.5 percent of common shares outstanding. This percentage is relatively larger, 10 percent to 14 percent, for growth industries such as computer, software, and pharmaceutical firms, and relatively smaller, 2 percent to 3 percent, for low-growth industries such as utilities and petroleum firms. The fraction of total outstanding employee options held by top executives also varies by industry. Murphy (1999) shows that the importance of options in CEO annual pay is pervasive across several industry groups, but is substantially less important for utility firms. Consistent with these findings, Ittner, Lambert, and Larcker (2001) find that the use of stock options and restricted stock in high-technology, "new-economy" firms substantially exceeds the equity compensation in large, "old-economy" manufacturing firms.

Another way to examine the importance of equity incentives is to examine stock option "overhang," a measure commonly used by institutional investors. Option overhang is calculated as the ratio of stock options granted, plus options that have been approved for future grants, divided by the total shares

outstanding. In our opinion, this measure is somewhat naive because it counts an unissued option the same as an issued option. Nevertheless, analysts and other institutional investors seem to use stock option overhang when analyzing firms' investment potential. Using Investor Responsibility Research Center data on stock option overhang, we see that the mean (median) overhang was approximately 13.0 percent (11.2 percent) in 1999. Boards of directors have substantially increased overhang during the 1990s, and at the end of 2000 they had approved options that amount to approximately 10 percent of shares outstanding.

### 3. EQUITY COMPENSATION AND INCENTIVES

#### 3.1 Compensation and Incentives

As noted in Antle and Smith (1986) and Jensen and Murphy (1990), executives are given variable compensation and incentives through three primary mechanisms: 1) flow compensation, which is the total of the CEO's annual salary, bonus, new equity grants, and other compensation; 2) changes in the value of the CEO's portfolio of stock and options; and 3) the possibility that the market's assessment of the CEO's human capital will decrease following termination because of poor performance or a change in control. For executives below the CEO, the potential for promotion is an additional source of incentives.

In this paper, we define incentives as variation in executive wealth related to the stock price, and we focus on the incentives to increase the stock price provided by the manager's ownership of equity (such as stock and stock options). Consistent with the majority of research that examines the incentives provided by equity holdings, we use the term "equity incentives" to denote the incentives created by equity securities that motivate a manager to increase stock price.

We acknowledge that managerial equity holdings provide other incentives, but we do not devote much attention to these incentives, which we consider second-order effects and/or effects offset by other contracting mechanisms. (For example, although options provide incentives to cut dividends, it is easy for the board to require the CEO to maintain a certain dividend.) These other incentives arise because the value of stock and options is also sensitive to other moments of the stock price, such as variance (Jensen and Meckling 1976; Haugen and Senbet 1981; Smith and Stulz 1985; Lambert,

Larcker, and Verrecchia 1991). For example, the value of common stock in a leveraged firm increases with the volatility of firm value, and the value of a stock option held by a diversified investor increases with the variance of stock price. Guay (1999) shows that the sensitivity of option portfolio value to stock return volatility can be economically significant for some CEOs, but the sensitivity of common stock value to volatility is economically unimportant for all but the most financially distressed firms (in Section 3.5, we discuss research that suggests that firms use options to provide risk-taking incentives to managers). Finally, the fact that the value of stock options decreases with the level of dividend payments suggests that option holders can have incentives to reduce dividend payments. A body of evidence documents lower dividend payments following the initiation of option plans (Lambert, Lanen, and Larcker 1989; Bartov, Krinsky, and Lee 1998) and suggests that managerial option holdings are associated with a substitution of repurchases for dividends (Fenn and Liang 2001).

Although we concentrate on the role of stock and stock options in providing incentives to increase stock price, stock options and restricted stock are also used as a means of attracting certain types of employees and increasing retention (or reducing voluntary turnover), and we discuss such use in Section 3.6. These uses of options are likely to be more important for lower level employees (Core and Guay 2001a; Oyer and Schaefer 2001). Survey data reported in Ittner et al. (2001) indicate that employee retention is a primary reason why firms use options. A useful area for future research is to examine the extent to which stock option programs actually affect voluntary turnover. Furthermore, as we discuss in Section 4.5, it is unclear if stock option plans are the most effective means of reducing turnover. Oyer and Schaefer provide evidence consistent with the hypothesis that firms use option programs to attract employees who are less risk-averse and who have optimistic beliefs about the firm's prospects.

In defining incentives as the sensitivity of the manager's wealth to stock price changes, we ignore as well the incentives provided by the termination threat and from variation in the flow of annual compensation. We ignore as well variation in incentives from performance measures other than the stock price. For most CEOs, the assumption that the majority of incentives are driven by variation in the value of equity holdings is realistic.<sup>2</sup> Murphy (1985), Jensen and Murphy (1990), and Hall and Liebman (1998) show that the vast majority of a typical CEO's incentives to increase stock price are driven by variation in the value of his stock and option portfolio, that is, not by flow compensation. Core, Guay, and Verrecchia (2000) show that for the typical CEO, nonprice incentives provided by flow compensation are not

economically large in comparison with the price-based incentives provided by the CEO's equity portfolio.<sup>3</sup>

As one moves deeper into the organization to employees below the CEO and below top management, equity-based incentives take on a relatively less important role. For example, Core and Larcker (2001) find that non-CEO executives typically hold much less equity as a multiple of their base salary than does the CEO. For lower level managers, the stock price is less informative about actions, and local measures of performance (such as division profits) are more relevant and useful for providing incentives (Bushman, Indjejikian, and Smith 1995; Ittner, Larcker, and Rajan 1997). In addition, the incentives related to potential promotion become more important. However, in cross section, firms vary substantially in their use of equity incentives for lower level employees. For example, lower level employees in high-technology firms tend to receive larger equity grants (Ittner et al. 2001) and hold greater levels of stock options (Core and Guay 2001a).

A substantial body of theoretical and empirical work supports stock price as a relevant performance measure for assessing executive choices. However, like any performance measure, stock price is a noisy measure of the executive's performance because it is influenced by factors beyond the executive's control. As a result, equity incentives impose risk on the executive and the executive must be paid a premium over an acceptable level of fixed cash pay to compensate for this risk. Clearly, there are costs to the firm for providing "too many" or "too few" equity incentives. For example, the executive may not take actions that maximize shareholder wealth—a possible outcome when "too many" or "too few" incentives are provided—or will require a large risk premium—a possible outcome when "too many" incentives are provided. We return to this topic later when we discuss relative performance evaluation and option valuation.

### 3.2 Measurement of Equity Incentives

A fundamental question for the compensation literature is the measurement of incentives in general, and equity incentives in particular. A key point in analyzing executive incentives is that an executive's incentives from stock and options are properly measured by *portfolio* incentives (for example, Jensen and Murphy [1990] and Lambert, Larcker, and Verrecchia [1991]). As emphasized by Yermack (1995), one cannot determine whether an executive has an appropriate level of incentives by examining newly granted restricted stock and options compensation in a given year. Evidence in Core and Guay (forthcoming a)

indicates that the correlation between newly granted incentives and previously held portfolio incentives is low.

Techniques for creating empirical proxies for equity incentives were originated by Jensen and Murphy (1990). These techniques are expensive, however, because complete data on the characteristics of an executive's option holdings are not publicly available. Core and Guay (forthcoming a) develop and validate an inexpensive and accurate method of estimating option portfolio value and the sensitivities of option portfolio value to stock price and stock-return volatility that is easily implemented using data from only the current year's proxy statement or annual report. This method can be applied to either executive stock-option portfolios or to firmwide option plans. In broad samples of actual and simulated CEO option portfolios, Core and Guay show that these proxies capture more than 99 percent of the variation in option portfolio value and sensitivities. A potential limitation of their analysis is that they assume, consistent with most prior literature beginning with Jensen and Murphy (1990), that changes in the Black-Scholes value of an option portfolio is an appropriate measure of an employee's incentives to increase the stock price. We discuss the appropriateness of the Black-Scholes model in detail in Section 4.2.

Although estimating these proxies is straightforward, in recent years a debate has ensued over how to transform the proxy into a measure of equity incentives. Most researchers, beginning with Jensen and Murphy (1990), use the Black and Scholes (1973) method to value an executive's option portfolio, and measure the executive's incentives to increase the stock price by how much the total value of the executive's stock and option portfolio changes with a small change in the stock price. Studies such as Demsetz and Lehn (1985), Jensen and Murphy (1990), and Yermack (1995) measure incentives from equity holdings as fractional ownership, which is the dollar change in the value of the executive's stock and option portfolio wealth for a *dollar change* in firm value. This approach is motivated by Jensen and Meckling's (1976) model of the firm with a risk-neutral agent. Under the assumption that monitoring is costly and imperfect, the agent has an incentive to consume perquisites, such as luxurious office space and jet aircraft, so long as the agent owns less than 100 percent of the firm. This is because he or she gets all or most of the benefits from the perquisite but bears only a fraction of the costs through ownership claims. Under this theory, agency costs are mitigated when the risk-neutral manager owns a large percentage of the firm so that the manager internalizes the cost of the perquisites consumed. Data showing small fractional ownership lead Jensen and Murphy (1990) to conclude that CEO equity incentives are too weak to provide economically meaningful

incentives and lead Morck, Shleifer, and Vishny (1988) to conclude that CEO ownership is generally "too low."<sup>4</sup>

One problem with this theory is that all CEO actions are assumed to be equally difficult to monitor. For example, there is an implicit, but untenable, assumption that it is equally difficult for the shareholders to observe that the CEO has bought a jet aircraft for personal consumption as it is for them to observe whether the CEO spent enough time evaluating a new project before he adopted it. Second, when CEOs are wealth-constrained, a small fraction of firm value translates into a large fraction of CEO wealth. Hall and Liebman (1998) argue that managerial risk-aversion and wealth constraints imply that managers with large dollar holdings of equity can have powerful incentives even when their fractional share holdings are small. (We discuss the implications of wealth-based contracting in greater detail below.) This theoretical notion can be approximated for equity incentives by computing the dollar change in the value of the executive's stock and option portfolio for a *percentage change* in firm value. For example, an executive with \$10 million in stock holdings would experience a \$1 million change in wealth for a 10 percent change in stock price.

It is important to keep in mind that the two measures are transformations of one another. When computed for stock holdings only, the *dollar change* in executive wealth for a *dollar change* in firm value is proportional to the fraction of shares outstanding owned by the executive. The dollar change measure can be converted to a percentage change measure by multiplying it by the market value of the firm. For example, Jensen and Murphy (1990) and Yermack (1995) estimate the sensitivity of a CEO's holdings of stock and options to stock price with respect to a \$1,000 change in the value of common stock. As such, the percentage change measure is equal to the Jensen and Murphy measure multiplied by the market value of the firm and divided by \$100,000.

Baker and Hall (1998) shed much light on this debate by showing that the appropriateness of the two approaches to measuring incentives is determined by how CEO actions are assumed to affect firm value. For example, when a CEO's actions primarily affect firm *dollar returns* (such as perquisite consumption through the purchase of a corporate jet), the appropriate measure of the CEO's incentives is his percentage holding in the firm. In contrast, when CEO actions primarily affect firm *percentage returns* (such as the implementation of firm strategy), the appropriate measure of CEO incentives is her dollar holdings in the firm (Baker and Hall 1998, pp. 8-9). While there are likely to be situations in which the measures complement each other (for example, fractional share holdings may be more important when a CEO is tempted to engage in a

value-destroying action), dollar holdings are likely to be the more important incentive measure in a wide variety of situations.

### 3.3 Determinants of Equity-Based Incentives

A fundamental reason for the use of equity incentives is the desire by firms to link changes in executive wealth directly to changes in stock price, thereby providing executives with incentives to maximize shareholder wealth. Obviously, if shareholders (or the board of directors) could directly observe the firm's opportunities and the executives' actions and know beforehand which actions would maximize shareholder wealth, no incentives (including equity incentives) would be necessary. However, because shareholders do not know and cannot specify every action an executive should take in every scenario (that is, the first-best contract cannot be implemented), the firm must instead delegate many of these choices to the executive, who presumably has superior information about many of these decisions. To motivate the executive to take actions that are in the best interests of the shareholders, compensation risk is imposed on the executive by linking the executive's wealth to firm performance (that is, the second-best contract is used).

The use of second-best contracts immediately leads to the key question of how firms determine the appropriate level of equity incentives to give an executive. Demsetz and Lehn (1985) hypothesize that required levels of managerial equity ownership are related to firm size and monitoring difficulty. They argue that there is an optimal firm size and optimal level of managerial ownership given the firm's factor inputs and product markets. If the optimal firm size is large, the dollar cost of a fixed proportionate equity ownership is also correspondingly large (that is, it is more costly for large firms to require that managers own a given percentage than it is for small firms).

In addition, larger firms require more talented managers who are more highly compensated (Smith and Watts 1992) and consequently are expected to be *wealthier* (Baker and Hall 1998). Under the typical assumption that individuals' utility functions exhibit declining absolute risk-aversion (such as constant relative risk-aversion), CEOs of larger firms are expected to have higher dollar incentives from equity (Baker and Hall 1998; Himmelberg, Hubbard, and Palia 1999). Both studies find that CEO portfolio incentives, measured as dollar equity ownership, increase at a decreasing rate with firm size.

Demsetz and Lehn (1985) also hypothesize that firms operating in less predictable or noisier environments have higher monitoring costs. Because of these higher monitoring

costs, Demsetz and Lehn argue that firms in noisier environments will exhibit a higher concentration of ownership, but managerial risk-aversion implies that ownership levels will increase at a decreasing rate with noise.<sup>5</sup> A related argument is Smith and Watts' (1992) hypothesis that the prevalence of growth opportunities within firms makes it more difficult for shareholders or outside board members to determine the appropriateness of managers' actions. Requiring managers to hold stock and options lowers monitoring costs by giving managers incentives to maximize shareholder value. Smith and Watts hypothesize and find a positive relation between firms' growth opportunities and the degree to which firms use equity incentives to tie a manager's wealth to firm value. Gaver and Gaver (1993), Mehran (1995), Himmelberg, Hubbard, and Palia (1999), and Palia (2001) provide additional support for this hypothesis by documenting a positive association between proxies for growth opportunities and CEOs' equity incentives.

Thus, in contrast to the allegations of many media pundits (and some academics) who assert that incentive levels are random, arbitrary, or out of equilibrium, empirical evidence suggests that, on average, firms base their equity incentives on systematic and theoretically sensible economic factors. Any research that assumes that incentives are systematically "too high" or "too low" is effectively assuming that incentives are not in equilibrium. (This idea is covered in detail in Section 4.) Furthermore, the empirical findings suggest that it is inappropriate to use a single firm characteristic, such as firm size, to benchmark executive equity holdings against mean or median equity holdings. Instead, the regression models reveal that multiple firm characteristics, such as size and proxies for investment opportunities, must be weighted to construct a prediction of the expected level of equity incentives.

### 3.4 Equity Grants and Incentives to Increase Stock Price

The above discussion suggests at least one motivation for why firms make new grants of stock-based compensation, such as stock options and restricted stock. Specifically, over time, managers' equity incentives can become misaligned with the level of incentives desired by shareholders. This misalignment occurs because firm and/or manager characteristics that drive target incentive levels change (for example, the firm grows over time or the firm's investment opportunity set may exogenously shift). In addition, managers periodically sell and buy stock, and exercise options to satisfy personal consumption. Finally, the incentives provided by a given portfolio of stock and options change over time. For example, the incentives provided by an option portfolio vary with stock price, stock-return

volatility, and the time remaining until the options expire. If firms and executives agree on a target level of equity incentives, one might expect that firms use grants of stock and options to adjust portfolio incentives to the target level. Core and Guay (1999) find that new grants of equity incentives are negatively associated with the degree to which the CEO's portfolio incentives exceed an empirical estimate of the CEO's target incentive levels.

### 3.5 The Use of Stock Options to Add Convexity to Compensation Contracts

Smith and Stulz (1985) and many others have recognized that a potential cost of management stock holdings is that the linear payoff structure creates a potential incentive for a risk-averse manager to take actions that reduce firm risk or to reject risky, positive net present value (NPV) projects. Amihud and Lev (1981) hypothesize and May (1995) presents empirical evidence consistent with the hypothesis that managers with very large stock holdings undertake risk-reducing acquisitions. Tufano (1996) finds that hedging activities in the gold industry are more extensive when CEOs have larger stock holdings. Thus, it seems optimal to add convexity to managers' contracts when there is a link between a manager's effort choice and variance (for example, Hemmer, Kim, and Verrecchia [1999], Feltham and Wu [2001], and Lambert and Larcker [2001a]). Similarly, convex compensation contracts are also likely when the manager can make project selection choices to affect firm risk (for example, Lambert [1986], Hirshleifer and Suh [1992], and Core and Qian [2001]).

These theories also suggest that the optimal amount of convexity in a compensation contract depends on a variety of firm and CEO characteristics. Innes (1990) shows that even if an agent is risk-neutral, a limited liability restriction can introduce convexity into an optimal contract. In the traditional moral hazard agency model with a risk-neutral principal and a risk-averse and effort-averse agent (for example, Holmstrom [1979]), the form of the optimal contract is determined by the distribution function that maps managerial actions into the stock price and the manager's risk-aversion. The contract is more convex when the distribution function is more skewed and when the manager is less risk-averse (Holmstrom 1979; Hemmer et al. 1999). For contracts that consist of a combination of stock and options, Lambert and Larcker (2001a) show that the "optimal" exercise price for a single large option grant is generally higher than the stock price at the date of the grant (that is, the options are "out of the money"). Core and Qian (2001) show that when there are no growth opportunities, the CEO's contract contains little convexity per

unit of slope, but when there are large growth options that are difficult to evaluate, the CEO's contract is both more convex and more steeply sloped. Consistent with the general predictions of these theories, Guay (1999) shows that firms with greater growth opportunities provide more risk-taking incentives and that firm risk is indeed greater when managers hold more risk-taking incentives.

### 3.6 Other Reasons for Equity Compensation

Since options and restricted stock are valuable, they can also be used to provide executives with compensation. Even when an executive already has the appropriate level of incentives, the firm may choose to compensate her with equity as a substitute for cash. One would expect that it is more costly to use risky claims, such as stock options or restricted stock, instead of cash to compensate a risk-averse agent for past performance. (We discuss below that there is much debate over the magnitude of this cost differential.) However, because stock options and restricted stock require no contemporaneous cash payout, firms with cash constraints are expected to use these forms of compensation as a substitute for cash pay (for example, Dechow, Hutton, and Sloan [1996] and Core and Guay [1999, 2001a]). Implicit in these arguments is the assumption that the firm's cost of capital is lower when it "sells" a small amount of stock to an employee in lieu of cash compensation than if it were to sell a similar amount of stock to the market. Many high-growth firms argue that stock-based compensation allows them to supplement cash compensation and compete for high-quality employees.

Stock and option grants can also be driven by tax motivations. For example, grants of options (and grants of restricted stock that are tied to performance-contingent plans) are not subject to the U.S. Internal Revenue Code Section 162(m) \$1 million limit on the tax deductibility of fixed compensation. Further, when future corporate tax rates are expected to be higher, the future tax deduction from deferred compensation can be favorable relative to the immediate tax deduction received from cash compensation.<sup>6</sup> Therefore, the use of stock-based compensation is expected to be less costly for firms with low marginal tax rates. Yermack (1995), Matsunaga (1995), Dechow, Hutton, and Sloan (1996), and Bryan, Hwang, and Lilien (2000) find that the use of stock options is greater for firms with lower marginal tax rates.

Finally, firms may substitute stock option compensation for other forms of compensation because of the financial accounting treatment of stock options. Specifically, unlike other types of compensation—such as cash pay and restricted stock, which are an expense on the income statement—the

value of stock option grants is generally not expensed, but is instead disclosed in the footnotes to the financial statements. Dechow, Hutton, and Sloan (1996) and Core and Guay (1999, 2001a) provide some evidence that option grants are larger when it is more costly for firms to have low earnings (because of dividend constraints or debt covenants). Further, for reasons that are not well understood, some firms appear to believe that the distinction between recognition and disclosure of option expense is economically important. Carter and Lynch (2001b) provide direct evidence that firms are willing to incur economic costs to obtain favorable accounting treatment for stock options when they show that firms accelerate option repricings to obtain such treatment.

## 4. CONTROVERSIES, UNRESOLVED ISSUES, AND TOPICS FOR FUTURE RESEARCH

### 4.1 Equity Incentives and Firm Performance

There is presently no theoretical or empirical consensus on how stock options and managerial equity ownership affect firm performance. Studies of this issue generally take one of two perspectives. Studies such as Morck, Shleifer, and Vishny (1988) argue that, on average, observed CEO equity ownership and incentives are “too low.” If this were true, most firms would increase firm value by increasing CEO equity incentives. In this setting, CEO equity ownership and firm performance should exhibit a positive association because high- (low-) ownership CEOs are closer (further away) from optimal incentive levels.

Morck et al. (1988) find some evidence consistent with this hypothesis, except among CEOs with very large fractional equity ownership. McConnell and Servaes (1990) find evidence of a positive relationship between increases in ownership and firm performance as long as managerial ownership is less than 50 percent. Frye (2001) finds evidence that firms that provide more equity-based compensation to employees perform better. Sesil, Kroumova, Kruse, and Blasi (2000) find mixed evidence that firms using options extensively perform better, and Ittner et al. (2001) find that the relationship between option grants and firm performance varies across organizational levels within a sample of new-economy firms. A limitation of this research is that the causal direction of the relation between equity incentives and performance is unclear (Kole 1996). Rather than higher equity incentives producing better future firm performance, it may be the case that firms expecting better

future performance grant more equity (for example, Yermack [1997]). It would be worthwhile for researchers to analyze this important question using a simultaneous equation or transfer function approach (incorporating leads and lags) to provide evidence on the directionality of the function linking equity ownership with firm performance. Obviously, one problem with this econometric approach is that it is necessary to specify both the structural and reduced-form equations, along with the selection of appropriate instrumental variables (Himmelberg et al. 1999).

Also consistent with this hypothesis is evidence of a positive association between management stock and option holdings, and firm leverage (for example, Mehran [1992] and Berger, Ofek, and Yermack [1997]). Berger et al. (p. 1437) conjecture that firms generally have too little leverage and that shareholders value increases in leverage associated with increases in ownership. The authors provide evidence that increases in option holdings, but not increases in stock ownership, are associated with increases in leverage.

Related literature in corporate finance examines the performance of companies completing a leveraged buyout (for example, Kaplan [1989] and Smith [1990]) and reverse-leveraged buyouts (for example, Holthausen and Larcker [1996]). These changes in organizational structure are generally associated with large shifts in the level of equity owned by executives (in both dollar terms and as a percentage of firm value). The results of these studies reveal large increases (decreases) in performance for firms completing a leveraged buyout (reverse-leveraged buyout). Moreover, the performance consequences are associated with changes in managerial equity ownership.

In contrast to studies that view equity incentives as being too low, Demsetz and Lehn (1985), Core and Guay (1999), and Himmelberg, Hubbard, and Palia (1999) consider an alternative prediction about the relationship between equity incentives and performance. These authors conjecture that firms and managers contract optimally, and that managerial-ownership levels are set, on average, at the value-maximizing level.<sup>7</sup> In these studies, equity-incentive levels are determined by firm and manager characteristics. For example, as noted above, higher (lower) ownership is predicted and observed in firms where more (less) monitoring is required. From this perspective, no simple ex-ante relationship between ownership and firm performance is expected. That is, low-ownership firms are not necessarily expected to perform poorly because these firms do not require high-powered equity incentives to ensure that managers take appropriate actions. Similarly, high-ownership firms use high-powered equity incentives to resolve serious monitoring problems not because they expect that high

incentive levels will allow them to achieve positive abnormal performance. Himmelberg, Hubbard, and Palia (1999) present evidence to support the view that one would not expect to see an association between performance and the level of incentives in equilibrium. However, as discussed by Zhou (2001), future research is necessary to examine the appropriateness (goodness of fit) for the structure imposed by Himmelberg et al. (1999).

It can be argued that a problem with cross-sectional studies of the determinants of equity incentives is that they provide little evidence of whether firms systematically require incentive levels that are “too high” or “too low.” That is, incentive levels could vary across firms in ways that are consistent with economic theory and yet still be on average too high or low. However, if this were the case, one would expect it to be readily documented by studies that examine the relationship between equity incentive levels and firm performance. For example, if all firms imposed excessively large equity incentives on executives, firms with the lowest incentive levels should be closest to optimal and have the better performance, whereas firms with the highest incentive levels should be furthest from optimal and have the worst performance. The fact that empirical researchers have had difficulty documenting a robust relationship between incentives and performance suggests that the data are not well described by a simple story about incentives being “too high” or “too low” for most firms.

The two schools of thought about the expected relationship between performance and incentives make very different assumptions about the nature of the adjustment costs of correcting suboptimal contracts. For example, Morck et al. (1988) implicitly assume that adjustment costs are so great that firms cannot recontract when incentives are not properly aligned. Therefore, these firms deliver lower cash flows to their shareholders, and their market values are lower.<sup>8</sup> Conversely, by concentrating on the equilibrium behavior of optimizing firms, Demsetz and Lehn (1985) assume that firms can continuously recontract because there are no adjustment costs. The choice of one of these two extremes drives the design and interpretation of the results of any study that examines the relationship between ownership and performance. It is perhaps not surprising that there is no consensus on the performance consequences of managerial equity ownership.

As an alternative approach, we suggest that firms choose optimal managerial equity incentives when they contract (consistent with the literature that predicts no link between ownership and performance), but that transaction costs prohibit continuous recontracting (consistent with the literature that documents a strong relation between ownership and performance). Because ownership is periodically reoptimized, we expect no association between ownership and

firm performance in a cross-sectional regression that controls for the endogenous determinants of firms’ optimal ownership levels. However, because contracting is not continuous, firms’ ownership levels gradually deviate from the optimal level. This means that a subset of firms always has misaligned incentives but recognizes that the costs associated with recontracting sometimes exceed the benefits. Given these assumptions, an effective sample for testing for a link between ownership and firm value is a set of firms for which managerial equity ownership levels are too low (high), but then recontract to increase (decrease) ownership. For this sample of firms, required adjustments in managers’ ownership should increase cash flows to shareholders and increase firm value because firms should rationally recontract only when the benefits associated with better aligned incentives are greater than the costs of recontracting.

Core and Larcker (forthcoming) explore this approach in the context of target ownership plans. They argue that if target ownership plans improve managerial incentives, adoption should have favorable operating performance consequences for the firm. They assume that when a firm with low managerial ownership requires that managers increase their ownership, this increase mitigates agency problems and motivates managers to select actions that are more consistent with shareholder objectives. Their evidence is consistent with this hypothesis.

Overall, despite considerable prior research, the performance consequences of equity ownership remain open to question. Clearly, the need for high-powered incentives varies across firms and thus greater equity ownership by a particular executive does not necessarily imply that agency costs are lower or that performance will be stronger. However, empirical evidence that equity incentives vary across firms in ways consistent with economic theory does not preclude the possibility that costly contracting allows incentives periodically to become misaligned or that some firms contract sub-optimally with their executives. Exploring the extent of these latter possibilities is an area for future research.

## 4.2 Executive versus Market Valuation of Equity and the Efficiency of Equity Compensation

Lambert, Larcker, and Verrecchia (1991) point out that the manager’s entire portfolio of stochastic and nonstochastic wealth is important for contracting purposes. The study models a firm that gives a risky contract to a manager who has initial wealth correlated with the stock price. Lambert et al.

show that the risk-averse and undiversified manager has a certainty-equivalent value for the contract that is less than the risk-neutral firm's value of the contract (or, equivalently, the cost to the firm of providing the contract). These results are consistent with the standard agency result that a contract that imposes risk on an agent is more costly than a contract that imposes no risk.

In contrast to Lambert et al., most agency models do not explicitly consider outside wealth: the contract has to meet the agent's reservation utility in expectation (for example, Holmstrom [1979]). Because all executives have outside wealth, this simplification can lead to some confusion in empirical tests of these models. However, these models can be expanded to incorporate outside wealth by assuming that the agent's reservation utility is greater when the agent has more outside wealth (for example, Lambert and Larcker [2001a]). The optimal contract in this setting unwinds some of the agent's initial wealth and replaces it with a precise exposure to firm risk. For example, the contract might require the agent to sell her investment in the market portfolio and purchase a position in the firm's stock.

A central insight of Lambert et al. is that in a contracting setting, it is costly for the principal to ignore the structure of the manager's wealth. For typical power utility functions, Lambert et al. show that the manager's valuation of an option can be less than 50 percent of the Black-Scholes value when the manager is constrained to hold 50 percent of his wealth in firm stock. The valuation is lower for managers who are more risk-averse and less diversified. Finally, Lambert et al. provide evidence that giving an undiversified agent a stock option can lead to incentives to actually *reduce* variance, as opposed to the more typical assumption that an agent with a stock option has an incentive to increase variance. This last finding partly results from the authors' assumption that the agent can reduce firm variance without changing its expected return. In the Black-Scholes model, an option is made more valuable when variance increases because of the assumption that there is a risk-return tradeoff in which expected returns increase when variance increases. Lambert et al. de-link this risk-return tradeoff, and show that an agent prefers a decrease in variance when there is no decrease in expected returns. This result does not depend on risk-aversion, as even a risk-neutral agent would prefer a variance decrease for an in-the-money option, provided that the variance decrease did not reduce the expected stock return. The analysis of Lambert et al. and subsequent work by Hall and Murphy (forthcoming), Hall and Murphy (2000), Carpenter (2000), and others illustrate the importance of considering the manager's total portfolio of wealth when valuing a stock option portfolio from the perspective of the manager.

Hall and Murphy (forthcoming) replicate the analysis in Lambert et al. (1991) and use it to make some normative prescriptions about the structure of current compensation arrangements. Hall and Murphy claim that stock options are a wasteful and inefficient means of conveying *compensation*. The intuition is that paying *compensation* in stock or options to a risk-averse executive can be more costly to the firm than delivering to the executive the same value in cash. This is unquestionably true if the effect of the compensation is solely to increase the amount of risk imposed on the executive and the incentive effects of the stock options are ignored. However, some firms may deliver compensation in the form of equity rather than cash (for example, to conserve cash). In these cases, because the intended purpose of the equity *compensation* is not to increase risk imposed on the executive, the firm likely would allow the recipient to rebalance her portfolio so that the firm-specific risk that the recipient was exposed to after the grant was the same as it was before the grant (Core and Guay 2001b). As described below, executive valuation of equity compensation in this latter scenario is likely to be substantially different than valuation in the former setting.

Similar to the Lambert et al. (1991) study, Hall and Murphy (forthcoming) assume that an executive has wealth of \$20 million and that the only two investment choices available to him are firm stock and the risk-free asset. Although the executive would prefer to hold less, he is exogenously specified to hold \$10 million of wealth in assets that are perfectly correlated with the firm's stock price (that is, stock holdings and the present value of compensation from the firm). Further, Hall and Murphy assume that the executive is exogenously constrained from selling any existing holdings and cannot rebalance portfolio holdings when he receives a \$1 million compensation payment in the form of options. In other words, the firm gives the executive compensation, but simultaneously increases the risk imposed on him by not allowing portfolio rebalancing.

Now consider how the executive values the \$1 million option grant in this setting. After the grant, he has \$11 million in equity, which is further away from his preferred level of stock holdings. Because the executive cannot implement any portfolio rebalancing and is not provided with a compensating risk premium, he values this option grant at less than its Black-Scholes value of \$1 million. Since the value received by the executive can be substantially below the cost to the firm, Hall and Murphy conclude that equity grants are an expensive form of *compensation*. However, as noted above, this grant increases incentives and is not pure compensation. Further, because stock option grants impose more risk on executives per dollar of compensation compared with the risk per dollar

imposed by stock grants, Hall and Murphy conclude that stock option compensation is an inefficient form of equity compensation. In addition, they conclude that the use of Black-Scholes deltas overstates the incentives provided by an executive's option portfolio, and suggest that researchers must risk-adjust compensation payments. This conclusion again follows from the assumption that the risk-averse executive cannot rebalance his portfolio following an increase in its value, and therefore will discount this value increase.

It is important to note that Hall and Murphy implicitly assume that the option grant improves incentives: "If the grant provides incentives that shift the distribution, and if the shift is not already incorporated into stock prices as of the grant date, we will *underestimate* [emphasis added] both the cost and value of the option" (forthcoming, section 2, footnote 13). As discussed above, this assumption that all firms have too few incentives is equivalent to an assumption that firm incentives are out of equilibrium. If one believed that incentives were in equilibrium, one would not ex ante expect that an equity grant would improve incentives. Further, if one believed that incentives were in equilibrium, one would not expect the firm to restrict the executive from selling stock to rebalance incentives following price increases.

Core and Guay (2001b) relax the exogenous assumptions of Lambert et al. (1991) and Hall and Murphy (2001), and instead assume that the equity grant is made as *compensation* under a contract between the firm and the executive. Specifically, Core and Guay assume that the executive's holdings of \$10 million in firm equity are not exogenously specified, but are instead part of a second-best optimal employment contract, which requires her to hold exactly \$10 million of equity incentives. Finally, they assume that the executive is allowed/required to rebalance portfolio holdings over time to maintain the agreed level of incentives. Now consider how this executive values a \$1 million grant of equity. Because she is allowed to implement portfolio rebalancing and sell \$1 million of existing stock holdings at their market value and still maintain the contracted level of firm equity, the executive will value the equity grant at its market value. Using similar logic and assumptions, Core and Guay show that the executive values a change in the value of her stock and option portfolio at its market value. This conclusion again follows from the assumption that the risk-averse executive can rebalance her portfolio following an increase in its value back to the contractual, second-best, optimal level of incentives. Thus, under these assumptions, the Black-Scholes sensitivity of stock and option portfolio value to stock price—as typically used by researchers—is a reasonable approximation for executives' incentives to increase the stock price.

A key assumption in the Core and Guay (2001b) analysis is that because the executive is allowed to rebalance to the target incentive level, there are no incentive effects induced by the \$1 million grant that increase or decrease the principal's expected payout. If this assumption does not hold (for example, as in Hall and Murphy [2001]), the stock option grant changes incentives and affects the principal's payout, and the analysis becomes considerably more complicated.

These two arguments represent polar cases, and the relative applicability of the two approaches depends on one's assumptions and the specifics of the situation under study. The Hall and Murphy (2001) analysis most directly applies to the cost of imposing additional *incentives* on an executive (assuming that this increase is optimal from the perspective of shareholders). However, this approach is not directly related to the use of equity as *compensation* because compensation relates to the payment made to executives, not the risk imposed. The opposite is true for the Core and Guay (2001b) approach. Their analysis addresses the use of equity grants to provide compensation, and assumes that there is an equilibrium level of incentives and that the executive has an ex-ante contract that requires him or her to hold this level of equity incentives. Grants of incentives following the contract do not change the level of incentives required, and accordingly these grants are valued at market value because they impose no extra risk. Further, the Core and Guay argument assumes that the costs of selling stock to rebalance the level of risk imposed on the executive are small (so that the executive can rebalance frequently and completely), and the executive's value of the grant is reduced as these costs increase. Rebalancing costs include trading commissions and Securities and Exchange Commission (SEC) and other (implicit or explicit) restrictions on when stock can be sold. Core and Guay (forthcoming b) also show that, provided the executive can rebalance once shortly following the equity grant, the executive is expected to value a typical newly granted option at 95 percent of its market value.

The Hall and Murphy (2001) analysis may be applicable to very large option grants ("mega-grants") that impose excess incentives beyond the optimal level that the executive cannot shed. However, mega-grants may be a case where the executive has control of the board and uses this grant to extract wealth from shareholders. (It is frequently hypothesized that options are a means of rent extraction—for example, Core, Holthausen, and Larcker [1999]—but as we discuss in Section 4.6, this hypothesis lacks an explanation of why risky option grants are a preferred means of rent extraction.) In either case, when the effect of a compensation payment is to impose extra risk on the executive, there is no doubt that the executive values this compensation payment at less than its market value. When

this extra risk is inefficient, the compensation payment is inefficient.

A key issue in the debate over the valuation and efficiency of equity compensation is the extent to which executives actually rebalance their stock and option portfolios in response to equity grants. Although empirical evidence suggests that executives do rebalance their portfolios in response to stock and option grants (for example, Janakiraman [1998], Heath, Huddart, and Lang [1999], Ofek and Yermack [2000], and Core and Guay [2001a]), the extent of this activity and how it varies cross-sectionally remain open questions.

Finally, a problem with both the Core and Guay, and Hall and Murphy approaches is that they do not provide explicit models that explain why stock options arise in an optimal contracting setting. Both approaches impose some exogenous structure and assume that the principal-agent problem is solved by a contract that is linear in the stock price. This assumption focuses on the fact that option grants and restricted stock grants provide incentives to increase the stock price, but ignores the convexity and risk-taking incentives created by the options (as noted above). The continued development of optimal contracting models for stock options and equity grants, and careful testing of their empirical implications, would be very helpful for understanding the valuation and efficiency of equity compensation.

### 4.3 The Debate over Relative Performance Evaluation

A widespread concern among both practitioners and academics is that executive portfolios lack relative performance evaluation (RPE) or, equivalently, that stock and stock options gain value not only because the firm performs well, but also because the market rises. For example, Abowd and Kaplan (1999) remark:

Stock options reward stock price appreciation regardless of the performance of the economy or sector. Why should CEOs be rewarded for doing nothing more than riding the wave of a strong bull market? If the exercise price could be linked to measures like the S&P 500, or an index of close product-market competitors, then executives would be rewarded for gains in stock price in excess of those explainable by market factors outside their control. If market-wide stock movements could be netted out of executive incentive schemes, then equivalent incentives could be provided while reducing the volatility of the executives' portfolios (p. 162).

Murphy (1999) and Gillan (2001) echo a similar perspective. Abowd and Kaplan suggest that current practices are wasteful and that research could “lend insight into the value of resources *squandered* [emphasis added] by a failure to implement relative performance evaluation plans” (p. 163).

A central tenet of agency theory is Holmstrom's (1982) prediction that compensation contracts are expected to filter out systematic noise through relative performance evaluation. Janakiraman, Lambert, and Larcker (1992), Antle and Smith (1986), Gibbons and Murphy (1992), and others have found relatively little evidence that the annual bonus portion of executive compensation exhibits RPE. However, given our observation above that most of a CEO's incentives come from his or her equity portfolio, the lack of *explicit* RPE in a bonus payment does not imply the lack of implicit RPE in the overall contract. Casual empiricism, such as in Abowd and Kaplan's study, observes large stock and option portfolios, and assumes there is no RPE. That is, if firms use RPE, one might expect to see explicitly indexed CEO contracts, where the CEO holds securities that only expose him to idiosyncratic firm performance and effectively remove systematic risk from the CEO's performance evaluation. We argue below that while there is no *explicit* RPE in CEOs' stock and option portfolios, there is considerable *implicit* RPE in these portfolios.

A potential explanation for the apparent rarity of RPE equity incentives follows from the observation that CEOs are expected to hold equity portfolios that reflect the terms of their employment contracts, not the portfolios they would choose in the absence of constraints. Portfolio theory predicts that a rational, risk-averse CEO would hold *no* stock in her firm (in the absence of private information), and instead would have *all* of her wealth invested in a diversified portfolio.<sup>9</sup> That is, a CEO will generally hold a substantial quantity of stock in her firm only if required to do so as part of the compensation contract (for example, for incentive reasons).<sup>10</sup> Under certain assumptions, this form of employment contract is reasonably consistent with an RPE prediction that the optimal contract requires the CEO to hold more than her preferred exposure to the firm's idiosyncratic (nonmarket) return.

To see this, imagine that a firm hires a new CEO with \$100 in outside wealth that the executive prefers to hold in the market index (with return  $R_m$ ). (For simplicity of exposition, we assume that the CEO prefers to hold 100 percent of his outside wealth in the market index, but the same argument applies if the CEO prefers to hold a combination of the risk-free asset and the market index.) Suppose that the employment contract with this new CEO requires the purchase of \$50 of the firm's stock, which the executive finances by selling \$50 of his market holdings.<sup>11</sup> Under the simplifying assumption that the

firm has a beta equal to 1, the stock return is  $R_m + R_i$ . Accordingly, after fulfilling the contract, the executive owns \$50 in the market portfolio with return  $R_m$  and \$50 in firm stock with return  $R_m + R_i$ . This new portfolio is equivalent to the \$100 market portfolio that was originally held, plus a new \$50 exposure to the idiosyncratic component of the firm's return  $R_i$ . The executive's wealth is no more correlated with market movements after the contract than that preferred in the absence of the contract. The only aspect that has changed is that the executive now holds a \$50 exposure to the firm's idiosyncratic risk, which is exactly the prediction of RPE. The implicit indexing of the executive's holdings of the firm's stock is not observed because the structure of the executive's outside wealth and preferences is not observed (Core, Guay, and Verrecchia 2000; Core and Guay 2001b; Jin 2001). This analysis suggests that executive contracts are likely to be more consistent with RPE than might be observed by casual empiricism or by previous empirical RPE research that has not considered the structure of the executives' other wealth.

The explicit use of RPE in executive compensation contracts (for example, indexed stock options) is quite uncommon. Johnson and Tian (2000) note some possible reasons for this empirical observation. Firms face several potentially costly implementation issues with respect to indexed options. For example, an observable nonmanipulable benchmark index must be specified that captures common uncertainty beyond the executive's control (for example, Dye [1992]). Indexed options can create greater incentives to increase risk than standard options. Furthermore, as discussed below, indexed options require the firm to use variable financial accounting that results in compensation expenses for options. A disadvantage of indexed stock option contracts would be evident if the recognition of accounting expenses is important to the firm. Nevertheless, the extent of RPE in executive compensation contracts is an important issue that deserves further research.

#### 4.4 Do Firms Contract over CEO Wealth?

A key issue in understanding the efficiency of equity-based compensation and incentives is to determine whether firms contract over CEO wealth. We hypothesize that an efficient contract varies the amount of incentives given to a CEO as a function of the CEO's total wealth (as well as a variety of other parameters). To demonstrate the intuition behind this claim, we make the simplifying assumption that the optimal contract is a linear function of the stock price, and consider how a firm

would contract with a CEO who has constant relative risk-aversion. Given that the CEO has constant relative risk-aversion, and conditional on firm characteristics and CEO effort-aversion, the optimal linear contract would expose some fixed proportion of the CEO's wealth to firm risk. This risk exposure would be equivalent to requiring the CEO to own stock with value equal to a fixed proportion (say, 60 percent) of his or her wealth.<sup>12</sup> Now suppose that there are two CEOs who have the same wealth, the same constant relative risk-aversion utility functions, the same marginal product, and the same cost of effort. Each CEO has the same efficient contract. Then one CEO inherits a lot of money, but the second loses all outside wealth in a divorce. Unless they recontract or rebalance, both CEOs have incentives to take actions that do not maximize firm value, the first by working less and the second by taking fewer risks. Only if CEOs have constant absolute risk-aversion (that is, a CEO with \$100 in wealth values a \$10 gamble the same as a CEO with \$1 million in wealth) would there be no benefit to wealth-based contracting.

Given that the merits of wealth-based contracting are compelling, it is interesting to consider what frictions might prevent the firm from engaging in this economic approach. To write such contracts, the firm requires information about the executive's firm-specific wealth as well as total wealth (inside and outside). Contracting over firm-specific wealth would not seem to pose much of a problem because these amounts are readily observable, given U.S. disclosure and insider-trading laws. For example, the SEC legally requires that insiders disclose their own firm stock holdings, option exercises, direct purchases and sales of stock, and any indirect "quasi-sales" of stock through synthetic instruments such as caps or collars (Bettis, Bizjak, and Lemmon 1999). As a result, the majority of costs from implementing wealth-based contracting are likely to stem from the absence of information on the manager's outside wealth, which he or she is under no legal obligation to disclose. However, even if the firm does not know exactly the executive's outside wealth, it can form an unbiased expectation of it. For example, the firm is likely to have substantial knowledge about previous employment history that provides information about outside wealth (such as previous cash compensation, stock holdings of previous employers, and number of years employed).

Empirical evidence documenting whether firms contract over executive wealth would provide important insights into the research questions outlined in Sections 4.1-4.3. However, to our knowledge, there is little direct empirical evidence on this topic. Yet anecdotal evidence from conversations with companies and consultants suggests that firms consider their CEO's total risk exposure. For example, we know of a retailer

that emerged from bankruptcy and gave a new CEO 1,000,000 at-the-money options at a low stock price (\$10). The options produced substantial risk-taking incentives for the CEO and he implemented “risky” strategic and operational initiatives resulting in substantial stock price appreciation (\$100). After this outcome, the CEO became very risk-averse and refused to adopt risky projects. One explanation was that he wanted to “bank” the gain, and any risk or volatility was undesirable to him. The board’s solution was to encourage the CEO to rebalance his wealth by exercising the in-the-money options. The board then replaced the exercised options with new at-the-money options. Obviously, it is difficult (and inappropriate) to generalize from anecdotes such as this one.

Indirect evidence of wealth-based contracting includes Baker and Hall (1998) and Core and Guay (1999), who show that CEO incentives increase with firm size. Firm size can be used as an indirect proxy for CEO wealth as larger firms require more talented CEOs who demand greater compensation (Smith and Watts 1992). The evidence in Core and Guay (1999) that CEO incentives increase with CEO tenure may also indicate a relationship between CEO wealth and CEO incentives (assuming more senior CEOs have greater wealth). The finding that firm-specific indicator variables dramatically increase the explanatory power of regressions that model the level of equity incentives (for example, Core and Guay [1999] and Palia [2001]) is consistent with unobserved heterogeneity in CEO wealth being associated with differences in CEO incentives. However, this heterogeneity can also be interpreted as firm-specific differences in monitoring and contracting technology (Himmelberg et al. 1999). Evidence in Core and Larcker (forthcoming) that CEO ownership targets are typically around five times CEO salary seems to run counter to a prediction of wealth-based contracting because CEO salaries likely exhibit much lower cross-sectional variation than CEO wealth (although firms may use cash pay as a noisy proxy for wealth levels).

Finally, recent research by Bettis et al. (1999) as well as considerable anecdotal evidence indicate that some CEOs use derivative securities such as caps and collars to hedge firm-specific risk. Consistent with the predictions of efficient wealth-based contracting, caps and collars can be an effective way to allow executives to rebalance firm-specific risk in cases where their firm-specific wealth grows beyond the level implied by an efficient contract. However, inconsistent with the predictions of efficient wealth-based contracting, in firms with poor corporate governance (such as a captured board), CEOs may be allowed to engage in these hedging activities even when it is not efficient to do so. Furthermore, some CEOs may undertake these hedging activities secretly without board

approval. However, the fact that secret hedging activities are likely to run afoul of SEC disclosure rules suggests that this behavior is not expected to be widespread. The small sample size in Bettis et al. (1999) is consistent with the hypothesis that this behavior is limited, or that firms and CEOs are engaging in this behavior and not filing required SEC disclosures.

## 4.5 Repricing Stock Options

Stock option repricing—the practice of resetting the exercise price of previously granted options that are significantly out of the money—has attracted considerable attention in recent years, and is an area of particular concern for institutional investors and the business press:

Heavy criticism has come from the financial press and from large institutional investors such as the State of Wisconsin Investment Board, who argue that resetting is tantamount to rewarding management for poor performance and that, more importantly, it destroys incentives present in the initial contract (Acharya, John, and Sundaram 2000, p. 66).

The typical argument against repricings is that firms provide options to employees as a form of equity incentives, and these incentives are intended to encourage employees to take value-maximizing actions. When the stock price rises, employees are rewarded through the increase in the value of their options. However, if options are repriced after the stock price falls, the repricing effectively removes the risk originally imposed on the executive for incentive purposes, and may be seen as a “reward” for poor performance. Thus, critics argue that repricing is an inappropriate aspect of the compensation contract. A related point consistent with the critics’ perspective is that if the firms had not repriced, over half of their sample would have stock options that were at the money within two years after the repricing event (Chance et al. 2000). This result raises the question of whether the repricing is actually necessary. Of course, two years is a long time if you lose valuable employees to competitors in the interim.

In a counterargument, Saly (1994) and Acharya et al. (2000) point out that it is generally optimal to allow a long-term contract to be renegotiated, and an ex-ante strategy of repricing options following bad outcomes dominates a commitment to not recontract. Intuitively, if the outcome is bad and is known to be the CEO’s fault, the CEO can be terminated. If the firm wishes to keep the CEO following a bad outcome, it will want to provide the CEO with optimal incentives, which involves recontracting.

Arguments against repricing also fail to consider the retention incentives that options are likely to provide. Employee stock options generally have vesting requirements that encourage employees to remain with the firm until the options are exercisable. Further, employee stock options are not tradable or portable. This means that employees must exercise any vested options when they leave the firm, thereby forfeiting the time value of the options (that is, the employees are forced into suboptimal early exercise of the options). As an employee builds up an option portfolio over time, these retention incentives increase, thereby making it more costly for a competitor to hire away the employee. That is, not only would a competitor have to pay the employee the market wage, the firm would also have to compensate the employee for the value forgone from forfeiting unvested options or suboptimally exercising options prior to maturity. When the stock price falls precipitously, these retention incentives are largely eliminated and the probability of employee turnover increases as it becomes less costly for competitors to lure employees away. Repricing options can serve to reinstate the retention incentives. Obviously, repricing is costly from the perspective of the firm, but this cost may be substantially smaller than the cost of employee turnover (Acharya et al. 2000; Carter and Lynch 2001a) and thus repricing can be a value-increasing action by the board of directors.

It is important to note that the preceding argument is limited in that it assumes the existence of options and ignores the fact that restricted stock or other forms of deferred compensation could be equally or more effective as a retention device. For example, tenure-based restricted stock could have the same expected retention value as an equivalent dollar value of options, but with less risk.

Finally, we note that although stock options are commonly thought to provide retention incentives, there is little direct empirical evidence that documents these effects. This is an important question for future research to address.

Empirical research on stock option repricing provides insight into several issues. First, researchers document the frequency of repricing. Using a sample of ExecuComp firms from 1992 to 1995, Brenner, Sundaram, and Yermack (2000) find an incidence of repricing of less than 1.5 percent per firm year. Chance, Kumar, and Todd (2000) find a lower incidence of repricing when they examine 4,000 large firms included in the NAARS database from 1985 to 1994. In a sample of firms with December 1998 fiscal years obtained from a Lexis-Nexis search, Carter and Lynch (2001a) find more than 260 firms that reprice. Interestingly, most of the firms are small, high-technology firms that are not included in the Brenner et al. and Chance et al. studies. Consistent with Carter and Lynch, Ittner

et al. (2001) find that repricing frequency is substantially higher for small, hi-tech “new-economy” firms. For example, Ittner et al. find that 63.8 percent of the firms in their sample of 217 firms allow repricing, with shareholder approval required in 35.4 percent of the cases. Moreover, 59.6 percent of their sample have repriced stock options at least once and 31 percent have repriced stock options more than once following their initial public offering. It is worthwhile to note that a new financial accounting treatment of repricings may continue to affect their frequency. We discuss this development later.

Prior research finds that repricing follows poor firm-specific performance, and some researchers interpret this as evidence that repricings are not being undertaken to protect managers from industry performance. However, Carter and Lynch (2001a) point out that repricings are conditional on bad firm-specific performance *and* on the firm’s (unobserved) decision not to terminate its employees. If bad managers are fired and get no repricing, then for the remaining sample of good managers, an observed negative relation between repricing and performance could arise spuriously because the managers who are punished for poor performance are excluded from the sample.

Brenner et al. (2000) and Chance et al. (2000) provide evidence that repricings reflect governance problems (that is, entrenched managers are more likely to conduct repricings). Brenner et al. present evidence that option grants and compensation are higher for managers whose options are repriced, although this evidence is confounded by the fact that the repricing dummy variable in their regressions is endogenous. However, Carter and Lynch (2001a) match each repricing firm against a control firm with out-of-the-money options and find no evidence of a correlation between repricings and governance problems. A limitation of empirical research on repricings, as noted by Brenner et al., is that it does not examine CEO turnover. Clearly, it would be desirable for future research to examine the motivations to reprice and the performance consequences from this board action.

#### 4.6 Manipulation of Exercise Price and Timing of Stock Option Grants

Yermack (1997) finds positive abnormal stock returns after option grants. The study presents evidence to support the hypothesis that these returns occur because managers time the option grant prior to the release of good news. By making grants before the release of good news, the manager effectively awards himself an in-the-money option, which is more

valuable than the at-the-money option that he appears to grant himself. Yermack also presents evidence that the resulting discount (stock price thirty days following grant minus exercise price) is higher for firms with weaker governance (such as when the CEO is a member of the compensation committee). Complementing Yermack's argument that managers time equity grants around fixed information disclosure dates, Aboody and Kasznik (2000) suggest that managers also time the disclosure of information around fixed equity grant dates. Specifically, they provide evidence that firms delay the disclosure of good news and accelerate the release of bad news prior to stock option award periods.

Although the manipulation effect appears to be statistically significant in earlier research, one can question its economic significance and whether rational CEOs would engage in risky behavior for such a small expected gain. Based on abnormal returns for thirty days after the grant date, Aboody and Kasznik (2000) find that the disclosure strategy increases the CEO's option award value by a mean of \$46,700 (the median is \$18,500). Aboody and Kasznik argue that this practice amounts to compensation that is economically important. The amount estimated by them represents 2.5 percent (5.1 percent) of reported total CEO compensation of \$1,885,600 (CEO option compensation of \$923,400). Given that the average CEO within this sample is likely to have a stock and option portfolio worth more than ten times his annual compensation, the typical CEO's wealth gain from this behavior is much less than 1 percent. No evidence is reported as to whether total CEO compensation for the sample firms engaging in this practice is statistically different than for firms not engaging in the practice. There is also the issue of expected litigation costs in the event of shareholder litigation (discussed below) and the potential decrease in the value of their human capital as it becomes known that they are "manipulating" corporate disclosure.

Yermack argues that this type of granting practice would likely be construed as illegal insider trading. If the CEO engages in this behavior opportunistically to the detriment of shareholders and without board permission, the CEO violates his or her fiduciary responsibility to the shareholders. If shareholders sue the firm over this behavior, the CEO is not covered by the directors' and officers' firm insurance, and thus could lose his entire wealth in litigation. Unless the CEO expects the risk of being caught in this behavior to be extremely low, it seems highly irrational to engage in such risk-seeking behavior.

Both Yermack (1997, pp. 471-2) and Aboody and Kasznik (2000, p. 98) also entertain the possibility that their evidence is consistent with managers acting in shareholders' interests. For example, because the incentives to increase stock-price volatility created by an in-the-money option are lower than

those created by an at-the-money option (Lambert et al. 1991), firms may wish to issue in-the-money options but prefer to avoid the accounting cost of such options. To accomplish this objective, they allow managers to time disclosures. Provided that CEOs' and other employees' compensation are adjusted downward to reflect this extra value, one could argue that this type of behavior is entirely consistent with firms acting in shareholders' interests by writing efficient contracts that minimize a complex array of contracting costs.

Obviously, little is known about the extent to which CEOs "self-deal" with stock options. On the one hand, it has been argued that the timing of stock option grants is consistent with a form of opportunistic insider trading. However, the economic importance of this behavior for the executive and the firm is very unclear. On the other hand, arguments can be made that observed granting behavior simply reflects efficient contracting between boards and CEOs. This latter argument is bolstered by the seemingly transparent nature of self-dealing with options that should make monitoring this activity relatively easy. In addition, one might question why CEOs use stock options to extract rents given that the payoff from options is risky, depends on stock price increases, and generally has a vesting period over which the CEO must remain employed before he can realize any gains. It would be desirable for future research to provide some resolution to manipulation behavior by managers in response to stock option grants.

#### 4.7 Does the Accounting for Stock Options Cause Inefficient Use of Options?

In a competitive labor market, options are granted to employees as a form of compensation in return for services rendered. Like any other factor in production, corporations use these employee services to earn profits. However, unlike other factors in production, firms generally record no accounting expense for compensation that is paid in options (assuming the grant date stock price is less than or equal to the exercise price).<sup>13</sup> It is important for the reader to note that the recognition of option compensation as an expense in firms' financial statements is a separate issue from whether option compensation is an economic cost. Institutional accounting rules are influenced by objectives to produce reliable financial statements, as well as by the political process. With respect to option compensation, these forces have resulted in financial accounting rules that allow most firms to avoid recognition of option expense in accounting earnings, and to disclose instead an estimate of the expense in a footnote to the financial statements.

Although firms can choose to expense (that is, reduce reporting earnings) the estimated value of options granted, few firms make this choice. As such, other things being equal (including firms' economic profits), the accounting earnings of firms that grant options extensively are expected to be greater than the earnings of firms that use no options. In contrast, stock appreciation rights, which provide an identical payoff to options but settle in cash rather than in stock, are required to be expensed. However, regardless of whether firms choose to expense options in income, pro-forma income that includes option expense must be disclosed in the footnotes to the financial statements. Furthermore, there is significant disclosure about outstanding employee options in both the firm's proxy statement and annual report. Evidence in Aboody (1996) and Bell et al. (2001) is consistent with an efficient stock market recognizing and pricing these competing claims to the firm's equity.

Nevertheless, firm managers appear to behave as if they believe their stock prices would suffer if earnings included an expense for stock option compensation. For example, Carter and Lynch (2001b) find that firms accelerated repricing activity around the effective date of an accounting rule that required expensing of repriced options. Prior to December 1998, repricings did not trigger an accounting expense. After this date, firms were required to use variable accounting for repriced options, thereby incurring an accounting expense. The authors find that firms accelerated repricing activity around the effective date of this accounting rule. Following this change in accounting treatment, Carter and Lynch (2001b) observe a sharp reduction in the use of repricings to reinstate incentives. A survey by iQuantic (2001) finds that the majority of high-tech "new-economy" firms with underwater options have switched from repricing underwater options to giving a supplemental grant of options at the lower strike price. If canceling and reissuing options was optimal from a contracting standpoint, it seems that firms are incurring real economic costs to avoid the accounting expense associated with repricings.

If managers incorrectly perceive that there are real costs associated with expensing compensation, options may be overused and substituted for other forms of compensation, such as cash or restricted stock. If there is a very large real cost of expensing options, firms might prefer options even if, as argued by Hall and Murphy (forthcoming), their economic cost is greater than that of restricted stock. It is important for future research to examine the role of accounting in motivating firms to either increase or decrease their use of stock options. Specifically, shareholders presumably want the board of directors to select stock option plans that maximize shareholder value, not short-term earnings. Thus, if indexed options or other stock option designs that require variable

accounting provide optimal incentives for executives, why would a board reject such a compensation plan because of "unfavorable" accounting? Clearly, the role of financial accounting for employee stock options is of considerable importance to firms, but is not well understood by economists.

#### 4.8 Do Executives and Lower Level Employees Actually Understand How Stock Options Work and the Implicit Incentives in These Options?

There is an extensive literature in the behavioral sciences regarding biases in individual beliefs, and a growing literature in finance and insurance on heuristic behavior by investors (for example, Odean [1998]). Benartzi (2001) shows that employees invest a large fraction of their 401(k) assets in their own firm's stock, which seems to be a suboptimal portfolio choice given their large human capital investment in the firm. An assumption or implication of these studies is that some individuals do not understand the expected distribution of stock prices. Researchers are beginning to examine how these psychological biases relate to employee stock options (for example, Heath et al. [1999] and Core and Guay [2001a]). Lambert and Larcker (2001b) provide direct evidence on this issue in a recent survey. Specifically, middle-level managers assign a value to their stock options that exceeds the Black-Scholes value by 50 to 200 percent. This result suggests that the holder's beliefs about the stock price distribution are different from those of the market, which is consistent with either systematically favorable private information or biased beliefs on the part of the option holder. If a large number of option holders do not understand the underlying price distribution, it is conceivable that they may not understand the incentives provided by an option. Certainly, employees understand that the value of the option increases when the stock price increases, and that increases in stock price are more likely when the employee and all the firm's employees work harder, smarter, and more efficiently. However, as mentioned above, it is reasonable to question how accurately the partial derivatives of the Black-Scholes model measure executive incentives produced by stock options. An interesting question for future research is to examine how executives actually value their stock options. It would be useful to uncover what differences, if any, there are between the perceived and economic value of stock options, whether these differences vary with the employee's level in the organization, in wealth, in education, and other factors, and the implications of these differences for the incentives that stock options give employees.

A related question is whether it is good policy for the firms to recognize these biases and to “take advantage” of the employees by “selling” them “overvalued” equity. An alternative hypothesis is that people will pay for the chance to become very wealthy, and placing a large bet on the success of their firm may be their optimal portfolio choice. It would be possible to model this with a utility “function” or correspondence that is convex between present wealth and wealth that is ten times greater, even though it is locally concave at each wealth level. Of course, employees can satisfy their demand for stock with open market purchases so that any overvaluation that manifested itself would have to occur because employees cannot buy in the market the equivalent of a long-maturity option on their own firm’s stock.

## 5. CONCLUDING REMARKS

There is a long history of academic research that examines the managerial incentives associated with stock options and equity ownership. The aggressive use of stock options and the large payouts from stock option grants in recent years have produced considerable debate in boardrooms and the financial

press about the desirability of using equity compensation in executive compensation programs. In this survey, we provide a synthesis of the major research findings, as well as the fundamental controversies and unresolved issues about equity incentives. As is commonly the case in academic work, decades of research have perhaps produced more questions than answers.

One of the key results from our survey is that simple normative prescriptions, such as “repricings are an indication of poor governance” or “more equity ownership by executives is always better than less ownership,” are inappropriate. It is almost always necessary to understand the objectives of shareholders, the characteristics of managers, and other elements of the decision-making setting before drawing any conclusions about the desirability of observed equity-based incentive plans or the level of equity ownership by managers. Sweeping statements about governance and compensation, without a detailed contextual analysis, are almost always misleading. Moreover, unsupported conjectures by activist shareholders can impose substantial costs on firms by motivating boards of directors to adopt inappropriate equity compensation plans to placate this same group of shareholders.

## ENDNOTES

1. For example, there are many interesting design characteristics associated with stock options that we do not consider in this review. One such characteristic is the reload feature of some stock options. Hemmer et al. (1998) provide a useful analysis of reloads.

2. This assumption likely does not hold for CEOs with large turnover probabilities. For example, a new CEO is more likely to be terminated (and lose the present value of his future compensation) following poor performance than a CEO who has established his or her ability to run the firm.

3. Our assumption that the majority of a CEO's incentives are driven by variation in equity portfolio values does not imply that accounting or nonfinancial performance measures (such as innovation and customer loyalty) are not used in contracting with CEOs. We only assume that for the typical CEO, the use of these measures in his contract does not create large incentives that are distinct from incentives to increase the stock price.

4. Haubrich (1994, p. 258) notes: "Jensen and Murphy use their findings to challenge the principal agent paradigm. The pay-performance sensitivity of .003 is a far cry from the 1.0 predicted by the risk-neutral version of principal agent theory." For a small group of CEOs with extremely high fractional ownership, Morck, Shleifer, and Vishny (1988) conclude that ownership was "too high."

5. While traditional agency theory (for example, Holmstrom and Milgrom [1987] and Aggarwal and Samwick [1999]) predicts a decreasing relation between risk and optimal incentives (that is, less equity for managers of high-tech firms than for managers of utilities), Demsetz and Lehn (1985) and subsequent researchers find greater equity ownership for firms with greater uncertainty. Core and Guay (forthcoming b) reconcile these competing findings and show an increasing relation between risk and incentives, as predicted by Prendergast (2000), Core and Qian (2001), and Raith (2001).

6. From the employee's perspective, deferred compensation, such as restricted stock and options, always provides higher expected after-tax returns (before adjusting for risk) than a cash payment of equal value because taxes on the return are deferred (Smith and Watts 1982).

7. Demsetz and Villalonga (2001) argue that it is important to control for significant outside owners when examining the effect of inside ownership on performance. For a survey of the governance effects of outside blockholders, see Holderness (2003).

8. It is important to note that, under the assumption of market efficiency, this hypothesis does not imply that *stock returns* will be

lower for firms that contract suboptimally. That is, if the market understands that a firm is contracting suboptimally with its executives, the value of the firm will be lower but stock returns will be normal.

9. By "no" stock, we mean no stock other than the small amount of stock the CEO owns by owning the market portfolio. If CEO stock ownership was primarily driven by private information, one would expect to observe that some CEOs hold large quantities of stock (those CEOs with positive information) while other CEOs hold no stock (those CEOs with negative information). Further, one would expect to observe large swings in ownership as private information is generated and disseminated. These features are not commonly observed, and laws against insider trading seem to preclude this behavior.

10. Another exception to this point is the case of a founding CEO. In this case, it may be difficult for the CEO to sell all of her stock immediately without incurring substantial "signaling costs." However, programs such as those employed by Bill Gates, in which the CEO announces regular sales at certain times in the future, allow founding CEOs to reduce their equity holdings gradually without incurring information costs.

11. It is possible that the executive is required to purchase firm stock in excess of his market portfolio holdings. In these cases (and assuming that shorting the market portfolio is costly or not feasible), the role of firm-sponsored RPE is likely to be greater.

12. Although the degree of executive diversification is generally unknown, some survey data are available. Lambert and Larcker (2001a) find that the average survey respondent has approximately 19 percent of her wealth directly tied to her firm. A survey conducted by Oppenheimer Funds Inc. (2000) finds that 32 percent of option holders had 20 percent or more of their financial assets in stock options or stock of their company, 20 percent had 30 percent or more, and 12 percent had 40 percent or more.

13. The fact that options may provide employees with incentives does not provide a justification for excluding an estimate of the economic cost of granting options from the computation of labor expense. To the extent that options create incentives, they are like any other incentive in that they work by imposing risk on the employee, and the firm has to pay the employee extra compensation to accept this risk. Evidence in Bell et al. (2001) is consistent with investors' perception that services rendered by employees in return for newly granted options extend beyond the year in which the options are granted. As such, it may be reasonable to view the services received from option compensation as a temporary economic asset to be amortized (expensed) over a few years following the grant date.

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# A SURVEY OF BLOCKHOLDERS AND CORPORATE CONTROL

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## 1. INTRODUCTION

The notion of diffuse stock ownership is well entrenched among economists. It started with Adam Smith's legendary warning in *Wealth of Nations* about the "negligence and profusion" that will result when those who manage enterprises are "rather of other people's money than of their own." A century and a half later, another lawyer, Adolf Berle, along with a journalist, Gardiner Means, returned to the theme of diffuse stock ownership. Since the dawn of capitalism, Berle and Means reasoned, most production had taken place in relatively small organizations in which the owners were also the managers. Beginning in the nineteenth century with the Industrial Revolution, however, technological change had increased the optimal size of many firms to the point where no individual, family, or group of managers would have sufficient wealth to own a controlling interest. As a result, enterprises faced "the dissolution of the old atom of ownership into its component parts, control and beneficial ownership" (Berle and Means 1932, p. 8). Ultimately, this separation of ownership from control threatens "the very foundation on which the economic order of the past three centuries has rested."

The arguments of Berle and Means on the dangers of diffuse stock ownership, written during the depths of the Great Depression, had an immediate and profound impact.<sup>1</sup> Most notably, their arguments helped to shape the federal securities

legislation of the 1930s. That legislation was intended to protect diffuse shareholders from professional managers, and it remains the primary federal securities law to this day.

The notion of diffuse ownership has also had a profound influence on contemporary economists. This can perhaps best be seen in one of the pivotal papers of the postwar era, Jensen and Meckling's (1976) agency paper. Much of the focus of that paper is on the conflict between diffuse shareholders and professional managers:

Since the relationship between the stockholders and manager of a corporation fit the definition of a pure agency relationship, it should be no surprise to discover that the issues associated with the "separation of ownership and control" in the modern diffuse ownership corporation are intimately associated with the general problem of agency. We show . . . that an explanation of why and how the agency costs generated by the corporate form are born leads to a theory of the ownership (or capital) structure of the firm.

As economists started to employ this agency perspective, it was mainly in the context of diffuse shareholders and professional managers. This, for example, can be seen in the papers in a special issue of the *Journal of Financial Economics* on the market for corporate control in 1983. Many of these papers

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Clifford G. Holderness is a professor of finance at the Wallace E. Carroll School of Management at Boston College.  
<holderne@bc.edu>

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have become widely cited. It is illuminating, however, that among the sixteen papers in the special issue, there is little mention of large-percentage shareholders or managerial stock ownership.<sup>2</sup> In the issue's review article (Jensen and Ruback 1983), stock ownership, be it by managers or by outsiders, was not listed as a direction for future research.

After the volume was published, researchers began to discover that some public corporations had large-percentage shareholders, many of whom were top managers or directors. Researchers also discovered that some of these corporations were large and well known. Concentrated stock ownership, it appeared, was not limited to a few anomalous firms. Soon, academics began to study the impact of large-block shareholders.

Three empirical papers in the mid-1980s set the tone and the agenda for much of the research into ownership structure that has ensued over the following fifteen years. Demsetz and Lehn (1985) address the question of the types of public corporations that are likely to have high levels of managerial stock ownership. Holderness and Sheehan (1988) address the question of whether major corporate decisions are different when a corporation has a large-percentage shareholder. Morck, Shleifer, and Vishny (1988a) address the question of the impact on firm value of different levels of managerial stock ownership.

The new focus on ownership structure became evident in the next special issue of the *Journal of Financial Economics*. Now, after the passage of only five years, many of the papers addressed large shareholders, including the aforementioned Holderness and Sheehan (1988) and Morck, Shleifer, and Vishny (1988a). Moreover, the summary article, coauthored by Michael Jensen (who was also a coauthor in the 1983 review article that did not allude to ownership structure), identifies "ownership structure and the allocation of voting rights" as a direction for future research (Jensen and Warner 1988).

In this paper, I survey the academic literature on blockholders and corporate control. As with any survey paper, I must be selective. Thus, I focus on empirical research, as I believe that much of what we know about blockholders has come through empirical investigations as opposed to theoretical models, although there certainly are some insightful theoretical papers on blockholders. Moreover, this paper is not a traditional, full-fledged literature survey. Instead, I focus on what the literature tells us about four fundamental questions associated with blockholders: How prevalent are blockholders? What motivates block ownership? What impact do blockholders have on certain major corporate decisions? What impact do blockholders have on firm value?

The paper is organized as follows. Section 2 summarizes the data on the extent of block ownership and how the concentration of ownership has changed over time. Section 3

addresses the motivation of block ownership and the types of firms that tend to have concentrated ownership. Section 4 examines how block ownership affects three major corporate decisions: leverage, executive compensation, and the incidence of takeovers. Section 5 addresses the complex relationship between block ownership and firm value. A brief conclusion follows.

## 2. HOW PREVALENT ARE BLOCKHOLDERS?

Although Adam Smith was concerned with the separation of ownership and management, he offered no data on the extent of this separation. In all likelihood, he did not have the data. Moreover, when he was writing, prior to the Industrial Revolution, most enterprises were fairly small and were most likely owned by a single individual or a family. Corporations that were large and diffusely held, such as the East India Company, were very much the exception.

Berle and Means, in contrast, did offer data on ownership concentration, at least on the stock ownership of management. In fact, their book consists of two basic parts: a property-rights argument on the importance of the collocation of wealth effects and decision rights ("the atom of private property") and data on managerial ownership at a large number of American corporations. The fundamental limitation of these data is that, with the exception of a few regulated industries, companies at the time were not legally required to reveal their owners publicly, and few firms voluntarily agreed to do so. Likewise, directors and officers, as well as large-percentage shareholders, had no legal obligation to report their ownership stakes, and almost none did.

The first legal requirement for public reporting of ownership came in Section 16 of the Securities and Exchange Act of 1934. That provision mandates that directors, officers, and outside holders of at least 10 percent of the stock of any firm with equity registered on national securities exchanges report their holdings to the Securities and Exchange Commission (SEC). The SEC collected and published the Section 16 reports for share holdings as of December 31, 1935.<sup>3</sup> These are the earliest reliable data on ownership. They have been continually updated since then and are the ultimate source for virtually all ownership data used in academic research.

Holderness, Kroszner, and Sheehan (1999) were the first to analyze these ownership data from a time-series perspective. They compare a comprehensive cross-section of roughly 1,500 publicly traded U.S. firms in 1935 with a modern benchmark of more than 4,200 exchange-listed firms for 1995. They find that

managerial ownership was higher in 1995 than in 1935. The mean percentage of common stock held by a firm's officers and directors as a group rose from 13 percent in 1935 to 21 percent in 1995. Median holdings doubled from 7 percent to 14 percent. Although the very largest firms have similar ownership percentages in both periods, a firm size-weighted average is higher in 1995 than in 1935.

Although most research examines the fraction of a firm held by managers, it is an open question whether the dollar value of holdings may provide a better indication of a manager's incentives and willingness to make decisions than does percentage value of holdings. Holthausen and Larcker (1991) argue that "if it is equally difficult to affect firm value by a given percentage, say 5 percent of equity value, then dollar value of holdings is the appropriate measure, not percentage ownership. However, if it is equally difficult to get a given dollar magnitude change in the value of the equity, say \$1,000, then the manager's percentage ownership is the appropriate measure of incentive." Hanka (1994), in one of the few studies to consider both measures, finds that both the percentage of stock holdings of management and the dollar value of those holdings affect the magnitude of corporate charitable donations. Given this evidence of the potential importance of the dollar value of holdings, it should be noted that insiders' stock holdings have risen (in real terms) from \$18 million in 1935 to \$73 million in 1995. This general increase holds across all firm sizes.

Other studies also address the level of inside ownership. Mikkelson and Partch (1989) collect officer and director ownership data from proxy statements of 240 randomly chosen New York Stock Exchange- and American Stock Exchange-listed firms in three years. They report average inside ownership of 19.8 percent in 1973, 20.5 percent in 1978, and 18.5 percent in 1983. The average ownership for the three years pooled is 19.6 percent, and the median is 13.9 percent. Similarly, an unpublished study by the Office of the Chief Economist of the SEC examined the ownership of 100 randomly chosen public corporations for 1987 and found average inside ownership of 21.2 percent.<sup>4</sup> Finally, Holderness, Kroszner, and Sheehan (1999) find that in 1995, insiders on average owned 21 percent of the common stock of a randomly selected firm (median: 14 percent). As such, 20 percent is the best available estimate of the current level of inside ownership at public corporations.

Obviously, 20 percent is only an average. At one extreme, Holderness and Sheehan (1988) report that approximately 5 percent of the firms on the New York and American Stock Exchanges have majority shareholders. Mikkelson and Partch (1989) likewise report that insiders control more than half of all votes in 9 percent of their sample firms. In 27 percent of their

firms, insiders control 30 percent of the votes, an ownership level at which some commentators believe that a hostile takeover attempt cannot succeed. At the other extreme, some notable, often large, corporations have no external blockholders and management owns only a small percentage of the common stock. General Electric is such a corporation. According to its latest proxy, the directors and officers collectively own less than 1 percent of the stock, and no individual shareholder owns 5 percent or more of the stock. It is the quintessential diffusely held corporation.

Although most research on ownership concentration considers only the aggregate ownership of directors and officers, some papers also consider the stock ownership of the chief executive officer. Mehran (1995), in one such study, documents an average ownership by the chief executive and his immediate family of 5.9 percent (median: 1.2 percent) for 153 randomly selected manufacturing firms listed on Compustat.<sup>5</sup> Denis and Sarin (1999) find average CEO ownership of 7.2 percent (median: 0.3 percent) for a random sample of CRSP-listed firms selected in 1983. Jensen and Murphy (1990) report average ownership of only 1.0 percent (median: 0.03 percent) for 1984, but they examine only large firms.

Studies infrequently address the stock ownership of outside blockholders who do not serve on the board of directors. The significance of this omission is an open question. On the one hand, several studies (for example, Holderness and Sheehan [1988]) report that large-block shareholders or their representatives almost always serve as directors or officers, thus their ownership should be included in the total for the directors and officers. On the other hand, several theoretical studies posit a monitoring role for outside blockholders (Shleifer and Vishny [1986], for instance), in which case the ownership of blockholders would not be included if they are not directors.

Mehran (1995) is one of the few studies to look at the stock ownership of outside blockholders, which he and many researchers classify as individuals or entities owning at least 5 percent of the stock (because this triggers a mandatory SEC filing for all shareholders). He finds that 56 percent of a sample of randomly selected manufacturing firms had outside blockholders (23 percent of those were individuals, 23 percent were other corporations, and 54 percent were institutions).

## 2.1 The Stability of Block Ownership

The stability of block ownership goes to the essential organizational role of large shareholders. Some models, such as Shleifer and Vishny (1986), posit that block ownership will be stable over time because (in their model) external blockholders

are constantly monitoring management. Other models posit that blockholders enter and exit a firm as conditions change.

Barclay and Holderness (1989) find that once a firm has a large-block shareholder (independent of whether the blockholder or a representative sits on the board of directors), the firm usually has a blockholder five years later. More specifically, examining a sample of firms randomly selected from Spectrum 5 (which covers only firms with 5 percent or more shareholders), they find that only 4 percent of the firms that had 5 percent or more blockholders did not have one five years later. None of the firms that lost all of their blockholders initially had a block in place of 25 percent or more. Barclay and Holderness also report that the largest block in a firm tends to increase in fractional size over time.

Denis and Sarin (1999) likewise follow firms for five years (albeit a different sample of firms for a different time period). They find that firms that start the five-year period with low inside ownership normally end the period with low inside ownership. Firms that start with high inside ownership (which they define as more than 15 percent), however, typically experience a decline of approximately five percentage points. In addition, they find that within a given firm, inside ownership tends to be relatively stable over time. Specifically, they report that for those firms that have been in existence for at least five years (388 observations), two-thirds of them show a change in inside stock ownership of less than five percentage points over that period. Eighty-five percent of the firms show an absolute change in the proportion of stock controlled by directors and officers of less than 10 percent of the votes.

It is hard to know if these documented ownership changes are economically significant because we know little about the parameters of control. How does control change with fractional ownership? Is there some minimum threshold? Does it vary firm by firm? Does it depend on the existence of other blockholders? Does it depend on firm characteristics? Such potentially key issues have hardly been raised, much less investigated, in the literature.

A final data issue concerns the accuracy of the ownership data. As most ownership data come from proxies, and firms are subject to legal penalties if they report inaccurate or misleading information, it is generally assumed that ownership data are highly accurate. Although the data in the proxies may be accurate, firms are inconsistent in how they report indirect ownership. Indirect ownership arises when a director or officer shares voting rights over a block of stock but does not have the exclusive right to any attendant dividends. An example would be if a director is also a director of another corporation that owns a large-percentage block. Although such relationships are inevitably revealed in proxies, firms are inconsistent as to whether they include indirect ownership in the aggregate stock

ownership of the directors and officers as a group. This is the figure used in most academic studies.

This inconsistency can be illustrated by comparing the 1995 proxies for Hershey Foods Company and St. Joe Paper Company. At the time, the CEO of Hershey was also a trustee of the Hershey Trust, which owned a majority of the common stock of Hershey Foods. Although a footnote in the proxy clearly describes this relationship, the Hershey Trust's block was not included in the total beneficial ownership of officers and directors. In contrast, the CEO of St. Joe Paper Company was a trustee of the Alfred duPont Charitable Trust, which similarly owned a majority of St. Joe Paper. In this case, however, the block held by the Trust was included in the total beneficial ownership of officers and directors. To date, this potential data problem has hardly been recognized. Whether it changes the findings reported in the literature is unknown.

### 3. WHAT MOTIVATES BLOCK OWNERSHIP?

One of the foundations of modern finance is diversification. The capital asset pricing model, to take one example, assumes that investors will hold diversified portfolios to eliminate diversifiable risk. What motivates some individuals and organizations presumably to forgo the benefits of diversification by concentrating much of their wealth in the stock of a single firm?

Large-block ownership can be motivated by two factors: the shared benefits of control and the private benefits of control. The two are not mutually exclusive; indeed, the empirical evidence suggests that both factors typically are at work.

The shared benefits of control arise from the superior management or monitoring that can result from the substantial collocation of decision rights and wealth effects that come with large-block ownership. As the ownership stake of a blockholder increases, *ceteris paribus*, he has a greater incentive to increase firm value. To the extent that these higher cash flows are shared with minority shareholders, they constitute shared benefits of control. Several theoretical models, such as Shleifer and Vishny (1986), stress the shared benefits of control.

Empirical support for the existence of shared benefits comes from several sources. First, blockholders or their representatives usually serve as directors and officers, which puts them in the position to influence management decisions directly. Second, there is evidence that formations of blocks are associated with abnormal stock price increases (see, for instance, Mikkelsen and Ruback [1985]). Third, there is also evidence that the trades of large blocks are associated with abnormal stock price increases (Barclay and Holderness 1991,

1992). If blockholders do not affect the cash flows that eventually accrue to minority shareholders, such stock price changes would be hard to explain.<sup>6</sup>

Blockholders also have the incentive to use their voting power to consume corporate resources or to enjoy corporate benefits that are not shared with minority shareholders. These are the private benefits of control. Such benefits could either be pecuniary, such as excess salary for an individual blockholder or synergies in production for a corporate blockholder, or they could be nonpecuniary, such as the amenities that apparently come from controlling corporations like professional sports teams and newspapers. Private benefits can also be negative if blockholders incur personal costs from monitoring or from lawsuits brought by disgruntled minority shareholders or government officials.

Barclay and Holderness (1989) were the first to offer systematic evidence of private benefits for large shareholders by studying the pricing of trades of large-percentage blocks of common stock.<sup>7</sup> They reason that if all shareholders receive corporate benefits in proportion to their fractional ownership—in other words, if there are no private benefits from block ownership—blocks should trade at the exchange price. Conversely, if large-block shareholders anticipate using their voting power to secure (positive) benefits that do not accrue to smaller shareholders, then blocks should trade at a premium to the exchange price, with the premiums approximating the discounted value of the (net) private benefits. However, if blockholders expect to bear net private costs, then blocks should trade at a discount to the exchange price.

The salient finding in Barclay and Holderness (1989) is that trades of large blocks of stock are typically priced at substantial premiums to the post-announcement exchange price (average: 20 percent, median: 16 percent).<sup>8</sup> They interpret these premiums as suggesting that in most firms the net private benefits of large-block ownership are positive.

Additional support for the private-benefits hypothesis comes from the Barclay and Holderness cross-sectional regression analyses of the premiums. They find that premiums tend to be larger as the fractional size of a block increases, holding other variables constant. This is consistent with the existence of private benefits. A larger fractional block increases the degree of control the block purchaser will realize. Barclay and Holderness also find a positive relationship between firm performance before the trade and the size of the premium. This likewise appears consistent with private benefits, as more profitable firms are likely to offer greater private benefits. For example, there are likely to be more corporate funds to pay a large salary to the blockholder; joint ventures with another company controlled by the blockholder are also more likely to be more profitable if the company has been successful in the

past. Conversely, the authors find that when prior firm performance has been poor, blocks sometimes trade at discounts to the exchange price. This occurs in approximately 20 percent of their observations. It suggests that in some firms, the net private benefits of control are negative.

Subsequent studies have confirmed that block trades are generally priced at premiums to the exchange price. These studies also interpret the block premiums as reflecting anticipated private benefits of control. Mikkelsen and Regassa (1991) document an average premium of 9.2 percent (median: 5.5 percent) for a sample of thirty-seven trades between 1978 and 1987. Chang and Mayers (1995) report premiums that average 13.6 percent (median: 10.1 percent).<sup>9</sup> They also find that premiums tend to be larger when the blocks exceed 25 percent of the firm's outstanding common stock.

Premiums on negotiated large-block trades, and the net private benefits they reflect, are apparently not limited to U.S. corporations. Nicodano and Sembenelli (2000) document premiums of 27 percent (median: 8.3 percent) for negotiated trades of large blocks of stock in Italian corporations. The authors speculate that the larger premiums, compared with those of U.S. companies, reflect the paucity of legal constraints on large shareholders and hence the greater opportunities for private benefits in Italy.<sup>10</sup>

Barclay, Holderness, and Pontiff (1993) offer additional support for the private-benefits hypothesis through an analysis of discounts on closed-end funds. They document that these discounts tend to be significantly larger when fund managers or those affiliated with them own a large-percentage block. Because managers would appear to have the power to open the funds and distribute the assets to shareholders, the reason for not doing so when their firms' stock is trading at a discount to net asset value would seem to be the continuation of their private benefits. The authors support this interpretation with press reports of all their sample funds that had managers who owned at least 5 percent of the stock. These reports raise the possibility that the blockholders were receiving private benefits through such means as employment of the blockholder and his relatives or the ownership of another company that does work for the fund.

It must be cautioned, however, that private benefits need not reduce the wealth of minority shareholders. This is an assumption of some analyses, but it is wrong. For example, neither the nonpecuniary pride that some individuals feel in controlling a public corporation nor the synergies in production that can result if a corporation is the blockholder (a common situation) will reduce the wealth of minority shareholders. Indeed, both of these private benefits could redound to the benefit of minority shareholders; both types of private benefits of control could, in other words, produce shared benefits of control.

The magnitudes of the shared and private benefits of control are likely to vary with certain firm characteristics. The concentration of ownership should therefore vary systematically across firms depending on the characteristics of each firm that are related to the shared and private benefits of block ownership. This is the spirit of Demsetz and Lehn's (1985) pioneering paper. Ownership concentration is endogenous.

Researchers have identified several firm characteristics that affect the level of private and shared benefits and thus the level of ownership concentration. Most notably, concentration (and, to reiterate, this usually means inside ownership, as few studies have addressed outside blockholders) tends to be inversely related to firm size (Demsetz and Lehn 1985; Holderness and Sheehan 1988). This likely reflects considerations of risk aversion and wealth limitations.

Regulation also appears to affect the level of inside ownership. A regulated firm has both shareholders and regulators to monitor management; a regulatory agency therefore may partially substitute for shareholder monitoring. Thus, in a regulated firm, the shared benefits of control are likely to be lower than in an unregulated firm. The private benefits of control are also likely to be lower in a regulated firm, as insiders typically have less discretion precisely because regulation limits managers' activities.

The available empirical evidence indeed suggests that inside ownership is indeed lower in regulated firms. Holderness, Kroszner, and Sheehan (1999) for 1935 and 1995, as well as Demsetz and Lehn (1985) for 1980, document this for firms in general. Among specific industries, it is noteworthy that banks have relatively low levels of inside ownership.

Kole and Lehn (1999) use the framework of endogenous ownership concentration to study what occurred after the U.S. airline industry was deregulated beginning in 1978. They find that following deregulation, neither insider stock ownership nor chief executive ownership (measured in fractional or dollar terms) changed significantly. Outside blockholdings, however, increased.<sup>11</sup>

Himmelberg, Hubbard, and Palia (1999) note that unobserved firm heterogeneity makes estimation of the effects of ownership difficult. They also argue that panel data have certain advantages in addressing these difficulties. Their panel data findings confirm that managerial stock ownership is influenced by various firm characteristics; in other words, that managerial stock ownership is endogenous. In particular, they find that increases in firm size, fixed capital intensity (which they associate with lower monitoring costs), discretionary spending, and idiosyncratic risk all appear to be associated with a decline in managerial ownership. Conversely, managerial

ownership appears to increase with increases in advertising expenditures (which the authors associate with higher monitoring costs).<sup>12</sup>

## 4. ARE MAJOR CORPORATE DECISIONS AFFECTED BY BLOCKHOLDERS?

I now turn to whether major corporate decisions are different in the presence of a large-percentage shareholder. Obviously, I cannot consider all major corporate decisions; indeed, the relationship between ownership concentration and many major corporate decisions has not yet been addressed. I limit my discussion to three areas: executive compensation, leverage, and the incidence of a firm being acquired.

### 4.1 Executive Compensation

Although one can think of a host of issues concerning executive compensation and ownership concentration, two questions jump to the forefront.<sup>13</sup> First, what happens to the level of management compensation in the presence of a blockholder? Second, what happens to the relationship between pay and performance in the presence of a blockholder? One can ask these questions with reference to managers who are blockholders. Thus, do blockholder-managers pay themselves more? One can also ask these questions with reference to external blockholders. Thus, do external blockholders help implement incentive-based compensation for professional managers?

Holderness and Sheehan (1988) investigate whether top executives owning majority blocks of common stock receive higher salaries and bonuses than do top executives in similar-size but diffusely held firms. (Thus, in the comparison firms, the executives do not own large blocks nor are there any large shareholders.) They find that the majority shareholders in fact receive larger salaries, but the extra amount is only between \$23,000 and \$34,000. The authors conclude that "it is hard to imagine that excess annual compensation [of this amount] would motivate individuals to invest an average of \$66 million to achieve majority ownership." I am not aware of any other study that addresses the relationship between cash compensation and an executive's stock ownership. This would seem to be an area ripe for future investigations.

Mehran (1995) examines the relationship between both managerial and external block ownership and the form of executive compensation. Studying a random sample of 153

manufacturing firms between 1979 and 1980, he finds that use of incentive-based compensation (specifically, the percentage of executive compensation that comes from new stock options, restricted stocks, phantom stocks, and performance shares) declines with the percentage of stock held by those executives. He interprets this finding as evidence that a firm's board considers an executive's stock ownership when negotiating compensation contracts. The use of incentive-based compensation also declines with the percentage of stock held by outsider blockholders. This he interprets as evidence of the blockholders' monitoring substituting for incentive-based compensation.

Bertrand and Mullainathan (2000) investigate whether compensation of top executives in the oil industry increases for reasons that are beyond their control, what the authors term "pay for luck." An example would be a pay increase for top executives following an increase in the world price of oil. They report that pay increases in such situations are lower when a large-block shareholder (who is not the chief executive officer) sits on the board of directors. They also find that there tends to be greater pay for luck as a manager's tenure with the firm increases, but this is not true when a large shareholder is on the board. Both findings are interpreted as monitoring by external blockholders.

Bertrand and Mullainathan also investigate how much chief executive officers are charged for their options. Here again they appear to find a monitoring role for external blockholders, as the presence of one on the board of directors is associated with an increase in how much CEOs are charged for their options.

Thus, the literature is consistent in terms of a role for external blockholders in monitoring the compensation of top executives. There is little evidence that managers use their own voting power to extract higher salaries.

## 4.2 Leverage

Some theoretical models posit a relationship between managerial stock ownership and leverage. In one of the most influential of these models, Stulz (1988) argues that high inside ownership should be associated with higher leverage. He reasons that greater leverage allows managers to increase their voting control for a given level of equity investment. Debt is thus one way to relax the wealth constraints that are inherent when a single individual or small group of individuals seek to gain voting control of a large public corporation.

There is little empirical support, however, for the proposition that leverage increases with ownership concentration. In fact, some studies suggest the opposite. Holderness and

Sheehan (1998) find that firms with individual majority shareholders tend to have lower debt-to-asset ratios than similar-size firms with diffuse ownership. Firms with corporate majority shareholders have debt-to-asset ratios that are indistinguishable from those associated with similar-size firms with diffuse ownership. Holderness, Kroszner, and Sheehan (1999) report that although managerial stock ownership increased substantially between 1925 and 1995, the average leverage ratio did not increase. They also find a negative relationship between inside ownership and leverage for 1995. Finally, Mikkelson and Partch (1989) find no relationship between leverage and managerial stock ownership.

## 4.3 Takeover Activity

Ownership concentration could affect the frequency with which a firm is acquired in several ways. For instance, the frequency would decrease if management uses its block voting power to resist external overtures in an effort to preserve its jobs and any attendant private benefits of control. This is a key assumption of Stulz (1988), who predicts that the incidence of acquisitions will decline as managerial stock ownership increases. Conversely, the frequency of an acquisition would increase with inside ownership if management is personally motivated to realize the gains by selling its stock at a premium. Broadman (1989), in fact, finds that the probability of an initial offer succeeding is positively related to the potential dollar gains for top management.

The evidence on the relationship between block ownership and the frequency with which a firm is acquired is mixed. Morck, Shleifer, and Vishny (1988b) find that the probability of a Fortune 500 firm being acquired between 1981 and 1985 increased with the percentage of common stock owned by its top two managers. Walking and Long (1984) have a similar finding for a different sample and a different time period. Holderness and Sheehan (1988) report that some types of majority-owned firms are acquired more frequently than their paired, diffusely held firms. Specifically, over the seven years that followed, 38 percent of their corporate majority shareholder firms were either acquired or taken private, compared with only 21 percent of the paired, diffusely held firms. This difference is significant at the 5 percent level, but the difference with individual majority shareholder firms and their paired firm is not significant.

Mikkelson and Partch (1989), in contrast, find that for 240 randomly selected corporations over the 1973-83 period, the probability of a change in control—which they define as a merger, delisting, or bankruptcy—is unrelated to managerial

ownership.<sup>14</sup> This finding apparently is driven by two conflicting tendencies. When managerial ownership is low, the probability that a firm will receive an offer is higher, but the probability that the offer will be accepted is lower. That is to say, with lower inside ownership, the probability of both an offer and managerial resistance increases.

Mikkelson and Partch (1989) also find that the presence of an external blockholder on a firm's board of directors increases the likelihood of a change in control. In contrast, blockholders who do not serve on the board of directors have no discernable impact on either the probability of a firm receiving an offer or the probability that a proffered offer will be accepted.

## 5. WHAT IS THE IMPACT OF BLOCK OWNERSHIP ON FIRM VALUE?

The relationship between block ownership and firm value—in many ways, the ultimate question with blockholders and corporate control—is conceptually difficult. Let us assume that a cross-sectional analysis finds a statistically significant positive relationship between firm value and ownership concentration (be it the percentage of common stock held by management or the percentage of common stock held by outside blockholders). Putting aside any data problems (the amount of stock insiders actually own) and any problems measuring firm value (the reliability of Tobin's Q as a measure of value), there are several possible relationships that are consistent with this empirical finding.

First, it is possible that firm value is higher because managers work harder as their fractional stake increases when they get to keep more of the fruits of their labor. This is the reasoning in Berle and Means (1932) and Jensen and Meckling (1976); it is also the reasoning behind much of the contemporary corporate finance literature, which typically stresses the shared benefits of control.

A second possibility is that there are systematic differences between firms with high and low managerial ownership, and it is these differences—not the level of managerial stock ownership—that are causing the difference in firm value. This is often called the unobserved heterogeneity problem. Consider the following example. Firm A operates in a competitive market, and this product-market competition provides considerable pressure for value maximization. Because of this and because such a firm probably offers few private benefits of control, the level of managerial ownership is low. The value of this firm—as measured either by its market-to-book ratio (Tobin's Q) or its accounting rate of return—is low because of the product-market competition. Firm B, in contrast, has a valuable patent that insulates it from the product-market competition faced by

Firm A. Firm B has high managerial ownership, either because of greater private benefits of control or because of shared benefits from more attentive management. Firm B also has a high market value and a high market-to-book ratio due to its patent. It might appear from the cross-sectional regression that high managerial ownership is driving the higher value, but in reality it is the partial insulation from market forces—the patent—that is driving the higher value.

A third possibility is that the causation between firm value and ownership concentration runs in the opposite direction of what is typically portrayed in the literature. This is often called the reverse-causation problem. Recall our hypothetical finding of a positive relationship between firm value and managerial ownership. One possibility is not that higher managerial ownership causes high firm value, but that individuals accumulate blocks in high-value firms, perhaps because such firms offer greater private benefits of control.

The inability to conduct controlled experiments makes distinguishing among these possibilities difficult. (This, of course, is a common problem in all economics.) Nevertheless, many researchers have attempted to understand the costs and benefits of inside ownership by investigating the relationship between inside ownership and firm value.

Morck, Shleifer, and Vishny (1988a), in a widely cited paper, were the first to address the relationship between inside ownership and firm value. They examine a sample of 371 Fortune 500 firms for 1980. They find that firm value—Tobin's Q—tends to increase as managerial stock ownership increases to 5 percent; firm value then decreases as managerial stock ownership increases from 5 percent to 25 percent; finally, firm value tends to increase slightly as managerial ownership increases beyond 25 percent. The first two breakpoints are statistically significant. The breakpoint of 25 percent is marginally significant in some specifications and insignificant in others. This “saw-toothed” pattern of the relationship between firm value and inside ownership has become influential. The independent variables in their regressions are research and development expenditures per dollar of assets (measured by the book value of assets), advertising expenditures per dollar of assets, dollar value of assets, and industry dummies.

These fundamental results are also found with ownership by a firm's top officers and by its outside directors. One interpretation suggested by the authors is that at relatively low levels of ownership, increases in managerial ownership help to align the interests of managers and shareholders. At higher levels of ownership, however, additional ownership by insiders leads to entrenchment.

McConnell and Servaes (1990) take a similar approach to Morck, Shleifer, and Vishny (1988a) by also examining the relationship between Tobin's Q and block ownership for a large

sample of New York Stock Exchange– and American Stock Exchange–listed firms. There are some differences between the two studies, however. Primarily, McConnell and Servaes look at two years (not one), 1976 and 1986, and their ownership data come from Value Line (rather than CDE). McConnell and Servaes find that Q tends to increase until inside ownership reaches 40 to 50 percent, followed by a gradual decline as ownership increases further.<sup>15</sup> They find no significant relationship between Q and either the presence of an “outside” blockholder or the percentage of stock owned by such shareholders. (The authors are unclear on what constitutes an outside blockholder. Is it a blockholder who is not an officer, or is it a blockholder who is neither an officer nor a director?) They are able to confirm Morck, Shleifer, and Vishny’s findings only for inside ownership between 0 and 5 percent.

Kole (1995) tries to reconcile the findings of Morck, Shleifer, and Vishny (1988a) with those of McConnell and Servaes (1990). She examines a sample of firms for which ownership data are available from CDE, proxies, and Value Line. Because CDE addresses only the largest (generally Fortune 500) corporations, her analysis is limited to large corporations. She eliminates thirty-nine cases in which the ownership data on inside ownership are potentially erroneous (that is, the three data sources are in considerable disagreement). She then replicates the regressions of Morck, Shleifer, and Vishny for each of the three data sources. She finds that the signs on the three breakpoints are the same for all three data sources: positive for ownership from 0 to 5 percent, negative for 5 to 25 percent, and positive beyond 25 percent. The ownership coefficients in the separate regressions, however, are different and their statistical significance varies considerably. The results using CDE data tend to be most robust, while the results using Value Line data tend to be the least robust. Additionally, in most of the regressions, the coefficient for inside ownership beyond 25 percent is insignificant. In the two regressions in which it is significant, it is so only at the 10 percent level of confidence. Finally, the variation in Tobin’s Q that is explained jointly by the three ownership variables ranges between 2.2 percent and 0.9 percent only. Kole’s conclusion is that the source of ownership data is not driving the different results of Morck, Shleifer, and Vishny versus those of McConnell and Servaes. “Rather the results . . . suggest that differences in the incentive alignment effect of ownership by a firm’s key decision makers is attributable to differences in the size of sample firms” (Kole 1995, p. 428).

Numerous other scholars have followed with analyses of the relationship between firm value and ownership. In one of the more interesting of these studies, Mehran (1995) finds no significant relationship between firm performance (both

Tobin’s Q and return on assets) and outside directors’ stock holdings. He also finds no significant relationship between firm performance and blockholders’ stockholdings, or between firm performance and the outside blockholdings of a variety of investors (individual, institutional, corporate).

Himmelberg, Hubbard, and Palia (1999) take a different approach to study the relationship between firm value and inside ownership by using panel data. In theory, panel data should mitigate the unobserved firm heterogeneity problem. In a sample of 600 randomly selected Compustat firms over the 1982–92 period, they find that changes in managerial ownership seem to affect neither firm value nor firm performance.

Demsetz and Lehn (1985) take yet another methodological approach to investigating the relationship between firm value and inside ownership. They regress a firm’s accounting rate of return on several variables, including the ownership of the largest shareholders.<sup>16</sup> They find no relationship between the accounting rate of return and the concentration of ownership. On a similar note, Holderness and Sheehan (1988) find no significant differences between the accounting rates of return of paired majority-owned and diffusely held corporations. (They also find no significant differences between the Tobin’s Q ratios for these paired firms.) One interpretation of these results is that ownership concentration does not affect firm value. Another interpretation (favored by Demsetz and Lehn) is that the optimal ownership level varies by firm, and that firms are at their optimal level (given the costs of changing).

The relationship between firm value and ownership concentration is obviously pivotal to the topic of blockholders and corporate control. The studies summarized above should all be viewed in the context of a few overriding points. First, the profession has yet to disentangle the relationship between ownership concentration and firm value. Which way does the causation go? Is there a third factor that influences both? Second, the existing studies do not address the relationship between ownership concentration and firm value, although most profess to do so. These studies instead address the relationship between ownership concentration and the value of the stock valued at the exchange price.<sup>17</sup> The difference between firm value and exchange value can be significant in the presence of a controlling shareholder. The difference is any private benefits of control. Barclay and Holderness (1989) estimate that the private benefits average 4.3 percent of the exchange value of their firms’ equity (median: 2.1 percent).<sup>18</sup> Given that the existing studies find that ownership concentration can explain little of a firm’s (exchange) value—usually less than 2 percent—the failure to consider private benefits is a potentially serious omission in measuring total firm value.

I would summarize the current learning on blockholders and firm value as follows. First, it has not been definitely established whether the impact of blockholders on firm value is positive or negative. Second, there is little evidence that the impact of blockholders on firm value—whatever that impact may be—is pronounced.

## 6. CONCLUSION

This paper began by posing four pivotal questions on large-percentage shareholders in public corporations. Although none of these questions has been investigated fully—much less answered definitively in the literature—the current learning on each is that:

- Insiders own approximately 20 percent of a randomly selected, exchange-listed corporation in the United States.
- Block ownership is motivated both by the shared benefits of control: blockholders have the incentive and the opportunity to increase a firm's expected cash flows that accrue to all shareholders; and by the private benefits of control: blockholders have the incentive and the opportunity to consume corporate benefits to the exclusion of smaller shareholders.

- Surprisingly few major corporate decisions have been shown to be different in the presence of a blockholder. One exception is that external blockholders appear to monitor the form and level of managerial compensation. Conversely, there is little evidence that blockholders affect leverage.
- Ownership concentration appears to have little impact on firm value.

If one wants a single “take-away” point from the rapidly growing literature on ownership concentration, it is that small shareholders and regulators have little reason to fear large-percentage shareholders in general, especially when a large shareholder is active in firm management.

Perhaps above all, the academic literature highlights the richness of blockholders. An outside blockholder, for instance, has a different set of incentives than does a CEO blockholder. Blockholders have the incentive to improve management, but they also have the incentive to consume corporate resources. Blockholders that are corporations present a set of issues not found with those who are individuals. Because of this richness, the literature on blockholders and corporate control will continue to grow, and with it our understanding of the modern public corporation will deepen.

## ENDNOTES

1. When the book was published, for example, Beard (1933) wrote, “In the time to come this volume may be proclaimed as the most important work bearing on American statecraft between the publication of the immortal *Federalist* by Hamilton, Madison, and Jay and the opening of the year 1933.”
2. The notable exception is Dann and DeAngelo (1983), who examine targeted repurchases of large-percentage blocks of common stock.
3. With few exceptions, these data were ignored until the 1990s. Gordon (1936, 1938) tabulates small subsamples to investigate corporate ownership. Stigler and Friedland (1983) use this source to reclassify the control structures of the large firms in the Berle and Means (1932) sample but do not investigate it further. Recently, Hadlock and Lumer (1997) have used some of the data in their historical investigation of managerial compensation and turnover, and the data are the foundation of Holderness, Kroszner, and Sheehan (1999).
4. Denis and Sarin (1999) also study a randomly selected (from the Center for Research in Security Prices) group of corporations—in this instance, randomly selected in 1983—and find average stock ownership of officers and directors of 15.7 percent (median: 8.0 percent).
5. The voting power is 9.0 percent (median: 1.8 percent). The figure for ownership by all directors and top officers is 9.3 percent.
6. An alternative explanation is that the premiums simply reflect the trading parties’ superior knowledge of firm value. Barclay and Holderness (1989), however, reject this explication because they find that positive abnormal stock returns are associated with block trades independent of whether a block is priced at a premium or a discount. If the superior-information hypothesis was valid in this setting, we should not observe positive stock returns associated with blocks that are priced at discounts to the exchange price.
7. Previous research—notably Scholes (1972), Dann, Mayers, and Raab (1977), and Holthausen, Leftwich, and Mayers (1987)—studied block trades that were large in relation to normal trading volume but constituted only a small percentage of the outstanding stock of a company.
8. Eighty percent of the trades are priced at premiums to the exchange price. These premiums are often substantial in other dimensions as well. They average 4.3 percent (median: 2.1 percent) of the total market value of the firm’s equity and average \$4.1 million (median: \$1.7 million). The largest premium to the exchange price is 107 percent in percentage terms and \$99.4 million in dollar terms.
9. Their premiums as a percentage of the value of a firm’s equity are similar to those found by Barclay and Holderness (1989).
10. Zingales (1994) compares the pricing of voting shares and nonvoting shares listed on the Milan Stock Exchange and reaches a similar conclusion.
11. This is one of the relatively few empirical studies that explicitly consider outside blockholders.
12. Note that the authors’ interpretation implicitly accepts the classic Berle and Means, or Jensen and Meckling, viewpoint: namely, that managers work harder as their ownership stake increases and that this benefits minority shareholders. The alternative perspective, which would lead to a different interpretation of their empirical findings, would be that as managers’ ownership increases, their ability to consume private benefits increase, and this hurts minority shareholders.
13. Murphy (1999) offers an excellent survey of the academic literature on executive compensation in general.
14. The most important predictor of a change in control is firm size, with small firms experiencing a change in control more frequently than large firms. The authors find that leverage has no relationship to a change in control, but that toehold acquisitions are more likely in highly leveraged firms.
15. Tobin’s Q reaches its maximum when inside ownership is 49.4 percent in 1976 and 37.6 percent in 1986.
16. Demsetz and Lehn consider alternatively the aggregate ownership of both the five largest and the twenty largest shareholders as well as a Herfindahl index of ownership concentration. I have always found this to be a strange choice. In particular, why not consider the stock ownership of the largest shareholder? For both legal and practical reasons, it is difficult to imagine twenty different large-block shareholders coordinating their corporate governance activities.
17. The studies, of course, also include debt in total firm value. There is no evidence, however, that private benefits also accrue to bondholders. If they do, then the use of market values (or book values) for debt would suffer from the same shortcoming.
18. In a more recent and larger study, Barclay, Holderness, and Sheehan (2001) report that the private benefits of control constitute 3.0 percent (median: 1.6 percent) of the total market value of the firms’ equity.

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# TRANSPARENCY, FINANCIAL ACCOUNTING INFORMATION, AND CORPORATE GOVERNANCE

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## 1. INTRODUCTION

Vibrant public securities markets rely on complex systems of supporting institutions that promote the governance of publicly traded companies. Corporate governance structures serve: 1) to ensure that minority shareholders receive reliable information about the value of firms and that a company's managers and large shareholders do not cheat them out of the value of their investments, and 2) to motivate managers to maximize firm value instead of pursuing personal objectives.<sup>1</sup> Institutions promoting the governance of firms include reputational intermediaries such as investment banks and audit firms, securities laws and regulators such as the Securities and Exchange Commission (SEC) in the United States, and disclosure regimes that produce credible firm-specific information about publicly traded firms. In this paper, we discuss economics-based research focused primarily on the governance role of publicly reported financial accounting information.

Financial accounting information is the product of corporate accounting and external reporting systems that measure and routinely disclose audited, quantitative data concerning the financial position and performance of publicly held firms. Audited balance sheets, income statements, and cash-flow statements, along with supporting disclosures, form the foundation of the firm-specific information set available to investors and regulators. Developing and maintaining a

sophisticated financial disclosure regime is not cheap. Countries with highly developed securities markets devote substantial resources to producing and regulating the use of extensive accounting and disclosure rules that publicly traded firms must follow. Resources expended are not only financial, but also include opportunity costs associated with deployment of highly educated human capital, including accountants, lawyers, academicians, and politicians.

In the United States, the SEC, under the oversight of the U.S. Congress, is responsible for maintaining and regulating the required accounting and disclosure rules that firms must follow. These rules are produced both by the SEC itself and through SEC oversight of private standards-setting bodies such as the Financial Accounting Standards Board and the Emerging Issues Task Force, which in turn solicit input from business leaders, academic researchers, and regulators around the world. In addition to the accounting standards-setting investments undertaken by many individual countries and securities exchanges, there is currently a major, well-funded effort in progress, under the auspices of the International Accounting Standards Board (IASB), to produce a single set of accounting standards that will ultimately be acceptable to all countries as the basis for cross-border financing transactions.<sup>2</sup>

The premise behind governance research in accounting is that a significant portion of the return on investment in accounting regimes derives from enhanced governance of firms, which in turn facilitates the operation of securities

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Robert M. Bushman is a professor of accounting at the University of North Carolina's Kenan-Flagler Business School; Abbie J. Smith is the Marvin Bower Fellow at Harvard Business School and the Boris and Irene Stern Professor of Accounting at the University of Chicago's Graduate School of Business.  
<bushmanr@bschool.unc.edu>  
<asmith@hbs.edu>

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markets and the efficient flow of scarce human and financial capital to promising investment opportunities. Designing a system that provides governance value involves difficult trade-offs between the reliability and relevance of reported accounting information. While the judgments and expectations of firms' managers are an inextricable part of any serious financial reporting model, the governance value of financial accounting information derives in large part from an emphasis on the reporting of objective, verifiable outcomes of firms. An emphasis on verifiable outcomes produces a rich set of variables that can support a wide range of enforceable contractual arrangements and that form a basis for outsiders to monitor and discipline the actions and statements of insiders.<sup>3</sup>

A fundamental objective of governance research in accounting is to investigate the properties of accounting systems and the surrounding institutional environment important to the effective governance of firms. Bushman and Smith (2001) provide an extensive survey and discussion of governance research in accounting and provide ideas for future research. In this paper, we synthesize major research findings in the accounting governance literature and extend Bushman and Smith to consider corporate transparency more generally, which includes financial accounting information as one element of a complex information infrastructure.

We begin our discussion of governance research in Section 2 with a framework for understanding the operation of accounting information in an economy. This framework isolates three channels through which financial accounting information can affect the investments, productivity, and value-added of firms. These channels involve the use of financial accounting information: 1) to identify promising investment opportunities, 2) to discipline managers to direct resources toward projects identified as good and away from projects that primarily benefit managers rather than owners of capital, and to prevent stealing, and 3) to reduce information asymmetries among investors. An important avenue for future research is the development of research designs to isolate the impact of accounting information through the individual channels and facilitate direct examination of the differential properties of the accounting system and institutional infrastructure important for each channel.

In Section 3, we discuss the direct use of financial accounting information in specific corporate governance mechanisms. The largest body of governance research in accounting examines the use of financial accounting information in the incentive contracts of top executives of publicly traded firms in the United States. This emphasis derives from the ready availability of top executive compensation data in the United States as a result of existing disclosure requirements, and from the success of contracting

theory in supplying testable predictions of relations between performance measures and optimal compensation contracts. Researchers also have examined the role of accounting information in the operation of other governance mechanisms. Examples include takeovers, proxy contests, board of director composition, shareholder litigation, and debt contracts, among others. We distill major research findings and suggest ideas for future research.

In Section 4, we discuss a developing literature using cross-country research designs to examine links between financial sector development and economic outcomes. Within-country research holds most institutional features of a country fixed, precluding investigation of interactions across institutions. By exploiting cross-country differences in political structures, legal regimes, property rights protections, investors' rights, regulatory frameworks, and other institutional characteristics, researchers can empirically explore connections between institutional configurations, including disclosure regimes, and economic outcomes. At the heart of theories connecting a well-developed financial sector with enhanced resource allocation and growth is the role of the financial sector in reducing information costs and transaction costs.<sup>4</sup> Despite the central role of information costs in these theories, until recently little attention has been given by empirical researchers to the role of the information environment per se in explaining cross-country differences in economic growth and efficiency. Preliminary results from this emerging literature provide encouraging new evidence of a positive relation between the quality of financial accounting information and economic performance. This evidence suggests that future research into the governance role of financial accounting information has the potential to detect first-order economic effects.

Finally, in Section 5, we present a conceptual framework for characterizing and measuring corporate transparency at the country level introduced in Bushman, Piotroski, and Smith (2001), hereafter BPS. Corporate transparency is defined as the widespread availability of relevant, reliable information about the periodic performance, financial position, investment opportunities, governance, value, and risk of publicly traded firms. BPS develop a measurement scheme for corporate transparency that is more comprehensive than the index of domestic corporate disclosure intensity used in prior cross-country studies. Corporate transparency measures fall into three categories: 1) measures of the quality of corporate reporting, including the intensity, measurement principles, timeliness, and credibility (that is, audit quality) of disclosures by firms listed domestically, 2) measures of the intensity of private information acquisition, including analyst following, and the prevalence of pooled investment schemes and of insider trading activities, and 3) measures of the quality of

information dissemination, including the penetration and private versus state ownership of the media. We describe the BPS framework to stimulate further thought on the measurement of corporate transparency and to illustrate promising directions for future research into the economic effects of corporate transparency, and into the economics of information more generally.

## 2. CHANNELS THROUGH WHICH FINANCIAL ACCOUNTING INFORMATION AFFECTS ECONOMIC PERFORMANCE

A corporation can be viewed as a nexus of contracts designed to minimize contracting costs (Coase 1937). Parties contracting with the firm desire information both about the firm’s ability to satisfy the terms of contracts and the firm’s ultimate compliance with its contractual obligations. Financial accounting information supplies a key quantitative representation of individual corporations that supports a wide range of contractual relationships. Financial accounting information also enhances the information environment more generally by disciplining the unaudited disclosures of managers and supplying input into the information processing activities of outsiders.<sup>5</sup> The quality of financial disclosure can impact firms’ cash flows directly, in addition to influencing the cost of capital at which the cash flows are discounted. We posit three channels through which financial accounting information improves economic performance, as illustrated in the exhibit.<sup>6</sup>

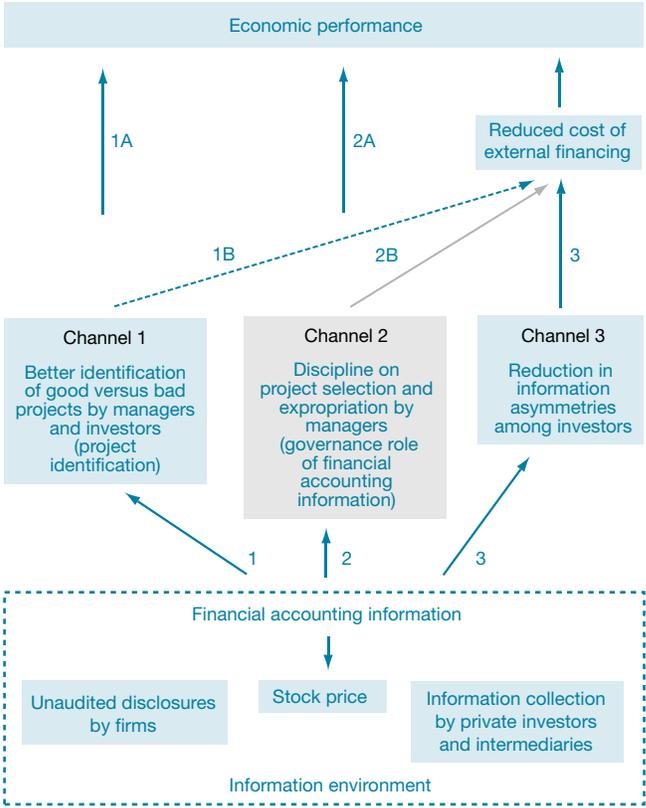
First, financial accounting information of firms and their competitors aid managers and investors in identifying and evaluating investment opportunities. An absence of reliable and accessible information in an economy impedes the flow of human and financial capital toward sectors that are expected to have high returns and away from sectors with poor prospects. Even without agency conflicts between managers and investors, quality financial accounting data enhances efficiency by enabling managers and investors to identify value creation opportunities with less error. This leads directly to more accurate allocation of capital to highest valued uses, as indicated by arrow 1A in the exhibit. Lower estimation risk can also reduce the cost of capital, further contributing to economic performance, as indicated by arrow 1B.<sup>7</sup>

Financial accounting systems clearly supply direct information about investment opportunities. For example, managers or potential entrants can identify promising new investment opportunities, acquisition candidates, or strategic innovations on the basis of the profit margins reported by

other firms. Financial accounting systems also support the informational role played by stock price. As argued by Black (2000) and Ball (2001), a strong financial accounting regime focused on credibility and accountability is a prerequisite to the very existence of vibrant securities markets. Efficient stock markets in which stock prices reflect all public information and aggregate the private information of individual investors presumably communicate that aggregate information to managers and current and potential investors. Recent papers by Dow and Gorton (1997) and Dye and Sridhar (2001) explicitly model a strategy-directing role for stock prices. In these models, stock price impounds private, decision-relevant information not already known by managers, managers’ investment decisions respond to this new information in price, and the market correctly anticipates managers’ decision strategies in setting price.

The second channel through which we expect financial accounting information to enhance economic performance is its governance role. The identification of investment

Three Channels through Which Financial Accounting Information Affects Economic Performance



opportunities is necessary, but not sufficient to ensure efficient allocation of resources. Given information asymmetry and potentially self-interested behavior by managers, agency theories argue that pressures from external investors, as well as formal contracting arrangements, are needed to encourage managers to pursue value-maximizing investment policies (for example, Jensen [1986]). Objective, verifiable accounting information facilitates shareholder monitoring and the effective exercise of shareholder rights under existing securities laws; enables directors to enhance shareholder value by advising, ratifying, and policing managerial decisions and activities; and supplies a rich array of contractible variables for determining the financial rewards from incentive plans designed to align executives' and investors' financial interests. Ball (2001) argues that timely incorporation of economic losses in the published financial statements (that is, conservatism) increases the effectiveness of corporate governance, compensation systems, and debt agreements in motivating and monitoring managers. He argues that it decreases the ex-ante likelihood that managers will undertake negative net present value (NPV) projects but pass on their earnings consequences to a subsequent generation, and it increases the incentive of the current generation of managers to incur the personal cost of abandoning investments and strategies that have ex-post negative NPVs.

The governance role of financial accounting information contributes directly to economic performance by disciplining efficient management of assets in place (for example, timely abandonment of losing projects), better project selection, and reduced expropriation of investors' wealth by the managers (exhibit, arrow 2A). We also allow for the possibility that financial accounting information lowers the risk premium demanded by investors to compensate for the risk of loss from expropriation by opportunistic managers (arrow 2B). However, we caution that the impact of improved governance on the rate of return required by investors is subtle. Lombardo and Pagano (2000) argue that the effect of improved governance on the required stock return on equity depends on the nature of the improvement. For instance, improved governance can manifest in a reduction of the private benefits that managers can extract from the company or in a reduction of the legal and auditing costs that shareholders must bear to prevent managerial opportunism. These two changes can have opposite effects on the observed equilibrium stock returns, and the size of these effects depends on the degree of international segmentation of equity markets.

The third channel through which we expect financial accounting information to enhance economic performance is by reducing adverse selection and liquidity risk (arrow 3). As documented in Amihud and Mendelson (2000), the liquidity of a company's securities impacts the firm's cost of capital.

A major component of liquidity is adverse selection costs, which are reflected in the bid-ask spread and market impact costs. Firms' precommitment to the timely disclosure of high-quality financial accounting information reduces investors' risk of loss from trading with more informed investors, thereby attracting more funds into the capital markets, lowering investors' liquidity risk (see Diamond and Verrecchia [1991], Botosan [2000], Brennan and Tamarowski [2000], and Leuz and Verrecchia [2000]). Capital markets with low liquidity risk for individual investors can facilitate high-return, long-term (illiquid) corporate investments, including long-term investments in high-return technologies, without requiring individual investors to commit their resources over the long term (Levine 1997).<sup>9</sup> Hence, well-developed, liquid capital markets are expected to enhance economic growth by facilitating corporate investments that are high-risk, high-return, long-term, and more likely to lead to technological innovations, and high-quality financial accounting regimes provide important support for this capital market function.

In summary, we expect financial accounting information to enhance economic performance through at least three channels, one of which represents the governance role of financial accounting information. The impact of a country's information infrastructure on the efficient allocation of capital is an important topic for future research.

### 3. DIRECT USE OF ACCOUNTING INFORMATION IN SPECIFIC GOVERNANCE MECHANISMS

The roots of corporate governance research can be traced back to at least Berle and Means (1932), who argued that effective control over publicly traded corporations was not being exercised by the legal owners of equity, the shareholders, but by hired, professional managers. Given widespread existence of firms characterized by this separation of control over capital from ownership of capital, corporate governance research generally focuses on understanding mechanisms designed to mitigate agency problems and support this form of economic organization. There are of course a number of pure market forces that discipline managers to act in the interests of firms' owners. These include product market competition (Alchian 1950; Stigler 1958), the market for corporate control (Manne 1965), and labor market pressure (Fama 1980). However, despite the existence of these powerful disciplining forces, there evidently remains residual demand for governance mechanisms tailored to the specific circumstances of individual firms. This demand is documented by a large body of research

examining boards of directors, compensation contracts, concentrated ownership structures, debt contracts, and securities law in disciplining managers to act in the interests of capital suppliers (see Shleifer and Vishny [1997] for an insightful review of this literature).

Governance research in accounting exploits the role of accounting information as a source of credible information variables that support the existence of enforceable contracts, such as compensation contracts with payoffs to managers contingent on realized measures of performance, the monitoring of managers by boards of directors and outside investors and regulators, and the exercise of investor rights granted by existing securities laws. The remainder of Section 3 is organized as follows. Section 3.1 discusses evidence documenting widespread use of financial accounting measures in determining bonus payouts and dismissal probabilities for top executives, and in supporting the allocation of control rights and cash-flow rights in financing contracts between venture capitalists (VCs) and entrepreneurs. Section 3.2 describes recent trends in the compensation contracts of top U.S. executives, including shifts in the relative importance of accounting numbers for determining compensation payouts, and discusses potential implications. Section 3.3 reviews research examining how characteristics of accounting information systems interact with the firms' observed choices of governance configurations. Finally, Section 3.4 discusses evidence concerning the use of financial accounting information in corporate control mechanisms other than compensation contracts.

### 3.1 Prevalence of Financial Accounting Numbers in Top Executive Incentive Contracts

The extensive use of accounting numbers in top executive compensation plans at publicly traded firms in the United States is well documented. Murphy (1999) reports data from a survey conducted by Towers Perrin in 1996-97. Murphy reports that 161 of the 177 sample firms explicitly use at least one measure of accounting profits in their annual bonus plans. Of the sixty-eight companies in the survey that use a single performance measure in their annual bonus plan, sixty-five use a measure of accounting profits. Ittner, Larcker, and Rajan (1997) collect data on actual performance measures used in the annual bonus plans of 317 U.S. firms for the 1993-94 time period. Ittner et al. document that 312 of the 317 firms report use of at least one financial measure in their annual plans. Earnings per share, net income, and operating income are the most common financial measures. They also report that the

mean percentage of annual bonus determined by financial performance measures is 86.6 percent across the whole sample, and 62.9 percent for the 114 firms that put nonzero weight on nonfinancial measures. Wallace (1997) and Hogan and Lewis (1999) together document adoption of residual income-based incentive plans (for example, EVA) by about sixty publicly traded companies. Numerous studies have also documented that both the earnings and shareholder wealth variables load positively and significantly in regressions of cash compensation on both performance measures (for example, Lambert and Larcker [1987], Jensen and Murphy [1990], and Sloan [1993]; Bushman and Smith [2001] thoroughly review this evidence).

Poor earnings performance is also documented to increase the probability of executive turnover. Studies finding an inverse relation between accounting performance and CEO turnover include Weisbach (1988), Murphy and Zimmerman (1993), Lehn and Makhija (1997), and DeFond and Park (1999), while Blackwell, Brickley, and Weisbach (1994) document a similar relation for subsidiary bank managers within multibank holding companies.<sup>9</sup> Weisbach (1988) and Murphy and Zimmerman (1993) include both accounting and stock price performance in the estimation of turnover probability. Weisbach finds that accounting performance appears to be more important than stock price performance in explaining turnover, while Murphy and Zimmerman find a significant inverse relation between both performance measures and turnover.

This phenomenon has also been found to hold outside of the United States. Kaplan (1994a, b) finds that turnover probabilities for both Japanese and German executives are significantly related to earnings and stock price performance. Estimates of turnover probability in both countries indicate that stock returns and negative earnings are significant determinants of turnover.<sup>10</sup> Regressions using changes in cash compensation of Japanese executives document a significant impact for pretax earnings and negative earnings, but not for stock returns and sales growth. Kaplan (1994a) compares results for Japanese executives with U.S. CEOs and finds turnover probabilities for Japanese executives more sensitive to negative earnings. This relative difference is suggestive of a significant monitoring role for a Japanese firm's main banks when a firm produces insufficient funds to service loans. Kaplan documents that firms are more likely to receive new directors associated with financial institutions following negative earnings and poor stock price performance.

Finally, Kaplan and Stromberg (2000) document an important disciplining role for accounting information in private equity transactions. They examine actual financing contracts between venture capitalists and entrepreneurs. They document that VC financings allow VCs to separately allocate cash-flow rights, voting rights, board rights, and other control

rights. The allocation of cash-flow rights and control rights is frequently contingent on verifiable, observable financial and nonfinancial performance measures. The financial measures appear to comprise standard measures from the financial accounting system, including earnings before interest and taxes, operating profits, net worth, and revenues. Control rights are allocated such that if the company performs poorly, the VCs take full control, while entrepreneurs obtain control as performance improves. They argue that this is supportive of theories that predict shifts of control to investors in bad outcome states, such as Aghion and Bolton (1992) and Dewatripont and Tirole (1994).

### 3.2 Trends in the Use of Accounting Numbers for Contracting with Managers

While the evidence documents significant use of accounting numbers in determining cash compensation, both the determinants of cash compensation and the importance of cash compensation in the overall incentive package exhibit significant time trends. Bushman, Engel, Milliron, and Smith (1998) document that over the 1971-95 period, firms have substituted away from accounting earnings toward other information in determining top executives' cash compensation.

It has also been documented that the contribution of cash compensation to the overall intensity of top executive incentives has diminished in recent years. Recent studies construct explicit measures of the sensitivity of the value of stock and option portfolios to changes in shareholder wealth (Murphy 1999; Hall and Liebman 1998). These studies show that the overall sensitivity of compensation to shareholder wealth creation (or destruction) is dominated by changes in the value of stock and stock option holdings, and that this domination increases in recent years. For example, Murphy (1999) estimates that for CEOs of mining and manufacturing firms in the S&P 500, the median percentage of total pay-performance sensitivity related to stock and stock options increases from 83 percent (45 percent options and 38 percent stock) of total sensitivity in 1992 to 95 percent (64 percent options and 31 percent stock) in 1996. In addition, Core, Guay, and Verrecchia (2000) decompose the variance of changes in CEOs' firm-specific wealth into stock-price-based and nonprice-based components. They find that stock returns are the dominant determinant of wealth changes, documenting that for 65 percent of the CEOs in their sample, the variation in wealth changes explained by stock returns is at least ten times greater than the component not explained by stock returns.

Why is the market share of accounting measures shrinking, and can cross-sectional differences in the extent of shrinkage be explained? Has the information content of accounting information itself deteriorated, or should we look to more fundamental changes in the economic environment? For example, Milliron (2000) documents a significant shift over the past twenty years in board characteristics measuring director accountability, independence, and effectiveness consistent with a general increase in directors' incentive alignment with shareholders' interests. A number of environmental changes are candidates for explaining the observed evolution in contract design and boards.

For example, the emergence of institutional investor and other stakeholder activist groups in the 1980s created pressure on firms to choose board structures designed to facilitate more active monitoring and evaluation of managers' performance. In addition, new regulations were instituted by the Securities and Exchange Commission and the Internal Revenue Service in the early 1990s to require that executive pay be disclosed in significantly more detail and be approved by a compensation committee composed entirely of independent directors. The nature of the firm itself may have changed. Recent research notes that conglomerates have broken up and their units spun off as stand-alone companies, that vertically integrated manufacturers have relinquished direct control of their suppliers and moved toward looser forms of collaboration, and that specialized human capital has become more important and also more mobile (for example, Zingales [2000] and Rajan and Zingales [2000]).

In closing this section, we note that caution should be used in concluding from this recent shift away from explicit accounting-based incentive plans toward equity-based plans that accounting information has become less important for the governance of firms. There are a number of issues to consider in this regard. First, as discussed in our introduction and by a number of other scholars (for example, Ball [2001] and Black [2000]), the existence of a strong financial accounting regime is likely a precondition for the existence of a vibrant stock market and in its absence the notions of equity-based pay and diffuse ownership of firms become moot.

Second, while executive wealth clearly has become more highly dependent on stock price, managerial behavior is impacted by executives' and boards' understanding of how their decisions impact stock price. Under efficient markets theory, stock price is a sufficient statistic for all available information in the economy with respect to firm value, which implies that stock price is a good mechanism for guiding investors' resource allocation decisions, as they only need to look at price to get the market's informed assessment of value. But is stock price also a sufficient statistic for operating

decisions and performance assessments within firms? That is, can managers and boards rely on stock price as their sole information source? We observe analysts pouring over the details of financial statements, such as margin analyses, expense ratios, and geographic and product line segment data. In addition, market participants expend real resources privately collecting and trading on detailed firm-specific information that is ultimately aggregated in price. Given that market participants whose trading decisions drive stock price formation are heavily influenced by detailed accounting and other performance data, why should we believe that managers and boards ignore the details and are guided solely by stock price?

Lastly, stock price possesses other potential limitations as a measure of current managerial performance. In particular, the fact that stock price is forward-looking can limit its usefulness because it anticipates possible future actions. For example, when a firm is in trouble, its current stock price may reflect the market's expectation that the current CEO will soon be replaced, thus limiting its usefulness in assessing the current CEO's performance. This may lead to reliance on accounting measures, as documented in the literature on CEO dismissal probabilities discussed in Section 3.1 (see also the discussion in Section 3.4 on the role of accounting information in proxy contests).

### 3.3 Properties of Accounting and Choice of Governance Configurations

In this section, we discuss research investigating relations between properties of financial accounting information and governance mechanism configurations. The premise behind this research is that when current accounting numbers do a relatively poor job of capturing information relevant to governance, firms substitute toward alternative, more costly governance mechanisms to compensate for inadequacies in financial accounting information. This research is based on the premise that financial accounting systems represent a primary source of effective, low-cost governance information. The research discussed next uses various proxies to capture the governance relevance of accounting numbers. Developing more refined measures of information quality is an important goal for future research.

Consider first the portfolio of performance measures chosen by firms to determine payouts from CEOs' annual bonus plans. Bushman, Indjejikian, and Smith (1996) study the use of "individual performance evaluation" in determining annual CEO bonuses. They use managerial compensation data

from Hewitt Associates' annual compensation surveys of large U.S. companies. This data set provides the percentage of a CEO's annual bonus determined by individual performance evaluation (IPE). IPE is generally a conglomeration of performance measures including subjective evaluations of individual performance. For firms with significant growth opportunities, expansive investment opportunity sets, and long-term investment strategies, it is conjectured that current earnings will poorly reflect future period consequences of current managerial actions, and thus exhibit low sensitivity relative to important dimensions of managerial activities. This should lead firms to substitute toward alternative performance measures, including IPE. Bushman et al. (1996) proxy for the investment opportunity set with market-to-book ratios, and the length of product development and product life cycles. They find that IPE is positively and significantly related to both measures of investment opportunities, implying a substitution away from accounting information.

Ittner, Larcker, and Rajan (1997) follow a similar research strategy focused on the use of nonfinancial performance measures. Using a combination of proprietary survey and proxy statement data, they estimate the extent to which CEO bonus plans depend on nonfinancial performance measures. The mean weight on nonfinancial measures across all firms in their sample is 13.4 percent, and 37.1 percent for all firms with a nonzero weight on nonfinancial measures. They construct a measure of investment opportunities using multiple indicators, including research and development (R&D) expenditures, market-to-book ratio, and number of new product and service introductions. They find that the use of nonfinancial performance measures increases with their measure of investment opportunities.

Substitution away from publicly reported accounting data likely leads to the use of performance measures in contracts that are not directly observable by the market. Hayes and Schaeffer (2000) extend Bushman et al. (1996) and Ittner et al. (1997) by investigating the relation between executive compensation and future firm performance. If firms optimally use unobservable measures of performance that are correlated with future observable measures of performance, then variation in current compensation that is not explained by variation in current observable performance measures should predict future variation in observable performance measures. Further, compensation should be more positively associated with future earnings when observable measures of performance are noisier and, hence, less useful for contracting. They test these assertions using panel data on CEO cash compensation from *Forbes*, and show that current compensation is related to future return-on-equity after controlling for current and lagged performance measures and

analyst consensus forecasts of future accounting performance, and that current compensation is more positively related to future performance when the variances of the firm's market and accounting returns are higher. They detect no time trend in the relation between current compensation and future performance. This stability is noteworthy given the significant increases in the use of option grants documented by Hall and Liebman (1998) and Murphy (1999). Boards of directors apparently have not delegated the complete determination of CEO rewards to the market, and still fine-tune rewards using private information.

Bushman, Chen, Engel, and Smith (2000) extend this research to consider a larger range of governance mechanisms. The governance mechanisms considered include board composition, stockholdings of inside and outside directors, ownership concentration, and the structure of executive compensation. They conjecture that to the extent that current earnings fail to incorporate current value-relevant information, the accounting numbers are less effective in the governance setting. The authors develop several proxies to measure earnings "timeliness" based on traditional and reverse regressions of stock prices and changes in earnings. Consistent with the hypothesis that limits to the information provided by financial accounting measures are associated with a greater demand for firm-specific information from inside directors and high-quality outside directors (Fama and Jensen 1983), Bushman et al. find that the proportion of inside directors and the proportion of "highly reputable" outside directors are negatively related to the timeliness of earnings, after controlling for R&D, capital intensity, and firm growth opportunities. They also find a negative relation between the timeliness of earnings and the stockholdings of inside and outside directors, the extent of ownership concentration, the proportion of incentive plans granted to the top five executives that are long-term plans, and the proportion that are equity-based.

Finally, La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998) argue that protection of investors from opportunistic managerial behavior is a fundamental determinant of investors' willingness to finance firms, of the resulting cost of firms' external capital, and of the concentration of stock ownership. They develop an extensive database of the laws concerning the rights of investors and the enforcement of these laws for forty-nine countries, from Africa, Asia, Australia, Europe, North America, and South America. Interestingly, one of the regimes that they suggest affects enforcement of investors' rights is the country's financial accounting regime. They measure quality of the accounting regime with an index developed for each country by the Center for International Financial Analysis and Research (CIFAR). The CIFAR index

represents the average number of ninety items included in the annual reports of a sample of domestic companies. They document that the concentration of stock ownership in a country is significantly negatively related to both the CIFAR index and an index of how powerfully the legal system "favors minority shareholders against managers or dominant shareholders in the corporate decision-making process, including the voting process" (1995, p. 1127), after controlling for the colonial origin of the legal system and other factors. These results are consistent with their prediction that in countries where the accounting and legal systems provide relatively poor investor protection from managerial opportunism, there is a substitution toward costly monitoring by "large" shareholders.

### 3.4 Financial Accounting Information and Additional Corporate Control Mechanisms

In this section, we expand our discussion of the role of financial accounting information in the operation of specific governance mechanisms. An important example in this respect is DeAngelo's (1988) study of the role of accounting information in proxy fights. She documents a heightened importance of accounting information during proxy fights by providing evidence of the prominent use of accounting numbers. She presents evidence that dissident stockholders typically cite poor earnings performance as evidence of incumbent managers' inefficiency (and rarely cite stock price performance), and that incumbent managers use their accounting discretion to portray a more favorable impression of their performance to voting shareholders. DeAngelo suggests that accounting information may better reflect incumbent managerial performance during proxy fights because stock price anticipates potential benefits from removing underperforming incumbent managers.<sup>11</sup>

It is also important to recognize that the governance of firms is exercised through a portfolio of governance mechanisms, and so it is important to understand potential interactions between mechanisms. Consider product market competition and the use of accounting information in governance. Aggarwal and Samwick (1999) argue that in more competitive industries (higher product substitutability), wage contracts are designed to incorporate strategic considerations and create incentives for less aggressive price competition. DeFond and Park (1999) and Parrino (1997), examining CEO turnover probabilities, posit that in more competitive industries, peer group comparisons are more readily available, creating opportunities for more precise performance comparisons.

Jagannathan and Srinivasan (1999) examine whether product market competition, as measured by whether a firm is a generalist (likely to have more comparable firms) or a specialist (few peers), reduces agency costs in the form of free cash-flow problems. If increased competition reduces agency costs and creates more peer comparison opportunities (including the supply of potential replacement executives), how is the design of incentive contracts impacted? Competition can impact the relative value of own-firm and peer-group accounting information as a function of competitiveness. It is also possible that the extent of competition influences the costs to disclosing proprietary information, impacting the amount of private information and the relative governance value of public performance measures.

Bertrand and Mullainathan (1998) illustrate the potential power of designs that consider interactions across governance mechanisms. They examine the impact on executive compensation of changes in states' anti-takeover legislation. Adoption of anti-takeover legislation presumably reduces pressure on top managers. They attempt to distinguish between optimal contracting and skimming theories in explaining observed contracting arrangements. Do shareholders, observing weakening of one disciplining mechanism, respond by strengthening another, say, pay-for-performance? Or do CEOs facing reduced threat of hostile takeover exploit this reduced pressure to skim more resources by increasing their mean pay? They find that pay-for-performance sensitivities (especially for accounting measures of performance) and mean levels of CEO pay increase after adoption of anti-takeover legislation. They further separate their sample into two groups based on whether the firm has a large shareholder (5 percent blockholder) present or not. They find that firms with a large shareholder increased pay-for-performance, while firms without a large shareholder increased mean pay. They also empirically examine the responsiveness of pay to luck, using three measures of luck. First, they perform a case study of oil-extracting firms where large movements in oil prices tend to affect firm performance on a regular basis. Second, they use changes in industry-specific exchange rates for firms in the traded goods sector. Third, they use year-to-year differences in mean industry performance to proxy for the overall economic fortunes of a sector. For all three measures, they find that CEO pay responds to luck. However, similar to the takeover results, they find that the presence of a large shareholder reduces the amount of pay for luck. These results raise important questions about the optimality of observed governance configurations in the United States.

Finally, complex interactions can exist between incentive contracts written on objective performance measures and features of organizational design such as promotion ladders,

allocation of decision rights, task allocation, divisional interdependencies, and subjective performance evaluation. Lambert, Larcker, and Weigelt (1993) present evidence that observed business unit managers' compensation across the hierarchy exhibits patterns consistent with both agency theory and tournament theory. Baker, Gibbs, and Holmstrom (1994a, b) and Gibbs (1995) analyze twenty years of personnel data from a single firm and illustrate the complex relations that can exist among the hierarchy, performance evaluation, promotion policies, wage policies, and incentive compensation. Baker, Gibbons, and Murphy (1994) theoretically isolate economic tradeoffs between objective and subjective performance evaluation in the design of optimal contracting arrangements. Ichniowski, Shaw, and Prennushi (1997), using data on thirty-six steel mills, find that mills that adopt bundles of complementary practices (for example, incentive compensation, teamwork, skills training, and communications) are more productive than firms that either do not adopt these practices or that adopt practices individually rather than together.

#### 4. EFFECTS OF FINANCIAL ACCOUNTING INFORMATION ON ECONOMIC PERFORMANCE

A growing body of evidence indicates that the development of a country's financial sector facilitates its growth (for example, King and Levine [1993], Jayaratne and Strahan [1996], Levine [1997], Demirguc-Kunt and Maksimovic [1998], and Rajan and Zingales [1998]). Levine (1997) presents a framework whereby a well-developed financial sector facilitates the allocation of resources by serving five functions: to mobilize savings, facilitate risk management, identify investment opportunities, monitor and discipline managers, and facilitate the exchange of goods and services. At the heart of these theories is the role of the financial sector in reducing information costs and transaction costs in an economy. In spite of the central role of information in these theories, until recently little attention has been given by empirical researchers to the information environment per se in explaining cross-country differences in economic growth and efficiency.

In this section, we discuss research that explicitly examines the role of a country's corporate disclosure regime in the efficient allocation of capital. Preliminary results from this literature provide encouraging evidence of a positive relation between the quality of a country's corporate disclosure regime and economic performance. Cross-country analyses are one

promising way to assess the effects of corporate disclosure on economic performance for several reasons. First, there are considerable, quantifiable cross-country differences in corporate disclosure regimes.<sup>12</sup> Second, there are dramatic cross-country differences in economic efficiency. Rajan and Zingales (2001), Modigliani and Perotti (2000), and Acemoglu, Johnson, and Robinson (2000) argue that inefficient institutions can be sustained in a given country due to political agendas other than efficiency. Hence, the possibility of observing grossly inefficient financial accounting and other regimes in the cross-country sample is not ruled out. In contrast, within the United States, where market forces and explicit and implicit compensation contracts powerfully discipline managers, inefficiencies are more difficult to isolate in the data.

However, there are also limitations to this approach. The explanatory variables in these studies are highly correlated and measured with error, impeding interpretation of results. This is a significant issue for interpreting results on the basis of the CIFAR index (described above), which is commonly used to measure the “quality” of accounting information within a country. The CIFAR index is highly correlated with numerous other country characteristics. Furthermore, given the crudeness of the CIFAR index, the quality of countries’ financial accounting regimes is probably measured with considerable error. A second limitation is that causal inferences are problematic. It is plausible that both measures of financial development, such as the CIFAR index, and measures of economic performance are caused by the same omitted factors. It is also plausible that economic performance stimulates development of extensive financial disclosure systems. These limitations of cross-country designs are well recognized in the economics literature. Levine and Zervos (1993) conclude that these studies can be “very useful” as long as empirical regularities are interpreted as “suggestive” of the hypothesized relations. Lack of cross-country relations can at a minimum cast doubt on hypothesized relations.

Rajan and Zingales (1998) argue that if financial institutions help firms overcome moral hazard and adverse selection problems, thus reducing the cost of raising money from outsiders, financial development should disproportionately help firms more dependent on external finance for their growth. They measure an industry’s demand for external finance from data on U.S. firms. If capital markets in the United States are relatively frictionless, this allows them to identify an industry’s technological demand for external financing. Assuming that this demand carries over to other countries, they test whether industries that are more dependent on external financing grow relatively faster in countries that are more financially developed. Using the CIFAR index as a

measure of financial development, Rajan and Zingales document a significant positive coefficient on the interaction between industry-level demand for external financing and the country-level CIFAR index. This result supports the prediction that the growth is disproportionately higher in industries with a strong exogenous demand for external financing in countries with high-quality corporate disclosure regimes, after controlling for fixed industry and country effects. They also find that growth in the number of new enterprises is disproportionately high in industries with a high demand for external financing in countries with a large CIFAR index.

Using a similar design, Carlin and Mayer (2000) find that the growth in industry GDP and the growth in R&D spending as a share of value-added are disproportionately higher in industries with a high demand for external equity financing in countries with a large CIFAR index. Together, the results of Rajan and Zingales, and Carlin and Mayer are consistent with high-quality disclosure regimes promoting growth and firm entry by lowering the cost of external financing. However, as illustrated in the exhibit, corporate disclosure can also impact economic performance directly through the project identification and governance channels. For example, future research can focus on the governance channel by developing proxies for the relative magnitude of inherent agency costs from shareholder-manager conflicts for each industry, regardless of where the industry is located. Measures of economic performance for each industry within each country can be regressed against the interaction of the inherent agency costs for the industry and the quality of the corporate disclosure regime in the country.

Love (2000) examines the hypothesis that financial development affects growth by decreasing information and contracting related imperfections in the capital markets, thus reducing the wedge between the cost of external and internal finance at the firm level. Estimating a structural model of investment using firm-level data from forty countries, the paper finds that financial development decreases the sensitivity of investment to the availability of internal funds, which is equivalent to a decrease in financing constraints and improvement in capital allocation. Love’s main indicator of financial development is an index combining measures of stock market development with measures of financial intermediary development. Although the paper’s main result is that this indicator of financial development is negatively related to the estimated measure of capital market imperfection, it is interesting to note that the CIFAR index loads negatively over and above the main financial development indicator, while separate measures of the efficiency of the legal system, corruption, and risk of expropriation do not.

Wurgler (2000) examines the extent to which capital in each country is allocated to value-creating opportunities and withdrawn from value-destroying ones. Wurgler estimates the elasticity of gross investment to value-added as a measure of the efficiency of resource allocation in each country from equation 1:

$$(1) \quad \ln I_{jkt} / I_{jkt-1} = \alpha_k + \eta_k \ln V_{jkt} / V_{jkt-1} + \varepsilon_{jkt},$$

where  $I_{jkt}$  is gross fixed capital formation in industry  $j$ , country  $k$ , year  $t$ ,  $V_{jkt}$  is value-added in industry  $j$ , country  $k$ , year  $t$ . Wurgler interprets the elasticity for each country  $k$ ,  $\eta_k$ , as a measure of the extent to which country  $k$  reduces investment in declining industries and increases investment in growing industries. He documents a significant positive relation between value-added elasticities and financial development as measured by the ratio of the stock market capitalization to GDP and the ratio of credit outstanding to GDP. He also finds a positive relation between value-added elasticities and an index of investor rights from La Porta et al. (1998), and a significant negative relation between elasticities and the fraction of an economy's output due to state-owned enterprises. Most interesting for our purposes, however, is that he documents a significant relation between elasticities and a measure proxying for the amount of firm-specific information impounded in stock prices in a given economy, supporting the hypothesis that more informed stock prices provide better direction for managers' investment decisions.<sup>13</sup> We are not aware of any direct evidence concerning the relation between the quality of financial accounting regimes and the sensitivity of corporate investments to value-added. This is an interesting issue for future research.

We note two final studies that have exploited the CIFAR index. First, Levine, Loayza, and Beck (2000) examine whether cross-country differences in legal and accounting systems explain differences in the level of financial intermediary development. They find that cross-country differences in legal and accounting systems (measured using the CIFAR index) help account for differences in financial development. These findings suggest that legal and accounting reforms that strengthen creditor rights, contract enforcement, and accounting practices can boost financial development and accelerate economic growth. Second, Lombardo and Pagano (2000) document that total stock market returns are correlated with overall measures of the quality of institutions, such as judicial efficiency and rule of law, controlling for risk. They also examine whether differences in accounting standards are a key explanatory variable of the international variation in initial public offering (IPO) underpricing. The presence of IPO

underpricing is generally viewed as the product of informational asymmetries between generality of investors and the "smart money" in the market for new issues. Shares initially quote at a discount to compensate uninformed investors for their expected losses to the better-informed ones. This informational asymmetry and the resulting IPO discount are likely to be greater where accounting practices are lax and opaque. Consistent with the prediction of the theory, they document a negative correlation between IPO underpricing and the CIFAR index.

We end this section by noting that there is also an emerging literature in accounting that examines the relation between properties of a country's financial reporting regime and its institutional architecture (see Ball [2001] for a synthesis of this literature). Ball, Kothari, and Robin (2000) and Ball and Robin (1999) document significant differences in the extent to which accounting income incorporates economic gains and losses in code-law versus common-law countries. They find that common-law accounting income is more likely than code-law income to incorporate economic losses in a timely fashion. They argue that considerable managerial discretion over reported income, and a near absence of stockholder and lender litigation costs to managers and auditors alike in code-law countries, reduces their incentives to confront economic losses and to recognize them in the financial statements.<sup>14</sup> Guenther and Young (2000) investigate how cross-country differences in legal systems, bank versus market orientation, and legal protection for external shareholders affect the relation between financial accounting earnings and real economic value-relevant events that underlie those earnings. They find that the association between aggregate return on assets and growth in GDP is high in the United Kingdom and the United States (common law, extensive use of markets, and high protection of minority shareholder rights) and low in France and Germany (code law, extensive use of banks, and low protection of minority shareholder rights). Lastly, Ali and Hwang (2000), using financial accounting data from manufacturing firms in sixteen countries for 1986-95, demonstrate that the value relevance of financial reports is lower in countries where the financial systems are bank-oriented rather than market-oriented, where private sector bodies are not involved in the standards-setting process, where accounting practices follow the Continental model as opposed to the British-American model, where tax rules have a greater influence on financial accounting measurements, and where spending on auditing services is relatively low.

## 5. FUTURE RESEARCH: CORPORATE TRANSPARENCY

The studies reviewed in Section 4 provide exciting new evidence that cross-country differences in corporate disclosure intensity, as measured by the CIFAR index, are associated with differences in economic growth, efficient allocation of investment, sensitivity of investment to internal cash flow, development of financial intermediaries, IPO underpricing, and concentration of stock ownership.

A natural next step is the development of a more comprehensive framework for conceptualizing and measuring the key aspects of the domestic information environment. A fundamental feature of the information environment is corporate transparency, defined as the widespread availability of relevant, reliable information about the periodic performance, financial position, investment opportunities, governance, value, and risk of publicly traded firms (Bushman, Piotroski, and Smith 2001). As a measure of corporate transparency, the CIFAR index used in prior studies has at least three major shortcomings. First, it captures only one dimension of the quality of corporate reporting-disclosure intensity. Second, the CIFAR index does not capture cross-country differences in the extent, speed, or accuracy with which information reported by firms is disseminated throughout the economy. Third, the CIFAR index does not incorporate cross-country differences in private information acquisition and communication activities.<sup>15</sup>

BPS develop a framework for conceptualizing and measuring corporate transparency at the country level. In their framework, corporate transparency has three main elements: 1) corporate reporting (voluntary and mandatory), 2) information dissemination via the media and Internet channels, and 3) private information acquisition and communication by financial analysts, institutional investors, and corporate insiders. We describe the framework here to stimulate further thought on the measurement of corporate transparency and of domestic information environments more generally. We also use their framework to illustrate some directions for future research into the economics of information.

The first element in the BPS framework is the quality of corporate reporting. They consider not only corporate disclosure intensity as measured by the CIFAR index, but also the prevalence of specific types of accounting and governance disclosures, the timeliness of disclosures, and the credibility of disclosures as measured by the share of Big-6 accounting firms in total value audited. All measures of corporate reporting used in BPS are collected from Center for International Financial Analysis and Research (1995), and appear in the table.

## Variables Used to Measure Corporate Transparency and Data Sources<sup>a</sup>

### Corporate reporting<sup>b</sup>

- Financial accounting disclosures
  - Long-term investments: Research and development, capital expenditures
  - Segment disclosures: Product segments, geographic segments
  - Subsidiary disclosures
  - Footnote disclosures
- Governance disclosures
  - Identity of major shareholders
  - Range of shareholdings
  - Identity of managers
  - Identity of board members and affiliations
  - Remuneration of officers and directors
  - Shares owned by directors and employees
- Timeliness of disclosures
  - Frequency of reporting
  - Number of specific accounting items disclosed in interim reports
  - Consolidation in interim reporting
  - Reporting of subsequent events
- Accounting policies
  - Consolidation of subsidiaries
  - Use of general reserves
- Credibility of disclosures
  - Share of Big-6 accounting firms in total value audited
- Other
  - Financial statements available in English
  - Degree of disclosure of important accounting policies

### Information dissemination

- Penetration of media<sup>c</sup>
  - Number of newspapers per 1,000 people
  - Number of televisions per 1,000 people
- Media ownership<sup>d</sup>
  - Percentage state-owned newspapers of top five daily newspapers in 1999
  - Market share of state-owned newspapers of aggregate market share of top five daily newspapers in 1999

### Private information acquisition and communication

- Direct reporting of detailed private information
  - Number of analysts following firms<sup>e</sup>
- Indirect communication of aggregate value-relevant information via trades
  - Prevalence of institutional investors<sup>f</sup>
    - Total assets of pooled investment schemes to GDP
  - Insider trading laws and enforcement<sup>g</sup>

<sup>a</sup>Source: Bushman, Piotroski, and Smith (2001).

<sup>b</sup>Source: Center for International Financial Analysis and Research (1995).

<sup>c</sup>Source: World Development Indicators (2000).

<sup>d</sup>Source: Djankov, McLiesh, Nenova, and Shleifer (2001).

<sup>e</sup>Source: Chang, Khanna, and Palepu (2000).

<sup>f</sup>Source: Beck, Demirguc-Kunt, and Levine (1999).

<sup>g</sup>Source: Bhattacharya and Daouk (2001).

The second element is private information acquisition and communication by financial analysts, institutional investors, and corporate insiders. BPS measure private information acquisition of financial analysts by the average number of financial analysts following large companies, as reported in Chang, Khanna, and Palepu (2000). They measure private information acquisition by institutional investors by the assets of pooled investment schemes relative to GDP. Finally, they measure insider trading by the degree of enforcement of restrictions on insider trading, as reported in Bhattacharya and Daouk (2001).

The third element in the BPS framework is the quality of information dissemination throughout the economy. They consider two aspects of the information dissemination infrastructure in a given economy that are expected to affect the speed, accuracy, and reach of the dissemination of information reported by firms. The first aspect is the penetration of media, as measured by the number of newspapers and televisions per capita obtained from World Development Indicators (2000). The second aspect is the prevalence of state versus private ownership of newspapers, as reported in Djankov, McLiesh, Nenova, and Shleifer (2001).<sup>16</sup>

This extended representation of corporate transparency allows a variety of research questions to be addressed. We discuss three sets of questions for future research: 1) the relation among measures of the quality of corporate reporting, information dissemination, and private information acquisition and communication in an economy; 2) the economic consequences of the quality of corporate reporting, information dissemination, and private information acquisition, including interactions among these three elements of corporate transparency and interactions with legal and other domestic institutions; and 3) political, economic, or other reasons for cross-country or intertemporal differences in corporate transparency.

*The relation among measures of the quality of corporate reporting, information dissemination, and private information acquisition and communication.* An intriguing direction for future research is the relation of measures within and across the three elements of corporate transparency: the quality of corporate reporting, information dissemination, and private information acquisition and communication. For example, is higher quality corporate reporting associated with higher quality channels for dissemination of the information reported by firms? Do lax restrictions on insider trading encourage or stifle corporate reporting? Is higher audit rigor associated with greater disclosure intensity? Do lax restrictions on insider trading suppress private information acquisition and communication by financial analysts or institutional investors?

We are aware of no existing empirical research into the relation of measures within and across the three elements of corporate transparency. A theory literature in accounting is replete with examples of public and private information being either substitutes or complements. Verrecchia (1982) models increased public disclosure as crowding out private information, while Indjejikian (1991) models public disclosure as driving increased levels of private information (see also Antle, Demski, and Ryan [2000] for further discussion of this literature). This is ultimately an empirical issue. The recent emergence of databases that capture substantial cross-country variation in the elements of corporate transparency creates potential for important new insights into the relation between components of corporate transparency.

*Economic consequences of the quality of corporate reporting, information dissemination, and private information acquisition and communication.* A second interesting direction for future research is the economic consequences of the quality of corporate reporting, information dissemination, and private information acquisition and communication. A variety of economic effects are of interest, such as the cost of debt and equity capital, the stability of the financial sector, the size of the capital markets, the liquidity, informational efficiency, and functional efficiency of the stock market,<sup>17</sup> the intensity of investments in high-risk technologies, the growth in the number of firms, the speed and intensity with which financial and human capital are invested in value-creating opportunities and withdrawn from value-destroying ones, and GDP growth.<sup>18</sup>

In the investigation of the economic effects of corporate reporting, future research can go beyond disclosure intensity to consider the economic effects of specific types of accounting or governance disclosures, as well as the timeliness, measurement, credibility, or language of corporate disclosures. Research can also consider whether these dimensions of the quality of corporate reporting have complementary economic effects, such as complementarities between disclosure intensity on the one hand, and timeliness, credibility, or measurement of disclosures on the other hand.

In the investigation of the economic effects of information dissemination, future research can explore the effects of the per-capita penetration of the media, the state versus private ownership of the media, and interactions between the penetration and ownership of the media. We also think it is interesting to explore whether corporate reporting and information dissemination have complementary economic effects, whereby the economic effects of quality corporate reporting are enhanced by a quality information dissemination infrastructure, and vice versa.

In the investigation of the economic effects of private information acquisition and dissemination, future research can consider the independent effects of the private information activities of financial analysts, institutional investors, and corporate insiders. We also think there are potentially interesting interactions to explore between private information acquisition on the one hand, and corporate reporting and information dissemination on the other hand. For example, evidence in Bhattacharya and Daouk (2001) suggests that relatively weak enforcement of restrictions on insider trading is associated with a relatively high cost of equity capital. Is this effect mitigated by high-quality corporate reporting and information dissemination, as expected if high-quality corporate reporting and information dissemination reduce information asymmetries between corporate insiders and other investors?

Although the suggestions above concern the interactions among the components of corporate transparency, we also think it is promising to consider potential interactions between measures of corporate transparency and other domestic institutions. For example, since LaPorta, Lopez-De-Silanes, Shleifer, and Vishny (1997), researchers have documented a variety of economic effects of the domestic legal regime, such as laws protecting investors' rights and enforcement of laws. A recent example of studies in this vein is Lombardo (2000), who documents evidence that the cost of equity capital is negatively associated with the enforceability of contracts and the impartiality and observance of the law, while it is positively associated with corruption and risk of expropriation.

Another natural direction for future research is to understand *how*—that is, through which specific channels—corporate transparency achieves its first-order economic effects. For example, to what extent do high-quality corporate reporting and information dissemination lead to better corporate governance, producing gains through the governance channel depicted in the exhibit? Bushman and Smith (2001) discuss empirical designs that can be used to isolate the economic effects of financial accounting information operating through the governance channel. Similar designs can be used to isolate the economic effects of additional elements of corporate transparency through the governance channel.

*Political, economic, or other reasons for cross-country and intertemporal differences in corporate transparency.* The research proposed above is motivated at a fundamental level by an interest in the question of what combination or combinations of domestic institutions are most conducive to economic growth and efficiency. We think that the more comprehensive

measurement of corporate transparency illustrated by the BPS framework will generate new insights into how and why the availability of relevant, reliable information about firms from a variety of sources affects economies, and how these economic effects vary with other factors.

We think that another important direction for future research is to explore why elements of corporate transparency vary across countries and over time. We expect that evidence concerning the efficiency effects of corporate transparency and how they vary with the financial architecture, industrial development, corporate governance structures, globalization, or other factors will guide the development of hypotheses concerning intercountry and intertemporal differences in the demand for corporate transparency. We also think that recent theories predicting the political conditions under which financial development will be suppressed to promote agendas other than economic efficiency and new databases measuring these political forces will provide valuable input into this line of inquiry.<sup>19</sup>

Of particular interest is the role of regulation in promoting corporate transparency. Although there has been much debate on disclosure regulation, there is no universal agreement on what disclosure regulation should be or whether regulation is even necessary, thus leaving many open questions. A large literature on corporate governance assumes that financial market regulation is unnecessary. This conclusion relies on the idea that sophisticated parties can write enforceable contracts tied to their specific circumstances and that entrepreneurs have adequate incentives to minimize agency costs through bonding, commitment to audited disclosure, and other limits on discretion.<sup>20</sup> Implied in this position is the existence of effective judicial enforcement of complex contractual arrangements and an absence of externalities.

However, advocates of market regulation point to a variety of potential failures, such as the ability of insiders to expropriate both potential and existing investors through misrepresentation or asset diversion, or a lack of incentives by courts to enforce laws and contracts effectively. Some scholars argue for the enforcement of securities laws by regulators as opposed to judges. For example, Glaeser, Johnson, and Shleifer (2000) argue that regulators may be required to provide adequate resources and high-powered incentives for optimal enforcement of laws, and support this argument by comparing the regulation of securities markets (including disclosure requirements) through corporate and securities laws in Poland and the Czech Republic. Romano (2001) argues for the introduction of regulatory competition in which firms choose the regulatory regime to which they will be subject from available jurisdictions around the world. Admati and Pfleiderer (2000) develop a model that demonstrates that even in the

presence of externalities to public disclosure (disclosure by one firm provides information about other firms), mandatory disclosure requirements often are unable to achieve welfare-maximizing outcomes.

A variety of interesting empirical issues emerge concerning the effects of accounting and disclosure regulation. For example, to what extent does governmental adoption of superior accounting *rules* actually lead to superior corporate accounting *practices*, and what other institutional factors must be present for such an effect?<sup>21</sup> To what extent do disclosure requirements lead to higher quality voluntary disclosures, as discussed in Ball (2001)?

The BPS measurement scheme is of limited use for empirical investigations into the regulation of corporate reporting because it reflects corporate reporting practices resulting from both voluntary and mandatory reporting behavior. Hence, an important step for future research is to develop a multinational database of domestic corporate reporting regulatory environments to facilitate future research into the causes and effects of accounting and disclosure rules and regulations.

*Other aspects of the information environment.* Our focus above, corporate transparency, is but one aspect of the domestic information environment. Although we believe that corporate transparency is a fundamental feature of the information environment in an economy, we think that it is useful to extend the research proposed above to consider other types of transparency. Vishwanath and Kaufmann (1999) describe a more comprehensive framework for transparency that includes transparency in both the public and private sectors.<sup>22</sup> We think that such research has much potential for contributing to a more complete understanding of the economics of information.

## 6. SUMMARY

In this paper, we discuss economics-based research focused primarily on the governance role of financial accounting information and propose future research ideas. We present a framework that isolates three channels through which financial accounting information can affect the investments, productivity, and value-added of firms. The first channel involves the use of financial accounting information by managers and investors in identifying promising investment opportunities. The second channel is the use of financial accounting information in corporate control mechanisms that discipline managers to direct resources toward projects identified as good and away from projects identified as bad. The third channel is the use of financial accounting information to reduce information asymmetries among investors.

We discuss economics-based research on the use of accounting information in particular governance mechanisms. Topics include the prevalence of financial accounting numbers in managerial contracts, trends in the use of accounting numbers for contracting with managers, properties of accounting and choice of governance configurations, and financial accounting information and additional corporate control mechanisms. We then discuss cross-country research that investigates the effects of financial accounting information on economic performance and present a conceptual framework for characterizing and measuring corporate transparency at the country level, including many ideas for future research.

## ENDNOTES

1. See Black (2000) for a useful discussion of this thesis.
2. For more information, see the IASB web site: <<http://www.iasc.org.uk>>.
3. See Ball (2001) for an in-depth discussion of the connection between the emphasis in accounting standards on the verifiability of financial statement data and the credibility of managers' disclosures to the market.
4. See Levine (1997) for a review of theories linking financial development and economic growth of an economy.
5. For example, Chang et al. (2000) document that cross-country differences in analyst following are positively correlated with the quality of financial accounting regimes.
6. While we focus on beneficial effects, theory identifies potential adverse consequences of public information. For example, the early release of public information can destroy risk-sharing opportunities (Hirshleifer 1971; Marshall 1974); signaling of private information can result in overinvestment or other misallocations of capital (Spence 1973); more frequent reporting of information can increase moral hazard costs by increasing the scope of strategic behavior available to managers (Holmstrom and Milgrom 1987; Abreu et al. 1991; Gigler and Hemmer 1998); information release can complicate contract renegotiation and impose agency costs if parties cannot commit not to renegotiate contracts (Laffont and Tirole 1990; Demski and Frimor 1999); public release of proprietary information can distort investment behavior (Darrrough 1993).
7. See Barry and Brown (1985) and Merton (1987) for analysis of the impact of estimation risk and incomplete information, respectively, on the cost of capital.
8. In contrast, Shleifer and Vishny (1986) and Bhidé (1993) argue that liquid stock markets and diffuse ownership structures can reduce shareholders' incentives to monitor the managers, and thus impede economic efficiency. Levine and Zervos (1998) proxy for liquidity of a country's stock market as the value of stock trading relative to the size of the market (turnover) and the value of trading relative to the size of the economy. Using a cross-country design, they find both measures to be positively and significantly related to rates of economic growth, capital accumulation, and productivity growth.
9. In contrast, Barro and Barro (1990) do not find a relation between accounting-based measures and turnover for a sample of large bank CEOs, but do find an inverse relation between stock price performance and turnover. A number of papers also examine the relation between the probability of executive turnover and stock price performance. These include Coughlin and Schmidt (1985), Warner et al. (1988), and Gibbons and Murphy (1990). See Murphy (1999) for an extensive discussion of this literature along with additional empirical analysis.
10. See also Kang and Shivdisani (1995) for evidence that top executive turnover in Japan is related to accounting performance.
11. Other examples of research on specific governance mechanisms include boards of directors (Dechow, Sloan, and Sweeney 1996; Beasley 1996), audit committee characteristics (Klein 2000a, b), shareholder litigation (Kellogg 1984; Francis, Philbrick, and Schipper 1994; Skinner 1994), debt contracts (Smith and Warner 1979; Leftwich 1981; Press and Weintrop 1990; Sweeney 1994), and the audit function (Feltham, Hughes, and Simunic 1991).
12. Regime shifts within a country or region of the world (for example, privatization), however, also may provide rich opportunities for examining the effects of financial accounting information and economic growth and efficiency.
13. The proxy is the fraction of stocks in a country whose prices move in the same direction in a given week, as reported in Morck et al. (2000). Following Morck et al., stock market synchronicity is interpreted as a low amount of firm-specific information impounded in stock prices in a given country. Wurgler (2000) represents one of the few "direct" tests (of which we are aware) of whether the informational efficiency of the stock market enhances the efficiency with which corporate resources are directed toward value-creating opportunities. We return to this issue in Section 5. Also see Durnev et al. (2000).
14. See La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998) for evidence on differences in investor legal protections between code-law and common-law countries.
15. We use the term "private information acquisition" to mean both the superior processing of publicly reported information and the collection of private information through discussions with managers, customers, suppliers, and others.
16. Djankov, McLiesh, Nenova, and Shleifer (2001) document a variety of social, political, and economic effects of cross-country differences in the prevalence of state versus private media ownership.

## ENDNOTES (CONTINUED)

17. The informational efficiency of the stock market concerns the speed and accuracy with which information is reflected in stock prices. Tobin (1982) defines the functional efficiency of the stock market as the extent to which the stock market directs resources to their highest valued uses.

18. Bushman and Smith (2001) discuss a variety of cross-country empirical designs based on the recent economics and finance literatures that they suggest can be used to explore the economic effects of financial accounting information. The same designs can be used to explore the economic effects of corporate reporting, of which financial accounting information is a key ingredient, as well as the economic effects of information dissemination and private information acquisition and communication.

19. For example, Rajan and Zingales (2001) develop and test the theory that incumbent firms apply political pressure to suppress financial development to reduce domestic competition, and this tendency varies the openness of the domestic economy to foreign competition. Vishwanath and Kaufmann (1999) discuss how

transparency in the private sector may be impeded by a lack of transparency in the public sector. Beck, Clarke, Groff, Keefer, and Walsh (1999) discuss how research into the political determinants of economic development has been stifled by the lack of detailed, objective data on the political and institutional features of countries, and introduce a large database to facilitate such research.

20. See, for example, Stigler (1964), Jensen and Meckling (1976), Easterbrook and Fischel (1991), and Coffee (1999). Watts and Zimmerman (1986) discuss specifically the literature on regulation of disclosure.

21. See Ball (2001) for a discussion of a variety of infrastructure requirements for quality financial reporting.

22. The Opacity Index, developed by PriceWaterhouse-Coopers, represents a recent attempt to measure transparency broadly, incorporating transparency in both the public and private sectors of each economy.

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PART 2

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## THE GOVERNANCE OF BANKS

PAPERS BY

Jonathan R. Macey and Maureen O'Hara

Kose John and Yiming Qian

Renée Adams and Hamid Mehran

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# THE CORPORATE GOVERNANCE OF BANKS

## 1. INTRODUCTION

Few public policy issues have moved from the wings to center stage as quickly and decisively as corporate governance.<sup>1</sup> Virtually every major industrialized country as well as the Organisation for Economic Co-operation and Development and the World Bank has made efforts in recent years to refine their views on how large industrial corporations should be organized and governed. Academics in both law and economics have also been intensely focused on corporate governance.<sup>2</sup> Oddly enough, despite the general focus on this topic, very little attention has been paid to the corporate governance of banks. This is particularly strange in light of the fact that a significant amount of attention has been paid to the role that the banks themselves play in the governance of other sorts of firms.<sup>3</sup> In this paper, we explain the role that corporate governance plays in corporate performance and argue that commercial banks pose unique corporate governance problems for managers and regulators, as well as for claimants on the firms’ cash flows such as investors and depositors.

The intellectual debate in corporate governance has focused on two very different issues. The first concerns whether corporate governance should focus exclusively on protecting the interests of equity claimants in the corporation, or whether corporate governance should instead expand its focus to deal

with the problems of other groups, called “stakeholders” or nonshareholder constituencies. The second issue of importance to corporate governance scholars begins with the assumption that corporate governance should concern itself exclusively with the challenge of protecting equity claimants, and attempts to specify ways in which the corporation can better safeguard those interests.

The Anglo-American model of corporate governance differs from the Franco-German model of corporate governance in its treatment of both issues. The Anglo-American model takes the view that the exclusive focus of corporate governance should be to maximize shareholder value. To the extent that shareholder wealth maximization conflicts with the interests of other corporate constituencies, those other interests should be ignored, unless management is legally required to take those other interests into account. The Franco-German approach to corporate governance, by contrast, considers corporations to be “industrial partnerships” in which the interests of long-term stakeholders—particularly banks and employee groups—should be accorded at least the same amount of respect as those of shareholders.<sup>4</sup> The Anglo-American model of corporate governance also differs from the Franco-German model in its choice of preferred solutions to the core problems of governance. Specifically, the market for corporate control lies at the heart of the Anglo-American system of corporate governance, while the salutary role of nonshareholder

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Jonathan R. Macey is the J. DuPratt White Professor of Law at Cornell University’s School of Law and the Director of the John M. Olin Program in Law and Economics at Cornell; Maureen O’Hara is the Robert W. Purcell Professor of Finance at Cornell University’s Samuel Curtis Johnson Graduate School of Management.  
<jrm29@cornell.edu>  
<mo19@cornell.edu>

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constituencies, particularly banks and workers, is central to the Franco-German governance model.

At the outset, we note that it is strange that paradigms of corporate governance differ on the basis of national boundaries rather than on the basis of the indigenous characteristics of the firms being governed. Of course, the extent to which either the Anglo-American model or the Franco-German model of corporate governance exists as more than theoretical constructs is a matter of debate. There is doubt about the extent to which the European system really protects the interests of nonshareholder constituencies, just as there is debate over whether the interests of U.S. management are as closely aligned with those of shareholders as is generally claimed. However, differences in corporate governance systems do exist. Moreover, the distinctions between these two paradigms of corporate governance are quite useful in framing the analysis in this paper.

We begin with an overview of the topic of corporate governance and proceed to a discussion of the particular corporate governance problems of banks. We embrace the view that a corporation is best defined as a complex web or “nexus” of contractual relationships among the various claimants to the cash flows of the enterprise.<sup>5</sup> The defining principle of American corporate governance is that an implicit term of the contract between shareholders and the firm is that the duty of managers and directors is to maximize firm value for shareholders. The legal manifestations of these contracts are the fiduciary duties of care and loyalty that officers and directors owe to shareholders.

Although we support the general principle that fiduciary duties should be owed exclusively to shareholders, we believe that the scope of the duties and obligations of corporate officers and directors should be expanded in the special case of banks. Specifically, directors and officers of banks should be charged with a heightened duty to ensure the safety and soundness of these enterprises. Their duties should not run exclusively to shareholders. Thus, we support a hybrid approach to corporate governance in which most firms are governed according to the U.S. model, while banks are governed according to a variant of the Franco-German paradigm. Our variant calls for bank directors to expand the scope of their fiduciary duties beyond shareholders to include creditors. In particular, we call on bank directors to take solvency risk explicitly and systematically into account when making decisions, or else face personal liability for failure to do so.

## 2. THE NATURE AND PURPOSE OF CORPORATE GOVERNANCE

### 2.1 The Corporation as a Contract

The dominant model of corporate governance in law and economics is that the corporation is a “complex set of explicit and implicit contracts.” In other words, one should view the corporation as nothing more (or less) than a set of contractual arrangements among the various claimants to the products and earnings generated by the business. The group of claimants includes not only shareholders, but also creditors, employee-managers, the local communities in which the firm operates, suppliers, and, of course, customers. In the case of banks, these claimants also include the regulators in their roles as insurers of deposits and lenders of last resort and in their capacity as agents of other claimants.

As Hart (1989, pp. 1757, 1764) observes, every business organization, including the corporation, “represents nothing more than a particular ‘standard form’ contract.” The very justification for having different types of business organizations is to permit investors, entrepreneurs, and other participants in the corporate enterprise to select the organizational design they prefer from a menu of standard-form contracts. The virtue of the standard-form arrangement characteristic of modern corporate law is that it reduces transaction costs by allowing the participants in the corporate enterprise to take advantage of an arrangement that suits the needs of investors and entrepreneurs in a wide variety of situations.

The nexus-of-contracts approach implies that no particular set of contractual outcomes is ideal for every firm. Because contracts define each participant’s rights, benefits, duties, and obligations in the corporate endeavor, there is no necessary presumption that any one class of claimants has preference over any other. Instead, each claimant or group of claimants deserves to receive only the exact benefits of the particular bargain that it has struck with the firm, no more and no less. What claimants have bargained for, however, may differ enormously from firm to firm, depending on a complex set of exigencies.<sup>6</sup> As we discuss below, the notion that no class of claimants should have preference over another is fundamentally at odds with the notion that shareholders and shareholders alone should benefit from fiduciary duties.

## 2.2 The Economic Nature and Purpose of Fiduciary Duties

On a theoretical level, the problems of corporate governance result from the existence of incomplete contracts. The rules of corporate governance are aimed at resolving the gaps left in these contracts in ways consistent with maximizing the value of the firm. In the case of shareholders' contingent contracts in the United States, these background rules are called fiduciary duties.

The economic justification for having fiduciary duties is straightforward: "Fiduciary duties are the mechanism invented by the legal system for filling in the unspecified terms of shareholders' contingent [contracts]."<sup>7</sup> The creation of a contract covering all possible contingencies is impossible between shareholders and boards of directors. Relying only on an incomplete contract to define the relationship between shareholders and directors would lead to unacceptably high monitoring costs on both sides. The presence of fiduciary duties attempts to address these contingencies. In this gap-filling role, fiduciary duties essentially call on directors to work hard and to promote the interests of shareholders above their own.

We argue that, to the extent that fiduciary duties lower agency costs by reducing the freedom of management to act in its own unconstrained self-interest, such duties will be especially valuable devices in the banking context because of the inherent difficulties in monitoring banks. Not only are bank balance sheets notoriously opaque, but as Furfine (2001) points out, "rapid developments in technology and increased financial sophistication have challenged the ability of traditional regulation and supervision to foster a safe and sound banking system."

Under Delaware law, directors are charged with the responsibility of managing and supervising the business and affairs of the corporation. "In discharging this function, the directors owe fiduciary duties . . . to the corporation and its shareholders."<sup>8</sup> These duties include the duty of care and the duty of loyalty. If these duties are breached, directors may be held personally liable for any damages caused by the breach.

The duty of care requires that directors exercise reasonable care, prudence, and diligence in the management of the corporation. Director liability for a breach of the duty of care may arise in two discrete contexts. First, liability may flow from "ill advised or negligent" decisionmaking. Second, liability may be the result of failure of the board to monitor in "circumstances in which due attention would, arguably, have prevented the loss."<sup>9</sup> Significantly, in both classes of cases, directors are entitled to rely on information, reports, statements, and opinions prepared by the company's officers and directors as well as outside consultants. However, the ability of directors to rely on others does not absolve them of

their responsibility to make independent business decisions; directors are only "entitled to good faith, not blind, reliance" on experts.<sup>10</sup>

The danger inherent in the first class of cases is that directors may be held liable for "honest but mistaken judgment calls"<sup>11</sup> when their decisions are judged in hindsight. This would result in an unacceptable intrusion on directors' anonymity. Courts have long recognized the risks associated with judging directors' decisions retrospectively. The courts have responded by developing what is known as the Business Judgment Rule.

Under the Business Judgment Rule, courts presume that "in making a business decision the directors of a corporation acted on an informed basis, in good faith and in the honest belief that the action taken was in the best interest of the company."<sup>12</sup> When the Business Judgment Rule applies, the plaintiff carries the burden of rebutting the presumption in favor of sound business judgments by showing that the directors were not sufficiently well informed, the directors could not rationally believe that the decision was in the best interest of the shareholders, or the decision was not made in good faith.

Courts examine the process by which the decision was made and not the end result of the particular decision. In other words, "even though a decision made or a result reached is not that of the hypothetical ordinary prudent person, no liability will attach as long as the decision-making process meets the [appropriate] standard."<sup>13</sup> The "business judgment" of a majority of the directors "will not be disturbed if they can be attributed to any rational business purpose"<sup>14</sup> and absent fraud, illegality, or a conflict of interest. Accordingly, the Business Judgment Rule substantially reduces the risk that directors will be held liable for simple mistakes of judgment.

Along with adopting the Business Judgment Rule, many states have rejected the simple negligence standard of care. For example, provided that the decision was made in good faith, Delaware courts do not allow plaintiffs to recover unless they can show that a director acted with gross negligence. In this context, "gross negligence would appear to mean, 'reckless indifference to or a deliberate disregard of the stockholders,'<sup>15</sup> or actions which are 'without the bounds of reason.'<sup>16</sup> These articulations arguably provide a higher threshold for liability than does the definition of gross negligence in general tort law."

The second context in which directors can find themselves liable for breach of the duty of care involves "circumstances in which a loss eventuates not from a decision but, from unconsidered inaction." In other words, the duty of care not only requires directors to make careful decisions, it also requires them to take affirmative steps toward monitoring the operations of the firm.<sup>17</sup> In *In re Caremark International Inc. Derivative Litigation*, a Delaware court considered a claim involving the misfeasance of directors and the extent of

directors' duty to monitor the ongoing operations of the firm's business and performance. The original complaint in *Caremark* alleged in part "that Caremark's directors breached their duty of care by failing adequately to supervise the conduct of Caremark employees, or institute corrective measures, thereby exposing Caremark to fines and liability."

The court first noted that "absent grounds to suspect deception, neither corporate boards nor senior officers can be charged with wrongdoing simply for assuming the integrity of employees and the honesty of their dealings on the company's behalf." The court went on to reason that it is an "elementary fact that relevant and timely information is an essential predicate for satisfaction of the board's supervisory and monitoring role" of the Delaware law. Thus, the court held that the duty of care imposes an ongoing responsibility on directors to monitor a firm's compliance with the law as well as its business performance. Specifically, corporate boards must implement and maintain information and reporting systems reasonably designed to provide timely and accurate information to allow the board to reach informed decisions.

Interestingly, the level of detail required for an information and reporting system is a matter of business judgment, and so the Business Judgment Rule protects directors' decisions regarding the specific design and implementation of a firm's information and reporting system. The court also recognized that no system completely eliminates the possibility of wrongdoing or violations of the law. Directors are simply required to exercise a good-faith judgment in deciding what sort of oversight is appropriate for their firm. Thus, "only a sustained or systematic failure of the board to exercise oversight—such as an utter failure to attempt to assure a reasonable information and reporting system exists—will establish the lack of good faith that is a necessary condition to liability."

A board of directors also owes a fiduciary duty of loyalty to the corporation and its shareholders. The Delaware Supreme Court has characterized the duty of loyalty as "the rule that requires an undivided and unselfish loyalty to the corporation demands that there shall be no conflict between duty and self-interest."<sup>18</sup> Until the last part of the nineteenth century, the "undivided and unselfish loyalty" mandated by the duty of loyalty meant that, upon the insistence of the shareholders or the corporation, any business transaction involving a director and the corporation was automatically voidable, regardless of the fairness of the transaction. Today, however, this is no longer the case.

In recognition of the fact that self-interested transactions between board members and a corporation are often advantageous to the corporation and its shareholders, courts generally allow for such transactions under limited circumstances. For instance, in Delaware, the common law

requires the application of an intrinsic fairness test. In *Marciano v Nakash*, the court held that an interested director transaction must be upheld when the transaction is intrinsically fair. This test takes into account the interests of the corporation and its shareholders as well as the motives of the director for entering into the transaction.

Prior to this paper, no attempt has been made to determine whether this solution applies with equal force to all sorts of firms. We argue that the case for making shareholders the exclusive beneficiaries of directors' fiduciary duties is particularly weak in the context of banks.

### 2.3 To Whom Should Fiduciary Duties Be Owed?

The standard law and economics view regarding fiduciary duties is that corporations and their directors owe fiduciary duties to shareholders and to shareholders alone. There has been much debate over the issue of whether shareholders should be the exclusive beneficiaries of directors' fiduciary duties. The dominant view in the United States is that needless complexity would result if corporations were required to serve the interests of groups other than shareholders. Specifically, corporate practitioners point out that if directors must serve constituencies other than shareholders:

The confusion of . . . trying to . . . require directors to balance the interests of various constituencies without according primacy to shareholder interests would be profoundly troubling. Even under existing law, particularly where directors must act quickly, it is often difficult for directors acting in good faith to divine what is in the best interests of shareholders and the corporation. If directors are required to consider other interests as well, the decision-making process will become a balancing act or search for compromise. When directors must not only decide what their duty of loyalty mandates, but also to whom their duty of loyalty runs (and in what proportions), poorer decisions can be expected.<sup>19</sup>

Academics who approach this issue from a law and economics perspective reach the same result as the corporate bar. As Easterbrook and Fischel (1983) observe:

As the residual claimants, the shareholders are the group with the appropriate incentives . . . to make discretionary decisions. The firm should invest in new products, plants, etc., until the gains and costs are identical at the margin. Yet all of the actors, except the shareholders, lack the

appropriate incentives. Those with fixed claims on the income stream may receive only a tiny benefit (in increased security) from the undertaking of a new project. The shareholders receive most of the marginal gains and incur most of the marginal costs. They therefore have the right incentives to exercise discretion.

Accordingly, the Anglo-American model takes the view that the exclusive focus of corporate governance should be to maximize shareholder value.

There is a conflict between the argument that shareholders are the exclusive beneficiaries of fiduciary duties and the idea that a corporation is merely a nexus of contracts, with no set of claimants having any *a priori* rights in relation to any other. After all, if a corporation is simply a complex web of contracts, the various participants to the corporate venture should be able to contract among themselves to obligate the directors to serve broad societal interests, the interests of the firm's workers, or the interests of any other nonshareholder constituency. By contrast, fiduciary duties do not appear to be subject to negotiation. There is a single one-size-fits-all solution: the parties should write the corporate contract such that the shareholders always win. Accordingly, one cannot consistently claim that the corporation is defined by the contractual relationships that exist among shareholders, employees, managers, suppliers, customers, creditors, and others, while simultaneously arguing that these contractual provisions must always subordinate the claims of nonshareholder constituencies to the claims of the shareholders because shareholders are the exclusive beneficiaries of nonwaivable fiduciary duties.

There are many situations in which nonshareholder constituencies such as uninsured depositors in banks might value a particular contractual right or protection more than shareholders value it. One obvious example is when the social costs of an outcome exceed the private costs of an outcome. This negative-externality problem is particularly relevant for banking because an individual bank failure can affect the operation of the entire banking system. Similarly, in the banking context, depositors' savings (or strong governmental interests) are at stake. In effect, there is a public interest dimension to the banking firm that vitiates the exclusive claims that its shareholders typically bring to the attention of directors.

In practice, corporate contracts often subordinate the claims of shareholders to those of nonshareholder constituencies. Banks, bondholders, and other fixed claimants commonly negotiate contractual protections for themselves to curb the ability of shareholders to access the cash flows of the corporation. Corporations in search of capital routinely agree to restrict their ability to make investments, loans, or other

extensions of credit as a condition of receiving funds from lenders. Consequently, despite the appearance of intractability, fiduciary duties are simply another default rule that operates in the shadow of express contractual agreements and that shareholders and nonshareholder constituencies can customize as they please.

Thus, the way to reconcile the tension between the idea that fiduciary duties are exclusive and nonwaivable and the idea that the corporation is a nexus of contracts is to recognize that shareholders can, in fact, waive fiduciary duties by *ex-ante* agreement. Parties can make deals *ex ante* to change the default terms described by fiduciary duties. Corporate law establishes procedural rules to assure that the *ex-ante* agreement meets standard contractual prerequisites, such as requiring relative parity of bargaining power and forbidding fraud in the inducement. Beyond that, parties are free to make deals that carve into the fiduciary rights of shareholders. Shareholders can modify the terms of fiduciary duties both by crafting particularized definitions of fiduciary duties and by expressly providing that officers and directors can engage in certain actions, even if such actions clearly would breach the fiduciary duties in the absence of such an agreement.

Because shareholders are residual claimants, the fiduciary duties owed to shareholders are themselves nothing other than a special form of residual claim. Critically, in this context, the residual does not mean residual cash flows. Instead, the concept of the residual claim captures the idea of residual legal rights. Just as the standard default terms of corporate law provide that shareholders are entitled to the firm's residual cash flows after the financial claims of fixed claimants have been satisfied, so too are shareholders entitled to the residual legal rights that remain after the nonshareholder constituencies' agreements with the corporation are satisfied.

## 2.4 Separation of Ownership and Control

The problem of corporate governance is rooted in the Berle-Means (1932) paradigm of the separation of shareholders' ownership and management's control in the modern corporation. Agency problems occur when the principal (shareholders) lacks the necessary power or information to monitor and control the agent (managers) and when the compensation of the principal and the agent is not aligned. Several factors work to reduce these principal-agency costs. The "market for managers" penalizes management teams that try to advance their own interest at shareholders' expense.<sup>20</sup> Shareholders also can mitigate manager conflicts by creating incentive-compatible compensation arrangements.<sup>21</sup> And, of

course, competition in product markets and capital markets constrains managers. Most importantly, the market for corporate control aligns managers' incentives with those of shareholders by displacing inept or inefficient management through hostile takeovers.

One possible solution to the agency cost problem is to give shareholders direct control over management. This is the case when management and shareholders are the same party and control rights automatically rest in the hands of shareholders. However, some specific problems arise when shareholders seek to exercise control. When shareholders are widely dispersed, free-rider problems prevent shareholders from exerting meaningful constraints on management. Problems also arise when large shareholders participate in management. Large shareholders may face conflicts of interest that undermine their incentives to maximize firm value. For example, they may enjoy private benefits of control that distort their decision-making. Alternatively, large shareholders may themselves be part of organizations that face governance problems, such as (public) pension funds.

Although these are potentially powerful concerns about the effectiveness of shareholder control, recent research suggests that more fundamental trade-offs may guide the desired involvement of shareholders in corporate control. Burkhardt, Gromb, and Panunzi (1997), for example, show that direct shareholder control may discourage new initiatives on the part of managers.

These observations are consistent with real-world corporate governance arrangements, which almost without exception limit direct shareholder involvement. In some cases—particularly in the United States—this is facilitated by relatively dispersed ownership. This limits direct shareholder involvement to at most periodic interference via proxy fights, hostile takeovers, or other mechanisms that seek to mobilize shareholders. In the Continental European context, concentrated ownership is the norm. However, such centralized ownership does not readily translate into greater shareholder control. In some countries (Germany and southern Europe) cross-holdings and pyramid structures shield firms from shareholders. Also, nonexecutive directors (or supervisory boards in a two-tier system) may shield management from direct shareholder involvement. In countries like the Netherlands—and, to a lesser extent, Germany—rather autonomous supervisory boards operate semi-independently from shareholders and effectively shield management from direct shareholder involvement (see Allen and Gale [2000] for a discussion of alternative governance structures).

Banks are organized in a variety of ways, from stand-alone corporate entities and single bank holding companies to multiple bank holding companies and the post-Gramm-

Leach-Bliley Act (GLBA) diversified holding company. To the extent that some of the largest U.S. banks, like Citibank and Bank of America, are wholly owned subsidiaries of holding companies, these banks will not resemble the prototypical U.S. corporation in which ownership is divorced from control along the lines described by Berle and Means. For regulatory reasons, holding companies that include banks within their structures typically operate their nonbanking business lines, such as stock brokerage and insurance, through nonbank subsidiaries. Thus, holding companies that contain banks also can contain a portfolio of other firms.

This diversified structure permits such holding companies to reduce or eliminate the firm-specific risks associated with the banks they own. The GLBA significantly enhanced this diversification ability by permitting bank holding companies and certain other restricted firms to become a new entity: a financial holding company (FHC). FHCs may engage in any activity that is financial in nature, incidental to a financial activity or complementary to a financial activity. Thus, for the first time, securities trading, underwriting, insurance, and traditional banking activities can be conducted within a single holding company. Significantly, the GLBA is much more liberal about the scope of activities permitted at the holding company level than at the bank level. In addition, the statute explicitly incorporates a corporate governance perspective by requiring that a depository institution be “well managed” as a condition for engaging in expanded activities.

This dispersion of activity throughout the holding company structure also gives incentives to bank holding companies to put more risky behavior in their federally insured banks. To combat this problem, the Federal Reserve developed and applied a regulatory doctrine to require bank holding companies to provide financial strength to their bank subsidiaries.<sup>22</sup> The “source-of-strength” doctrine requires that bank holding companies maintain (and use) enough financial resources to aid their bank subsidiaries in case they experience financial difficulties. This doctrine reflects recognition of the fact that bank creditors need protection beyond what is provided by commercial law. The Supreme Court of the United States embraced the theory behind the source-of-strength doctrine in *Board of Governors v First Lincolnwood Corporation*.<sup>23</sup> A subsequent lower court decision called into question the statutory power of the Federal Reserve to issue the source-of-strength regulation.<sup>24</sup> However, regulators have continued to increase bank holding companies' financial obligations to their bank subsidiaries.

The holding company structure, with its concentration of ownership oversight, does have the potential to provide a greater ability to monitor the actions of the bank. Such board oversight takes on particular importance given the fact that

increasing cross-border activity and greater intricacy of financial products have greatly increased the complexity of financial institutions. Recent regulatory reforms in the GLBA have also increased the need for board monitoring. The GLBA explicitly places greater reliance on corporate governance mechanisms to oversee the actions of the financial enterprise.

### 3. SPECIAL PROBLEMS OF BANKS

The discussion so far has focused on a general overview of corporate governance. We now turn to the specific problems of banks and attempt to address why the scope of the duties and obligations of corporate officers and directors should be expanded in the case of banks. Our argument is that the special corporate governance problems of banks weaken the case for making shareholders the exclusive beneficiaries of fiduciary duties. Our focus here is on establishing why banks are not like other firms and thus why they should be treated differently.

#### 3.1 The Liquidity Production Role of Banks

Many different types of firms extend credit. Similarly, a variety of nonbank firms, most notably money market mutual funds and nonbank credit card companies, offer the equivalent of a check transaction account. What distinguishes banks from other firms is their capital structure, which is unique in two ways. First, banks tend to have very little equity relative to other firms. Although it is not uncommon for typical manufacturing firms to finance themselves with more equity than debt, banks typically receive 90 percent or more of their funding from debt.

Second, banks' liabilities are largely in the form of deposits, which are available to their creditors/depositors on demand, while their assets often take the form of loans that have longer maturities (although increasingly refined secondary markets have mitigated to some extent the mismatch in the term structure of banks' assets and liabilities). Thus, the principal attribute that makes banks as financial intermediaries "special" is their liquidity production function. By holding illiquid assets and issuing liquid liabilities, banks create liquidity for the economy.<sup>25</sup>

The liquidity production function may cause a collective-action problem among depositors because banks keep only a fraction of deposits on reserve at any one time. Depositors cannot obtain repayment of their deposits simultaneously because the bank will not have sufficient funds on hand to

satisfy all depositors at once. This mismatch between deposits and liabilities becomes a problem in the unusual situation of a bank run. Bank runs are essentially a collective-action problem among depositors. If, for any reason, large, unanticipated withdrawals do begin at a bank, depositors as individuals may rationally conclude that they must do the same to avoid being left with nothing. Thus, in a classic prisoner's dilemma, depositors may collectively be better off if they refrain from withdrawing their money, but their inability to coordinate their response to the problem can lead to a seemingly irrational response—depositors rush to be among the first to withdraw their funds so that they can obtain their money before the bank's cash reserves are drained.

Critical to this analysis is the fact that failures can occur even in solvent banks. Thus, one argument used to justify special regulatory treatment of banks is that the collective-action problem among bank depositors can cause the failure of a solvent bank. Deposit insurance is often justified on the grounds that it solves this problem by eliminating the incentive for any single depositor to rush to demand repayment of his deposits.

#### 3.2 The Deposit Insurance Fund

In the wake of the mass failure of depository institutions, Congress passed the Banking Act of 1933, establishing the Federal Deposit Insurance Corporation (FDIC) and giving the federal government the power to insure deposits in qualified banks. The creation of federal deposit insurance has been tremendously effective in preventing bank runs and keeping the failure of individual banks from affecting the larger economy. Deposit insurance "has succeeded in achieving what had been a major objective of banking reform for at least a century, namely the prevention of banking panics."<sup>26</sup>

Despite the positive effect of FDIC insurance on preventing bank runs, the implementation of deposit insurance poses a regulatory cost of its own—it gives the shareholders and managers of insured banks incentives to engage in excessive risk-taking. This moral hazard occurs for two reasons. First, bank shareholders are able to foist some of their losses onto innocent third parties. These third parties are the healthy banks whose contributions to the FDIC pay off depositors of failed banks, and ultimately the federal taxpayers whose funds replenish the federal insurance funds when they are depleted. Second, moral hazard is also present because "deposit insurance premiums have been unrelated to, or have not fully compensated the FDIC for increased risk posed by a particular bank."<sup>27</sup>

The problem of moral hazard is exacerbated in situations where a bank is at or near insolvency. In such a situation, the

shareholders have a strong incentive to increase risk because they can allocate their losses to third parties while still receiving any gains that might result from the risky behavior. Companies outside the banking industry that are close to insolvency also have an incentive to take added risks. However, their ability to do so is limited by normal market forces and contractual obligations. Nonfinancial firms that are in financial distress usually have significant liquidity problems. Nearly insolvent banks, however, can continue to attract liquidity in the form of (government-insured) deposits. Federal insurance eliminates the market forces that starve nonfinancial firms of cash. The federal government has attempted to replace these market forces with regulatory requirements such as capital requirements. Higher capital requirements force shareholders to put more of their money at risk, and this reduces moral hazard. In the context of our previous discussion of contracts, capital requirements allow one set of claimants—the regulators (or deposit insurers)—to impose restrictions on the shareholders.

### 3.3 The Conflict between Fixed Claimants and Shareholders

A conflict between the interests of debtholders and the interests of shareholders exists in every firm. Among any particular set of asset allocation decisions, any investment strategy that increases risk will transfer wealth from the fixed claimants to the residual claimants. This problem is raised to a new dimension in the banking context because of the high debt-to-equity ratio and the existence of deposit insurance.

In the publicly held corporation, the problem of excessive risk-taking is mitigated by two factors. First, various devices serve to protect fixed claimants against excessive risk-taking. Corporate lenders typically insist on protection against actions by corporate managers that threaten their fixed claims. Second, risk-taking is reduced to some extent because managers are not perfect agents of risk-preferring shareholders. Managers are fixed claimants to that portion of their compensation designated as salary. In addition, managerial incentives for risk-taking are reduced, since managers have invested their nondiversifiable human capital in their jobs. This capital would depreciate significantly in value if their firms were to fail.

The second risk-reducing factor—the fact that managers tend to be more risk-averse than shareholders—is present for commercial banks as well as other corporations. What makes banks fundamentally different from other types of firms, however, is the lack of significant discipline of other fixed claimants. FDIC insurance removes any incentive that insured depositors have to control excessive risk-taking because their

funds are protected regardless of the outcomes of the investment strategies that the banks select. In a world without deposit insurance, depositors would demand that banks refrain from engaging in risky investment strategies or else demand that they be compensated in the form of a higher interest rate for the extra risk. Thus, depositors of insured financial institutions cannot be expected to exert the same degree of restraint on excessive risk-taking as other fixed claimants, and this enhances the degree of influence exerted by shareholders, whose preference is to assume high levels of risk. The adverse incentive for risk-taking caused by federal insurance is one reason to have stricter accountability requirements for directors of banks.

### 3.4 Asset Structure and Loyalty Problems

The presence of a federal insurance fund also increases the risk of fraud and self-dealing in the banking industry by reducing incentives for monitoring. In the 1980s, it was estimated that fraud and self-dealing transactions were “apparent” in as many as one-third of today’s bank failures.<sup>28</sup> A similar statistic shows that between 1990 and 1991, insider lending contributed to 175 of 286 bank failures.<sup>29</sup> Such behavior, of course, is a possibility in any large firm, since it is inefficient for owners to monitor all employees at all times. These sorts of problems are particularly acute in financial institutions, however, because of the large portion of their assets held in highly liquid form.

The same regulatory structure that creates a problem of excessive risk-taking by banks also leads to a reduction in the normal levels of monitoring within the firm, resulting in a higher incidence of bank failures due to fraud. Not only does the protection afforded by the FDIC remove any incentive for insured depositors to control excessive risk-taking, it also removes their incentive to monitor in order to reduce the incidence of fraud and self-dealing.

Shareholders have an incentive to monitor to prevent fraud and self-dealing in banks, but such monitoring is notoriously ineffective in many cases because individual shareholders rarely have sufficient incentives to engage in monitoring because of collective-action problems. Outside the banking setting, fraud and self-dealing are monitored by fixed claimants and preferred shareholders through contractual devices and by lenders through regular oversight of their borrowers’ affairs.

One might argue that FDIC insurance simply replaces one set of creditors: depositors, with another set of creditors: state and federal regulators. These other creditors might appear more financially sophisticated than rank-and-file depositors and thus appear in a better position to conduct the monitoring necessary

to prevent bank fraud. The fact that both federal and state regulators require periodic reports from banks and conduct on-site inspections of bank premises supports this contention.

In addition to regulators' power to monitor banks through reports and examinations, upon the discovery of a fraudulent banking practice—or indeed a practice that regulators deem to be “unsafe or unsound”—the appropriate federal banking agency may order the activity terminated. Courts have determined that the term “unsafe banking practice” may be liberally construed to give the relevant bank regulator discretion to correct perceived problems in their infancy. Under the Federal Deposit Insurance Corporation Improvement Act, regulatory agencies were required to issue guidelines or regulations creating standards for safety and soundness in the following areas: 1) internal controls, information systems, and internal audit systems, 2) loan documentation, 3) credit underwriting, 4) interest rate exposure, 5) asset growth, 6) compensation, fees, and benefits, and 7) asset quality, earnings, and stock valuation.<sup>30</sup>

Regulators have five main enforcement tools: cease and desist powers, removal powers, civil money penalty powers, withdrawal or suspension of federal deposit insurance powers, and prompt corrective-action powers. Cease and desist powers generally address both unsafe and unsound banking as well as violations of the law or regulations governing depository institutions. These powers allow regulators to issue injunctions as well as to take corrective actions against banks. Bank regulators also may remove officers and directors from their posts, or ban them from ever working for a depository institution in the United States, if they can show that the individual acted unlawfully, received a personal benefit, or acted in a manner detrimental to the bank or its depositors.

Federal banking agencies also have the power to impose civil monetary penalties against a banking institution and its affiliates. Prompt corrective-action powers are also triggered by capital requirements, and these allow regulators to reach every significant operational aspect of a bank. Finally, the FDIC has the authority to revoke a bank's depositor insurance if necessary. Thus, the problem with the current system—which substitutes government regulators for private-sector creditors as the primary monitors of bank activity—is not that the regulators lack the administrative authority to do an effective job.

Nevertheless, replacing private-sector creditors with public-sector regulators as the first line of defense against bank fraud and self-dealing presents two problems.<sup>31</sup> Private-sector creditors have stronger incentives than public-sector regulators to monitor closely for fraud and self-dealing. Because the creditors' own money is on the line, they will monitor until the losses avoided from such monitoring equal the marginal cost of such activity. In addition, if a competitive market for bank

services exists, those bankers that can develop mechanisms for providing depositors and creditors with credible assurances that they will refrain from fraudulent activities will thrive at the expense of their competitors.

#### 4. BANK CORPORATE GOVERNANCE: WHAT STANDARD TO APPLY?

Our analysis thus far has reviewed the various paradigms of corporate governance and analyzed the special features of banks as corporations. We now turn to our central issue: the nature of bank corporate governance. Previously, we observed that all directors owe fiduciary duties to the corporation and its shareholders, and that these duties include the duty of care and the duty of loyalty. We have also argued that the particular nature of banking makes it susceptible to greater moral hazard problems than a typical firm is. In this section, we maintain that the special nature of banking dictates that the duty of care owed by bank directors is more extensive than that of other directors. The courts have vacillated in their interpretations of this duty, resulting in confusion over the appropriate standard to apply.

The duty of care has a long and controversial history in banking. The first case to articulate the modern “tort-based duty of care for bank directors” was *Briggs v Spaulding*.<sup>32</sup> In *Briggs*, the president of the First National Bank of Buffalo caused the bank to become insolvent by making illegal and unsound loans to himself, members of his family, and third parties with little or no financial credibility. The bank's directors “gave no attention whatever to the management of the bank's business,” but instead relied on the president to conduct and manage the affairs of the bank. The bank's receiver ultimately sued several of the bank's officers and directors, alleging that the bank had suffered losses as a result of “the misconduct of the officers and directors” and their failure “to perform faithfully and diligently the duties of their office.” In determining the standard of care required of banking directors, the court held that, “directors must exercise ordinary care and prudence in the administration of the affairs of a bank,” which requires “something more than officiating as figure-heads.” Thus, by requiring that directors of depository institutions exercise “ordinary care” in conducting the affairs of a bank, *Briggs* established “a federal common law standard of simple negligence for directors of federally chartered and federally insured depository institutions.”

In setting this standard of care, however, the *Briggs* Court recognized that there are costs to setting fiduciary standards

too high: “One must be very careful . . . not to press so hard on honest directors as to make them liable for these constructive defaults, the only effect of which would be to deter all men of any property, and perhaps all men who have any character to lose, from becoming directors of companies at all.”<sup>33</sup>

From *Briggs*, the history of banking directors’ duty-of-care cases follows a cyclical pattern. During or immediately following a period of high bank failure, courts have traditionally raised the standard of care required of bank directors and curtailed the effects of the Business Judgment Rule. The courts, during such a period, have turned away from the traditional formulation of the Business Judgment Rule, which looks only at the decision-making process, and instead have looked at the substance of the decision and its end result. For example, in the wake of the Great Depression, the failure of thousands of banks, and the advent of federal deposit insurance, bank directors were held to a higher standard than nonbank directors.

Interestingly, the courts’ justification for holding directors to a higher standard was grounded in the fact that bank shareholders needed protection from the increased risks of personal liability caused by statutory and contractual arrangements prevalent during the first half of the nineteenth century. These arrangements imposed greater liability on shareholders of banks than shareholders of other corporations, whose risk of loss did not extend beyond the amount of their original capital contribution.

New Hampshire and Pennsylvania imposed joint and several liability on bank shareholders early in the nineteenth century. The laws of other states imposed double liability on all corporate shareholders. These rules required shareholders to pay up to the amount of their original investment into the estate of the insolvent bank. During the 1840s and 1850s, some southern state legislatures made the granting of special banking charters subject to a requirement that the shareholders would be liable for their pro-rata share of the bank’s debts in case of insolvency. Some banks established double shareholder liability by means of charter provisions. A number of states, including New York, Kansas, Iowa, Indiana, and Minnesota, adopted double liability rules in their constitutions.

Congress drew on these state provisions when, in the National Banking Act of 1863, it established a system of national banks and provided that “each shareholder shall be liable to the amount of the par value of the shares held by him, in addition to the amount invested in such shares.”<sup>34</sup> Senator Sherman, who proposed the provision, explained that it tracked the laws of “most of the States of the Union”<sup>35</sup> and that the goal was to give bank creditors “something more than the stock to fall back upon.” Looking back on the statute the following year, Sherman explained that in addition to providing

security for creditors, the double liability provision “tends to prevent the stockholders and directors of a bank from engaging in hazardous operations.”<sup>36</sup> A revision of 1864 added that the shareholders would be liable “equally and ratably, and not one for the other.” This meant that no shareholder could be assessed for more than his or her pro-rata share, even if other shareholders were insolvent or beyond the jurisdiction of the court.

Following the implementation of the federal double liability system, states continued to adopt similar programs for their state-chartered banks; by 1931, almost all states had implemented double liability rules for bank shareholders. California’s law made no mention of any limit of liability to par value, and Colorado imposed triple liability.

The wave of bank failures that occurred between 1929 and 1933 placed heavy strains on the double liability system and ultimately precipitated its downfall. Shareholders were assessed in large numbers at a time when many were already in serious financial difficulty. Meanwhile, the dispersal of bank shares among the public, which had progressed rapidly during the economic boom of 1923-29, meant that many of the shareholders being assessed had no insider connection to the failed bank, either by way of family relationships or employment status. Many had purchased their shares in prosperous times without serious consideration of their potential liability in the event of bank failure. Enforcing schemes of nonlimited liability also reduced the liquidity of secondary markets in bank stock by requiring shareholders to engage in costly cross-monitoring.

These factors resulted in political pressure during the 1930s to repeal double liability or blunt its force. Following—or perhaps inciting—the public dismay, the consensus of scholarly opinion as reflected in the law journals turned sharply against double liability after 1929. As one author noted in 1936, the double liability “effectively bankrupts many innocent stockholders who have taken no part in the active management and control of the bank.”<sup>37</sup> By 1944, the tide had turned so far against double liability that the Supreme Court was roundly lambasted in much of the popular press for upholding an assessment of shareholders of a holding company for the liabilities of a failed subsidiary bank—a result that would almost certainly have received widespread acclaim twenty years earlier.<sup>38</sup>

Bolstering the objection to double liability was the widespread perception that double liability failed to fulfill its intended purpose.<sup>39</sup> Notwithstanding double liability, thousands of banks had failed and the nation had plunged into an unprecedented economic catastrophe. Double liability, despite its venerable heritage, seemed “inadequate as a means of protecting the depositing public.”

The third and decisive factor contributing to the downfall of double liability was the establishment of federal deposit

insurance in the Banking Act of 1933. At the time, most observers believed that government deposit insurance was a far more effective remedy for the problems of the banking system than the outmoded system of double liability—an evaluation borne out by the success of federal deposit insurance at stopping bank runs.

In 1933, Congress repealed double liability for newly issued national bank shares; and in 1935, it prospectively extinguished all double liability for national bank stock provided that a bank gave six months' notice of termination. Federal double liability was all but moribund after 1934. By 1953, all but 25 of the nearly 5,000 national banks had published the required notice and opted out of double liability. Congress eliminated the double liability of these few holdovers in 1953, thus bringing ninety years of double liability for national banks to a formal close.

State legislatures also dismantled their double liability systems after 1930. Iowa authorized state banks to issue nonassessable stock in 1933, and soon thereafter it repealed double liability altogether subject to a limited set of transition rules. Many other states did the same. By 1944, thirty-one states had abolished double liability. Today, double liability for bank shareholders is a dead letter everywhere.

Although this particular feature of increased bank corporate liability was dismantled, other vestiges of a higher standard for bank corporate liability remained. The 1940s case of *Litwin v Allen*<sup>40</sup> illustrates the propensity of post-Depression courts to require a higher standard of care for bank directors than nonbank directors. *Litwin v Allen* involved a shareholder's derivative action against the directors of Guaranty Trust Company ("Trust Company") and its wholly owned subsidiary, the Guaranty Company of New York ("Guaranty Company").

The issue in this case was whether there was a violation of the bank directors' duty of care in the bank's entry into a series of repurchase transactions with Alleghany Corporation. The court found that the duty of care is more strict for bank directors than for those of other companies because banks are charged with serving the public interest, not just the interests of the shareholders. Specifically, the court charged the directors with the care exercised by "reasonably prudent bankers." The court went on to determine that "this transaction . . . was so improvident, so risky, so unusual and unnecessary as to be contrary to fundamental conceptions of prudent banking practices." The court accordingly imposed personal liability on the bank's board of directors.

This tightening of judicial scrutiny of banking directors' duty of care has traditionally been followed by a corresponding judicial backlash resulting in a strict application of the Business Judgment Rule. For instance, following the *Litwin* case and World War II, during a time of economic prosperity,

questionable lending practices such as "delinquent loan renewals, nonexistent underwriting standards, and absent internal controls, received protection by the courts under the Business Judgment Rule."<sup>41</sup>

The tide turned back in favor of higher standards of care for bank directors following the massive failure of banks and savings and loan associations in the mid-1980s. During this time, more than 700 savings and loans and 300 banks failed, costing American taxpayers hundreds of billions of dollars.<sup>42</sup> The FDIC and the Resolution Trust Corporation (RTC) filed hundreds of lawsuits against directors and officers of these failed banks and savings and loans, and approximately 1,300 people were indicted and most were convicted of a crime connected to the failure of a financial institution. Many of these cases involved allegations that the directors breached their duty of care by engaging in unsound lending practices. The courts again faced the issue of whether banking directors should be held to the higher standard of care articulated in the older banking cases. The FDIC and RTC argued in favor of this position, while the defendants argued that their actions should be evaluated under the Business Judgment Rule.

Concurrent with the federal government's attempts to increase pressure on bank directors, however, many states passed legislation in an attempt to insulate such directors from personal liability. Some states adopted legislation that imposed liability only for willful or wanton conduct or intentional conduct. This had the effect of limiting the opportunity for the federal government to recover some of its loss due to the widespread failure of financial institutions. In an effort to "strengthen the civil sanctions and criminal penalties for defrauding or otherwise damaging depository institutions and their depositors" and to "strengthen the enforcement powers of the federal regulators of depository institutions," Congress created a universal standard of care for directors of federally insured and chartered depositories as part of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA).

This statute provides in part that:

A director or officer of an insured depository institution may be held personally liable for monetary damages in any civil action by, on behalf of, or at the request or direction of the Corporation, which action is prosecuted wholly or partially for the benefit of the Corporation . . . for gross negligence, including any similar conduct or conduct that demonstrates a greater disregard of a duty of care (than gross negligence) including intentional tortious conduct, as such terms are defined and determined under applicable State law. Nothing in this paragraph shall impair or affect any right of the Corporation under other applicable law.

Despite Congressional intent to clarify the standard of care, courts were unable to agree on whether the statute established a national standard or whether it left room for federal common law and state law standards of liability. State courts had long established a variety of standards of care for state-created institutions, while federal courts had created a federal standard of care for directors of federally chartered banks.

Finally, in 1997, the Supreme Court settled the debate surrounding a federal standard of care in banking by overruling the early federal cases establishing a higher standard of care for banking directors. In *Atherton v F.D.I.C.*, the Court found that there is no longer federal common law providing for a standard of care for directors of federally insured financial institutions. Next, the Court held that “the statute’s ‘gross negligence’ standard provides only a floor—a guarantee that officers and directors must meet at least a gross negligence standard. It does not stand in the way of a stricter standard that the laws of some States provide.” In other words, the Court found that state law defines the duty of directors of both state- and federally chartered institutions. Directors of federally chartered institutions must be subject to at least a gross negligence standard. However, states are free to set higher standards of care for directors of banks.

## 5. CONCLUSION

What, then, are we to conclude about bank corporate governance? We think that a clear case can be made for bank directors being held to a broader, if not a higher, standard of care than other directors. The structure of bank balance sheets—particularly banks’ highly leveraged condition and the mismatch in the term structure and liquidity of their assets and liabilities—supports the argument that bank directors should owe fiduciary duties to fixed claimants as well as to equity claimants. The importance of banks to the stability of the financial system also speaks to a broader public role of banks in the payments system and to interest claims on banks. The existence of the federally sponsored deposit insurance program administered by the FDIC provides further support for our position. Banking institutions face particularly acute moral hazard problems. Historically, double liability for banks’ shareholders mitigated these problems. Government deposit insurance has reduced the political demand for expanded duties of bank directors, but the policy justification for imposing such duties remains.

It seems to us that the rationale for imposing broader duties on bank directors is clear. The more difficult question is what those duties should look like. The issue of directors’ duties arises in two contexts. The first context, epitomized by *Litwin v Allen*, is that of a discrete decision brought to the board for approval. Here we argue that directors of federally insured depository institutions should have a legal obligation to consider the impact of their decisions on the safety and soundness of the bank. In particular, we believe that directors are obliged to inform themselves of whether a particular decision will: 1) impair the ability of the financial institution to pay its debts as such debts come due in the ordinary course of business, 2) materially increase the riskiness of the bank, as measured by the variance in returns on the bank’s investments, or 3) materially reduce the bank’s capital position, as measured both by a risk-based calculation and by the leverage test. As with other board decisions, directors should be entitled to rely on expert opinions and reports. But such reliance must be reasonable.

In certain contexts, even U.S. directors must take the interests of fixed claimants into account. For example, directors may not make distributions to shareholders if after payment of the distribution “the corporation would not be able to pay its debts as they become due in the usual course of business.”<sup>43</sup> If such a distribution is made, a director may be held personally liable for the amount of the distribution.<sup>44</sup> Insolvent federally insured financial institutions, unlike other types of firms, seldom will be liquidity-impaired in the way we describe because they generally will be able to obtain cash by attracting new depositors. Thus, banks will often be able to pay their debts until they are closed by regulators. Therefore, the effects of board actions on a bank’s leverage, risk, and balance-sheet solvency generally will be more important than the effects of board actions on liquidity. Similarly, in the bankruptcy context, directors must consider the interests of fixed claimants over those of shareholders. In banking, the need for protecting the interest of fixed claimants is far more profound.

The second context in which the issue of directors’ duties and obligations arises is that of the obligation of directors to provide continuous oversight of the companies on whose boards they serve. As noted above, under *Caremark*, directors are simply required to exercise a good-faith judgment in deciding what sort of oversight is appropriate for their firm. When a board of directors is charged with losses arising out of activities that the board was unaware of, “only a sustained or systematic failure of the board to exercise oversight—such as an utter failure to attempt to assure a reasonable information and reporting system exists—will establish the lack of good faith that is a necessary condition to liability.”<sup>45</sup>

As applied to the banking industry, we believe that this standard is too low. In particular, we believe that an inquiry

should be made into why the directors were unaware of the activity in question. Liability should attach where failure to maintain and construct an adequate reporting system was the reason for the ignorance. Moreover, we challenge the notion that only “sustained and systematic failure to provide oversight” should give rise to liability in the banking industry. Instead, it is our view that in order to avoid liability, directors of banks have a continuing obligation to develop and maintain a detailed and elaborate system for monitoring and oversight. Furthermore, bank directors should not be able to eliminate their personal liabilities in duty-of-care cases. Accordingly, state statutes giving firms the power to enact provisions in their corporate charters that opt out of personal liability should not extend to banking directors.

The expanded set of fiduciary duties that we advocate in this paper would push the corporate governance of U.S. banks in the direction of the Franco-German corporate governance model, which has long reflected the view that the responsibilities of corporate directors extend beyond the confines of the shareholder population. There is some evidence that this alternative approach has allowed banks to avoid the pitfalls associated with applying the pure Anglo-American model to the special case of bank corporate governance (see, for example, Edwards and Fischer [1994] or Franks and Mayer [forthcoming]). More important, however, we believe that the Franco-German model is likely to be more successful in the United States than it has been on the European continent. We make this contention because, unlike Europe, the United States has a well-developed private enforcement system in which

beneficiaries of fiduciary duties can litigate in order to vindicate their rights.

Implicit in our proposal is the assumption that, like shareholders, bank creditors (including the FDIC) should be able to sue bank directors for violations of the fiduciary duty of care and loyalty if they suffer losses due that are attributable to the violation of one of these fiduciary duties. In other words, although we advocate following the Franco-German model in broadening the scope of duties owed by corporate directors, we also advocate retaining the U.S. system under which directors incur genuine litigation risk if they violate their fiduciary duties. Increasing the standard of care for bank directors poses the risk of diminishing the quality of corporate governance as the pool of available directors shrinks to include only those persons who are judgment-proof. We believe that this is a realistic danger only when the legal standards for directors are unclear or when courts are unpredictable or corrupt. However, in our judgment, the standards we have articulated are sufficiently clear, and U.S. courts have sufficient competence and expertise to make our proposal work.

Finally, we note that the enhanced standards we advocate are concordant with the new financial regulatory environment envisioned by the Gramm-Leach-Bliley Act. As financial institutions become more complex and less centralized organizations, the risks they pose to the financial system also increase. Although regulators clearly have an important monitoring and oversight role, the concomitant role and responsibility of the board of directors cannot be ignored.

## ENDNOTES

1. The rules of corporate governance specify the rights and obligations of the various claimants on the cash flows of business enterprises. Corporate governance issues arise because of the existence of agency problems that cannot be resolved through contractual solutions due to high transaction costs (see Hart [1995b]). These agency costs manifest themselves in the form of conflicts of interest between investors and other claimants on the firms' cash flows, on the one hand, and the managers and directors who have discretion over how those cash flows are used, on the other.
2. An excellent survey is Hermalin and Weisbach (2003).
3. See, for example, Franks and Mayer (forthcoming).
4. See Ziegler (2000).
5. See Easterbrook and Fischel (1989, pp. 1416, 1418). The nexus-of-contract theory has its intellectual origins in the work of Coase (1937); also see Kornhauser (1989, p. 1449), who argues that the term nexus of contracts has become a revolutionary banner that has "transformed not only our understanding of the law, but the law itself."
6. For example, investors in riskier firms should expect higher rates of return on their investments to compensate them for this additional risk. Workers with highly specialized skills or whom labor unions represent may be able to command higher levels of compensation than other workers. Similarly, suppliers or customers with better bargaining power, better negotiating skills, or better lawyers may be able to obtain better rates of return than similarly situated claimants in other firms.
7. See Macey and Miller (1993, pp. 401, 407).
8. See Varallo and Herring (1999), citing *Mills Acquisition Co. v Macmillan, Inc.*, 559 A.2d 1261, 1280 (Del. 1989).
9. See Chancellor Allen, *In re Caremark International Inc. Derivative Litigation*, 1996 WL 549894 (Del. Ch. 1996), p. 967.
10. Van Gorkom, 488 A.2d, p. 875.
11. See McCoy (1996).
12. *Aronson v Lewis*, 473 A.2d 805, 812 (Del. 1984); see also *Shlensky v Wrigley*, 237 N.E.2d 776 (Ill. App. Ct. 1968). The court found that a corporation is not obligated to follow the direction of similar corporations because directors are elected for their own business capabilities and not for their ability to follow others.
13. See "The ALI Corporate Governance Project: Of the Duty of Due Care and the Business Judgment Rule," *Business Law* 41 (1986, pp. 1237-42, 1247); also see Chancellor Allen, *In re Caremark International Inc. Derivative Litigation*, 1996 WL 549894 (Del. Ch. 1996), stating that "whether a judge or jury considering the matter after the fact, believes a decision substantively wrong, or degrees of wrong extending through 'stupid' to 'egregious' or 'irrational,' provides no ground for director liability, so long as the court determines that the process employed was either rational or employed in a good faith effort to advance corporate interests."
14. *Sinclair Oil Corp. v Levien*, 280 A.2d 717, 720 (Del. 1971).
15. *Allaun v Consolidated Oil Co.* (Del. Ch. 147) A. 257, 261 (1929).
16. *Gimbel v Signal Companies, Inc.* (Del. Ch. 316) A.2d 599, 615, affirmed, *Gimbel v Signal Companies, Inc.*, Del. Supr., 316 A.2d 619 (1974).
17. For example, in *Francis v United Jersey Bank*, the court held that a director has an affirmative obligation to "keep informed about the activities of the corporation" and "maintain familiarity with the financial status of the corporation." 87 N.J. 15, 432 A.2d 814 (1981); see also *In re Caremark International Inc. Derivative Litigation*, 1996 WL 549894 (Del. Ch. 1996).
18. *Guth v Loft, Inc.*, 5 A.2d 503, 510 (Del. 1939).
19. See ABA Committee on Corporate Laws, "Other Constituencies Statutes: Potential for Confusion," *Business Law* 45 (1990, pp. 2253, 2269).
20. The theory of a "market for managers" goes back at least to Alchian (1969, pp. 337, 342-51). The theory was formalized and extended in Fama (1980). We do not suggest, of course, that the "market for managers" is perfect in some idealized way, nor that it alone operates to monitor management. We note only that "an important premise of corporate finance theory is that markets discipline managers to maximize all stockholders' wealth. Competitive forces in two markets, the market for corporate control and the market for managerial labor services, are widely viewed as providing complementary enforcement of the stockholder wealth maximization rule." See Dann and DeAngelo (1983).

## ENDNOTES (CONTINUED)

21. For example, the adoption of “golden parachute” agreements by shareholders as a means of aligning the interests of managers more closely with their own interests illustrates the ability of shareholders to react effectively to the agency cost problems described above. See William J. Karney, “Pols Poking Holes in Golden Parachutes,” *Wall Street Journal*, April 16, 1984, p. 32.
22. See Jackson and Symons (1999, p. 307).
23. 439 U.S. 234 (1978).
24. *Mcorp Financial Inc. v Board of Governors*, 900 F.2d 852 (5th Cir. 1990), reversed in part on other grounds, 502 U.S. 32 (1991).
25. See Diamond and Dybig (1986).
26. See Friedman and Schwartz (1963, p. 440).
27. See Hanc (1999, p. 3).
28. Remarks by R. L. Clarke, The Exchequer Club, Washington, D.C., in Comptroller of the Currency *News Release* no. NR 88-5 (January 20, 1988, p. 6).
29. See Jackson and Symons (1999, p. 152), citing a study by the U.S. General Accounting Office. In 1990, the chairman of the FDIC claimed that approximately 60 percent of all failed savings and loan associations during the 1980s were the victims of “serious criminal activity.”
30. 12 U.S.C. § 1831p-1.
31. See Macey and Garrett (1988, pp. 215, 225).
32. 141 U.S. 132 (1891).
33. 141 U.S. 132, 149 (1891), quoting *In re Forest of Dean Coal Mining Co.*, 10 L.R.-Ch. 450, 451 (Rolls Court).
34. National Banking Act of 1863, Ch. 58, 12 Stat. 665.
35. *Congressional Globe*, 37th Cong., 3d sess. 824 (1863).
36. *Congressional Globe*, 38th Cong., 1st sess. Part II 1069 (1864).
37. Statutory Liability, *supra* note 37, p. 620.
38. See “Note, Banks and Banking—Liability of Bank Stock Holding Company Shareholders,” *Columbia Law Review* 44, no. 30 (1944, pp. 561, 565).
39. For congressional disenchantment, see House Committee on Banking and Currency, *Hearings on H.R. 141*, 71st Cong., 2d sess. 17 (1930), observing that double liability had afforded “inadequate” protection to depositors.
40. 5 N.Y.S.2d 667 (Sup. Ct. 1940).
41. See McCoy (1996, p. 43).
42. See Weinstein (1993).
43. Model Business Corporation Act § 6.40.
44. Model Business Corporation Act § 8.33.
45. *In re Caremark International Inc. Derivative Litigation*, 1996 WL 549894 (Del. Ch. 1996), pp. 967-71.

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# INCENTIVE FEATURES IN CEO COMPENSATION IN THE BANKING INDUSTRY

## 1. INTRODUCTION

The topic of corporate governance in general, and top-management compensation in particular, has received enormous attention in recent years.<sup>1</sup> Although an increasing literature has examined various aspects of the corporate governance of manufacturing firms in the United States and abroad, the corporate governance of banks and financial institutions has received relatively less focus.

Alignment of the incentives of top management with the interests of shareholders has been characterized as an important mechanism of corporate governance.<sup>2</sup> Managerial ownership of equity and options in the firm, as well as other incentive features in managers' compensation structures (such as performance-related bonuses and performance-contingent promotions and dismissals), serves to align managerial incentives with shareholder interests. In fact, there is a large theoretical and empirical literature on the role of incentive contracts in ameliorating agency problems.<sup>3</sup> The empirical literature has emphasized the role of the relationship between pay and performance, measured as the pay-performance sensitivity of managerial compensation structures. Jensen and Murphy (1990) document that the pay-performance sensitivity of large manufacturing firms is only \$3.25 per \$1,000 increase in shareholder value. Recent studies show that this sensitivity has increased over time, and most of it comes from option and stock holdings (see Murphy [1999]).<sup>4</sup>

It is important to understand corporate governance and the degree of managerial alignment in banks for several reasons. First, banks differ from manufacturing firms in several key respects. For one, banks are regulated to a higher degree than manufacturing firms. Do the regulatory mechanisms play a corporate governance role?<sup>5</sup> For example, supervision that ensures that banks comply with regulatory requirements may play a general monitoring role. Does this monitoring substitute for or complement other mechanisms of corporate governance? In particular, does regulatory monitoring substitute for the need for incentive features in managerial compensation?<sup>6</sup> By understanding the interaction of regulation and corporate governance, we can gain insight into the optimal design of regulation and corporate governance of banks.

An understanding of the incentive structure that motivates the key decision makers in banks can also be important in designing effective regulation. For example, if top management is very closely aligned with equity interests in banks, which are highly leveraged institutions, it will have strong incentives to undertake high-risk investments (risky loans, risky real estate investments), even when they are not positive net-present-value investments.<sup>7</sup> Regulatory oversight has to take such incentive distortions into account when regulatory procedures are established. John, Saunders, and Senbet (2000) argue that regulation that takes into account the incentives of top management will be more effective than capital regulation in ameliorating risk-shifting incentives. They argue that pay-

Kose John is the Charles William Gerstenberg Professor of Banking and Finance at New York University's Stern School of Business; Yiming Qian is an assistant professor of finance at the University of Iowa's Henry B. Tippie College of Business.  
<kjohn@stern.nyu.edu>  
<yiming-qian@uiowa.edu>

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performance sensitivity of top-management compensation in banks may be a useful input in pricing Federal Deposit Insurance Corporation (FDIC) insurance premiums and designing bank regulation.

Another important aspect that differentiates banks from manufacturing firms is the significantly higher leverage of banks. How does leverage interact with corporate governance and managerial alignment? In addition to conventional agency problems, these highly leveraged financial institutions are susceptible to the well-known risk-shifting agency problems. In these institutions, where depositors are the primary claimholders, the objective of corporate governance is not to align top management closely with the equity holders. Top management should also be given incentives to act on behalf of debtholders to an adequate degree. In such cases, providing managers with compensation structures that have low pay-performance sensitivity may be optimal. John and John (1993) predict that managerial compensation in the banking industry should have low pay-performance sensitivity.

In this paper, we study the strength of incentive features in banks' top-management compensation contracts. We examine the properties of bank-management compensation structures, including pay-performance sensitivity, using data from 1992 to 2000. Based on existing theory, we hypothesize that the pay-performance sensitivity of firms is decreasing in debt ratios and firm size; it should also be lower for regulated firms. We test these relationships for banks, manufacturing firms, and regulated utilities. Banks are regulated, highly leveraged, and, in our sample, larger than manufacturing firms. The hypothesized relationship implies that banks should have lower pay-performance sensitivity than manufacturing firms. The empirical evidence is consistent with these hypotheses.

The study by Barro and Barro (1990) is one of the early empirical papers on bank-management compensation. The authors find, among other things, that changes in CEO compensation depend on performance, as measured by stock returns and changes in earning yields. Houston and James (1995) document that, on average, bank CEOs receive less cash compensation, are less likely to participate in stock option plans, hold fewer stock options, and receive a smaller percentage of their total compensation in the form of options and stocks than do CEOs in other industries. Ang, Lauterbach, and Schreiber (2000) study the compensation structures of top-management teams in 166 U.S. banks from 1993 to 1996. They document that the compensation structures of CEOs are different from those of other top managers: CEOs are paid

more and the incentive features in their compensation structures are significantly higher.

Our paper is organized as follows. In Section 2, we explore some insights from existing theories on managerial compensation structures in general to understand CEO compensation in banks. Section 3 describes the data and summary statistics. Section 4 presents empirical results on pay-performance sensitivity in banks. In Section 5, tests of the hypotheses described in Section 2 are presented, and banks' pay-performance sensitivity is compared with that of manufacturing firms.

## 2. TESTABLE HYPOTHESES

Our strategy here is to relate pay-performance sensitivity of firms in general to their characteristics, and make these relationships the basis for understanding pay-performance sensitivity in banks. In particular, we formulate hypotheses comparing pay-performance sensitivity in banks with sensitivity in manufacturing firms.

The theoretical literature hypothesizes that the pay-performance sensitivity of CEO compensation should be a function of the capital structure of the firm, firm size, and firm risk. John and John (1993) argue that a firm's debt ratio should be a determinant of the degree of incentive features to be included in its top-management compensation contracts. When risky debt is outstanding, a CEO who is closely aligned with the firm's shareholders will have incentives to risk-shift on behalf of equity holders. In other words, higher pay-performance sensitivity in management compensation aggravates the well-known risk-shifting incentives associated with risky debt. Managerial compensation with low pay-performance sensitivity can serve as a commitment device to minimize the agency costs of debt. The optimal managerial compensation structure in highly leveraged firms is shown to have low pay-performance sensitivity to restrain risk-shifting incentives on the part of the managers. This theory predicts that the pay-performance sensitivity in an optimally designed compensation structure will be declining in the debt ratio of the firm. Moreover, as banks have significantly higher debt ratios than the average manufacturing firm, pay-performance sensitivity in banks should be lower than it is in manufacturing firms. John, Saunders, and Senbet (2000) extend this argument to propose that bank regulation and pricing of FDIC insurance premiums should incorporate the observable incentive features of top-management compensation.

These arguments give rise to the following testable hypotheses:

*Hypothesis 1: The pay-performance sensitivity of a firm should be a decreasing function of its debt ratio.*

*Hypothesis 2: Given their high debt ratios, banks should have a lower pay-performance sensitivity than manufacturing firms.*

Researchers have also argued that pay-performance sensitivity should be inversely related to firm size and firm risk. For example, Jensen and Murphy (1990) argue that political influence might lead to smaller pay-performance sensitivity in large firms. Schaefer (1998) presents a model and offers empirical evidence that pay-performance sensitivity declines with firm size. The commercial banks in our sample are, on average, larger than the manufacturing firms, implying lower pay-performance sensitivity for banks. Holmstrom and Milgrom (1987) show that the optimal performance-related compensation component (pay-performance sensitivity) for risk-averse managers should be inversely related to firm risk. In this argument, however, an implicit assumption is that the effectiveness of a manager's effort is independent of firm risk. If managerial effort is more effective in riskier firms, then the above result may be overturned and a negative relationship between pay-performance sensitivity and firm risk may not obtain.

In addition, the pay-performance sensitivity of the compensation structure in banks could be lower than it is in manufacturing firms because banks are regulated institutions, and regulation could be a substitute for monitoring and incentivizing managers (for example, see Hirschey and Pappas [1981] and Carroll and Ciscel [1982]). Chidambaran and John (2000) argue that pay-performance sensitivity in opaque firms should be larger than it is in transparent ones. In transparent firms, monitoring is cost effective, while in opaque firms, monitoring is prohibitively costly and it is more effective to rely on the alignment of managerial incentives through high pay-performance sensitivity. One can argue that many aspects of the business of banks are more transparent than those of many manufacturing firms, say, high-tech firms. Large banks are typically followed by a large number of analysts, which may also give rise to a relatively higher degree of transparency, implying lower pay-performance sensitivity in banks.<sup>8</sup>

These arguments give rise to the following additional hypotheses:

*Hypothesis 3: Pay-performance sensitivity should be declining in firm size.*

*Hypothesis 4: Pay-performance sensitivity should be declining in firm risk.*

*Hypothesis 5: Pay-performance sensitivity in regulated firms should be lower.*

In the next three sections, we test these hypotheses.

### 3. DATA AND SUMMARY STATISTICS

We obtain compensation data for bank CEOs from Standard and Poor's ExecuComp database. We start with a sample of 623 CEO-years from 1992 to 2000 for 120 commercial banks (firms with Standard Industrial Classification, or SIC, codes 6021 to 6029).<sup>9</sup> Five observations are then removed from the sample because the data indicate that the CEO became chief executive officer after the end of the fiscal year. Stock returns and market values of common equity are obtained from the Center for Research in Security Prices. These two data sources are matched on a fiscal-year basis. If a stock is traded on fewer than 200 days during a year, that firm-year is excluded from the sample. The final sample thus contains 607 CEO-years. To remove the effect of inflation and to make our figures comparable, we convert all dollar-valued data into constant-year 2000 dollars. The consumer price index used for this purpose is obtained from the Bureau of Labor Statistics.

We study two measures of CEO compensation (see exhibit). The first measure, referred to as direct compensation and denoted as W1, is the sum of salary, bonus, other cash compensation, option grants, and grants of restricted stock. The second is a broad measure of the CEO's changes in wealth from all sources related to his firm. This measure is referred to

#### Two Compensation Measures

##### W1: Direct Compensation

1. Salary
2. Bonus
3. Other cash compensation
4. Option grants
5. Restricted stock grants

##### W2: Firm-Related Wealth Change

1. Salary
2. Bonus
3. Other cash compensation
4. Value change of option holdings
5. Value change of restricted stocks
6. Profits from exercising options
7. Value change of direct equity holdings

as firm-related wealth change and denoted as W2. It is the sum of salary, bonus, other cash compensation, change in value of option holdings, change in value of restricted stocks, profits from exercising options, and change in value of direct equity holdings.

Two issues merit further discussion. First, we use the value change of in-the-money options to approximate the value change of total option holdings. We do so because the value of the existing options is reported only for those options that are currently in the money.<sup>10</sup>

Second, we include the value change of direct equity holdings in the second measure of compensation. There are debates in the literature over whether to include this component as part of compensation. Some researchers argue that it should not be included because equity holdings can be viewed as an investment decision. However, there are restrictions on insider stock sales. In addition, insider sales are costly because of the negative market reaction. Moreover, regardless of its name, the value change of direct equity holdings will certainly affect the CEO's wealth and hence his incentives. Therefore, we include it in our most comprehensive measure of compensation: the CEO's firm-related wealth change.

Table 1 reports the summary statistics for bank CEO compensation data. The median values of salary, bonus, new grants of options, and value change of option holdings are of the same order of magnitude, at around \$500,000 to \$600,000. However, the mean values of option grants and value change in option holdings are much larger—\$1.2 million and \$3.2 million, respectively. It is evident that the value change of direct equity holdings also constitutes an important factor in a CEO's wealth change, with a mean value of \$20 million and a median value of \$6 million.

To determine if the compensation pattern changes over the years, we present the distribution of direct compensation between 1992 and 2000 (see chart). The chart's left axis indicates compensation in thousands of dollars; the line corresponds to the right axis and shows the average annual stock return for each year. Three findings are worth noting. First, total direct compensation is increasing over the years: in 1992, average direct compensation was \$3 million; that amount more than doubled by 1999. Second, option grants have been increasing significantly over the 1990s while the level of salary has changed very little. In fact, the percentage of option grants in direct compensation has increased from 20 percent in 1992 to 54 percent in 2000. Third, both the increase in total direct compensation and the increase in option grants have little covariance with stock performance. If anything, it appears that bank CEOs receive an increase in option grants (relative to the previous year) when stock returns are low. In 1999, the chief

TABLE 1

### Compensation Data: Summary Statistics

Compensation	Mean	Median
Salary	664	650
Bonus	972	505
Other cash compensation	283	4
Option grants	1,721	614
Grants of restricted stocks	577	0
Direct compensation	4,221	2,274
Value change of option holdings	3,198	626
Profits from exercising options	1,184	94
Value change of restricted stocks	500	0
Equity holdings (percent)	1.38	0.25
Value change of equity holdings	15,515	2,812
Firm-related wealth change	20,168	5,996

Notes: The table presents summary statistics for different compensation components for 607 bank CEO-years over the 1992-2000 sample period. The sample banks are large, with a median market value of \$3.4 billion, and the largest one has a market value of more than \$109 billion. The banks performed well during the sample period, with a median annual stock return of 21 percent. Except where noted, figures are in thousands of dollars, adjusted to constant-year 2000 dollars.

executives received the highest dollar value of option grants, even though the average stock return was the lowest over the sample period.

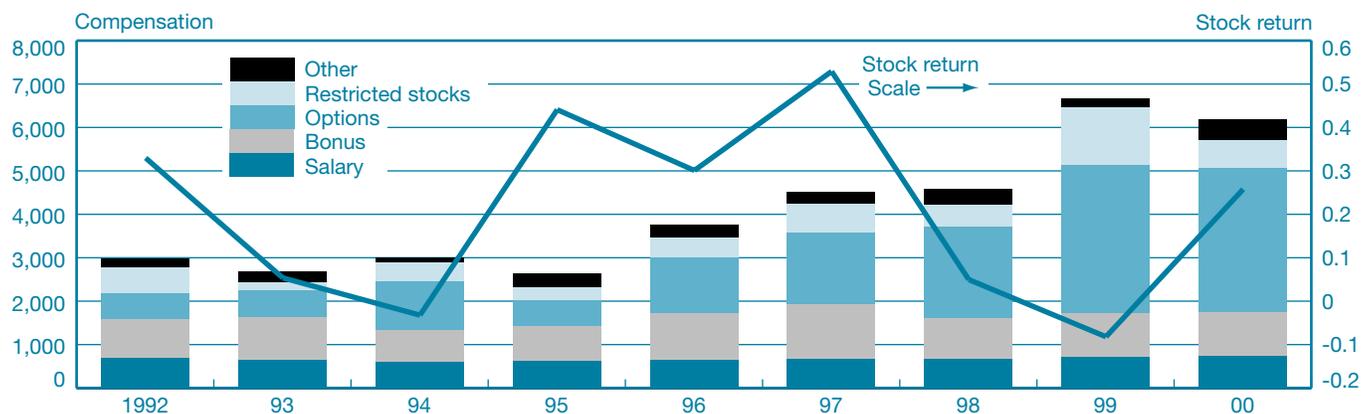
## 4. PAY-PERFORMANCE SENSITIVITY OF BANKS

In this section, we examine the pay-performance sensitivity of CEO compensation structures in banks. As is standard practice, we define pay-performance sensitivity as the dollar increase in CEO compensation for each \$1,000 increase in shareholder value. To estimate this measure, we run the following regression:

$$(1) (CEO\ compensation)_{it} = a + b * \Delta(\text{shareholder value})_{it} + u_{it} + \varepsilon_{it}$$

where  $(CEO\ compensation)_{it}$  denotes CEO compensation for bank  $i$  in year  $t$ ;  $\Delta(\text{shareholder value})_{it}$  denotes the shareholder value change for bank  $i$  in year  $t$  and is measured as the market value of the bank at the end of year  $(t-1)$  multiplied by the stock return in year  $t$ ;  $u_{it}$  is the CEO fixed effect; and  $\varepsilon_{it}$  is the error term. As discussed in Section 3, we use two measures of CEO compensation: direct compensation (W1) and firm-related wealth change (W2).

## Distribution of Direct Compensation by Year



Notes: The left axis corresponds to compensation data and is reported in thousands of constant-year 2000 dollars. The histograms depict the mean value of each component of direct compensation by year. The line represents the yearly average stock return (measured along the right axis).

The pay-performance sensitivities corresponding to the two measures of compensation are presented in Table 2, panel A. The sensitivity for direct compensation (W1) is -0.24, which is statistically significant at the 1 percent level. This means that

TABLE 2  
Pay-Performance Sensitivity of Banks

Independent Variable	Direct Compensation (1)	Firm-Related Wealth Change (2)
Panel A: Entire sample period		
Change in shareholder value	-0.24 (-3.41)	4.70 (5.36)
R <sup>2</sup>	0.56	0.68
Number of observations	605	439
Panel B: Excluding 1999		
Change in shareholder value	0.40 (6.85)	7.53 (5.55)
R <sup>2</sup>	0.77	0.71
Number of observations	532	375

Notes: The table presents the regression results of equation 1. The sample includes 607 bank CEO-years from 1992 to 2000. Column 1 displays the results with direct compensation as the dependent variable; in column 2, firm-related wealth change is the dependent variable. *t*-statistics are in parentheses.

for every \$1,000 decrease in shareholder value, the bank CEO receives 24 cents more in direct compensation. The sensitivity for the broader measure of compensation, that is, firm-related wealth change (W2), is 4.70, which is also statistically significant at the 1 percent level. This means that for every \$1,000 increase in shareholder value, the bank CEO receives \$4.69 more in all of his firm-related wealth.

As expected, the pay-performance sensitivity of the second measure of compensation is higher. One source of this difference in sensitivity is the inclusion of CEO stock holdings in the second measure. The median stock holdings by bank CEOs are 0.25 percent. A stock ownership of 0.25 percent by a CEO would increase the pay-performance sensitivity by \$2.5 per \$1,000 increase in shareholder value. A second source of the higher value of pay-performance sensitivity for W2 is the inclusion of changes in the value of existing option holdings. As noted by Hall and Liebman (1998), changes in option value are an important factor contributing to high pay-performance sensitivity.

The negative value of the pay-performance sensitivity for W1 deserves some explanation. The negative coefficient of -0.24 implies that CEOs receive an increase of 24 cents in direct compensation for every \$1,000 decrease in shareholder value. By examining the chart, one may see a potential explanation for this estimate. In 1999, the average firm performance of the banking industry was the lowest over the sample period; however, the direct compensation to CEOs was the highest. In particular, option grants and grants of restricted stocks to

CEOs were at their highest levels. These observations suggest a preponderance of executive stock option resettings in 1999. Resetting or repricing executive stock options refers to the common practice of lowering the exercise price of the options when the stock price has undergone a large decline.<sup>11</sup> This practice increases the value of the stock option to the CEO, offsetting its value decline caused by the stock price decline. It therefore leads to a sharp decrease in pay-performance sensitivity. Widespread resetting of stock options during a period of declining stock price has the potential to give rise to a negative coefficient of pay-performance sensitivity.

To see whether 1999 was an outlier year in this regard, we reestimate the coefficient of pay-performance sensitivity excluding that year (Table 2, panel B). As we expect, the sensitivity of the direct compensation measure increases: the coefficient rises from -0.24 to 0.40. Similarly, the pay-performance sensitivity of the firm-related wealth change increases from 4.70 to 7.53. These results are consistent with our argument that 1999 was an outlier year with a high frequency of stock option resetting.

## 5. BANKS VERSUS MANUFACTURING FIRMS

In this section, we compare the pay-performance sensitivity of CEO compensation structures in banks with that of manufacturing firms. We also examine the possible sources of differences in pay-performance sensitivity between the two groups.

Based on the selection procedures described in Section 2, we obtain a sample of 5,659 CEO-years from 1992 to 2000 for 997 manufacturing firms (defined as firms with SIC codes 2000 to 3999).

Table 3 presents the pay-performance sensitivity of manufacturing firms for both measures of compensation. Panel A displays the regression results for the entire sample period; panel B excludes 1999. All pay-performance sensitivity coefficients are positive and highly significant. By comparing the two panels, we observe that both measures of sensitivity are higher when we exclude 1999. (A possible reason for the low sensitivity in 1999 has already been discussed in the context of banks.)

For firm-related wealth change, pay-performance sensitivity in manufacturing firms is higher than it is in banks, with or without the inclusion of 1999. However, for direct compensation, sensitivity in manufacturing firms is higher

than it is in banks when 1999 is included, but lower when 1999 is excluded.

To see whether or not these differences in pay-performance sensitivity are statistically significant, we run a pooled regression with a bank dummy:

$$(2) (CEO\ compensation)_{it} = a + b_1 * \Delta(\text{shareholder value})_{it} + b_2 * D_{bank} * \Delta(\text{shareholder value})_{it} + u_{it} + \varepsilon_{it},$$

where  $D_{bank}$  is the dummy for banks, which equals 1 if the firm is a bank and 0 otherwise, and other variables are defined as before. The coefficient  $b_1$  is the pay-performance sensitivity of manufacturing firms and  $(b_1+b_2)$  is the sensitivity of banks. If the pay-performance sensitivity of banks is lower than that of manufacturing firms, that is, if hypothesis 2 holds, then  $b_2$  should be negative and significant.

The results for the pooled regressions under both measures of compensation appear in Table 4. Panel A provides the regression results for the entire sample period. The coefficient  $b_2$  is negative and statistically significant at the 1 percent level for both measures of compensation. For direct compensation, pay-performance sensitivity in banks is 0.4 lower than it is in manufacturing firms. For firm-related wealth change, the sensitivity in banks is lower by \$12.81 per \$1,000 in shareholder value change. Panel B presents the regression results excluding

TABLE 3  
Pay-Performance Sensitivity of Manufacturing Firms

Independent Variable	Direct Compensation (1)	Firm-Related Wealth Change (2)
Panel A: Entire sample period		
Change in shareholder value	0.16 (6.88)	17.50 (22.26)
R <sup>2</sup>	0.42	0.29
Number of observations	5,584	4,023
Panel B: Excluding 1999		
Change in shareholder value	0.28 (9.59)	28.30 (26.15)
R <sup>2</sup>	0.53	0.39
Number of observations	4,831	3,436

Notes: The table presents the regression results of equation 1. The sample includes 5,659 CEO-years of manufacturing firms from 1992 to 2000. Column 1 displays the results with direct compensation as the dependent variable; in column 2, firm-related wealth change is the dependent variable. *t*-statistics are in parentheses.

TABLE 4  
Pay-Performance Sensitivity of Banks  
and Manufacturing Firms

Independent Variable	Direct Compensation (1)	Firm-Related Wealth Change (2)
Panel A: Entire sample period		
Change in shareholder value	0.16 (7.16)	17.50 (23.40)
$D_{bank}$ * change in shareholder value	-0.41 (-2.79)	-12.81 (-2.74)
R <sup>2</sup>	0.42	0.29
Number of observations	6,189	4,462
Panel B: Excluding 1999		
Change in shareholder value	0.28 (10.07)	28.30 (27.47)
Bank dummy* change in shareholder value	0.13 (0.63)	-20.77 (-3.12)
R <sup>2</sup>	0.53	0.39
Number of observations	5,363	3,811

Notes: The table presents the regression results of equation 2. The sample includes 6,266 CEO-years for banks and manufacturing firms from 1992 to 2000. Column 1 displays the results with direct compensation as the dependent variable; in column 2, firm-related wealth change is the dependent variable.  $D_{bank}$  equals 1 if the firm is a bank and 0 otherwise. *t*-statistics are in parentheses.

1999. As before, the pay-performance sensitivity for W2 is significantly lower in banks: the difference is \$20.77 per \$1,000 of shareholder value change. The sensitivity for W1 in banks is not significantly different from the sensitivity in manufacturing firms. Overall, we find that the sensitivity is lower than it is in manufacturing firms, consistent with hypothesis 2.

Table 5 compares selected firm characteristics and compensation structures of banks and manufacturing firms. As we see, on average, the banks in our sample are larger: the average bank has a market capitalization of \$8 billion while the average manufacturing firm's market capitalization is \$5.8 billion. In addition, banks have significantly higher leverage than manufacturing firms: a debt ratio of 83.17 percent versus 32.63 percent. These univariate comparisons of size and leverage are consistent with banks' lower pay-performance sensitivity.

To test the determinants of the pay-performance sensitivity of banks relative to manufacturing firms more formally, we estimate the following regression:

$$(3) (CEO\ compensation)_{it} = (b_1 + b_2 * size + b_3 * risk + b_4 * debt\ ratio + b_5 * D_{bank}) * \Delta(\text{shareholder value})_{it} + b_6 * size + b_7 * risk + b_8 * debt\ ratio + u_{it} + \varepsilon_{it},$$

where size is measured by the firm's market value of equity, and risk is measured by the variance of the equity value changes, that is, the square of market value of equity multiplied by stock return volatility over the year. In the above specification, a negative  $b_2$  implies that pay-performance sensitivity decreases with firm size; a negative  $b_3$  implies that the sensitivity decreases with firm risk, and so on.

Results of the multiple regressions for both measures of compensation are presented in Table 6. For both measures, pay-performance sensitivity decreases in the debt ratio with a significantly negative coefficient  $b_4$ . This result also holds when we exclude 1999. It is consistent with hypothesis 1, which predicts a negative relationship between pay-performance sensitivity and leverage. This is a central result that seems to be at the core of explaining the difference in pay-performance sensitivity between banks and manufacturing firms. As demonstrated in Table 5, one of the most significant differences between banks and manufacturing firms is leverage: significantly higher leverage seems to be the driving factor that determines lower pay-performance sensitivity.

A second important determinant of pay-performance sensitivity is firm size. For both measures of compensation, the coefficient  $b_2$  is negative, although it is significant only for W2. This result is consistent with hypothesis 3. The inverse relationship between firm size and pay-performance sensitivity also has the potential to explain banks' lower pay-performance sensitivity. As is evident from Table 5, banks in our sample are significantly larger than manufacturing firms. Correspondingly, the pay-performance sensitivity is significantly lower.

To check whether regulation also plays a role in lowering the pay-performance sensitivity of banks, we ran a regression with a sample consisting of banks, manufacturing firms, and utilities, which are also regulated. In the regression, we added a dummy for regulated firms (banks and utilities) and estimated the coefficient on the cross term of the regulation dummy and the change in shareholder value. We found that the coefficient is negative for both measures of compensation, but insignificant.

TABLE 5

## Summary Statistics: Banks Versus Manufacturing Firms

Variable	Banks (1)	Manufacturing Firms (2)	Difference (3)=(1)-(2)	<i>t</i> -statistics (4)
Panel A: Firm characteristics				
Size	8,023	5,848	2,174	3.76
Risk	112,617	273,256	-147,000	-2.50
Capital ratio (percent)	17	67	-51	-121.13
Debt ratio (percent)	83	33	51	121.13
Panel B: Compensation features				
Salary	664	568	96	9.03
Bonus	972	584	388	6.87
Other cash compensation	283	211	77	2.04
Option grants	1,721	1,894	-173	-0.84
Restricted stock grants	577	222	355	3.6
Direct compensation	4,221	3,483	738	2.54
Value change of option holdings	3,198	3,338	-140	-0.17
Profits from exercising options	1,184	1,640	-456	-2.68
Value change of restricted stocks	500	11	489	2.01
Equity holdings (percent)	1.38	3.04	-1.66	-8.61
Value change of equity holdings	15,515	15,573	-58	-0.01
Value change of option holdings	20,168	19,172	996	0.16

Notes: The table presents summary statistics for firm characteristics and compensation for banks and manufacturing firms over the 1992-2000 sample period. The sample of banks includes 607 bank CEO-years; the sample of manufacturing firms includes 5,659 CEO-years. Column 1 displays the mean values for banks; column 2 displays them for manufacturing firms. Column 3 presents the difference between columns 1 and 2. Column 4 provides *t*-statistics for the difference between banks and manufacturing firms. Firm size is measured as a firm's market value of equity and is reported in millions of constant-year 2000 dollars. Risk is measured as the square of market value of equity times stock return volatility over a fiscal year. All compensation data except for percentages are in thousands of constant-year 2000 dollars.

TABLE 6

## Determinants of Pay-Performance Sensitivity

Independent Variable	Direct Compensation (1)	Firm-Related Wealth Change (2)
Panel A: Entire sample period		
$\Delta(\text{shareholder value})$	0.29 (3.62)	68.61 (25.80)
Size* $\Delta(\text{shareholder value})$	-2.64E-06 (-3.97)	-2.43E-04 (-11.55)
Risk* $\Delta(\text{shareholder value})$	4.22E-09 (3.66)	7.59E-08 (2.12)
Debt ratio* $\Delta(\text{shareholder value})$	-0.89 (-4.72)	-133.49 (-20.44)
$D_{\text{bank}}^* \Delta(\text{shareholder value})$	0.16 (0.86)	57.33 (9.70)
Size	0.24 (7.67)	-8.48 (-8.25)
Risk	-1.34E-04 (-0.87)	5.09E-02 (9.33)
Debt ratio	-2.20E+03 (-1.31)	-7.21E+04 (-1.24)
R <sup>2</sup>	0.45	0.40
Number of observations	6,175	4,455
Panel B: Excluding 1999		
$\Delta(\text{shareholder value})$	0.38 (3.99)	90.77 (28.24)
Size* $\Delta(\text{shareholder value})$	-2.46E-06 (-2.95)	-9.01E-05 (-3.19)
Risk* $\Delta(\text{shareholder value})$	3.47E-09 (2.27)	-2.88E-07 (-6.42)
Debt ratio* $\Delta(\text{shareholder value})$	-1.10 (-4.88)	-180.95 (-20.90)
$D_{\text{bank}}^* \Delta(\text{shareholder value})$	0.56 (2.29)	86.89 (10.93)
Size	0.21 (5.07)	-17.99 (-13.64)
Risk	-2.65E-05 (-0.15)	6.68E-02 (8.70)
Debt ratio	-4.28E+03 (-2.33)	-9.47E+04 (-1.59)
R <sup>2</sup>	0.55	0.56
Number of observations	5,351	3,805

Notes: The table presents the regression results of equation 3. The sample includes 6,266 CEO-years for banks and manufacturing firms from 1992 to 2000. Column 1 presents the results with direct compensation as the dependent variable; in column 2, firm-related wealth change is the dependent variable.  $\Delta(\text{shareholder value})$  is the change in shareholder value. Firm size is measured as a firm's market value of equity and is reported in millions of constant-year 2000 dollars. Risk is measured as the square of market value of equity times stock return volatility over a fiscal year. Debt ratio is measured as 1 minus the market value of common equity divided by the market value of assets, which in turn is equal to the book value of assets minus the book value of common equity plus the market value of equity.  $D_{\text{bank}}$  equals 1 if the firm is a bank and 0 otherwise. *t*-statistics are in parentheses.

## 6. CONCLUSION

This paper has examined CEO pay-performance sensitivity in the banking industry using 1992–2000 data. We find a pay-performance sensitivity in banks of \$4.7 per \$1,000 increase in shareholder value for the broader incentive-related measure of compensation; most of the sensitivity can be attributed to option and stock holdings. This result can be compared with the pay-performance sensitivity in general of \$6 per \$1,000 increase in shareholder value in 1996 (see Murphy [1999]). The evidence that pay-performance sensitivity in the banking industry, with its high leverage, is lower than it is in the manufacturing industry is consistent with our earlier hypothesis 2, which we formulated based on existing theory.

Also based on existing theory, we hypothesize that the pay-performance sensitivity in firms should decrease in the debt ratio (hypothesis 1) and in firm size (hypothesis 3); it should also be lower for regulated firms (hypothesis 5). Banks are regulated, highly leveraged, and, in our sample, larger than manufacturing firms. The hypothesized relationship implies that banks should have lower pay-performance sensitivity than manufacturing firms. We also test these relationships for banks, manufacturing firms, and regulated utilities, and we document that the pay-performance sensitivity of firms decreases with debt ratio and size (consistent with hypotheses 1 and 3). Banks have much higher leverage than manufacturing firms (debt ratios of 83 percent versus 33 percent), and, consistent with our hypothesis 2, their pay-performance sensitivity is significantly lower. In our sample, banks are also considerably larger (\$8 billion average market capitalization versus \$5.8 billion), which also implies lower pay-performance sensitivity in banks. The empirical evidence is consistent with these hypotheses.

Optimally designed managerial compensation structures not only align CEO interests with those of shareholders, but also signal to other stakeholders the incentive structures underlying the risk choices being made by top management. Commercial banks are unique in that depositors are the most important class of claimholders; how risky depositors perceive their debt to be will determine how costly the banks' capital will be.<sup>12</sup> Hence, optimal management compensation in banks that takes into account both of these roles will have a pay-performance sensitivity that is lower than it is for firms in general.

An understanding of the nature of the compensation structure that motivates banks' key decision makers can be an important tool when designing effective regulation. For example, if top management is very closely aligned with equity

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interests in banks, which are highly leveraged institutions, management will have strong incentives to undertake high-risk investments. Regulatory oversight has to take such incentive distortions into account when regulatory procedures are established. John, Saunders, and Senbet (2000) argue that regulation that accounts for the incentives of top management

will be more effective than capital regulation in ameliorating risk-shifting incentives. The authors contend that the pay-performance sensitivity of top-management compensation in banks may be a useful input in pricing FDIC insurance premiums and establishing regulatory procedures in the banking industry.

## ENDNOTES

1. For example, see recent surveys by Shleifer and Vishny (1997), John and Senbet (1998), and Bradley et al. (1999).
2. For example, see Shleifer and Vishny (1997), John and Kedia (2000), and Murphy (1999). John and Kedia (2000) study the role of managerial alignment in an optimally designed corporate governance system in the presence of other mechanisms of governance such as takeovers, monitored debt, and monitoring by large outside shareholders.
3. See Murphy (1999) and Core, Guay, and Larcker (2003) for recent surveys of this extensive literature.
4. Yermack (1995) measures the incentives related to stock options via a Black and Scholes (1972) approach. Hall and Liebman (1998) contribute to the literature by adding the value change of past granted stock options as a component of the pay-performance relationship. Aggarwal and Samwick (1999) test how the risk of firms affects pay-performance sensitivity and find that high-risk firms offer low-powered compensation.
5. See Shleifer and Vishny (1997) and La Porta et al. (1998) for a discussion of the role of the legal mechanism in corporate governance.
6. Chidambaran and John (2000) show that large shareholder monitoring and pay-performance sensitivity in managerial contracts will be complementary, and Hartzell and Starks (2000) provide supporting empirical evidence. John and Kedia (2000) show that, in an optimally designed governance system, monitored debt and managerial stock ownership will be complementary, while takeovers and managerial ownership will be substitutes.
7. The risk-shifting incentives of equity-aligned management in leveraged firms are well-known; see, for example, Jensen and Meckling (1976) and John and John (1993).
8. Flannery, Kwan, and Nimalendran (1998) document that stock analysts have less disagreement about forecasts of future earnings of bank holding companies relative to forecasts of earnings of nonfinancial firms of similar size. Morgan (2002), however, focuses on bond analysts and documents larger dispersion for banks relative to nonfinancial firms. A few studies document a much smaller stock market reaction to corporate events for bank holding companies relative to manufacturing firms. For example, Cornett, Mehran, and Tehranian (1998) report -1.7 percent announcement returns for equity issues by bank holding companies (as opposed to -3 percent for manufacturing firms). A smaller market reaction has also been reported for share repurchases and dividend increases and dividend cuts. Thus, there is some evidence that at least larger banks are more transparent than nonfinancial firms.
9. The sample begins in 1992 because consistent disclosure of option portfolios began at that time.
10. The direction and magnitude of the bias resulting from this reporting convention are discussed in Aggarwal and Samwick (1999). They conclude that the direction of the bias is indeterminate and the net effect may not be severe.
11. See Brenner, Sundaram, and Yermack (2000) and Chance, Kumar, and Todd (2000) for empirical evidence of this common practice. In many cases, additional options are also granted. The ExecuComp data set that we use does not provide detailed information to distinguish between the resetting of existing options and the granting of new options.
12. Some argue that depositors do not care much about risk when the FDIC insures their accounts. However, if compensation for bank management provides risk-shifting incentives, banks will be subject to more regulation and higher priced insurance premiums. For details of this argument, see John, Saunders, and Senbet (2000).

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# IS CORPORATE GOVERNANCE DIFFERENT FOR BANK HOLDING COMPANIES?

## 1. INTRODUCTION

In the wake of the recent corporate scandals, corporate governance practices have received heightened attention. Shareholders, creditors, regulators, and academics are examining the decision-making process in corporations and other organizations and are proposing changes in governance structures to enhance accountability and efficiency. To the extent that these proposals are based on academic research, they generally draw upon a large body of studies on the governance of firms in unregulated, nonfinancial industries.

Financial institutions, however, are very different from firms in unregulated industries, such as manufacturing firms. Thus, the question arises as to whether these proposals and reforms can also be effective at enhancing the governance of financial institutions, and, in particular, banking firms. The question is a difficult one to answer, though, given the little research on the governance of banking firms. Therefore, in order to evaluate reforms to the governance structures of banking firms, it is important to understand current governance practices as well as how governance differs between banking and unregulated firms. Otherwise, governance proposals cannot be fine-tuned. Significantly, uniformly designed proposals that do not take into account industry differences at the very least may be ineffective in improving the governance of financial institutions, and at worst may have unintended negative consequences.

Accordingly, this article examines corporate governance in banking firms. In particular, we study corporate governance variables identified as relevant by academics and practitioners and describe their differences and similarities vis-à-vis banking firms and manufacturing firms. Because public information on governance characteristics is generally available only for publicly traded bank holding companies (BHCs), we examine the governance of BHCs and not banks. We also discuss the effect of regulation—such as supervisory and regulatory requirements at the state and Office of the Comptroller of the Currency (OCC) levels—prior to 2000 on banking firm behavior. Many typical external governance mechanisms, such as the threat of hostile takeovers in the industry, are absent in the case of banking firms; therefore, we focus primarily on internal governance structures and shareholder block ownership. Our goal is to provide useful information and a road map for thinking about the governance of financial institutions, in terms of reform as well as research.

We discuss the potential benefits and costs associated with some of the corporate governance variables for an average firm. However, we stress that all of these variables are ultimately part of a simultaneous system that determines the corporation's value and the allocation of such value among claimants. Also, different governance mechanisms may be substitutes for one another. For example, certain executive pay packages can vary across firms, even in the same business environment, for good reason. Firms with more effective boards may have more

Renée Adams is an economist and Hamid Mehran an assistant vice president at the Federal Reserve Bank of New York.  
<renee.adams@ny.frb.org>  
<hamid.mehran@ny.frb.org>

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equity-based CEO compensation in their structure, while firms with greater CEO ownership may have more cash compensation (Mehran 1995). Thus, the quality of governance of any organization must be evaluated along a number of dimensions.

Our sample consists of thirty-five bank holding companies over the 1986-96 period. For these BHCs, we construct governance variables or proxies that have received attention by researchers in law, economics, organization, and management who argue that the variables are correlated with governance practices. We also compare variables in our sample with those for manufacturing firms compiled in other studies.

Our comparison of BHCs and manufacturing firms yields several key findings. First, BHC board size (18.2 members versus 12.1 members) and the percentage of outside directors (68.7 percent versus 60.6 percent) are significantly larger on average. Second, BHC boards on average have more committees (4.9 compared with 4.4) and meet slightly more frequently (7.9 times versus 7.6 times). Third, measured in percentage terms, the ratio of chief executives' stock option pay to salary plus bonuses is smaller at BHCs (1.0 as opposed to 1.6). Fourth, the percentage of CEO direct equity holdings is smaller for BHC chief executives (2.3 percent compared with 2.9 percent) as is the value of their direct equity holdings (\$27.9 million versus \$133.8 million). Finally, fewer institutions on average hold a share of BHCs in our sample (204 as opposed to 535) and institutions hold a smaller percentage of a BHC's equity (42.2 percent compared with 54.6 percent). The findings on board size, percentage of outside directors, ownership (percentage and market value), and the ratio of stock options to salary plus bonuses complement those of other studies, which use samples that differ from ours (see Houston and James [1995] and Booth, Cornett, and Tehranian [2002]).

Our findings of systematic differences between the governance of banking and manufacturing firms bolster the argument that governance structures may indeed be industry-specific. We argue that these differences are influenced by differences in the investment characteristics of the two types of firms as well as by the presence of regulation. Moreover, the differences reported here are similar to those found between manufacturing firms and insurance industry firms (see, for example, Talmor and Wallace [2001]) and between manufacturing firms and public utilities firms (see, for example, Booth, Cornett, and Tehranian [2002]).<sup>1</sup> These results suggest that governance reforms, in order to be effective, could take industry differences into account.

## 2. WHY GOVERNANCE MAY DIFFER FOR BANK HOLDING COMPANIES

Shleifer and Vishny define corporate governance as dealing “with the ways that suppliers of finance to corporations assure themselves of getting a return on their investment” (1997, p. 737). According to agency theory, if managers operate independently, they may make financing, investment, and payout decisions that are detrimental to shareholders.<sup>2</sup> To mitigate the conflict between managers and shareholders, the literature offers several solutions, such as monitoring by the board of directors and blockholders, compensation contracts, and managerial equity investment.<sup>3</sup>

The governance of banking firms may be different from that of unregulated, nonfinancial firms for several reasons. For one, the number of parties with a stake in an institution's activity complicates the governance of financial institutions. In addition to investors, depositors and regulators have a direct interest in bank performance. On a more aggregate level, regulators are concerned with the effect governance has on the performance of financial institutions because the health of the overall economy depends upon their performance.

As a result, the board of directors of a banking firm is placed in a crucial role in its governance structure. Although the boards of BHCs are assigned the same legal responsibilities as other boards,<sup>4</sup> regulators have placed additional expectations on bank, as opposed to BHC, boards that delineate their responsibilities even further.<sup>5</sup> These usually take the form of laws, regulations, or guidance, and they generally reflect interest in safe and sound financial institutions.<sup>6</sup> To the extent that BHC boards are influenced by the structure and operation of their subsidiary bank boards, these expectations may also affect how BHC boards operate (see, for example, Adams and Mehran [2002]).

These and other differences in the operation of financial and nonfinancial institutions have led many to view regulatory oversight of the industry as a substitute for corporate governance, or at least to view governance as less critical to the conduct and operation of banking firms.<sup>7</sup> Others argue that effective supervision could lead to board oversight becoming a more critical element of banking firm governance—that is, these could be complementary forces. Either way, the presence of regulation should affect the design of internal governance mechanisms.<sup>8</sup>

One major area likely to be affected by regulation is the structure of executive compensation. Stock-based compensation motivates top management to undertake more value-enhancing decisions (see Core, Guay, and Larcker [2003]), but regulators would also want to consider how stock options affect

risk-taking. Thus, although in nonfinancial firms stock options may be appropriate instruments to provide incentives for managers to create value, as well as to protect the creditors of distressed companies, the options may conflict with policy objectives that seek to protect the nonshareholding stakeholders, such as depositors and taxpayers in financial firms. As regulatory reform has expanded the range of activities available to financial firms, it has become increasingly important for policymakers to understand the relationship between governance structure and the incentive for risk-taking.<sup>9</sup>

Resolution of a financially distressed condition or outright insolvency in the banking industry can also have an important effect on top managers' incentive structures. In an unregulated environment, financial distress generally leads to reorganization and, in most cases, the incumbent top manager is given the opportunity to turn the corporation around.<sup>10</sup> Moreover, CEOs of distressed firms typically get paid according to their compensation contracts, even when their firms enter bankruptcy.

However, in the banking industry, distress usually leads to liquidation, and the incumbent is removed from management (see Skeel [1998] for a discussion of how and when regulators act in insolvency cases). In addition, depositors' claims have seniority over management compensation contracts. Since stock options are long-term compensation contracts, all else equal, rational chief executives of BHCs can be expected to demand more cash compensation relative to equity-based compensation, as the latter becomes worthless in the event of liquidation (Mehran and Winton 2001).<sup>11</sup>

Large grants to top executives (and employees) have the potential to impact banking firms' capital by way of future share repurchases. When executives (and employees) exercise their options, the firm typically has to repurchase shares from the market. Thus, capital leaves the firm. By granting options, the firm loses its flexibility with regard to when and how much to pay out. Therefore, large grants of options in any given year have the potential to affect the capital base adversely in later years when options become vested and are exercised. This can attract the scrutiny of regulators.

Three other factors can affect the executive compensation structure in the banking industry, independent of regulation. First, Smith and Watts (1992) argue that a firm's compensation structure is influenced by the firm's investment opportunity set. They contend that because it is easier for the *board* to observe, monitor, and evaluate the actions of CEOs of low-growth firms or industries, the board relies more on fixed compensation than on stock-based compensation. Characteristics of the investment opportunity

set of firms in the banking industry are most likely different than those for firms in unregulated environments (see Houston and James [1995]). Therefore, the compensation policy of banking firms is most likely different. We discuss this issue more fully later on.

Second, competition in the managerial labor market and the product market may also affect governance, as Fama (1980), Jensen (1993), and Hart (1983) suggest. The banking industry is, arguably, competitive in both markets. Also, interstate banking deregulation most likely has resulted in more competition.<sup>12</sup> Thus, the similarity in the production technology of banking firms as well as industry competition can impact the governance of banking firms. Specifically, according to contracting theory, contracts are easier to construct and are more likely to exist in industries where more precise (relative) performance measures are available and where it is not relatively costly to replace a CEO (Parrino 1997). In general, performance measures are better able to filter the effects of industry and marketwide shocks in homogenous industries. Thus, relative performance is easier to measure and poorly performing CEOs are easier to identify in such industries. In addition, the costs of replacing CEOs are lower in such industries because firm-specific human capital is lower. Accordingly, stock-based compensation contracts will tend to be less important in homogenous industries such as banking, where relative performance measures are more precise. Moreover, monitors are likely to expend less effort and fewer resources in homogeneous industries (Parrino 1997, p. 195).<sup>13</sup>

Third, capital structure may influence executive compensation in BHCs. According to agency theory, stockholders want the board to compensate a CEO with stock options because they increase the CEO's pay-performance sensitivity. A higher level of stock options, in theory, motivates the CEO to pursue riskier investment strategies. If the firm has debt in its capital structure, riskier strategies benefit stockholders at the expense of debtholders (see, for example, Jensen and Meckling [1976]). In efficient capital markets, however, the incentive for risk-taking is anticipated by debtholders, and thus increased reliance on stock options gives rise to a debt premium, or cost of debt (John and John 1993). The size of the premium is related to the leverage ratio. To reduce the cost of debt, leveraged firms may choose to scale back their use of stock options. Because BHCs are highly leveraged institutions, they may therefore want to limit their use of stock options as it could, for example, affect their cost of issuing debt. John and Qian (2003) support this argument, and find that the lower the pay-performance sensitivity for CEOs of BHCs is, the higher the ratio of the BHCs' debt to total assets is.<sup>14</sup> As a result of differences in the operating characteristics of BHCs and

unregulated firms as well as the presence of regulation, we expect BHCs to have less stock-based compensation in their executive compensation packages.

The presence of regulation and the high leverage of banking firms may also affect the ability of external governance mechanisms to resolve the governance problems of these firms. For example, the absence of an active market for corporate control in the banking industry prevents better performing firms from taking over the poorly performing ones and removing their boards.

Note that despite active consolidation in the banking industry, there have been very few hostile takeover bids. There are at least four reasons for this phenomenon. First, state laws and banking regulations impose substantial delays on any hostile bid. Delay is a significant impediment to any hostile offer—it allows the target firm to arrange defenses or seek alternative bidders—but it is particularly important in a regulated environment. Delay also has an impact on a bid's progress in the equity markets, as arbitrageurs rarely involve themselves in mergers and acquisitions in the banking industry because the time required for a transaction to take place reduces the value of any spread between market and transaction prices. Also, since the gestation period for acquisitions in banking is much longer than it is for firms in an unregulated environment, bidding banks are less likely to receive tenders of large blocks from sophisticated investors until the regulatory approval process is completed. This creates uncertainty about the offer's potential for completion.

Second, many stakeholder groups—that is, competitors and consumer advocates—can use the delay to organize opposition to a regulated acquisition and influence the decision of the regulatory body (see McGlaughlin and Mehran [1995] for a similar discussion of hostile offers in the utilities industry). Third, the medium of exchange in hostile offers is typically all cash or mostly cash (see, for example, Franks, Harris, and Mayer [1988]; Fishman [1989] argues that cash preempts other bidders). The acquirer typically borrows the funds needed for the acquisition investment and relies on its investment bankers to raise the funds (Safieddene and Titman 1999), particularly when the target is large. BHCs, however, are unwilling to borrow funds for acquisition purposes as they are already highly leveraged.<sup>15</sup> Fourth, many banks in the holding companies or subsidiaries of holding companies hold a significant share of their ultimate parent company as pension trustee or as fund manager. This large block ownership reduces the probability of success in a hostile offer.

Constraints on hostile acquisitions in the banking industry can potentially increase the size of boards. In a successful hostile takeover, the board of an acquirer becomes the board of the two combining entities around the time of merger

completion. Thus, while the asset size of the firm increases, board size may actually stay the same. In the banking industry, however, hostile offers are rare, and so, with a typical acquisition in the industry, most members of a target company's board do not leave the board of the consolidated entity until their term expires. As a result, acquisitions not only increase the asset size of the acquirer, they may increase board size, at least in the years around the merger completion. Therefore, we expect BHCs to have boards that are larger than boards in unregulated firms.

Finally, regulation may also reduce blockholders' incentives to monitor the boards of financial institutions. In general, in an environment where regulators are active, blockholders are passive. In an unregulated environment, blockholders typically invest in the shares of undervalued companies. They then gain a seat (or seats) on the board through proxy contests and exert pressure on management to restructure corporate assets and/or change corporate payout policy. In addition, blockholders often sue the board, and tarnish outside directors' reputations in order to achieve their objectives. Blockholders are also more willing to invest capital in a share of the company, as well as other resources, if they can get a fair assessment of the value of the company and face little or no opposition on (quick) asset restructuring. Conversely, a regulatory environment, at times, may interfere with the information production and acquisition process, as disclosure of some information may be perceived by regulators as potentially causing bank runs.<sup>16</sup> Blockholders are also more unlikely to gain seats through proxy fights and acquire additional information about a regulated firm. Moreover, even if blockholders can influence management to restructure its assets, the restructuring may take some time in the banking industry. Thus, it is likely that blockholders' incentives are affected by regulation, implying that block ownership of firms in the banking industry should be less concentrated than it is in unregulated environments.

### 3. SAMPLE CONSTRUCTION AND CHARACTERISTICS

Our banking sample consists of thirty-five publicly traded bank holding companies that were among the 200 largest top-tier BHCs in terms of book value of assets for each year between 1986 and 1996. We collected additional data on these firms for 1997-99; however, the number of firms dropped to thirty-two during those years due to merger and acquisition activity. For 1997, 1998, and 1999, our sample consists of thirty-four, thirty-three, and thirty-two institutions, respectively. The requirement that the firm be publicly traded makes it possible to

collect data on internal governance characteristics from proxy statements filed with the Securities and Exchange Commission. The governance data are measured on the date of the proxy at the beginning of the corresponding fiscal year. We adjust our data to account for the fact that proxies disclose some governance characteristics for the previous fiscal year and others for the following fiscal year. We collected balance-sheet data from fourth-quarter Consolidated Financial Statements for Bank Holding Companies (Form FR Y-9C) from the Federal Reserve Board and stock price and return data from the Center for Research in Security Prices.

The requirement that the firms be among the 200 largest each year during 1986-96 means that our findings could be different for smaller bank holding companies. However, the requirement was imposed to study the role of governance in firms where the potential impact of poor governance could be serious. The assets of our sample of BHCs constitute a large fraction of total industry assets (32.3 percent of all top-tier BHC assets in 1990). Reflecting the increasing consolidation in the industry, this number rose to 50.75 percent in 1998. Thus, poor governance of the sample firms could have potentially serious effects on the banking industry.

Our requirement of a minimum of ten years of data on each firm may raise concerns about sample selection (or survivorship) bias; surviving firms in the sample have systematically different, perhaps superior, governance than do delisted BHCs.<sup>17</sup> However, since the qualitative nature of our comparisons between BHCs and manufacturing firms holds for the entire sample as well as for individual years, we do not believe that survivorship bias affects our results. In addition, as we discuss, other studies that have examined subsets of the variables that we analyze find similar results using other sample selection procedures (see, for example, Houston and James [1995] and Booth, Cornett, and Tehranian [2002]).<sup>18</sup>

Table 1 presents the distribution of means of selected financial variables for our sample BHCs. Perhaps the most important trend evident is the increasing firm size, measured by the book value of assets, which reflects the heightened consolidation in the industry (see also Stiroh [2000]). An average firm in our sample had \$18.7 billion (median: \$9.1 billion) of assets at the end 1986, rising to \$91.5 billion (median: \$43.4 billion) in 1999. Bank primary capital has also increased, from 7 percent in 1986 to 8.5 percent in 1999.<sup>19</sup> The increase is consistent with revisions to capital adequacy standards and the general upward trend in capital accumulation by banks in the 1990s (see Estrella [2002] and Flannery and Rangan [2002]). Tobin's Q and return on assets, as proxies for performance, have also exhibited an upward trend since 1990, consistent with the industry trend (see Stiroh [2000]).<sup>20</sup>

## 4. FINDINGS FROM THE CORPORATE GOVERNANCE VARIABLES

Table 2 provides summary statistics for selected variables that describe the governance structures of our sample BHCs; Table 3 compares the variables' means and medians with those in comparison samples of manufacturing firms. We emphasize that our analysis and comparison are not regression-based; rather, our purpose is to compile a series of descriptive statistics in one place. We choose manufacturing firms for comparison because their governance structures have been analyzed more extensively by researchers than those of firms in other industries; data availability was also a determining factor.

### 4.1 Board Size and Composition

As Table 2 shows, an average of eighteen directors make up each BHC board, although there is a wide distribution of board size in the sample (a minimum of eight directors and a maximum of thirty-six). Over the sample period, it is apparent that banking firm boards are becoming smaller. An average board in 1999 had 17 directors (median: 18), down from 20.3 in 1986 (median: 20). The trend is consistent with the finding of Adams and Mehran (2002), who examine BHC board size over the 1959-99 period. As Table 3 indicates, an average S&P manufacturing firm had six fewer directors than an average BHC did over the sample period. Booth, Cornett, and Tehranian (2002) also provide evidence that banks have larger boards, using a sample of the 100 largest BHCs and the 100 largest manufacturing firms in 1999.

There are at least three plausible reasons why BHCs have larger boards. First, studies have shown that board size is positively correlated with firm size (see, for example, Hermalin and Weisbach [2003], Yermack [1996], and Baker and Gompers [2000]), and BHCs are larger than manufacturing firms in terms of asset size.<sup>21</sup> Second, BHC boards may be larger because of their complex organizational structure. BHCs may own or control many subsidiary banks, each of which has its own board. Coordination among these different boards may affect the structure of the BHC board, for instance, because of the need to include directors from the subsidiary boards on the BHC board (see Adams and Mehran [2002] for a discussion of this argument). Third, as we have observed, the nature of acquisitions (hostile versus friendly) could play a role in maintaining the large size of an average BHC board. An active level of consolidation among our sample firms—and in the banking industry during our sample period—could account for the larger boards of our BHCs. Consolidation in the

TABLE 1  
Mean and Median of Selected Financial Variables

Panel A: Yearly Comparisons														
Variable	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Book value of assets (billions of dollars)														
Mean	18.7	19.9	22.3	25.0	26.5	29.0	31.3	37.9	41.6	47.0	51.6	59.3	82.9	91.5
Median	9.1	9.3	10.9	12.2	13.8	15.0	20.8	21.5	21.8	31.9	32.5	35.2	39.1	43.4
Primary capital ratio (percent)														
Mean	7.0	7.7	7.7	7.6	7.7	8.2	8.7	8.9	8.6	8.5	8.6	8.6	8.3	8.5
Median	6.9	7.6	7.6	7.6	7.8	8.2	8.7	8.8	8.3	8.3	8.7	8.4	8.2	8.6
Return on assets (percent)														
Mean	0.9	0.5	0.9	0.7	0.6	0.6	0.8	1.0	1.1	1.2	1.2	1.2	1.2	1.2
Median	0.9	0.7	1.0	0.9	0.7	0.8	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3
Return on equity (percent)														
Mean	14.3	6.4	14.5	9.4	8.7	6.6	11.0	13.1	15.0	14.7	15.2	15.5	14.8	16.1
Median	14.8	11.9	15.5	13.6	12.9	12.0	14.1	14.2	15.2	15.2	15.8	15.7	15.5	17.7
Q-ratio														
Mean	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.1
Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.1	1.1
Stock return (percent)														
Mean	17.0	-10.8	23.3	19.2	-21.3	75.3	43.1	4.6	-3.5	55.6	33.2	62.2	7.6	-17.5
Median	17.9	-8.6	19.9	19.0	-12.9	84.8	32.5	1.8	-2.9	54.4	32.7	64.8	5.1	-19.8
Monthly volatility of stock return (percent)														
Mean	8.5	9.9	6.3	6.2	10.6	9.6	7.2	6.6	5.9	5.9	5.4	7.1	10.5	8.8
Median	8.4	9.8	6.5	5.5	10.3	8.0	5.7	5.6	5.7	5.8	5.3	7.0	10.1	8.3

Panel B: 1986-99 Comparisons

Sample Descriptive Statistics	Mean	Median	Minimum	Maximum
Book value of assets (billions of dollars)	40.9	22.1	3.0	632.6
Primary capital ratio (percent)	8.2	8.0	3.0	14.9
Return on assets (percent)	0.9	1.0	-2.8	2.3
Return on equity (percent)	12.5	14.7	-82.3	33.8
Q-ratio	1.1	1.0	0.9	1.5
Stock return (percent)	21.0	16.7	-67.7	139.8
Monthly volatility of stock return (percent)	7.7	7.1	1.2	22.3

Notes: The table presents summary statistics for selected financial variables, both on a yearly basis and for the entire sample, for our sample of bank holding companies (BHCs) from 1986 to 1999. All variables are from the fourth-quarter "Consolidated Financial Statements for Bank Holding Companies" (Federal Reserve FR Y-9C Report), except for monthly stock returns, which are from the Center for Research in Security Prices. Sample data are not available for all firms for all years because of acquisitions of sample banks in 1997-99. For 1986-96, our sample consists of thirty-five BHCs; for 1997, 1998, and 1999, it consists of thirty-four, thirty-three, and thirty-two institutions, respectively. We calculate a measure of bank capital—its primary capital ratio—which we define as the sum of the book value of common stock, perpetual preferred stock, surplus, undivided profits, capital reserves, mandatory convertible debt, loan and lease loss reserves, and minority interests in consolidated subsidiaries minus intangible assets. Return on assets is calculated as the ratio of net income to book value of assets. Our measure of Q is the ratio of the firm's market value to its book value of assets. The firm's market value is calculated as book value of assets minus book value of equity plus market value of equity. Volatility of stock returns is measured as the standard deviation of the monthly stock returns on the stock price for the given year.

TABLE 2

## Mean and Median of Selected Corporate Governance Variables

Panel A: Yearly Comparisons														
Variable	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Board size														
Mean	20.3	19.9	19.7	19.1	18.2	17.4	17.5	17.2	16.9	16.7	16.9	17.0	17.3	17.0
Median	20	19	19	19	18	16	18	17	15	17	17	16	17.5	18
Outside directors (percent)														
Mean	69.9	71.6	71.2	68.9	70.2	68.5	67.5	66.8	66.7	66.2	67.4	65.7	67.2	75.1
Median	71.4	72.2	71.4	71.4	72.7	72.1	71.4	69.2	66.7	69.9	69.9	69.9	73.3	75.0
Outside and “gray” directors (percent)														
Mean	80.1	80.2	80.1	78.7	80.1	79.9	80.4	80.0	80.2	80.0	80.0	79.2	79.6	81.6
Median	81.3	81.8	81.8	80.0	81.5	80.0	82.1	80.0	80.9	78.6	78.8	77.7	79.6	83.3
Number of board meetings														
Mean	8.5	8.6	8.5	8.5	8.6	9.3	9.0	9.3	8.7	8.4	8.1	8.0	7.2	7.5
Median	8	8	7	9	8	8.5	9	10	8	8	8	8	7	7
Number of board committees														
Mean	4.0	3.9	4.0	4.0	4.0	4.2	4.5	4.5	4.6	4.7	4.9	4.8	5.0	5.0
Median	4	4	4	4	4	4	4	5	5	5	5	5	5	5
Ratio of value of granted options to salary plus bonuses														
Mean	—	—	—	—	—	—	0.29	0.41	0.78	1.01	1.09	0.87	1.76	1.65
Median	—	—	—	—	—	—	0.20	0.36	0.58	0.43	0.52	0.51	0.97	1.22
Shares owned by CEO (percent)														
Mean	2.2	2.0	2.2	2.1	2.1	2.3	2.3	2.2	2.2	2.2	2.4	2.4	2.5	3.1
Median	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.4

## Panel B: 1986-99 Comparisons

Sample Descriptive Statistics	Mean	Median	Minimum	Maximum
Board size	18.0	18.0	8.0	36.0
Outside directors (percent)	68.7	71.4	10.0	95.2
Outside and “gray” directors (percent)	80.0	81.0	44.4	95.2
Number of board meetings	8.5	8.0	2.0	24.0
Number of board committees	4.4	4.0	1.0	9.0
Ratio of value of granted options to salary plus bonuses	0.99	0.50	0.0	19.85
Shares owned by CEO (percent)	2.3	0.4	0.0	49.4

Notes: The table presents summary statistics for selected corporate governance variables, both on a yearly basis and for the entire sample, for our sample of bank holding companies (BHCs) from 1986 to 1999. Sample data are not available for all firms for all years because of incomplete data, due primarily to missing proxy statements, and because of acquisitions of sample banks in 1997-99. For 1986-96, our sample consists of thirty-five BHCs; for 1997, 1998, and 1999, it consists of thirty-four, thirty-three, and thirty-two institutions, respectively. Data on the governance characteristics are from proxy statements filed with the Securities and Exchange Commission (SEC). We consider a director to be an insider if he works for the firm and an outsider if he is not a top executive, a retired executive, a former executive, a relative of the CEO or chairperson, or an outside lawyer employed by the firm at any point in our sample. All other directors are “gray.” Compensation data are from ExecuComp 2000, and therefore are available only from 1992 to 1999. Ownership data are from proxy statements filed with the SEC.

TABLE 3

### Comparisons of Descriptive Statistics on Selected Corporate Governance and Financial Variables for Bank Holding Companies and Manufacturing Firms

Variable	Bank Holding Companies	Manufacturing Firms (SIC 2000-3999)
Board size <sup>a</sup>		
Mean	18.2	12.1***
Median	18.0	12.0***
Outside directors (percent) <sup>a</sup>		
Mean	68.7	60.6***
Median	71.4	66.7***
Ratio of value of option grant to sum of salary and bonus <sup>b</sup>		
Mean	1.0	1.6*
Median	0.5	0.8***
CEO ownership (percent) <sup>c</sup>		
Mean	2.3	2.9*
Median	0.4	0.3***
CEO stake (millions of dollars) <sup>d</sup>		
Mean	27.9	133.8**
Median	11.9	9.6**
Meetings per year <sup>e</sup>		
Mean	7.9	7.6
Median	8.0	7.0*
Number of committees <sup>f</sup>		
Mean	4.9	4.4***
Median	5.0	4.0***
Tobin's Q <sup>g</sup>		
Mean	1.1	1.9***
Median	1.0	1.5***
Monthly stock return volatility (percent) <sup>h</sup>		
Mean	7.78	8.85***
Median	7.09	7.92***

Notes: The table presents statistical comparisons of selected corporate governance and financial variables for our sample of bank holding companies (BHCs) and for unregulated, nonfinancial manufacturing firms from 1986 to 1999. Because no data set on manufacturing firms contains all governance variables of interest over the 1986-99 period, the data source used to construct summary statistics for manufacturing firms varies by the variable under consideration and may also vary by year. For each variable, the BHC statistic is computed for the same sample period as the statistic for manufacturing firms.

<sup>a</sup> Manufacturing firm data are from Yermack (1995) for 1986-91 and from Spencer Stuart S&P 100 for 1995-96 and S&P 500 for 1997-99. There are 2,394 firm-years.

<sup>b</sup> Manufacturing firm data for 1992-99 are from ExecuComp and are for the top fifty S&P 500 firms based on total assets. There are 400 manufacturing firm-years.

<sup>c</sup> Manufacturing firm data for 1986-91 are from Yermack (1995); 1992-99 data are from ExecuComp. There are 6,613 manufacturing firm-years.

<sup>d</sup> Manufacturing firm data are for the top fifty S&P 500 manufacturing firms in terms of market value and are from Yermack (1995) for 1986-91 and from ExecuComp for 1992-99.

<sup>e</sup> Manufacturing firm data for 1995 and 1996 are from Spencer Stuart S&P 100; 1997-99 data are from Spencer Stuart S&P 500. There are 724 firm-years.

<sup>f</sup> Manufacturing firm data for 1995 and 1996 are from Spencer Stuart S&P 100; 1997-98 data are from Spencer Stuart S&P 500. There are 510 firm-years.

<sup>g</sup> Manufacturing firm data for 1986-91 are from Yermack (1995); 1992-99 data are from Compustat for a sample of manufacturing firms in the S&P 500. There are 4,017 firm-years.

<sup>h</sup> The variable is calculated as the standard deviation of monthly returns for a year, then averaged over 1986-99. Manufacturing firm data include manufacturers from Yermack (1995) over the 1986-91 period. Data for 1992-99 are from Compustat for the S&P 500. There are 1,474 manufacturing firm-years.

\*\*\*Statistically significant at the 1 percent level.

\*\*Statistically significant at the 5 percent level.

\*Statistically significant at the 10 percent level.

banking industry alone, however, cannot explain why bank boards are larger. Adams and Mehran (2002) show that BHC board size appears to be large relative to manufacturing board size even before the post-1986 wave of consolidation. In addition, it is difficult to reconcile the increase in consolidation with the downward trend in BHC board size over time.

According to Table 2, the mean percentage of outside directors in the sample is 68.7 percent (median: 71.4 percent).<sup>22</sup> Table 3 shows that the percentage of outside directors in BHCs is significantly larger than in S&P manufacturing firms, where the mean percentage is 60.6 percent (median: 66.7 percent).<sup>23</sup> The mean percentage of outside and “gray” directors in 1999, 81.6 percent (median: 83.3 percent), is almost the same as what is reported in Booth, Cornett, and Tehranian (2002) for the 100 largest BHCs. The authors also find that the mean and median percentages of outside directors are higher for commercial banks relative to the top 100 manufacturing firms in 1999.

It should be noted that certain regulations at the bank level, as opposed to the holding company level, could constrain board structure with regard to size and composition. For example, the board of a national bank (regulated and supervised by the OCC) must consist of at least five, but no more than twenty-five, members (the comptroller can exempt the national bank from the twenty-five-member limit). Each state member bank, supervised by the Federal Reserve, is required to be managed by a board. Board size is also regulated separately. For example, New York State banks are required to have a board of no less than seven directors and no more than thirty (with capital stock, surplus, and divided profits in excess of \$50 million). Different states may also have requirements on board composition at the bank level; for example, New York State’s regulation requires two-thirds of the directors of each state bank to be outsiders.

Since such regulatory restrictions generally apply only to board structure at the bank level and not the holding company level, which is the focus of this study, the regulatory environment alone does not explain BHC board size and composition. However, regulation may have an indirect effect on the structure of BHC boards to the extent that it is influenced by the structure of the boards of the BHC’s lead bank and other subsidiary banks (see, for example, Adams and Mehran [2002]).

## 4.2 Board Activity

Table 2 provides information on board activity and committee structure. An average BHC in the sample meets 8.5 times per year (median: 8). However, there has been a downward trend in this

number. As shown in Table 3, BHC boards meet slightly more frequently than boards of manufacturing firms (although only the median differences are significant at the 10 percent level).

The number of annual board meetings for a bank, rather than a holding company, is regulated at the state level. For example, during our sample period, New York State member banks were required to have a minimum of ten meetings per year (two conference call meetings were allowed). State regulations on the number of meetings may influence the bank’s choice of directors, since potential directors might have a better chance of being nominated if they live within proximity to the bank.<sup>24</sup>

BHCs have on average 4.4 board committees (median: 4). This figure has increased by one over the sample period. In addition, the average number of directors per committee has decreased over time, from 5.8 in 1986 to 3.9 in 1999, likely due to the decline in BHC board size, which is not shown in the tables. Moreover, the average BHC had more committees than did the average manufacturing firm (Table 3), and the difference was statistically significant.

## 4.3 CEO Compensation

The mean and median ratios of the value of new option grants to salary plus bonuses from 1992 to 1999 are presented in Table 2. Note that the sum of salary, bonuses, and stock options is more than 90 percent of an average CEO’s total compensation (Murphy [1999]). Note also that although the mean and median for salary and bonuses are rising (not reported here), growth in the value of options granted to CEOs is significantly higher than that of salary and bonuses. By 1999, the mean ratio of the value of stock options to salary plus bonuses is 1.65 (median: 1.22).

The increased use of stock options in executive compensation packages in banking follows the pattern of other industries, even though the growth and level of stock option use are significantly lower than in manufacturing firms. Table 3 compares the ratio of the value of granted stock options to salary plus bonuses for the fifty largest S&P 500 manufacturing firms in terms of assets with our sample of BHCs over 1992-99. The value of options granted to CEOs of manufacturing firms on average is 60 percent larger than the sum of base salary and bonuses; however, this does not hold for the chief executives of BHCs.

One potential explanation for the lower reliance on stock options in the banking industry is found in Smith and Watts (1992), who show that low-growth industries rely less on stock-based compensation (also see Mehran [1992]). Smith and

Watts suggest that boards can observe, monitor, and evaluate the actions of CEOs of firms and industries with low-growth opportunities much easier than they can in firms or industries with high-growth opportunities. Thus, boards in such industries should rely more on fixed rather than on stock-based compensation.

Based on several proxies for growth opportunities advanced in the literature—such as Tobin's Q, market-to-book ratio, research-and-development-to-sales ratio, and volatility—BHCs can be considered to have the characteristics of low-growth firms. The average Tobin's Q in our BHC sample is almost 1 (Table 2), which is far less than the Q-ratios reported in unregulated business environments.<sup>25</sup> It is also well documented that banking industry volatility, measured by the standard deviation of daily or monthly returns, is significantly smaller than volatility in samples of manufacturing firms (see Campbell et al. [2001], and Table 3). In addition to being a characteristic of low-growth firms, low volatility may make it easier for banking firm boards to monitor CEO actions.<sup>26</sup>

Finally, given the low stock-return volatility in the banking industry, all else equal, the value of stock options in banks will be lower. To compensate the CEO for a given dollar value of granted options, the bank has to give a larger number of options relative to those given by an average manufacturing firm. This can have an adverse effect on the bank's share price because it produces a larger dilution effect.<sup>27</sup> Thus, it may be more difficult for a bank than for a manufacturing firm to award a given amount of option compensation to its top executives.

#### 4.4 CEO Ownership

As reported in Table 2, an average CEO in our sample owns 2.3 percent of the firm (median: 0.4 percent). The share is less than the CEO ownership in manufacturing firms (Table 3). This result is consistent with the findings of Houston and James (1995), as well as those of Booth, Cornett, and Tehranian (2002), who document that the mean percentage of stock holdings by officers and inside directors of manufacturing firms is 8.97 percent, compared with 5.77 percent in BHCs.

CEO ownership across BHCs and manufacturing firms may differ for several reasons. One can argue that the smaller flow of options to bank holding company CEOs leads to smaller ownership (we do not report the number of options granted to

CEOs).<sup>28</sup> Also, Demsetz and Lehn (1985) contend that in noisier environments (for example, proxied by the standard deviation of stock returns), monitoring costs are very high. In this case, the authors expect managerial ownership to be more concentrated in order to reduce agency problems. Because our sample BHCs experience relatively low volatility, monitoring costs may be lower for them than for manufacturing firms, which may make large ownership concentration unnecessary. Furthermore, Demsetz and Lehn argue that regulators may substitute for some of the monitoring functions of ownership.

There may also be a mechanical issue influencing the percentage of ownership. Since BHCs are significantly more leveraged and have more assets than manufacturing firms, ownership levels across the two types of firms may not be comparable.<sup>29</sup> An important insight of Modigliani and Miller (1963) in a world with corporate taxes is that the cash-flow claims of an ownership stake in an all-equity firm differ from those associated with the same percentage of equity ownership of an identical firm with a positive debt level. In addition, there is a documented inverse relationship between size, typically measured by the book value of assets, and the percentage of equity held by the CEO (see, for example, Demsetz and Lehn [1985]).

To avoid this mechanical issue, it is also useful to examine differences in the market value of CEO holdings across BHCs and manufacturing firms. Accordingly, we measure the market value of the direct equity stake of an average CEO in the top fifty S&P 500 manufacturing firms and compare it with the CEO equity stake market value of our sample BHCs (Table 3). On average, each BHC chief executive has nearly \$28 million invested in his firm, as opposed to \$133.8 million for each CEO of a manufacturing firm, although these results are skewed (the median BHC chief executive has \$11.9 million of investment, compared with \$9.6 million for the manufacturing firm CEO). Similarly, Houston and James (1995) report that nonbank CEOs in their sample have on average nearly eight times more invested in their firms than banking firm CEOs. It should be noted that their sample covers nonbanking firms, unlike ours, which includes only manufacturing firms. Therefore, CEOs of manufacturing firms on average have more invested in the equity of their firms than do chief executives of BHCs. Moreover, we note that CEO pay in BHCs is not tied to performance as much as it is in manufacturing firms. These observations suggest that CEOs in these two industries have different incentive structures.

## 4.5 Block Ownership

To compile our statistics on block ownership, we rely on the CDA/Spectrum Institutional (13f) Holdings Database of Thomson Financial. Institutional shareholding is our proxy for monitoring by blockholders. However, the corporate governance literature also emphasizes the importance of the identity of blockholders and individuals, as opposed to just the size of institutional holdings (see Holderness [2003]).<sup>30</sup>

Accordingly, we first examined the identity of the top three institutions holding a share of each BHC for each year in our sample.<sup>31</sup> We found that bank-affiliated institutions held a substantial amount of the shares of BHCs. For example, Barclays Bank PLC held 3.4 percent and Amsouth Bancorporation held 2.2 percent of the shares of Amsouth Bancorporation in 1999. Further examination of the data and discussions with bank-affiliated institutions revealed that such holdings are often the result of asset management activities, trust activities, or custodial activities.<sup>32</sup> Bank-affiliated institutions are unlikely to monitor the BHC over the course of these activities; therefore, to construct our summary statistics on institutional holders, we deleted all bank-affiliated institutions from the list of institutional holders of our BHCs in all years. We also examined the identity of institutions holding shares of manufacturing firms; however, we found very few cases of blockholders that were affiliated with manufacturing firms (for example, because the firm set up a foundation).<sup>33</sup>

Table 4 provides descriptive statistics on nonaffiliated institutional share holdings of our sample BHCs as well as of the S&P 500 manufacturing firms from 1986 to 1999. Total institutional holdings were on average between 37 percent and 47 percent of the shares of a BHC each year, with a sample mean of 42.4 percent (median: 42.7 percent)—far less than the holdings in manufacturing firms. As the table shows, there has been little change in mean holdings in BHCs over time. For example, institutions held on average 40.7 percent of each BHC in 1986 and 40.1 percent in 1996.<sup>34</sup> However, the number of institutions holding shares of each BHC has increased from nearly 108 in 1986 to 230 in 1996 and to 363 in 1999 (or 236 percent), suggesting that the size of an individual institutional holding has decreased over time. Panel A of Table 4 also indicates that the number of institutions that invest in manufacturing firms was larger in every year of the sample.

Panel B of Table 4 presents the statistics for the entire sample. On average, 535 institutions held shares of each manufacturing firm in the S&P 500, versus 204 for BHCs.

Institutions held 54.6 percent of each manufacturing firm, compared with 42.4 percent of each BHC; the difference was statistically significant. Because the literature emphasizes that top holders may have greater incentives to monitor the firm, we also calculated the top holding for each group. On average, we found that top holders held 5.2 percent and 5.4 percent of each BHC and manufacturing firm, respectively; the difference, however, was not statistically significant.

## 5. CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

Jensen and Meckling (1976) argue that board structure, ownership structure, and compensation structure are determined by one another as well as by a range of variables, such as risk, real and financial assets, cash flow, firm size, and regulation. They suggest that these variables also influence a firm's conduct and performance. Although other studies have examined these potentially complex governance relationships in unregulated industries, few have examined them in the context of a regulated environment. This article extends the current literature by comparing aspects of the corporate governance of regulated institutions—bank holding companies—with aspects of the governance of unregulated manufacturing firms.

We find that BHC boards are larger than those of manufacturing firms, although they have been declining in size over time.<sup>35</sup> BHC boards also have slightly more outside directors. These differences are very likely the outcome of BHC size and organizational structure, the regulatory framework, and constraints on the ability of BHCs to engage in hostile acquisitions. Thus, normative statements about either board size or board composition that do not take into account banking industry differences are potentially misleading. For example, Adams and Mehran (2002) show that in contrast to findings for nonfinancial firms, larger BHC boards on average are not value-decreasing, and that board composition is unrelated to BHC performance. The fact that board composition is not positively correlated with performance seems surprising, since bank supervisors share examination results with the boards of directors (and may visit the boards of banks that perform poorly and are low in capital). However, this lack of correlation is consistent with the theory that as a result of regulatory requirements, directors do not emphasize value maximization over the safety and soundness of the institution. Therefore, to understand how BHC governance

TABLE 4

### Comparisons of Descriptive Statistics on Unaffiliated Institutional Holdings Data for Bank Holding Companies and S&P 500 Manufacturing Firms, 1986-99

Panel A: Yearly Comparisons															
Variable	1986		1987		1988		1989		1990		1991		1992		
	BHC	S&P													
Mean number of institutions	107.9	375.6***	107.6	410.0***	129.1	417.4***	142.1	439.5***	127.8	451.3***	157.6	477.7***	184.6	498.5***	
Mean holding (percent)	40.7	53.0***	37.2	53.4***	38.3	52.5***	40.8	52.0***	38.5	53.6***	43.2	53.4***	47.5	54.5**	
Median holding (percent)	39.8	53.4***	31.6	53.2***	35.2	53.6***	37.8	53.0***	38.7	54.6***	48.3	54.8**	52.4	56.0*	
Mean holding of top holder (percent)	5.5	5.0	4.9	5.6	4.8	5.0	5.1	5.0	5.6	5.3	5.8	5.0	6.0	5.1	
Variable	1993		1994		1995		1996		1997		1998		1999		
	BHC	S&P													
Mean number of institutions	188.5	502.3***	186.1	511.0***	216.3	559.1***	230.2	586.7***	274.9	646.5***	318.4	736.1***	363.2	787.9***	
Mean holding (percent)	44.9	55.3***	42.1	54.2***	42.6	55.0***	40.1	55.4***	43.9	56.4***	45.0	57.4***	45.5	56.7***	
Median holding (percent)	48.3	56.4***	40.5	55.2***	37.9	55.9***	38.4	57.6***	42.9	57.7***	44.3	56.5***	45.0	58.5***	
Mean holding of top holder (percent)	5.5	5.2	5.3	5.5	5.1	5.6	5.1	5.7	4.7	5.8	4.9	5.8	4.4	5.8**	
Panel B: 1986-99 Comparisons															
Variable	BHC			S&P											
Mean number of institutions	204.2			535.4***											
Mean holding (percent)	42.4			54.6***											
Median holding (percent)	42.7			55.7***											
Mean holding of top holder (percent)	5.2			5.4											

Notes: The table presents summary statistics and statistical comparisons of selected unaffiliated institutional holdings data for our sample of bank holding companies (BHCs) and for all unregulated, nonfinancial S&P 500 firms from 1986 to 1999. All institutional holdings data are from the CDA/Spectrum Institutional (13f) Holdings Database of Thomson Financial. To construct data on unaffiliated institutional holders of BHCs, we examined the list of institutional holder names for each year and deleted bank-affiliated holders. We also deleted affiliated institutions (such as company foundations) in the S&P 500 sample from 1997 to 1999. Because we found only nineteen cases of affiliated institutions during this period, we did not extend this procedure to the S&P 500 data for all years. BHC sample data are not available for all firms for all years because of acquisitions of sample banks in 1997-99. For 1986-96, our sample consists of thirty-five BHCs; for 1997, 1998, and 1999, it consists of thirty-four, thirty-three, and thirty-two institutions, respectively.

\*\*\*Statistically significant at the 1 percent level.

\*\*Statistically significant at the 5 percent level.

\*Statistically significant at the 10 percent level.

relates to performance, it is important to also understand what BHCs expect from their outside directors, what the regulatory mandates are, and how outside directors balance these different expectations.

We also find that BHC boards have more committees and meet slightly more frequently than manufacturing firm boards. It is difficult to speculate on the costs and benefits to BHCs of having more committees.<sup>36</sup> However, one can argue that regulations on the number of meetings may influence the bank's choice of directors; thus, regulations can potentially affect the quality of directors willing to serve on these boards.<sup>37</sup>

In addition, BHC boards are found to rely less on long-term incentive-based compensation, such as stock options, in their CEO compensation packages; CEO ownership, in terms of percentage and market value, is also found to be smaller in BHCs. Since observed compensation packages and ownership are the outcome of a contracting process that takes into account industry structure as well as regulation, we should not expect CEO compensation structures to become similar to those of manufacturing firms in the near future.

Finally, fewer institutions hold shares of our sample BHCs relative to manufacturing firms, and institutions hold a smaller percentage of a BHC's equity. The question is whether institutions that do hold BHC stock are active in the governance of BHCs. We are unable to answer this question now since there have been very few documented cases of

institutions taking a reactive or proactive role in the governance of banking firms. It is possible that institutional investors prefer to resolve banking firms' governance issues privately (Carleton, Nelson, and Weisbach 1998), so as to avoid public announcements, which may also be destabilizing. Or, institutions may expect regulators to resolve the governance problems of BHCs. This remains an important area for future research.

The systematic differences found between the governance of banking and manufacturing firms highlight the point that governance structures are in fact industry-specific. We suggest that these differences are due to the differences in the investment opportunities of BHCs and manufacturing firms as well as to the presence of regulation. Our findings imply that governance reforms, in order to be effective, could take industry differences into account.

More generally, our results raise the bigger question of whether the governance structure of banking firms is optimal, in the sense that it maximizes shareholder value subject to the constraints imposed on these firms. To answer this question, future research will have to examine the effect of governance structures in banking on measures of firm performance. One step in this direction has already been taken by Adams and Mehran (2002), whose findings suggest at a minimum that differences between the board structures of banking firms and manufacturing firms may not be a cause for concern.

## ENDNOTES

1. In all likelihood, similar results will also hold for firms in the thrift industry, except during the conversion period, when insiders gain a significant equity stake in the conversion process (see Cole and Mehran [1998]).

2. The literature also identifies a conflict between stockholders, including managers, and bondholders (see, for example, Jensen and Meckling [1976] and Galai and Masulis [1976]). The conflict has been the source of much analysis on the effect of managers' risk-taking on depositors and the Federal Deposit Insurance Corporation (FDIC) insurance fund.

3. The literature on the governance of a general firm is reviewed elsewhere in this volume.

4. Boards, according to law, have two fiduciary duties to the company: the duty of care and the duty of loyalty (see Macey and O'Hara [2003] for a discussion and interpretation of these duties).

5. It is important to realize that the objectives of regulators and those of banking firms may not coincide, which could impact the governance, and in turn the conduct, of the firm. In theory, there is a conflict between the objectives of regulators—safety and soundness—and those of shareholders—value maximization. When a conflict exists between value maximization and the need to support prudent operations, regulators expect boards to balance these concerns effectively, by ensuring that bank performance as well as safety and soundness are taken into account. Little is known as to how these conflicts affect the ability of top management and boards of directors to serve these potentially divergent interests. Similarly, higher standards of accountability on the boards of regulated firms versus those of unregulated firms could hinder the ability of regulated firms to attract talented directors, which could adversely affect BHC performance—but it is unclear if this is the case. For example, a higher standard of accountability for bank directors and, arguably, well-defined regulatory expectations have led the government to sue directors to recover some of the losses in bank failures, particularly during periods of poor economic performance and large numbers of failures. Fearing litigation, many directors have stepped down, and numerous banks have had difficulty attracting directors (see Quint [1992]).

6. Examples of the regulatory expectations for bank boards are: 1) to establish bank strategies (Basel Committee); 2) to approve short-term business plans (OCC Director's Book); 3) to review and approve

proposed departures from long- and short-term business plans before they take place (OCC's Director's Book); 4) to review and approve budgets prepared by management (Federal Reserve Bank of Atlanta's New Director's Primer); 5) to establish policies that govern day-to-day operations (Federal Reserve Board Commercial Bank Examination Manual); 6) to adopt real estate appraisal and evaluation policies (Federal Reserve Board Commercial Bank Examination Manual); 7) to maintain an adequate allowance for loan loss reserve and review it on a quarterly basis (Interagency Policy Statement on Loan and Lease Losses); 8) to approve bank risk management policies annually (Federal Reserve Board Trading Activities Manual); 9) to establish limits on payment system net debit caps (Federal Reserve Board Payment System Risk Policy); 10) to approve the bank's Bank Secrecy Act compliance program (Federal Reserve Regulation H); and 11) to review monthly exposure reports (121 Report and New York State banking law).

7. For example, bank supervision that ensures that the bank complies with regulatory requirements could play a general monitoring role. John, Mehran, and Qian (2003) support this argument by showing that weak BHC examination ratings are correlated with high pay-performance sensitivity of CEO compensation.

8. An additional consequence of supervision playing a role in the governance of banking firms will likely be that capital markets will demand less disclosure from banking firms and markets will invest less in information production useful for investors in the banking industry.

9. John, Saunders, and Senbet (2000) argue that regulatory oversight has to take such incentive distortions into account when establishing procedures; regulation that accounts for the incentives of top management will be more effective than capital regulation in ameliorating risk-shifting incentives. The authors suggest that pay-performance sensitivity of top-management compensation in banks may be a useful input in pricing FDIC insurance premiums and designing bank regulation. Similarly, Cole and Mehran (1998) suggest that because insider ownership improves firm performance, and thus reduces the risk of default, regulators can encourage ownership as a "complement to, or substitute for, capital requirements, which generates their own inefficiencies" (p. 294).

10. For example, Hothchkiss (1995) reports that only 41 percent of CEOs of distressed firms were replaced in the month of filing and 55 percent were replaced by the time reorganization was approved.

## ENDNOTES (CONTINUED)

11. See Skeel (1999) for a similar discussion. Mehran and Winton (2001) further argue that liquidation of distressed firms in the banking industry and seniority of depositors' claims to management compensation contracts would cause CEOs of banking firms, all else equal, to demand higher compensation when they are nominated to these positions.

12. Few papers have focused on the effect of deregulation on the pay-performance sensitivity of CEO compensation (some examples are Hubbard and Palia [1995] and Crawford, Ezzel, and Miles [1995]). Jayaratne and Strahan (1998) provide evidence that relaxation of branching restrictions has lowered banks' loan losses and operating costs.

13. One of the consequences of industry homogeneity is that monitors rely more on objective measures of performance, such as stock or accounting returns, than on subjective measures, such as marketing strategy and the rate of product diffusion. See Aggarwal and Samwick (1999) and Kedia (forthcoming) for further discussion and evidence on the effect of product market competition on management compensation.

14. However, John, Mehran, and Qian (2003) show that the CEOs of BHCs with higher subordinated debt as a fraction of their assets have higher pay-performance sensitivity. They argue that subordinated debtholders, unlike other creditors, have incentives to monitor the bank, particularly with respect to its risk choices.

15. Becher and Campbell (2002) document 4 cash acquisitions in a sample of 146 mergers in the 1990-99 period. Given the banking industry's financial health and profitability in the 1990s and the size of the targets to bidders in the sample (about 5.5 percent), cash offerings are not a puzzle.

16. For example, the proposal to adopt risk-based deposit insurance for commercial banks in 1993 initially received significant opposition from the banking community. The view was that analysts might be able to back out the value of a bank's CAMEL rating by determining capital ratios and FDIC insurance premiums from its income statement. Thus, investors potentially would become more aware of a bank's risk. Opponents argued that riskier banks in need of equity capital may have difficulty issuing equity (see Cornett, Mehran, and Tehranian [1998a] for more information).

17. However, Boyd and Runkle (1993) argue that regulators rarely liquidate large distressed banks or BHCs. In the event of reorgani-

zation via acquisition by another bank, the failing bank often, but not always, loses its identity. In some cases, the management of the distressed firm is removed (changes in governance) but its identity continues. The authors argue that this minimizes potential survivorship bias in most samples of banking firms.

18. To address additional concerns about survivorship bias, we also examined the stock price performance of our sample firms relative to several benchmarks of publicly traded BHCs from 1986 to 1999. In each case, we excluded the sample firms from the benchmark. Over the 1986-99 period, the monthly raw stock returns of our BHC sample very closely matched the returns of benchmark portfolios, both on an equal- and value-weighted return basis, and the *t*-tests for the difference between portfolio returns on the sample and on the benchmark were not statistically significant. Because our sample firms do not outperform or underperform several benchmark bank portfolios in terms of stock returns, we argue that the observed characteristics of our sample BHCs' governance structures are not systematically different from those of other bank holding companies.

19. Bank primary capital is measured as the sum of the book value of common stock, preferred stock, surplus, undivided profits, capital reserves, mandatory convertible debt, loan and lease loss reserves, and minority interests in consolidated subsidiaries minus intangible assets.

20. Tobin's Q is measured as (book value of assets plus market value of equity minus book value of equity)/book value of assets. Return on assets is measured as net income/book value of assets.

21. For example, mean assets from a 1992-99 sample of 336 unregulated firms in the 1998 *Fortune* 500 were \$11.08 billion (Adams, Almeida, and Ferreira 2002), compared with \$40.9 billion in our 1986-99 sample.

22. We define an outside director as a board member who is not a top executive, a retired executive, a former executive, a relative of the CEO or the chairperson of the board, or an outside corporate lawyer employed by the firm at any point during our sample period. Although this definition of an outside director has been used extensively in the financial economics literature (see, for example, Weisbach [1988]), it is narrower than the banking regulatory definition in many states. For instance, the New York State Banking Department considers an outsider of a state bank's board to include a current officer or employee of the bank holding company and any affiliate of the bank. Directors who are neither insiders—that is, executives of the BHC—nor outsiders according to our definition are considered to be “gray.”

## ENDNOTES (CONTINUED)

23. On the one hand, the high proportion of outsiders in our sample is surprising because our classification of who is an independent outsider is stricter than it is in other studies: a director is not an outsider if he was an officer or had any business relationship with the BHC in any of the fourteen years of the sample. In contrast, most cross-sectional studies can only classify directors based on current employee status or business relationships. On the other hand, because these are banking firms, the proportion of outsiders may overstate the board's true independence, as lending relationships between the directors and/or the directors' employers and the BHC or its subsidiaries exist but are not disclosed in proxies. Unfortunately, it is difficult to obtain data on these lending relationships, so we cannot adjust our classification of directors accordingly.

24. The majority of directors of national banks must be selected from a certain proximity to the bank's head office (unless the residency requirement is waived by the comptroller).

25. It is not unusual for low-growth industries to experience waves of consolidation. Other industries that have experienced this phenomenon, besides banking, are the oil industry in the 1970s and the defense industry in the late 1980s.

26. We emphasize that the board *may have* less difficulty monitoring the actions of BHC chief executives than those of manufacturing firm CEOs. Our argument is not about monitoring by the capital markets. We contend that bank boards, like other boards, have private information that is unavailable to the markets. In addition, bank boards have access to regulators' examination reports. Whether the capital markets can do a better job of monitoring BHCs compared with firms in other industries has attracted researchers' attention in the past few years. For example, Morgan (2002), using ratings by bond analysts, finds much greater dispersion in issues of BHCs relative to those of other firms. He interprets this finding in support of "opaqueness" of bank assets. Flannery, Kwan, and Nimalendran (2002), using micro-structure data and dispersion of stock analysts, conclude that these analysts have no more or less ability to monitor BHCs versus nonfinancial firms in the S&P 500.

We argue that, although both sets of results are highly useful, a definitive conclusion on the "opaqueness" of BHC assets versus assets of other firms is premature. First, both studies are silent on the lessons of capital market studies on corporate decisions or events. For example, it has been shown that market reaction to equity issues by manufacturing firms is around -3.0 percent. Cornett, Mehran, and Tehranian (1998b) document a much smaller reaction, nearly -1.7 percent, for BHCs issuing equity. They also document a reaction not statistically different from zero for BHCs issuing equity that have

low capital relative to minimum regulatory capital. The simplest interpretation of this result is that the announcement of an equity issue is less newsworthy to the market or that the market anticipated the event. This is particularly true in cases of forced equity issue. Moreover, it has been shown that stock market reaction to share repurchase announcements by BHCs is not significant (see, for example, Billingsley et al. [1989]), in contrast to a 3.5 percent positive reaction by unregulated firms (see, for example, Rau and Vermaelen [2002]). Second, we document that BHC stock-return volatility is lower than that of manufacturing firms. One can decompose volatility into two components: asset volatility and leverage volatility. It is evident that banks are highly leveraged and a significant part of their volatility is due to leverage. That being said, the volatility of their assets should be even much lower relative, for example, to the asset volatility of manufacturing firms. Lower asset volatility makes it easier for the market, as well as the board, to evaluate the BHC. Given the significantly smaller announcement returns on corporate events in the banking industry as well as the lower volatility—and given the limited research on "opaqueness"—we are unable to make definitive statements about whether BHCs are more "opaque" or less "opaque" than firms in other industries. This remains an important area for future research.

27. See Core, Guay, and Kothari (1999) for more discussion.

28. However, the effect of options on ownership may not be large; Ofek and Yermack (2000) show that when top executives exercise their options to acquire stock, they sell the shares they already own.

29. For example, the largest BHC in our sample in 1999 had a book value of assets that was 2.2 times greater than that of the largest manufacturing firm. However, the same BHC's market value fell short of the manufacturing firm's market value in 1999.

30. We do not report holdings by individual blockholders, as BHC proxy statements indicate that these individuals were generally affiliated with the management of the BHCs in the sample.

31. We found an upward trend in the number of BHCs held by institutions over time: in 1986, only nineteen (or 54.3 percent) BHCs had institutional holdings; in 1999, the figure had increased to twenty-nine (or 87.5 percent).

32. For example, Barclays Bank PLC's holdings of Amsouth Bancorporation in 1999 were retained in a custodial capacity and Amsouth's holdings of its own shares were retained by a subsidiary bank as a pension manager.

## ENDNOTES (CONTINUED)

33. We examined the list of institutional holders of our sample of manufacturing firms from 1997 to 1999, but found only nineteen affiliated institutions to delete; therefore, we did not extend this procedure to the previous years. Note that since our deletion procedure is based on institutional names, we are likely to eliminate fewer institutions than necessary both from the manufacturing firms and from the BHCs.

34. These numbers increased slightly in the following years. However, the rise may be due to some BHCs dropping out of our sample in 1997-99.

35. Wu (2000) documents that the size of manufacturing firm boards is declining over time; thus, this does not mean that the gap between BHC board size and manufacturing board size is narrowing.

36. In general, committees are shaped in part by factors external to the board, such as regulatory bodies, interest groups, labor unions, and shareholders (see Hayes, Mehran, and Schaefer [2000] for a discussion of committee structures).

37. Future research could also consider the effect of directorship by insiders and outsiders on a director's ability to perform his responsibilities. Moreover, the potential negative effects of interlocks in the banking industry—that is, situations in which the CEO or chairman of a BHC is on the board of another company, while that other company's CEO or chairman is on the board of the BHC—warrant attention. Adams and Mehran (2003) discuss these and other governance issues not addressed in this article.

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