

**Explaining Corporate Governance:  
Boards, Bylaws, and Charter Provisions \***

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## **Explaining Corporate Governance: Boards, Bylaws, and Charter Provisions**

### **Abstract**

We provide arguments and present evidence that corporate governance structures are endogenous responses to the costs and benefits firms face when they choose the mechanisms that comprise those structures. In particular, an industry's investment opportunities, product uniqueness, competitive environment, information environment, and leverage help explain its corporate governance. Examining groups of similar corporate governance mechanisms shows that firm and industry factors can have quite different associations (in strength and direction) with the monitoring capabilities of the board of directors versus the shareholder orientation of corporate charter provisions. Although industry factors play a dominant role in explaining an index of total governance, we find that firm and industry factors contribute almost equally in explaining the variation of sub-indices capturing aspects of board structure and charter provision use.

The separation of ownership and control in corporations can result in costly agency conflicts between owners and managers. Impediments to monitoring and the existence of transactions costs imply that contracts alone cannot resolve such conflicts (Hart, 1995). Thus, corporate governance structures, consisting of a set of internal mechanisms (boards of directors, corporate charters) and external mechanisms (market for corporate control, legal and regulatory rules, investor monitoring, labor and product markets), arise to mitigate the agency conflicts. As pointed out by Jensen (1993), John and Senbet (1998) and Shleifer and Vishny (1997), the mechanisms within these sets interact to determine a firm's governance environment.

Interactions among the mechanisms imply that the individual elements of a firm's corporate governance structure are not independently determined. This determination depends not only on the control benefits received, but also on the costs (due to frictions and constraints) imposed on managers and shareholders. Because agency problems vary across firms, the net costs and benefits of alternative governance structures to control these problems also vary. Thus, the optimal cost-benefit tradeoff between structures depends on a particular firm's situation, including its investment opportunities, and its competitive, information, and regulatory environments.

Research on corporate governance has not addressed some important consequences of the heterogeneity in costs and benefits of various mechanisms across firms. First, although a growing body of work exists on the effects of certain governance mechanisms on firms' performance and decisions, there is little evidence on the factors that determine the endogenous presence or strength of these mechanisms. Second, researchers typically (and usually, necessarily) assign the broad term, "corporate governance," to the specific mechanism under focus, whether it be a mechanism like the independence of the board of directors or the presence of various antitakeover amendments.

We address these issues by considering which factors influence firms' choices of governance mechanisms. Specifically, we examine the extent to which industry characteristics are associated with firms' governance structures and whether or not the common economic factors across firms in the same industry affect their governance choices. Beyond industry effects, we study the degree to which firm-specific factors affect firms' governance choices, and how these choices change in response to peer practices and external pressure. Finally, by looking at individual governance mechanisms in isolation and in combination, we address a critical, but as yet, unasked question in the literature - does the researchers' definition of "corporate governance" have the potential to influence the interpretation of empirical analyses?

Our analysis employs a panel dataset of corporate governance mechanisms for more than 2,300 firms over four years. We investigate these firms' portfolios of governance mechanisms by focusing on indices of board characteristics, corporate charter provisions (e.g., antitakeover devices), and elements of law based on firms' states of incorporation. Furthermore, we analyze separately the sets of board variables and charter provisions. The analysis indicates that governance structures vary with both industry and firm characteristics, consistent with their being a function of the expected costs and benefits of different mechanisms.

We find that industry commonality in governance structures is associated with industry investment opportunities, product uniqueness, competitive and information environments, and average leverage. Industry factors contribute most of the explainable variation in overall governance structure and appear to dominate time effects and firm factors.

Focusing on the indices of board characteristics and charter provisions individually provides different interpretations. We find that firm factors and industry factors each explain approximately half of the observed variation of the individual indices. Since we also find that the industry factors dominate the total governance index, the implication of

these findings is that the aggregation of the two indices into one eliminates much of the explanatory power of the firm factors. We also find that the indices of board and charter provisions individually exhibit quite different associations with various firm and industry characteristics. At a broad level, the indices measuring the strength of board monitoring and the shareholder orientation of charter provisions are negatively correlated (e.g., strong boards are associated with management-friendly provisions and vice versa). These results suggest that viewing corporate governance in terms of only the features of the board, only the charter provisions, or as a combined single index, may mask important relations between governance mechanisms and features of the contracting environment.

Researchers (perhaps out of necessity) commonly focus on a smaller set of governance characteristics.<sup>1</sup> To help evaluate how their results fit into governance structures in a broader context, we provide evidence of how these characteristics are related to broader indices. For example, among the eight board characteristics we include in our analysis, board independence has the highest correlation with an equal-weighted board index. Among the nine charter provisions, classified boards, limiting shareholders' ability act by written consent, and limiting shareholders' ability to call special meetings have the strongest correlations with a provisions index.

In the following section, we review the relevant literature and discuss the rationale for focusing on industry-level effects when analyzing governance structures. We describe the data in Section 2 and present evidence regarding industry determinants of corporate governance systems in Section 3. Section 4 examines firm determinants of governance while controlling for broad industry influences. We provide concluding comments in Section 5.

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<sup>1</sup> While we have a broad set of governance data, it is by no means complete. For example, we abstract from aspects of governance such as the role of block ownership. We think of our data as capturing the features of governance most directly controllable by the firm: its board of directors, charter provisions, and state of incorporation.

## 1. Literature review

Although our three broad sets of governance choices – board structure, corporate charter provisions, and state of incorporation – have been studied extensively, previous empirical work has generally differed from our approach in at least one of four ways. First, many prior studies have focused on the effects of one of these mechanisms in isolation on firm value, performance, or specific corporate decisions (e.g., see Yermack, 1996, on board size, Weisbach, 1988, on board independence, or reviews by Hermalin and Weisbach, 2002, for boards of directors and Bittlingmayer, 1999, for the market for corporate control). In contrast, we consider a broad set of governance choices, similar to the approaches of Danielson and Karpoff (1998) and Gompers, Ishii, and Metrick (2003).

Second, most of these studies – including Gompers, Ishii, and Metrick (2003) – analyze the effects of (implicitly or explicitly) exogenous governance choices. Instead, we consider the endogeneity of the mechanisms themselves – that is, how governance mechanisms are associated with the firm's environment. Theory suggests that board structure, corporate charter provisions, and state laws have costs and benefits that vary depending on firms' characteristics and circumstances (e.g., John and Kedia, 2002; Raheja, 2002). If so, we would expect to find associations between governance choices and factors that influence their relative costs and benefits.

Studies that have explicitly addressed the endogeneity of governance include Agrawal and Knoeber (1996), Hermalin and Weisbach (1988, 2002), Smith and Watts (1992), Bushman, Chen, Engel, and Smith (2000), and Frye and Smith (2003). Agrawal and Knoeber estimate the relations between firm performance and a set of governance and agency-related mechanisms. They find interrelations between shareholdings of insiders, institutions, and large blockholders, the use of outside directors, debt policy, the managerial labor market, and the market for corporate control, and that inferences about their respective effects on performance can depend on controlling for endogeneity.

Hermalin and Weisbach argue that boards of directors are an endogenous response to agency problems. Smith and Watts suggest that the investment opportunity set and industry factors play a significant role in determining financial and governance policies. Bushman et al. argue that board structure, directors' equity incentives, ownership concentration and executive compensation will vary with firms' financial accounting systems and organizational complexity. Frye and Smith find that corporate governance structures for firms with initial public offerings differ systematically across financial versus nonfinancial institutions.<sup>2</sup>

Third, to our knowledge, our paper is the most comprehensive analysis to date, in terms of sample size and breadth of coverage, on corporate governance structures. Prior studies have typically been limited to large firms (e.g., Danielson and Karpoff, 1998), or have focused on just one particular aspect of corporate governance (e.g., Ferris, Jagannathan, and Pritchard, 2002; Yermack, 1996, on the board, and Gompers, Ishii, and Metrick, 2003, on antitakeover and charter provisions). Two studies that are somewhat similar in spirit to ours examine relations between corporate governance indices and firm-level characteristics in emerging markets rather than the US (Klapper and Love, 2003; Durnev and Kim, 2003). Both of these studies employ the Credit Lyonnais Securities Asia (CLSA) index of corporate governance rankings, which is based on questions posed to analysts for the companies. Klapper and Love find that firms in emerging markets with greater (past) growth, lower proportions of fixed assets, and shares traded in the United States markets have higher governance index rankings. Durnev and Kim find that firms with better investment opportunities, higher concentration of ownership and greater needs for external financing have higher governance rankings.

Fourth, our paper focuses to a large extent on the role of industry in governance, while much of the previous literature has focused on firm-level tests. In this sense, we

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<sup>2</sup> In addition, Kole and Lehn (1999) examine how some components of governance systems in the airline industry changed after a change in the regulatory environment.

build upon firm-level studies that provide some evidence of industry effects for the types of directors appointed (Agrawal and Knoeber, 2001), compensation contracts (Murphy, 1998; Aggarwal and Samwick, 1999), ownership structure (Demsetz and Lehn, 1985, particularly for media and regulated firms), and takeovers and restructurings (Mitchell and Mulherin, 1996).<sup>3</sup> At the industry level, Smith and Watts (1992) find evidence that the investment opportunity set is related to cross-sectional variation in corporate financing, compensation, and dividend policies. Such findings indicate that different aspects of governance, notably board structure, compensation contracts, managerial turnover, ownership structure, and the market for corporate control appear to be influenced by industry considerations. These findings also suggest that the relative magnitude of agency costs differs across firms and industries.

There is also evidence consistent with industry clustering of governance provisions and board characteristics due to factors unrelated to the costs and benefits of such structures. For example, Welch (2003) reports that when firms change their capital structures, they move toward the industry average. Similarly, Bizjak, Lemmon, and Naveen (2002) suggest that peer comparisons are common in setting executive compensation. These studies' findings suggest that elements of competitive benchmarking may influence corporate governance.

While these results suggest that industry may play an important role in the choices firms make regarding their governance structures, there is no direct evidence of the extent to which a firm's industry drives the broad structures it employs – either the many facets of the board of directors or the use of various charter provisions. Industry effects on governance mechanisms, if present, could be due to systematic factors across industries that are related to the costs and benefits of the mechanisms, or industry could have an

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<sup>3</sup> Another aspect of governance, CEO turnover, is associated with industry heterogeneity (Parrino, 1997) and the level of product market competition (DeFond and Park, 1999).



effect due to herding or peer comparisons and be unrelated to common cross-industry factors. This is the subject of our primary set of tests.

Conducting these tests at the industry level affords us several advantages. First, while there are well-known endogeneity issues prevalent in firm-level analyses (e.g., Coles, Lemmon, and Meschke, 2003), the industry approach mitigates these problems to some degree. From an econometric standpoint, in order to obtain consistent estimates, the explanatory variables need to be exogenous or at least pre-determined with respect to the dependent variable. Industry-level characteristics (e.g., due to product markets) are more likely to meet this requirement than firm-level characteristics, which are often determined jointly with governance. Our view is that a firm typically determines its governance taking its industry (and all that entails) as given. Second, pooling the data eliminates firm idiosyncrasies that could influence the results, which should provide more reliable estimates. Finally, industry aggregates are less affected by error-in-variables problems.<sup>4</sup>

Firm-level tests do have some advantages, however. Accordingly, we follow our industry-level analysis with a firm-level analysis that serves two purposes. First, we are able to examine the extent to which firm-level factors influence governance structures beyond industry factors. Second, within these tests, we also present evidence of which single characteristics are most strongly related to broad sets of characteristics.

## **2. Data and Construction of Governance Indices**

To examine the determinants of firms' corporate governance structures, we focus on each firm's board of directors, corporate bylaw and charter provisions, ownership, state of incorporation, and firm characteristics from 1997 to 2000. The sample includes the S&P Supercomposite 1,500 companies, and other large, publicly-traded corporations. The board data and information on charter provisions come from the Investor

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<sup>4</sup> Durnev, Morck and Yeung (2001) make similar arguments.

Responsibility Research Center, the firm characteristics data from COMPUSTAT, compensation data from Execucomp, the institutional ownership data from Thomson Financial, and the returns data from CRSP. To be included in the sample, the firm must have data from all sources for at least one year during the sample period.

We construct four indices that summarize the governance choices of the sample firms: one each for the board of directors, corporate charter provisions, and the state of incorporation, plus an overall or total index. An important consideration when interpreting these indices is that they are intended to be measures of the strength of monitoring or governance, and a difference exists between strong corporate governance and optimal corporate governance.<sup>5</sup> Stronger corporate governance does not necessarily imply optimal monitoring as the costs of stronger governance might at some point outweigh the benefits. For example, consider the role of independent directors on boards. According to many institutional investors and corporate oversight bodies, independent directors provide superior oversight as compared to directors with links to corporate management. The implication is that boards should consist of a majority of independent directors.<sup>6</sup> There are, however, costs of having too high a proportion of outsiders on the board. Outside directors do not have the detailed information that inside directors possess from their involvement in firms. In addition, outside directors may not have the same time and commitment as insiders due to their other responsibilities. In the extreme, a board consisting of exclusively outsiders could make poorer decisions than a board with some insiders.<sup>7</sup>

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<sup>5</sup> A second issue is that some corporate governance mechanisms may serve as substitutes. For example, Hallman and Hartzell (2003) find that termination incentives can substitute for executive compensation being sensitive to firm performance. Similarly, product market competition or debt (as a self-enforcing governance mechanism) may substitute for board oversight. The issue of substitutability remains an empirical question, one that we address further in this paper.

<sup>6</sup> See, for example, TIAA-CREF Policy Statement on Corporate Governance, March 2000, <http://www.tiaa-cref.org/libra/governance/index.html>.

<sup>7</sup> Consistent with our presumption, Raheja (2002) derives equilibrium board structures. In her setting, the optimal board composition varies and is not 100% independent. See Bhagat and Black (1999) for an analysis of the relation between board independence and firm performance.

As noted earlier, factors likely to affect governance structures include investment opportunities, information uncertainty, product uniqueness, and the competitive nature of the product market. We discuss each of these in turn and suggest directionality based on our priors. However, our goal is to determine the extent to which industry factors can explain observed variation in governance structures. Thus, the directions of the associations between the governance structures and the factors are of secondary importance relative to the existence of a significant association.

In terms of investment opportunities, managers facing attractive opportunities may have greater discretion in project selection than those facing less attractive investment opportunities, suggesting potentially high payoffs to board monitoring. Manager's discretion may also be affected by product uniqueness because unique products can generate market power and the ability to earn quasi-rents. In such cases, it may be less critical if a mistake is made; thus, the benefit from monitoring is lower.

In noisy environments, where managers face riskier outcomes to their decisions and monitoring costs for outsiders are high (Demsetz and Lehn, 1985), board monitoring by independent directors is relatively inefficient. Supporting this view, Hermalin and Weisbach (1988) show that with poorer information the option to fire management is less valuable. Consequently, the intensity of board monitoring declines in such a case.

Finally, the competitive environment can affect corporate governance structures in opposite directions. If product market competition disciplines managers, then the marginal benefit of additional governance would be low as competition would substitute for other mechanisms (Leibenstein, 1966; Hart, 1983). Alternatively, a competitive environment could raise the marginal cost of poor managerial decisions, resulting in a positive association between competition and internal governance strength. Thus, we view the direction of this relation as an empirical question, which we address in the analysis.

Previous research suggests two other external factors that might serve as monitoring mechanisms. The first factor is the firm's regulatory environment. Demsetz and Lehn (1985) argue that firms in regulated industries should require less internal monitoring due to regulatory agency and government oversight. The implication is that governance should be less restrictive for firms that operate in regulated industries. The second factor is the firm's capital structure. Some industries are more able to support high debt levels, due for example to greater tangible assets or cash flow. Jensen (1986) and Hart (1995) argue that debt provides a self-governance mechanism for managers. Based on their arguments, we expect to observe industries with more debt to have corporate governance structures that are similar, and oriented more toward shareholders rather than management.

Table 1 provides the descriptive statistics of these variables for the 2,341 sample firms. The sample firms have an average age of 45 years, which implies that they have had sufficient time to converge toward their respective desired corporate governance structures (ignoring shocks). The average return over the 1997 to 2000 period is 14.7%, with a majority of the firms earning between -7.2% and 30.9%. Our proxy for the firm's Tobin's Q ratio has a mean of 2.18 and a median of 1.49, reflecting the high market valuations during our 1997-2000 sample period.<sup>8</sup> The average book leverage is 21.8%.<sup>9</sup> The ratio of management's incentive compensation to total compensation averages 0.45 across the firms.<sup>10</sup> Institutions have a significant presence in our firms, with mean ownership of 56.1% of the outstanding shares. We also calculate a Herfindahl index of fractional institutional ownership as a measure of the concentration of institutional

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<sup>8</sup> We compute Tobin's Q as  $[\text{Shares Outstanding (Compustat data item 25)} * \text{Price (Compustat data item 24)} + \text{Total Assets (Compustat data item 6)} - \text{Common Equity (Compustat data item 60)}] / \text{Total Assets (Compustat data item 6)}$ .

<sup>9</sup> We define book leverage as  $\text{Long-term Debt (Compustat data item 9)} / \text{Total Assets (Compustat data item 6)}$ .

<sup>10</sup> Compensation for up to five managers for each firm is derived from Execucomp. We define the ratio of management's incentive compensation to total compensation as  $(\text{Black-Scholes Value of Options Granted} + \text{Value of Restricted Stock Granted} + \text{Long-term Incentive Plan Payouts}) / \text{Total Direct Compensation}$ .

ownership. The mean of this measure is 0.023. Finally, we calculate the ratios of selling expenses and capital expenditures to sales, which have means of 0.277 and 0.092, respectively.

### *2.1. Board Index*

The most prominent governance mechanism that managers can affect is the board of directors, whose duty is to represent the shareholders. In order to construct a board index, we need guidance as to what makes a stronger board. Previous research suggests that board characteristics affect the board's effectiveness and that the important characteristics include board size, independence, and composition (John and Senbet, 1998). For example, communication and coordination problems with larger boards imply that smaller boards are more efficient (Jensen, 1993; Yermack, 1996), but for some industries, such as commercial banking, the benefits from a larger board (such as political clout with a regulatory body as in Agrawal and Knoeber (2001) or help with attracting more business) may outweigh the increased communication and coordination costs. The independence of directors, considered important in determining the monitoring capabilities of a board (Fama and Jensen, 1983; Weisbach, 1988; Brickley, Coles, and Terry, 1994; Borokhovich, Parrino, and Trapani, 1996), may be more important for some types of firms than others. Similarly, the independence of board monitoring committees, i.e., the audit, compensation, and nominating committees, although considered important by many regulatory bodies and investors (John and Senbet, 1998; Gillan and Starks, 2000; Deli and Gillan, 2000) may be more important in some industries than others.<sup>11</sup>

Two other issues pertaining to board structure are the separation of the chief executive officer (CEO) and chairman of the board (COB) positions and the presence of a lead director. Although arguments have been made and evidence presented that

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<sup>11</sup> For example, recently proposed New York Stock Exchange listing standard changes require that boards be comprised of a majority of independent directors and that audit, compensation, and nominating committees be composed solely of independent directors.

separating the CEO and COB positions is in shareholders' interests (Jensen, 1993; Goyal and Park, 2002), Brickley, Coles, and Jarrell (1997) provide contrasting evidence that the costs of separating the CEO and COB positions may exceed the benefits. Rather than separate the two positions, others advocate designating a lead independent director.<sup>12</sup>

In summary, existing research suggests that small boards with a majority of independent directors on the board and on board committees provide the strongest monitoring capabilities. Although the evidence is mixed on separating the CEO and chair positions and designating a lead director, doing so may improve the board's monitoring of corporate management. If board structures are not an endogenous result of the costs and benefits of these structures, then the existence of certain structures would not be related to particular firm or industry characteristics. In contrast, our hypothesis suggests that the costs and benefits of each of these structures would vary across industry and firm characteristics and that for some industries and firms, these structures would be more prevalent than for others.

Panel A of Table 2 provides descriptive statistics for the sample firms' board structures. For most of the firms, board size ranges from seven to 11 directors, with an average of about nine directors. A little over one-quarter of the firms (27%) have separated the board chairman and CEO positions. Only one percent of the firms have designated lead directors. Across the firms an average of 59% of the directors are classified as independent.<sup>13</sup> In terms of the committee configurations for these firms, 100% have audit committees composed of an average of 82% independent directors; 99% have compensation committees with an average of 85% independent directors; 57% have nominating committees with an average of 71% independent directors and 23%

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<sup>12</sup> See CalPERs' US Corporate Governance Principles <http://www.calpers-governance.org/principles/domestic/us/page01.asp>.

<sup>13</sup> We define an independent director as one that is not affiliated with the firm as an executive or in any other capacity. Thus, our measure is similar to those in the prior literature that have classified directors as "inside," "outside," or "grey."

have corporate governance committees.<sup>14</sup> These statistics show that by the late 1990s, most firms have boards composed of a majority of independent directors and their audit, compensation, and nominating committees are largely composed of independent directors.

To form our board index, we assume that the monitoring capability of a board is: decreasing in the size of the board (e.g., Jensen, 1993; Yermack, 1996), increasing in director independence (e.g., Fama and Jensen, 1983; Weisbach, 1988; Brickley, Coles, and Terry, 1994; Borokhovich, Parrino, and Trapani, 1996), increasing in the separation of chairs and CEOs (Jensen, 1993), and increasing in the existence of separate committees and the independence of those committees (Klein, 1998). For the individual board characteristics, we calculate percentile rankings where the high score indicates the direction of stronger monitoring. For each firm, we then average these percentile rankings to obtain the firm's board index. By design, then, the average board index across the firms is close to 50; in this case 49.08, with a median of 49.75.

## *2.2. Governance Provision Index*

The second major set of internal governance mechanisms is a firm's corporate charter and bylaws, the set of rules and procedures under which each firm operates. The importance of the charter and bylaw provisions and their effects as governance mechanisms is evidenced by shareholder proposals seeking amendments to such measures (e.g., Gillan and Starks, 1998, 2000). The provisions that have been identified as most prevalent include share structures in which there is a separation of cash-flow rights and voting rights, and certain amendments, such as blank-check preferred stock, classified boards, fair-price restrictions, limiting shareholder ability to call special meetings or act by written consent, poison pills, or supermajority voting requirements (see Appendix

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<sup>14</sup> Many companies have combined nominating and governance committees. Consequently, we focus on the existence and independence of nominating committees, and simply track the existence of governance committees.

A for a more detailed discussion of each of these provisions).<sup>15</sup> Announcements of the adoption of many of these amendments have been met with negative stock price responses, indicating shareholders perceive them as wealth-reducing (e.g., Jarrell and Poulsen, 1988a, 1988b). Some of the amendments, however, are viewed as positive for the firm; for example, Bhagat and Brickley (1984) argue that the adoption of cumulative voting, which affords minority shareholders the possibility of board representation, is associated with enhanced corporate value. Moreover, Brickley, Coles, and Terry (1994) report that the market reaction on adopting poison pills is related to board independence, with a more positive reaction the greater the board independence.

According to our hypothesis, the use of these amendments should vary systematically across industries because the costs and benefits vary due to industry characteristics. Alternatively, they could vary because there is some industry commonality such as the use of the same attorneys in constructing the corporate charter. To examine the variation in these provisions across the sample, we assign a dummy variable for the presence of each governance provision discussed above. Panel B of Table 2 provides the descriptive statistics. We find that relatively few firms have diluted their common shareholders' voting power as only about 13% have unequal voting rights. Cumulative voting is also rare with only about 10% of the firms having such a provision. Three provisions occur at a majority of firms: classified boards are in existence at 59% of the firms, poison pills at 53% and blank-checked preferred at 89%. In contrast, less than fifty percent of the firms have limited their shareholders' ability to call special meetings or act by written consent, and fewer than one third of the sample firms have supermajority voting requirements or fair-price provisions. In a series of pairwise correlations for the charter provisions (not tabulated) we find results similar to those of Gompers, Ishi, and Metrick (2003) suggesting that some provisions tend to be used in concert. For example,

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<sup>15</sup> For example Bebchuk, Coates, and Subramanian (2002) argue that classified boards and poison pills are particularly important antitakeover measures, while Romano (2003) argues confidential voting is not.



we find that 65.2% of firms with classified boards have poison pills, compared to 40.9% of firms with annual director elections. Similarly, 56.9% of firms with a supermajority provision also limit shareholders' ability to act by written consent, while in contrast, only 26.5% of firms without supermajority provisions limit shareholder actions by written consent.

To capture the diversity of the corporate charter provisions we construct a provisions index in a manner similar to that of the board index. Here, the presence of a provision is considered to provide management with less restrictive governance (with the exception of the cumulative voting provision, which works in the opposite direction). Again, we employ percentile rankings of each provision and by design, the average charter provision index is nearly 50% because it is based on the average across each firm's percentile rankings for each provision. A firm with a high charter provisions index has fewer corporate governance provisions in place. Put another way, the higher the governance provisions index, the more the firm's governance is in shareholders', rather than management's, interests.

### *2.3. State Law Index and Total Governance Index*

The remaining major factor in the firm's governance structure is the state of incorporation. State laws offer firms varying levels of antitakeover protection and may negate firms' need to adopt charter amendments. In fact, Bebchuk and Cohen (2002) find that states offering stronger antitakeover protections are more successful in attracting out-of-state incorporations and more successful in having local companies incorporate in-state. Differences in firm or industry characteristics may lead some firms to incorporate (or reincorporate) in a particular state, while other firms do not perceive the benefits to outweigh the costs. We employ seven indicators of state governance laws: the presence of a control share acquisition statute, a fair-price statute, freeze-out restrictions, poison pill endorsement, a director duty provision, a short-term profit provision, and incorporation in

Delaware (see Appendix B). The first six indicators are derived from Bebchuk and Cohen (2002) and Gartman (2000), while the seventh indicates incorporation in Delaware, given that state's extensive case law and its prominence as a corporate domicile.<sup>16</sup> As in our previous governance indices we also use a percentile ranking for the state index in which each firm is ranked on the seven measures based on state of incorporation law. The highest rank indicates the absence of the antitakeover provisions.<sup>17</sup>

Finally, we construct a total governance index for each firm by taking the average ranking for each firm across all of the governance provisions in order to avoid weighting one provision more than any other (note that this is not an average of the three separate governance indexes). We focus on the total governance index and two of its components, the board index and the provision index.<sup>18</sup> These indices differ from those of other researchers in both their purpose and construction. Gompers, Ishii, and Metrick (2003), who examine different hypotheses than we do, derive their governance index as the sum of 24 possible charter provisions. In contrast, for our charter provision index, we focus on nine of the most prevalent charter provisions and rather than summing the provisions for an index, we use percentile rankings across firms. Bebchuk and Cohen (2002), who focus on the effects of state of incorporation, derive a state charter index that is similar to our state index, but we omit one of their indicators. We omit the law requiring staggered boards, because we use the existence of staggered boards directly in our charter provisions index.

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<sup>16</sup> Bebchuk and Cohen (2002) term the first five as standard antitakeover devices and the sixth as an extreme device (only Pennsylvania and Ohio have such a law).

<sup>17</sup> If we omit Delaware as a separate state indicator, we derive an index with a correlation of over 90% with the index including Delaware separately.

<sup>18</sup> Although we employ the state index in our total governance index, we do not analyze the state index separately. Bebchuk and Cohen (2002) provide an extensive study of the state of incorporation.

### **3. Empirical Evidence on Industry Factors**

We first test whether systematic industry factors exist in observed corporate governance measures adopted by firms. We categorize industries according to Fama and French (1997) and average the governance structures across firms within each industry. Appendices C and D report the average board and governance provisions by industry. Examining these statistics by industry shows substantial variation in board structures across industries. For example, the average percentages of independent directors on boards in the entertainment, beer and liquor, or textile industries are 43-44%, while the average percentages of independent directors on boards in the precious metals and aircraft industries are over 70%.

We next investigate whether these differences across industries are driven by common factors that differ across industries. As hypothesized in Section 1, the predominant factors in an industry environment expected to affect constituent firms' corporate governance structures are factors that capture the investment, competitive, monitoring and information environments in which the firms operate. We use the industry's average Tobin's Q ratio as our proxy for the firm's investment opportunities. We attempt to capture the competitive structure of the industry with two different proxies. The first is a proxy for the degree of product uniqueness, the industry's average ratio of Selling Expenses to Sales, following the Titman and Wessels (1988) argument that firms with unique products advertise more. The second proxy is a Herfindahl index of the firms' market shares.

To capture the self-governance characteristics of leverage, which may lessen the need for other governance devices, we average the book-leverage measure across all sample firms in the industry. Similarly, since regulatory compliance may substitute for other governance mechanisms, we employ an indicator variable for the utility, banking, insurance, and trading industries. Our measure of the information environment is return

volatility, measured as the average standard deviation of monthly returns for firms in that industry. This measure captures the uncertainty that investors face in the financial markets, and the noise in trying to assess managers' actions.

We also control for compensation structure by incorporating a measure of pay-for-performance (calculated as each industry's average proportion of compensation that is incentive based (*Incentive Pay / Total Pay*)). Finally, we use dummy variables for the years 1998, 1999, and 2000, to both control for time effects and determine if there are significant differences across the years in the sample.

To test the role of these factors in explaining governance, we present in Table 3 the results from a series of regressions in which the dependent variables are the governance indices and the independent variables are proxies for industry characteristics.<sup>19</sup> The dependent variables are the total governance index in model (1), the board index in model (2), and the charter provision index in model (3).<sup>20</sup> In addition to the coefficient estimates, the table presents t-statistics, where the estimated standard errors are robust to heteroscedasticity (see White, 1980), and corrected for clustering within industries over time. This correction implies that our degrees of freedom equal the number of industries (not industry-years) and our significance levels reflect this.

According to the results for model (1), the total governance index is related to the industry's investment opportunities (using our proxy, Tobin's Q), its product uniqueness, its degree of competition, and its average leverage. The total governance index is not significantly related to industry volatility, to the presence of regulation, or to the structure of executive compensation within the industry.

Examining models (2) and (3) along with model (1) provides insights as to whether the significance of the coefficients on the total governance index derives from the board

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<sup>19</sup> In this set of regressions we omit the industry category "other" because we are examining systematic industry factors and the "other" category contains a diverse set of firms that cannot be otherwise categorized. Thus, we would not expect systematic factors to exist for this group.

<sup>20</sup> Although the dependent variables have finite support, we use ordinary least squares regressions, as we do not have observations near the support limits of zero and 100.

index or the provision index (or both). First, the relation between investment opportunities and the total governance index appears to stem from board structure rather than from governance provisions. This relation is consistent with the hypothesis that the benefits of board monitoring are higher in industries with greater growth or investment opportunities.

In contrast, a negative relation exists between the total governance index and the industry's product uniqueness. This negative relation is driven largely by the relation between the board index and product uniqueness, implying that industries with unique products are less likely to have stronger monitoring through their board of directors. This result is consistent with the idea that managers in some industries are allowed more flexibility in decision-making. Further, if one assumes that industries with unique products are those requiring more managerial initiative, this result is also consistent with the theory of Burkart, Gromb, and Panunzi (1997) that excessive monitoring can harm managerial initiative.

The results show that an industry's governance structure is significantly related to its competitive environment. Firms in less competitive environments, as measured by the Herfindahl index of product market concentration, have governance structures that are more management-oriented (a combination of weaker boards and more charter provisions in place).

The industry's information environment (based on the return volatility proxy) is significant in each of the constituent indices in opposite directions: industries with greater volatility have weaker board structures, but fewer charter provisions. The net effect leads to no relation with the total governance structure. This is consistent with the argument that board monitoring costs are higher in less stable or noisier environments, but that other governance structures may be put in place to substitute for board monitoring.

Industries with greater financial leverage are, on average, associated with less restrictive governance structures. This result is driven by the relation between leverage and the board index, and is consistent with arguments by Jensen (1986) and Hart (1995)

that leverage imposes discipline on the managers, reducing the need for a strong board of directors. We observe no significant relations between board structure or charter provision use and industry regulation.

Finally, the total corporate governance index does not differ significantly across the different years in the sample (1997-2000). However, there are significant differences in board structures and by-law and charter provisions across the years. The signs of the coefficients suggest that board structures are stronger in each of the years 1998-2000 than in the first year in the sample, but that charter provision use increases. F-tests for differences between the annual dummy variables indicate that these changes were progressive during our sample period.<sup>21</sup>

The results in Table 3 provide evidence of systematic variation in governance that can be explained by industry factors. They also indicate that studying either board structure or charter provisions alone can lead to different conclusions as to how governance relates to industry characteristics. This is a topic we return to when we analyze firm-level patterns in Section 4 below.

#### **4. Empirical Evidence on Firm Factors**

In this section, we incorporate firm characteristics into the analysis to explore the relative importance of firm versus industry factors in explaining governance structure variation. The issue we address is the degree to which governance structures are associated with firm-specific factors after controlling for industry. We begin this analysis by effectively replacing the industry-level variables with firm-level variables. We omit the measures of industry concentration, selling expenses to sales, and regulated industries, and instead include industry dummy variables to capture the net of these effects. We

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<sup>21</sup> The F-tests show that for the board index regressions all three annual dummy variables are significantly different from each other. For the provision index regressions, 1998 was significantly different from 2000, as was 1999, but 1998 and 1999 were not significantly different from each other.

include the natural logarithm of assets (as a measure of firm size), book leverage, and director and officer percentage equity ownership (to recognize that such ownership could affect board structure and charter provision use). We also incorporate the ratio of top-manager incentive compensation to total compensation. Two measures of institutional ownership are used. The first is total percentage of equity held by institutions. The second is a measure of institutional ownership concentration: a ranking of institutional ownership Herfindahls.<sup>22</sup> Finally, we incorporate the log of firm age and firm volatility (the standard deviation of monthly returns).

One industry-level factor that we still include in the firm-level regressions is a measure of investment opportunities. The rationale is that, although there is a systematic industry factor in investment opportunities, these opportunities can also vary across firms within an industry. A complicating factor at the firm level, however, is the possible endogeneity between our measure of investment opportunities, Tobin's Q, and the governance indices. Tobin's Q reflects market valuations and growth opportunities, thus, if investors value certain corporate governance structures (as suggested by Gompers, Ishii, and Metrick, 2003), the valuation effects in Tobin's Q may lead us to inappropriate conclusions. To address this issue, we also use the ratio of capital expenditures to sales as an alternative measure in order to capture the growth-opportunity implications of Q without the valuation effects.<sup>23</sup> Because of this and similar potential endogeneity problems, we view these firm-level tests as exploratory and focus to a large extent on the overall explanatory power of the regressions.

Table 4 reports the results of regression analyses examining the relation between the governance indices and firm-level characteristics. Dummy variables control for industry and year effects (the coefficients on these dummies are not included in the table

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<sup>22</sup> We use a ranking of a Herfindahl index of institutional ownership concentration because of outliers in the percentage of institutional ownership variable. This approach is consistent with that of Hartzell and Starks (2002).

<sup>23</sup> In order to mitigate the effect of outliers, we exclude observations where capital expenditures are greater than sales.

for the sake of brevity). The reported coefficients can be interpreted as estimating the effect of within-industry variation. The proxy for investment opportunities is Tobin's Q in Models (1), (3) and (5) and the ratio of capital expenditures to sales in Models (2), (4) and (6). Given that our findings are generally robust to the alternative specifications, we focus our discussion on the results using Q as the dependent variable, but discuss interesting aspects of the alternative specification.

The results in Table 4 suggest that firm-level relations between corporate governance structures and investment opportunities differ somewhat from those at the industry level. In the total index, model (1), Q does not appear to be related to governance structure, however, in model (3) we see that firms with high growth opportunities tend to have weaker boards, which is a result counter to our finding in the industry analysis. The difference is that in this analysis we are holding industry constant, while in the previous table we were taking averages within an industry. Thus, across industries, high growth opportunities are associated with stronger boards, but within industries, the higher-growth-opportunity firms tend to have weaker boards. There is no significant association between Q and the provisions index. In models (2), (4) and (6), we observe that although the ratio of capital expenditures to sales is negatively associated with the board index, it is not significantly associated with the charter provisions index or the total index.

The total governance index is negatively related to firm size. Examining the components of the total governance index suggests that the relation is driven by the use of corporate charter provisions, as larger firms tend to use more charter provisions. We observe no relationship between firm size and the board index, *ceteris paribus*. In contrast to the industry-effects regressions, higher firm leverage is not associated with the board index, but is associated with increased provision use at the firm level.

The influence of directors and officers as measured by their equity ownership is significantly related to all three indices. Companies in which directors and officers have



more ownership have weaker board structures, but use fewer charter provisions, implying a stronger charter. The net effect is a weaker total governance structure. Although one might at first argue that this effect provides evidence of managerial entrenchment, the lower level of antitakeover measures in such firms is inconsistent with such an argument.<sup>24</sup> The evidence is more consistent with the hypothesis that directors' and officers' equity ownership provides its own incentive effects and that other elements of the board index provide few additional monitoring benefits.

The proportion of incentive-based compensation is positively related to the board index, but negatively related to the provisions index. This suggests that firms with stronger boards use more incentive-based compensation for management, while firms with more charter provisions rely less on incentive-based pay. These influences offset in the total governance index, which exhibits at most a weak positive association with the ratio of incentive pay to total pay.

Although total institutional ownership generally lacks significance, companies in which institutional ownership is more concentrated have stronger board structures. This result is consistent with institutional shareholder activists and governance proponents advocating increased board independence. The association between institutional ownership concentration and the charter provisions index is not statistically significant.

Firm age is significantly positively related to the board structure index, implying that older firms have stronger board structures. This result may reflect the higher cost to younger firms of increased board monitoring (e.g., due to inhibiting managerial initiative) relative to older firms. In contrast, firm age is not significantly related to the total governance index. Since there is no significant relation between firm age and the charter provision index, the absence of significance from the board index to the total index is likely to be driven by an offsetting negative effect from the third component of our total

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<sup>24</sup> The net effect of fewer antitakeover amendments on managerial entrenchment would depend on whether director and officer ownership is significant enough to effectively block acquisition attempts.

governance index, the state index. Further analysis confirms this to be the case; there is a significant negative correlation between the state index and firm age. Older firms tend to be incorporated in states with more business-friendly provisions, consistent with the results of Bebchuk and Cohen (2002). This result is also consistent with Field and Karpoff (2002) who report that seasoned firms are incorporated in more business-friendly states than are IPO firms.

Finally, we find a strong positive relation between a firm's corporate governance structure and its information environment (within the industry) as reflected in the return volatility. Interestingly, the lack of significance between volatility and the board index indicates that the relation in the aggregate is driven by charter provisions. That is, firms with a more uncertain information environment have fewer charter provisions, consistent with the industry-level results of Table 3.

#### *4.1. Explanatory power of firm-level factors vs. industry-level factors*

We test for the joint significance of firm-level variables in two ways. First, using F tests, we can reject the null that all the coefficients on the firm-level variables are jointly zero for all specifications, implying that the firm-level variables add explanatory power after we control for industry and time effects. Second, to estimate the economic significance of this increase in explanatory power, we also estimate a series of models regressing each index on only industry dummies, year dummies, and/or industry-year dummies.

The R-squareds from these models are reported in Table 5. They show that for the samples used in columns (1), (3), and (5) of Table 4, industry alone explains 8.6% of the variation of the total governance index, 9.4% of the board index, and 5.8% of the charter provisions index. The results for the charter provision index contrast with those of Danielson and Karpoff (1998) who find evidence of relations between board composition, ownership structure, and provision use, but conclude that the overall use of governance

provisions is not systematically related to industry grouping.<sup>25</sup> Adding year dummies increases the (unadjusted) R-squareds to 8.8%, 10.4%, and 6.1%, respectively. Using dummies for each industry-year combination provides another small increase in R-squared, to 9.6%, 11.4%, and 6.6%, respectively, with a drop in adjusted R-squareds. This indicates that industry controls contribute far more in explanatory power than controls for time in our (relatively short) sample.

Comparing these to the R-squared values for the full models in Table 4 (which include industry and time dummy variables along with the firm factors) provides some evidence of the ability of firm factors to add explanatory power beyond industry and time. The Table 4 R-squared of 10.5% compared to the industry or industry and time R-squareds from Table 5 shows that the addition of firm-specific factors adds little to the amount of explained variation. In contrast, a similar comparison for the two component indices shows that firm-specific factors explain roughly the same amount of variation as industry and time.<sup>26</sup>

#### *4.2. Correlation structure of characteristics and indices*

The apparent heterogeneity in the relations between our three indices and various factors suggests that there may be substantial cross-sectional variation in the use of various mechanisms. This variation is important both as evidence of differences in costs and benefits of alternative mechanisms across firms, and at a practical level for users of governance data who employ perhaps one mechanism (e.g., board independence) or set of mechanisms (e.g., antitakeover provisions) as a proxy for a firm's governance. In this

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<sup>25</sup> This contrast could be due to our larger, more recent sample, and/or our finer industry partition. Danielson and Karpoff (1998) have data for about 500 companies from 1984-1989, and use 25 industries based on SIC classifications.

<sup>26</sup> Note that given the small change in explained variation from industry and year dummies to industry-year dummies, the contribution of firm-specific factors is not being driven by common variation in the factors within industries over time.

subsection, we analyze the correlations among our indices and between the indices and their components.

Table 6 presents both Pearson and Spearman (rank) correlations for our three indices using the firm-level observations. Given their construction, it is not surprising that the total index is significantly positively correlated with the board and provision indices, with correlations in the 0.55 – 0.58 range. However, it is somewhat surprising that our board and provision indices are actually negatively correlated. This implies, for example, that companies with stronger boards tend to have charter provisions that are tilted more toward management's interests rather than those of shareholders.

Table 7 presents Pearson and Spearman correlations for the indices with each of the board and charter provision components. Also presented is the correlation between our indices and the "G" index of Gompers, Ishii, and Metrick (2003), where we use the opposite of their index so that the interpretation of large scores is comparable to ours.<sup>27</sup> Data for their index is available for two of our sample years, 1998 and 2000.

Column (1) of Table 7 provides the correlations of the total governance index with the individual components. The results show that among the board characteristics used, the independence of the board, audit, and nominating committees have the highest correlation to the total governance index. Among the charter provisions, the presence of a classified board, a supermajority voting requirement, limiting shareholders ability to call a special meeting, and acting on written consent have the strongest correlations. The last row of column (1) also shows that our total governance index, which incorporates characteristics of boards, charter provisions, and state laws, has about a 50% correlation with the Gompers, Ishii, Metrick (2003) charter provisions index.

Column (2) of Table 7 reports the correlations of the individual characteristics with our board index. As shown, board independence is highly correlated with the board index,

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<sup>27</sup> Because the Gompers, Ishii, Metrick (2003) index is increasing in management-friendly provisions, while ours is decreasing in management-friendly provisions, we use the opposite of their index for the comparison.

with correlations of almost 0.8. Thus, as a single measure, the independence of the board appears to capture much of the variation of our equal-weighted index of eight board characteristics. The independence of the board committees also have high correlations with the overall board index in contrast to the charter provisions, which have low correlations. Consistent with our results from Table 6, which show a strong negative correlation between our board index and our charter provision index, Table 7 shows a negative correlation between our board index and Gompers, Ishii, and Metrick's (2003) charter provisions index.

Column (3) of Table 7 reports the correlations of the individual components with our charter provisions index. The results show little relation between that index and the board characteristics. The results also indicate that three different charter provisions have similarly strong correlations with the provision index: the ability to act by written consent and call special meetings, and the presence of a classified board. Finally our charter provisions index, which includes eight charter provisions, has about a 72% correlation with the Gompers, Ishii, and Metrick (2003) charter provision index, which includes 24 charter provisions.

The results of Tables 6 and 7 combined with the evidence across columns in Tables 3 and 4 provide three important insights into analyzing corporate governance structures. First, there appears to be no "one size fits all" prescription for individual components of corporate governance; we observe heterogeneity in components, yet we also observe patterns in broad sets. Second, one can get a different impression of the relation between governance and other characteristics depending on whether one analyzes a single summary measure (such as our total index), subsets of related governance components (such as our board and provision indices), or components themselves (such as the presence of a poison pill). Third, our evidence suggests that looking at any one measure can mask more complex relations between governance choices and the apparent costs and benefits of various monitoring mechanisms. Aside

from the implications for empirical researchers, these findings are important in the context of (a) single-number governance scores being developed in practice, and (b) mandated increases in board independence in recent proposals for governance reform.

## **5. Conclusions**

We hypothesize that corporate governance structures differ systematically across industries and firms due to differences in the costs and benefits of the monitoring mechanisms. That is, since agency problems between shareholders and managers vary across firms due to differences in the firms' environments, the costs and benefits of monitoring those problems would be expected to vary as well. Thus, we have examined the systematic relations between firms' controllable governance structures and factors in the firms' environments. Moreover, we do so by examining board structures and the use of corporate charter provisions in a very broad sample of more than 2,300 firms over a four-year period.

In an industry-level analysis, we find that the strength of the monitoring from the total controllable governance structure (including the board, the bylaw and charter provisions, and the state laws) is systematically related to the industry's investment opportunities, product uniqueness, competitive environment and leverage. In addition, the board and charter provision indices are each related to the industry's return volatility (as a proxy for information environment) with offsetting effects. These findings also provide support for the suggestion that governance structures are related to the relative costs and benefits of different governance mechanisms.

In a firm-level analysis, we find that firm factors contribute little compared to industry in explaining our total governance index. But, for the two component indices (board and charter provisions), firm factors and industry explain roughly equal portions of the variation. We also show that the strength of board monitoring is negatively related to

the degree of shareholder orientation in the firm's charter provisions, consistent with these two sets of mechanisms acting as substitutes.

Our results have implications for policy makers and researchers alike. First, it is important to consider different elements of a firm's governance structure, and not just the use of either board structures or governance provisions. Second, while aggregating governance structures into a single number allows one to examine systematic tendencies, the aggregation may also mask important relations between governance components and firm or industry characteristics. Finally, our results suggest that regulatory actions applying a one-size-fits-all criterion may be suboptimal, and increase contracting costs for some firms.

Finally, our analysis suggests some avenues for future research. Our evidence is largely cross-sectional given the breadth of our panel versus the length of time it covers. This leaves many open questions on the time-series behavior of governance structures. Further, we hope our results on determinants of governance structures and correlations across different governance mechanisms will prove useful to theoretical work on corporate governance.

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**Table 1**  
**Summary Statistics**

This table provides descriptive statistics for characteristics of the sample firms. The characteristics are obtained on an annual basis as of the end of the calendar year and are averaged for each firm across the 1997-2000 time period. The table reports the cross-sectional averages across the firms' times-series averages. *Incentive Pay / Total Pay* is defined as (Black-Scholes Option-Grant Value + Restricted Stock Grants + Long-term Incentive Payouts) / Total Compensation. *Total Inst'l Ownership* is a percentage of shares outstanding, and *Inst'l Ownership Herfindahl* is the sum of the squared fractional ownership of institutions. *Firm Volatility* is the standard deviation of monthly stock returns. *Selling Exp / Sales* and *Cap Ex / Sales* are ratios of Selling Expenses and Capital Expenditures to Sales, respectively.

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>25th Percentile</b>	<b>75th Percentile</b>	<b>Standard Deviation</b>	<b>Number Of firms</b>
<i>Firm Age</i>	44.82	30.00	13.00	71.50	39.92	2,314
<i>Annual Return</i>	14.7%	11.0%	-7.2%	30.9%	51.8%	2,282
<i>Tobin's Q</i>	2.18	1.49	1.15	2.28	2.40	2,286
<i>Total Assets</i>	8,312	1,301	486	4,456	33,855	2,294
<i>Book Leverage</i>	21.8%	19.3%	6.1%	32.6%	18.8%	2,289
<i>Market Capitalization</i>	5,930	1,224	487	3,742	19,701	2,287
<i>Incentive Pay / Total Pay</i>	0.45	0.45	0.30	0.59	0.20	1,829
<i>Total Inst'l Ownership</i>	56.1%	58.9%	42.4%	72.0%	20.2%	2,316
<i>Inst'l Ownership Herfindahl</i>	0.023	0.017	0.009	0.027	0.039	2,316
<i>Firm Volatility (Monthly)</i>	14.4%	12.4%	9.4%	17.5%	7.5%	2,308
<i>Selling Exp / Sales</i>	0.277	0.217	0.122	0.330	0.428	1,844
<i>Cap Ex / Sales</i>	0.092	0.052	0.030	0.095	0.092	2,066

**Table 2**  
**Governance Provision Summary Statistics**

This table provides descriptive statistics for the governance mechanisms in the corporations: board of director characteristics in Panel A, the corporate by-law and charter provisions in Panel B, state index characteristics in Panel C and finally, the combined characteristics in Panel D. The construction of the each index is described in detail in the text, but in short each index is the average of the percentile ranks of the applicable governance features, where a larger score is associated with stronger monitoring and/or a more shareholder-friendly orientation. Appendices A and B provide detailed definitions of each provision and included state laws.

Variable	Mean	Median	25 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile	Standard Deviation	Number Of firms
<b>Panel A: Board of Directors</b>						
<i>Board size</i>	9.44	9.00	7.00	11.00	3.08	2,327
<i>Separate chair dummy</i>	0.27	0.00	0.00	0.50	0.39	2,327
<i>Lead director dummy</i>	0.01	0.00	0.00	0.00	0.10	2,327
% Independence of:						
<i>Board</i>	59.03	61.15	45.20	74.10	18.85	2,327
Existence of:						
<i>Audit committee</i>	1.00	1.00	1.00	1.00	0.04	2,327
<i>Compensation committee</i>	0.99	1.00	1.00	1.00	0.11	2,327
<i>Nominating committee</i>	0.57	1.00	0.00	1.00	0.48	2,327
<i>Corp. Gov. Committee</i>	0.23	0.00	0.00	0.50	0.37	2,327
% Independence of:						
<i>Audit committee</i>	82.47	90.00	70.03	100.00	21.50	2,325
<i>Compensation committee</i>	84.66	100.00	75.00	100.00	22.75	2,303
<i>Nominating committee</i>	71.10	75.00	70.85	100.00	26.93	1,413
<i>Board Index</i>	49.09	49.72	41.38	57.28	10.69	2,327
<b>Panel B: Corporate By-law and Charter Provisions</b>						
Existence of:						
<i>Unequal voting rights</i>	0.13	0.00	0.00	0.00	0.33	2,341
<i>Cumulative voting</i>	0.10	0.00	0.00	0.00	0.29	2,327
<i>Classified board</i>	0.59	1.00	0.00	1.00	0.49	2,327
<i>Poison pill</i>	0.53	0.75	0.00	1.00	0.48	2,341
<i>Blank-check preferred</i>	0.89	1.00	1.00	1.00	0.31	2,341
<i>Written consent</i>	0.36	0.00	0.00	1.00	0.47	2,341
<i>Special meeting</i>	0.37	0.00	0.00	1.00	0.47	2,341
<i>Supermajority</i>	0.26	0.00	0.00	0.67	0.43	2,341
<i>Fair-price</i>	0.23	0.00	0.00	0.00	0.42	2,341
<i>Provision Index</i>	49.77	49.89	42.48	56.83	10.24	2,300
<b>Panel C: State Index</b>	49.78	55.14	40.86	55.14	9.68	2,330
<b>Panel C: Total Governance Index</b>	49.54	49.55	45.94	53.11	5.37	2,288

**Table 3****Average Industry Governance Structures as a Function of Industry Characteristics**

This table shows the coefficients from a regression of the average governance indices for an industry against characteristics of the industry: investment opportunities (using *Tobin's Q Ratio* as a proxy), industry product uniqueness (using a proxy, *Selling Expenses/Sales*), industry average leverage based on book values (defined as long-term debt divided by total assets), a dummy for whether the industry is regulated or not, the industry Herfindahl concentration index (based on the market share of sales), and the average monthly return volatility for firms in the industry. *Incentive Pay / Total Pay* is defined in Table 1. The dependent variable is the total governance index in model (1), the board index in model (2), and the charter provision index in model (3). One, two, and three asterisks denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Standard errors are robust to the presence of heteroscedasticity and control for clustering of observations within each industry over time. Industry is defined using Fama and French (1997) classifications, and industries with fewer than ten firms are excluded, as is the industry defined as "other."

	Dependent variable		
	<i>Total Governance Index</i>	<i>Board Index</i>	<i>Charter Provision Index</i>
	(1)	(2)	(3)
<i>Tobin's Q Ratio</i>	0.666* (1.77)	1.612* (1.80)	0.316 (0.94)
<i>Selling Exp/Sales</i>	-6.873*** (-3.58)	-11.809** (-2.13)	-2.050 (-0.61)
<i>Herfindahl Index</i>	-3.915*** (-3.56)	-4.629 (-1.24)	-4.394 (-1.62)
<i>Industry Volatility</i>	5.425 (0.73)	-43.901* (-1.96)	26.910*** (2.87)
<i>Leverage</i>	-7.722** (-2.54)	-17.373* (-1.85)	-5.683 (-1.49)
<i>Regulated Industry</i>	-0.330 (-0.36)	-2.477 (-1.03)	1.127 (1.22)
<i>Incentive/Total Pay</i>	2.007 (1.01)	0.207 (0.02)	-2.330 (-0.73)
<i>1998 Dummy</i>	0.034 (0.11)	2.255*** (2.76)	-1.015*** (-3.11)
<i>1999 Dummy</i>	0.263 (0.69)	3.433*** (3.65)	-1.217*** (-2.75)
<i>2000 Dummy</i>	0.451 (0.79)	5.918*** (4.25)	-2.043*** (-3.16)
Intercept	49.868*** (56.06)	56.052*** (16.20)	49.248*** (23.92)
R <sup>2</sup>	0.470	0.288	0.273
Groups	136	136	136

**Table 4****Firm Governance Structures as a Function of Firm Characteristics**

This table shows the coefficients from a regression of the governance indices for firms against firm characteristics, controlling for the industry: investment opportunities (using *Tobin's Q Ratio* and *Cap Ex / Sales* as proxies), firm size as measured by the natural logarithm of total assets, leverage based on book values (the ratio of long-term debt to assets), two measure of managerial incentives – the percentage of shares held by directors and officers (*D&O Ownership*) and *Incentive Pay / Total Pay*, the natural logarithm of firm age (in years), two measures of institutional ownership (*Inst'l Ownership* and the rank of the *Inst'l Ownership Herfindahl* index), and the volatility of monthly stock returns for the year. Dummy variables for each year and each industry are included but not reported. The dependent variable is the total governance index in models (1) and (2), the board index in models (3) and (4), and the charter provision index in models (5) and (6). Variables are as defined in Table 1. One, two, and three asterisks denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Standard errors are robust to the presence of heteroscedasticity and control for clustering of observations within each firm over time. Industry is defined using Fama and French (1997) classifications.

	Dependent variable					
	Total Governance Index		Board Index		Charter Provision Index	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Tobin's Q Ratio</i>	-0.019 (-0.38)		-0.228*** (-2.78)		0.124 (1.53)	
<i>Cap Ex / Sales</i>		-1.418 (-0.99)		-8.850*** (-3.41)		-0.281 (-0.11)
<i>Ln(Total Assets)</i>	-0.244** (-2.30)	-0.222** (-2.05)	0.038 (0.21)	0.043 (0.22)	-0.437** (-2.06)	-0.524** (-2.44)
<i>Book Leverage</i>	-0.920 (-1.09)	-0.893 (-1.05)	-1.058 (-0.68)	-0.091 (-0.06)	-2.498* (-1.64)	-2.506 (-1.64)
<i>D&amp;O Ownership</i>	-0.025*** (-3.14)	-0.029*** (-3.55)	-0.212*** (-12.57)	-0.210*** (-12.31)	0.110*** (7.62)	0.102*** (7.04)
<i>Incentive/Total Pay</i>	0.666 (1.48)	0.855* (1.88)	3.367*** (3.77)	3.536*** (3.83)	-2.119** (-2.52)	-1.590* (-1.87)
<i>Inst'l Ownership</i>	0.180 (0.28)	-0.450 (-0.69)	-0.077 (-0.06)	-0.263 (-0.21)	-1.169 (-1.00)	-1.919 (-1.62)
<i>Inst'l Own Herf</i>	0.0002*** (2.59)	0.0002*** (2.95)	0.00041*** (2.93)	0.00048*** (3.37)	0.0002 (1.63)	0.0002 (1.61)
<i>Ln(Firm Age)</i>	-0.215 (-1.54)	-0.320** (-2.22)	0.918*** (3.49)	0.889*** (3.22)	-0.127 (-0.44)	-0.218 (-0.72)
<i>Firm Volatility</i>	3.267** (2.41)	2.531** (2.07)	-0.985 (-0.45)	-0.928 (-0.42)	5.243** (2.00)	4.637* (1.81)
R <sup>2</sup>	0.105	0.100	0.203	0.206	0.109	0.116
Observations	5,109	4,671	5,183	4,740	5,139	4,698

**Table 5**  
**Explanatory Power of Industry and Time for Firm Governance Structures**

This table shows  $R^2$ 's and adjusted  $R^2$ 's from regressions of the governance indices for firms against various combinations of dummy variables for each year, each industry, and/or industry-years, where the dummy variable for industry-year indicates a specific industry in a specific year. The dependent variable is the total governance index in column (1), the board index in column (2), and the charter provision index in column (3). The regressions in columns (1), (2), and (3) are run for the samples of observations in columns (1), (3), and (5) from Table 4, respectively. For purposes of comparison, the table also repeats the statistics from those models in Table 4. Variables are as defined in Table 1.

	<b>Dependent variable</b>		
Variables included:	<i>Total Governance Index</i> (1)	<i>Board Index</i> (2)	<i>Charter Provision Index</i> (3)
Industry indicators only			
$R^2$	0.086	0.094	0.058
<i>Adjusted R<sup>2</sup></i>	0.078	0.086	0.050
Industry and year indicators			
$R^2$	0.088	0.104	0.061
<i>Adjusted R<sup>2</sup></i>	0.079	0.096	0.052
Industry-year indicators			
$R^2$	0.096	0.114	0.066
<i>Adjusted R<sup>2</sup></i>	0.063	0.082	0.032
Industry and year indicators, plus firm-specific variables (From Table 4)			
$R^2$	0.105	0.203	0.109
<i>Adjusted R<sup>2</sup></i>	0.095	0.194	0.099



**Table 6**  
**Correlation Matrix of Governance Indices**

This table shows the correlation coefficients for our three governance indices. Both Pearson and Spearman (rank) correlations are presented. The correlations are calculated using the firm-level data defined in Table 1. One, two, and three asterisks denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

	<i>Total Governance Index</i>		<i>Board Index</i>	
	Pearson	Spearman	Pearson	Spearman
<i>Total Governance Index</i>	1.000	1.000		
<i>Board Index</i>	0.579***	0.562***	1.000	1.000
<i>Charter Provision Index</i>	0.561***	0.548***	-0.126***	-0.138***

**Table 7**

**Firm Governance Structures as a Function of Firm Characteristics**

This table shows the correlations between our three governance indices and their components, plus the G score of Gompers, Ishii, and Metrick (2003). To make the directions similar, we multiply this G score by -1, and this data is from 1998 and 2000 only. Both Pearson and Spearman (rank) correlations are presented. The correlations are calculated using the firm-level data defined in Table 1. One, two, and three asterisks denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

	<i>Total Governance Index</i>		<i>Board Index</i>		<i>Charter Provision Index</i>	
	Pearson	Spearman	Pearson	Spearman	Pearson	Spearman
<b>Board characteristics</b>						
<i>Board independence</i>	0.389***	0.376***	0.796***	0.797***	-0.175***	-0.183***
<i>Audit independence</i>	0.418***	0.432***	0.659***	0.658***	-0.029**	-0.016
<i>Compensation ind.</i>	0.322***	0.343***	0.639***	0.660***	-0.135***	-0.131***
<i>Nominating ind.</i>	0.227***	0.226***	0.631***	0.639***	-0.207***	-0.212***
<i>Corp. gov. committee</i>	0.188***	0.184***	0.491***	0.494***	-0.165***	-0.169***
<i>Lead director</i>	0.079***	0.069***	0.160***	0.147***	-0.025**	-0.027**
<i>Separate chair</i>	0.159***	0.152***	0.146***	0.133***	0.048***	0.050***
<i>Board size</i>	-0.238***	-0.247***	-0.096***	-0.063***	-0.152***	-0.186***
<b>Charter provisions</b>						
<i>Unequal voting</i>	-0.138***	-0.138***	-0.182***	-0.175***	-0.050***	-0.039***
<i>Poison pill</i>	-0.176***	-0.168***	0.246***	0.246***	-0.485***	-0.487***
<i>Blank-check preferred</i>	-0.173***	-0.176***	0.060***	0.063***	-0.375***	-0.366***
<i>Written consent</i>	-0.303***	-0.299***	0.081***	0.084***	-0.670***	-0.665***
<i>Special meeting</i>	-0.330***	-0.321***	0.086***	0.091***	-0.639***	-0.638***
<i>Supermajority</i>	-0.357***	-0.355***	0.016	0.014	-0.536***	-0.523***
<i>Fair-price</i>	-0.287***	-0.283***	0.121***	0.123***	-0.498***	-0.489***
<i>Classified board</i>	-0.402***	-0.399***	0.074***	0.076***	-0.604***	-0.618***
<i>Cumulative Voting</i>	0.185***	0.155***	0.085***	0.082***	0.263***	0.252***
<b>Gompers-Ishii-Metrick (2003)</b>						
<i>-G (1998, 2000 only)</i>	0.504***	0.487***	-0.223***	-0.237***	0.722***	0.729***

## **Appendix A**

### **Corporate Governance Provision Definitions**

Corporate governance provisions are often presented from the perspective of how they entrench management. For ease of exposition we adopt this perspective in describing each provision.

**Blank Check Preferred.** Allows the issuance of new classes of preferred stock with dividend, voting, and other rights determined by the board. Could be used in connection with a poison pill, or the issuance of convertible preferred to a favorably disposed external party.

**Classified Board,** Also known as a staggered board. The board is split into roughly equal classes, say three, with only one class of directors up for election in a given year. As such, a dissident waging a proxy fight requires at least two years to acquire a majority of board seats.

**Cumulative Voting.** Each shareholder has votes equal to the votes per share multiplied by the number of directors up for election. Shareholders may cast all of their votes for a single director, or split their votes among all nominees. In a dissident proxy contest, cumulative voting may enable minority shareholders to obtain partial board representation.

**Fair Price Provision.** Requires that a minimum price be paid to remaining shareholders when a blockholder attempts to acquire the company.

**Limitations Shareholders' Ability to Call a Special Meeting.** Limiting shareholders right to call a special meeting precludes shareholders from circumventing management and forcing a vote in a proxy fight or takeover battle. Allows shareholders to act only at the annual meeting.

**Limit Shareholders' Action by Written Consent.** Written consent allows issues to be ratified by shareholders without holding a formal shareholder meeting. Limiting written consent precludes shareholders from circumventing management and forcing a vote in a proxy fight or takeover battle. Allows shareholders to act only at the annual meeting.

**Poison Pill.** Also known as a shareholder rights plan. Pills allow existing shareholders, but not the acquirer, to purchase shares of either the target or the acquirer at a steep discount. This dilutes the value of the acquirer's stake, and economically poisons them in the event they choose to pursue the transaction.

**Supermajority Vote Requirement.** In order to approve a merger the proportion of votes in favor is set at a very high level, for example, 75-80% votes eligible to be cast at the meeting.

**Unequal voting rights.** Provisions that limit the voting rights of a class of shareholders or grant special voting rights to a class of shareholders. This classification includes preferred and dual class stock, caps on blockholder voting power, and time-phased voting (the latter of which increases votes per share if stock is held for a mandatory period).

## **Appendix B State Law Descriptions**

**Control share acquisition statute.** Requires hostile bidders to put an acquisition to a vote of the shareholders before proceeding. Exists in 27 states.

**Fair-price statute.** which requires a bidder to pay holdout shareholders in a freezeout the same price as in the original transaction in which a block was acquired. Exists in 27 states.

**Freeze-out restrictions.** which gives a bidder a minimum amount of time that must elapse between gaining control and engaging in a freezeout. Exists in 33 states.

**Poison pill endorsement.** which allows the use of poison pill. Exists in 25 states.

**Director duty provision.** which allows managers to take into consideration the interests of non-shareholders when voting on a merger. Exists in 31 states.

**Short-term profit provision.** which requires the recapture or disgorgement of short-term profits made by a hostile acquirer. Exists in 2 states.

**Incorporation in Delaware.**

## Appendix C Board Variables by Industry

Board variables are averaged across firms within each industry.

	% Independence of				Indicator for Separate			Board Size	Board Index	Number of complete firm-years
	Board	Audit Committee	Compensation Committee	Nominating Committee	Corp Gov Committee	Lead Dir	Chair			
Agriculture	60.99	91.25	85.42	26.30	0.00	0.00	0.30	9.30	49.39	20
Food Products	57.57	82.87	86.49	48.52	0.28	0.00	0.30	10.54	48.97	141
Candy & Soda	60.63	77.71	83.06	42.18	0.19	0.00	0.13	10.56	44.60	16
Beer & Liquor	44.33	66.51	93.33	32.89	0.20	0.00	0.13	11.33	39.70	15
Tobacco Products	71.22	94.09	91.52	85.60	0.55	0.00	0.09	11.00	56.44	11
Recreation	62.91	87.50	89.41	44.65	0.36	0.00	0.29	10.39	50.26	28
Entertainment	43.05	67.50	65.51	21.95	0.13	0.00	0.30	8.78	41.95	64
Printing and Publishing	60.27	85.91	83.80	56.52	0.33	0.00	0.22	11.13	48.74	105
Consumer Goods	58.82	82.40	80.48	49.77	0.40	0.00	0.32	9.88	49.92	145
Apparel	52.62	72.21	86.41	33.10	0.24	0.04	0.17	8.54	46.50	101
Healthcare	52.72	75.69	70.58	28.43	0.07	0.01	0.19	8.13	45.19	83
Medical Equipment	60.30	82.14	82.67	37.91	0.23	0.00	0.31	8.38	50.26	132
Pharmaceutical Products	58.86	79.44	84.92	41.73	0.26	0.01	0.28	9.00	49.42	230
Chemicals	66.44	88.18	91.53	68.91	0.46	0.04	0.27	10.04	54.94	194
Rubber and Plastic Products	67.80	83.24	91.34	50.49	0.33	0.06	0.16	9.29	52.37	51
Textiles	44.19	62.85	67.56	24.07	0.10	0.00	0.22	8.96	40.89	67
Construction Materials	64.01	85.39	91.30	46.56	0.28	0.00	0.27	9.34	51.26	169
Construction	54.71	82.38	83.68	39.99	0.18	0.00	0.25	9.32	48.52	72
Steel Works Etc	63.63	83.31	83.01	51.45	0.34	0.02	0.26	9.25	51.68	148
Fabricated Products	66.98	93.40	89.66	64.94	0.28	0.00	0.34	7.66	57.58	29
Machinery	67.07	85.86	89.58	46.03	0.25	0.00	0.25	8.89	52.48	228
Electrical Equipment	59.78	77.14	79.92	44.76	0.27	0.00	0.25	9.27	48.35	81
Automobiles and Trucks	61.41	81.21	86.25	51.76	0.24	0.02	0.18	8.94	50.36	143
Aircraft	70.17	87.96	93.59	81.66	0.67	0.00	0.19	12.67	54.67	36

	% Independence of				Indicator for Separate			Board Size	Board Index	Number of complete firm-years
	Board	Audit Committee	Compensation Committee	Nominating Committee	Corp Gov Committee	Lead Dir	Chair			
Shipbuilding, Railroad Equipment	56.70	83.41	81.82	41.44	0.32	0.00	0.18	8.05	50.51	22
Defense	61.77	80.31	76.76	52.09	0.42	0.00	0.21	11.21	47.07	19
Precious Metals	71.21	73.92	93.63	56.77	0.29	0.00	0.35	10.29	52.79	17
Non-Metallic and Industrial Metal Mining	76.34	91.48	96.31	70.20	0.31	0.00	0.19	10.81	55.68	32
Petroleum and Natural Gas	61.04	84.55	83.85	47.23	0.25	0.03	0.22	9.26	50.18	257
Utilities	73.49	90.40	92.58	74.14	0.31	0.03	0.20	10.94	54.67	463
Communication	45.45	68.57	72.21	27.45	0.18	0.01	0.33	10.38	42.04	200
Personal Services	56.67	82.51	87.29	34.32	0.09	0.02	0.37	8.85	48.21	46
Business Services	56.80	82.21	85.37	29.87	0.17	0.02	0.27	7.83	49.51	573
Computers	63.56	88.27	86.99	39.96	0.20	0.03	0.40	7.84	53.83	215
Electronic Equipment Measuring and Control Equipment	58.84	83.24	85.70	28.87	0.17	0.03	0.33	7.55	51.02	346
Business Supplies	66.08	85.21	86.10	38.40	0.32	0.03	0.32	8.47	52.61	73
Shipping Containers	64.71	86.20	85.44	56.01	0.29	0.03	0.27	10.21	51.30	156
Transportation	41.85	70.65	66.45	33.63	0.14	0.00	0.18	10.57	40.04	28
Wholesale	58.04	76.33	79.16	30.84	0.18	0.00	0.19	9.31	45.68	192
Retail	59.73	85.50	86.09	47.81	0.28	0.01	0.32	9.62	50.49	253
Restaurants, Hotels, Motels	53.58	80.20	81.50	39.41	0.23	0.02	0.30	9.07	48.09	441
Banking	54.11	82.49	80.98	34.82	0.18	0.00	0.27	8.91	47.04	129
Insurance	65.63	84.98	86.92	49.43	0.27	0.01	0.17	14.34	46.75	423
Real Estate	57.72	81.74	80.33	42.79	0.19	0.01	0.26	10.36	46.93	355
Trading	49.89	64.74	65.77	51.51	0.46	0.00	0.46	9.31	46.97	13
Miscellaneous	48.93	82.94	82.75	31.82	0.15	0.00	0.32	10.76	44.26	123
	54.28	76.16	78.24	31.25	0.19	0.00	0.42	9.81	45.19	36

## Appendix D Governance Provisions by Industry

Indicators for the existence of each governance provision are averaged across firms within each industry.

	<i>Unequal Voting Rights</i>	<i>Poison pill</i>	<i>Blank-check preferred</i>	<i>Written consent</i>	<i>Special meeting</i>	<i>Supermajority</i>	<i>Fair-price</i>	<i>Classified board</i>	<i>Cumulative voting</i>	<i>Provision index</i>	<i>Number of complete firm-years</i>
Agriculture	0.25	0.38	0.83	0.04	0.13	0.04	0.00	0.55	0.25	57.89	20
Food Products	0.23	0.47	0.85	0.37	0.31	0.39	0.30	0.53	0.04	48.82	139
Candy & Soda	0.53	0.24	1.00	0.06	0.00	0.47	0.00	0.50	0.00	52.26	16
Beer & Liquor	0.47	0.27	0.73	0.00	0.00	0.00	0.27	0.53	0.00	55.30	15
Tobacco Products	0.18	0.09	1.00	0.46	0.09	0.09	0.36	0.46	0.00	52.74	11
Recreation	0.00	0.74	0.74	0.44	0.30	0.44	0.30	0.57	0.29	49.99	27
Entertainment	0.24	0.32	0.84	0.35	0.44	0.32	0.22	0.47	0.00	49.49	64
Printing and Publishing	0.64	0.35	0.88	0.39	0.26	0.34	0.36	0.60	0.08	46.94	105
Consumer Goods	0.11	0.59	0.83	0.35	0.33	0.35	0.35	0.66	0.06	48.17	142
Apparel	0.18	0.45	0.88	0.16	0.29	0.11	0.22	0.62	0.03	51.77	101
Healthcare	0.11	0.52	0.94	0.31	0.46	0.25	0.26	0.55	0.07	49.62	83
Medical Equipment Pharmaceutical Products	0.03	0.68	0.88	0.24	0.27	0.18	0.19	0.58	0.14	51.83	128
Chemicals	0.08	0.61	0.90	0.36	0.30	0.21	0.23	0.55	0.08	50.27	228
Rubber and Plastic Products	0.07	0.71	0.82	0.42	0.44	0.38	0.30	0.68	0.08	47.14	193
Textiles	0.08	0.73	0.96	0.41	0.43	0.41	0.31	0.67	0.12	46.35	49
Construction Materials	0.40	0.48	0.96	0.15	0.22	0.30	0.30	0.48	0.06	49.96	66
Construction	0.07	0.68	0.94	0.39	0.50	0.36	0.31	0.75	0.17	46.33	168
Steel Works Etc	0.06	0.44	0.83	0.42	0.53	0.33	0.11	0.78	0.06	48.75	72
Fabricated Products	0.02	0.66	0.95	0.29	0.37	0.25	0.20	0.72	0.10	49.35	145
Machinery	0.10	0.70	0.93	0.23	0.13	0.23	0.37	0.55	0.38	51.99	29
Electrical Equipment	0.09	0.68	0.89	0.34	0.43	0.28	0.21	0.65	0.15	49.13	226
Automobiles and Trucks	0.12	0.82	0.84	0.22	0.43	0.31	0.38	0.48	0.03	47.71	79
Aircraft	0.22	0.69	0.88	0.32	0.30	0.34	0.31	0.69	0.08	47.47	142
	0.11	0.49	0.91	0.63	0.69	0.20	0.71	0.67	0.08	44.36	34

	<i>Unequal Voting Rights</i>	<i>Poison pill</i>	<i>Blank-check preferred</i>	<i>Written consent</i>	<i>Special meeting</i>	<i>Supermajority</i>	<i>Fair-price</i>	<i>Classified board</i>	<i>Cumulative voting</i>	<i>Provision index</i>	<i>Number of complete firm-years</i>
Shipbuilding, Railroad Equipment	0.00	0.71	1.00	0.17	0.50	0.25	0.13	0.50	0.00	50.97	22
Defense	0.32	0.42	0.79	0.32	0.21	0.05	0.42	0.21	0.00	52.68	19
Precious Metals	0.00	1.00	1.00	0.39	0.78	0.56	0.44	0.53	0.18	42.73	17
Non-Metallic and Industrial Metal Mining	0.12	0.76	0.88	0.33	0.33	0.30	0.46	0.69	0.25	47.75	32
Petroleum and Natural Gas	0.09	0.69	0.95	0.50	0.48	0.29	0.34	0.55	0.05	46.67	255
Utilities	0.03	0.58	0.82	0.29	0.32	0.25	0.52	0.71	0.31	50.20	461
Communication	0.49	0.36	0.99	0.38	0.43	0.20	0.23	0.54	0.03	47.98	197
Personal Services	0.18	0.64	0.73	0.29	0.33	0.33	0.27	0.67	0.00	48.75	45
Business Services	0.10	0.52	0.93	0.40	0.35	0.22	0.10	0.55	0.03	50.40	562
Computers	0.08	0.62	0.91	0.47	0.42	0.16	0.17	0.44	0.21	50.94	213
Electronic Equipment	0.09	0.57	0.90	0.33	0.32	0.15	0.17	0.38	0.17	52.73	339
Measuring and Control Equipment	0.08	0.73	0.73	0.41	0.53	0.18	0.22	0.69	0.12	48.99	72
Business Supplies	0.15	0.62	0.87	0.27	0.29	0.37	0.35	0.72	0.17	48.35	153
Shipping Containers	0.00	0.61	0.86	0.32	0.18	0.04	0.14	0.86	0.00	51.22	28
Transportation	0.07	0.36	0.75	0.25	0.27	0.21	0.15	0.42	0.10	54.67	190
Wholesale	0.10	0.60	0.89	0.42	0.42	0.37	0.26	0.62	0.10	48.10	253
Retail	0.13	0.45	0.87	0.27	0.29	0.22	0.19	0.60	0.08	51.49	441
Restaurants, Hotels, Motels	0.06	0.62	0.86	0.36	0.33	0.28	0.33	0.64	0.09	49.05	128
Banking	0.10	0.56	0.93	0.34	0.47	0.33	0.30	0.71	0.11	47.84	419
Insurance	0.13	0.42	0.87	0.32	0.32	0.26	0.28	0.51	0.09	51.25	354
Real Estate	0.08	0.08	0.92	0.00	0.15	0.00	0.00	0.15	0.08	60.62	13
Trading	0.14	0.34	0.92	0.47	0.37	0.22	0.22	0.59	0.05	49.91	123
Miscellaneous	0.00	0.46	0.89	0.30	0.46	0.11	0.16	0.53	0.00	51.84	36