

Does One Hat Fit All? The Case of Corporate Leadership Structure^{*}

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Abstract

Recent corporate scandals have led to renewed campaigns for governance reforms, including calls for the separation of CEO and chairman positions. This paper argues that this trend ignores the possibility that differences in firm characteristics determine the appropriateness of separating or combining the two positions. I propose and test hypotheses on the determinants of leadership structure using a sample of 1,883 firms. I find that organizational complexity, CEO reputation, and managerial ownership increase the probability of CEO duality. I also find that whether CEO duality benefits or hurts the firm is contingent on firm and CEO characteristics. These results suggest that firms do consider the costs and benefits of alternative leadership structures, and that requiring all firms to separate CEO and chairman duties may be counterproductive.

Keywords: corporate governance, leadership structure, CEO duality

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1. Introduction

One of the most hotly debated issues in corporate governance is whether the chief executive officer (CEO) should also serve as the chairman of the board of directors. In recent times, shareholder activists and regulators in several countries have proposed rules encouraging separation of the two roles. This paper examines the economic determinants of the choice of corporate leadership structure and argues that the push toward a common structure may be counterproductive because it ignores the role of firm characteristics in determining the appropriateness of separating or combining the two positions.

The CEO is a corporation's chief strategist, responsible for initiating and implementing company-wide plans and policies. On the other hand, the chairman is responsible for ensuring that the board works as it should in counseling and monitoring the CEO. Since the chairman performs important control functions, it is often suggested that a separate person apart from the CEO should occupy this position. Fama and Jensen (1983) suggest that CEO duality (i.e., when the CEO also serves as chairman) violates the principle of separation of decision-management and decision-control and hinders the board's ability to perform its monitoring functions. Likewise, Jensen (1993, p. 866) argues that separating the two positions is essential for board effectiveness, since a chairman/CEO cannot perform control functions "apart from his or her personal interest."

In contrast, Anderson and Anthony (1986) and Stoeberl and Sherony (1985) point out that vesting the two positions in one individual provides clear-cut leadership and focus in the conduct of the corporation's operations. Besides, Brickley, Coles, and Jarrell (1997) argue that the monitoring benefits of CEO non-duality (i.e., separating CEO and chairman positions) may be offset by the costs of maintaining such a leadership structure.

Quite naturally, various studies have examined the relation between leadership structure and firm performance. However, the empirical evidence is mixed. Rechner and Dalton (1991) find that firms in which the two positions are separated perform better on a number of accounting measures. Pi and Timme (1993) focus on the banking industry and find that non-dual CEO banks have lower costs and higher accounting returns. Goyal and Park (2002) show that CEO turnover is less sensitive to firm performance in firms that combine the two positions while Davidson et al. (2004) show that dual CEOs are more likely to engage in income-increasing earnings management.

In contrast, Brickley, Coles, and Jarrell (1997) show that CEO duality is not associated with inferior performance while Baliga, Moyer, and Rao (1996) conclude that there are no discernible differences in performance that can be attributed to a firm's leadership structure. Similarly, Dalton et al. (1998) perform a meta-analysis of 31 studies and conclude that duality does not affect performance. More recently, Dahya (2004) report that separating the positions of CEO and chairman among U.K. companies in response to the Cadbury Report is not associated with performance improvement, either in absolute terms or relative to various peer group benchmarks.

In spite of the inconclusive evidence, however, the consensus among shareholder activists, institutional investors, and regulators appears to be that the CEO should not also serve as board chairman. According to Dahya (2004), between 1994 and 2003, regulators and/or stock exchanges in at least 15 other countries besides the U.K. have issued reports recommending the separation of CEO and chairman duties. In the U.S., calls for non-duality have become particularly unrelenting since the recent spate of high profile corporate scandals. In 2001, there were only three shareholder proposals calling for the

separation of CEO and chairman positions. In contrast, there were 20 such proposals in 2003 and 32 in 2004.¹

While the pressure of activist shareholders and regulators suggest that most, if not all, firms will benefit from non-duality, it is plausible that the non-conclusive evidence reflects a choice system in which economic considerations motivate a rational choice of leadership structure. Brickley, Coles, and Jarrell (1997) implicitly recognize this when they argue that there are costs and benefits to separating CEO and chairman duties while Finkelstein and D'Aveni (1994) argue that the choice of leadership structure reflects the board's attempt to balance entrenchment avoidance and unity of command. Similarly, the Business Roundtable (2002, p. 11) argues that “[e]ach corporation should make its own determination of what leadership structure works best, given its present and anticipated circumstances.” However, there is no large sample systematic evidence on what the relevant circumstances are and how they should affect the choice of leadership structure.

I seek to fill this void by developing hypotheses on the determinants of leadership structure. These hypotheses focus on how organizational complexity, CEO reputation, and the mitigating effects of other governance provisions affect the relative costs and benefits of CEO duality. I test these hypotheses on a sample of 1,883 firms and find evidence suggesting that firms choose leadership structure based on the specific nature of their operations and corporate governance environment. Specifically, I find that complex firms are more likely to vest the two positions in the same individual. This is consistent with the notion that the loss of CEO flexibility and the cost of sharing information between the CEO and a non-executive chairman outweigh the control benefits of non-duality in complex organizations. Similarly, high reputation CEOs are more likely to

¹ Source: The Corporate Library, on the Internet at www.thecorporatelibrary.com.

serve as board chairmen. I also find that duality is more likely when the CEO owns a significant fraction of the firm's equity and is potentially better-aligned with shareholders.

These results raise the important question of whether it matters that a firm chooses the leadership structure predicted by its characteristics. I address this by focusing on how firm attributes mediate the relation between duality and firm performance. I find corroborating evidence: performance is better when complex firms have dual CEOs and worse when non-complex firms do the same. Similarly, performance is better when high reputation CEOs serve as board chair and worse when low reputation CEOs do so.

My results extend a growing literature seeking to understand the determinants of corporate governance structure and urging caution in the push toward externally mandated governance practices. Boone et al. (2006) and Lehn, Patro, and Zhao (2006) show that economic factors significantly explain board size and composition. Bhagat and Black (2002) and Peasnell, Pope, and Young (2003) show that an outsider-dominated board is not desirable in all circumstances. This paper suggests that separating CEO and chairman responsibilities, while appropriate for some firms, is not necessarily a universal standard that should be encouraged for all corporations. After all, one hat may not fit all.

The remainder of the paper is organized as follows. In the next section, I propose and develop hypotheses on economic factors that explain the choice of corporate leadership structure. I also describe the variables used to measure these factors. My sample selection procedures and the resulting sample are discussed in Section 3. Section 4 contains empirical analysis, while Section 5 concludes with a brief summary.

2. Hypothesis development

The major benefit of separating the positions of CEO and board chairman is that doing so encourages independent oversight of the CEO. Essentially, since the CEO is responsible for strategy initiation and execution while the board (under the chairman) is responsible for ratification and control, separating the two positions prevents the CEO from having *de facto* control of the corporation. This can foster managerial accountability and attenuate agency conflicts between shareholders and management.

However, non-duality also has its costs. According to Brickley, Coles, and Jarrell (1997), prominent among these is information sharing costs between the CEO and a non-executive chairman. Naturally, CEOs have unique, firm-specific information about production and competitive conditions. In practice, it may be too costly to communicate this information to others in a timely manner and in sufficient detail as to facilitate smooth coordination between the CEO and a non-executive chairman. In addition, non-duality reduces the CEO's flexibility in pursuing corporate objectives and creates the prospect of an incessant conflict between the CEO and a self-interested chairman.

Furthermore, separating the two positions eliminates the incentive otherwise available in a managerial succession process in which "good" CEOs are rewarded with the chairman title, while at the same time creating the potential for blame-shifting in case of poor corporate performance. There may also be agency costs arising from the behavior of a self-serving non-executive chairman.

Since there are costs and benefits to separating the two positions, this paper argues that the appropriateness of a particular leadership structure for a given firm depends on how the firm's characteristics influence the balance between these costs and

benefits at the margin. I propose three hypotheses intended to capture the interaction of these factors. Each is discussed below.

2.1. Organizational complexity hypothesis

This hypothesis posits that the desirability of CEO duality increases with organizational complexity because the cost of vesting chairman and CEO roles in separate individuals outweighs the marginal benefit of non-duality in complex organizations. Specifically, CEO flexibility becomes more valuable to the organization as the complexity of its operations increases since a less constrained top executive is able to act with swiftness in formulating and implementing strategies, responding to market forces, and instituting change when necessary. For example, consider a firm operating in a complex and rapidly changing business environment. Due to the importance of the CEO's specific knowledge, it is advantageous to give the CEO significant decision rights, such as combined titles.

In addition, the cost of sharing information between the CEO and chairman increases with organizational complexity as a result of the greater potential for distortions in the communication process. Walgreen Co., a Fortune 500 and S&P 500 company, alludes to this when it argues in its 2004 proxy statement (page 18) that "a principal role of the Chairman is to propose the Board meeting agendas from among the many issues facing the Company on a day-to-day basis; the Chief Executive Officer is in the best position to develop this agenda in the most efficient and effective manner." Consequently, I expect a positive relation between organizational complexity and the likelihood of combining the CEO and chairman positions.²

² It is reasonable to argue that complex organizations derive significant benefits from non-duality, since such organizations are inherently more difficult for shareholders to understand and monitor. While

I employ three proxies for organizational complexity. The first, firm size, is based on the premise that large organizations are inherently more complex than small ones. However, complexity may depend not only on the scale but also on the nature of a firm's operations. Therefore, I use the ratio of net property, plant, and equipment to total assets as a measure of the nature of a firm's activities. This ratio is presumed lower for complex firms.³ My final proxy is growth opportunities, which is motivated by the reasoning that the greater a firm's growth opportunities, the more costly it is to transmit information between the CEO and a non-executive chairman because of greater operational uncertainty. A common measure of growth opportunities is the market/book ratio. However, this variable is also often used as a measure of performance. To avoid a potential "double-proxy" problem, I follow Bhagat and Black (2002) and measure growth opportunity by realized sales growth.

2.2. *CEO reputation hypothesis*

This hypothesis proposes a positive association between duality and the CEO's reputation for shareholder value maximization. A CEO's reputation builds up gradually over his tenure but is easily lost as a result of even few instances of acts judged as detrimental to shareholder interest. Hence, a reputable CEO is less likely to engage in value-diminishing or self-serving behavior. This lessens the intensity of agency conflicts,

acknowledging this possibility, the organizational complexity hypothesis postulates that, for complex firms, the incremental benefits of non-duality (over constraints imposed by labor and product markets) are dominated by the cost of lost CEO flexibility and the greater potential for distortions in transmitting information between the CEO and board chairman. A related argument is that complexity, as the number, diversity and interconnectedness of tasks and units, generates economies of specialization, thereby favoring the division of labor. However, since a non-executive chairman, by definition, does not perform executive functions, it is not clear that complexity in this sense favors separation of CEO and chairman duties.

³ An alternative proxy is the ratio of intangible assets to total assets, with the ratio being presumed higher for complex organizations. However, most firms have missing values for intangible assets in Compustat. Hence, it is not feasible to use this proxy.

reducing the need for additional control in the form of a non-executive chairman. Since non-duality is costly, it is beneficial to vest the position of chairman in reputable CEOs.

An obvious measure of CEO reputation is firm performance. However, using this measure in the context of this paper raises potential econometric and interpretation problems, since there is a possibility that CEO duality affects firm performance. Another possible measure of reputation is the CEO's tenure. It takes time to establish a reputation for good performance; hence, the longer the CEO has been on the job, the greater the opportunity he has to establish such a reputation. Vancil (1987) describes a succession process in which firms wait out the early years of a CEO's tenure before appointing him to the chairman position. Similarly, Milbourn (2003) suggests a positive association between CEO tenure and reputation because well-functioning internal control systems would eliminate poor CEOs before they stay long enough to cause significant damage, thus ensuring that long-serving CEOs have a reasonable performance reputation.

However, there are at least two potential problems with using tenure as a measure of reputation in the context of this study. The first is that a long tenure may simply reflect entrenchment rather than reputation. For example, Hermalin and Weisbach (1998) argue that CEOs may become entrenched over their tenure and increase their bargaining power relative to the board. The second problem relates to potential endogeneity between tenure and CEO duality. Goyal and Park (2002) show that dual CEOs are less likely to be terminated, thus implying that duality affects tenure. To avoid these problems, I employ a proxy that is reasonably correlated with CEO reputation but unlikely to be affected by CEO duality.

This proxy is the number of articles in major news and business publications in which the CEO's name appears at least once as reported in Dow Jones and Reuters' Factiva. Milbourn (2003, p. 247) argues that "a CEO who appears in selected business publications more often than others has a higher reputation" since "an executive perceived to be the industry expert would be interviewed and cited more often." Milbourn confirms the validity of this proxy by showing that prominence in the business press is significantly associated with a favorable image. Similarly, Francis et al. (2005) show that press visibility is significantly positively correlated with explicit recognition as a top manager by business publications such as *BusinessWeek*, *Financial Times*, *Fortune*, and *Time*. Rajgopal, Shevlin, and Zamora (2006) is another recent study that uses press appearances as a proxy for CEO reputation.

2.3. *Governance structure hypothesis*

The governance structure hypothesis recognizes that individual governance provisions can complement or substitute for one another in containing agency conflicts. Specifically, if other governance attributes impose a sufficient constraint on the CEO, firms will find it unnecessary to incur the additional costs of separating the CEO and chairman positions, i.e., it is cost-effective to vest the two positions in the same person.

I propose four governance dimensions that can affect the intensity of agency conflicts and consequently influence the desirability of CEO duality: managerial equity ownership, unaffiliated block equity ownership, board size, and board independence.

Managerial equity ownership has long been recognized as a means of aligning shareholder and management interests. Jensen and Meckling (1976) argue for a convergence of interest between outside shareholders and management as managerial

ownership increases. Thus, the incentive alignment that comes with higher managerial ownership can provide a binding constraint on the CEO's behavior. Hence, the additional costs of non-duality is not worthwhile when the CEO owns substantial equity so that the probability of CEO duality increases with managerial equity ownership.⁴

Agency conflicts are exacerbated by dispersed equity holdings since each shareholder lacks sufficient incentives to monitor management. In contrast, the holder of a substantial block of shares may find it meaningful to incur monitoring costs. Shleifer and Vishny (1986) and Hartzell and Starks (2003) among others show that blockholders play significant governance roles in various settings. Thus, unaffiliated blockholders may provide the same control benefits as a non-executive chairman, thereby eliminating or reducing the need for separating the CEO and chair positions. This suggests a positive association between CEO duality and outside block ownership. However, it is also true that much of the activist pressure against duality comes from institutional and other block holders. Hence, the presence of outside blockholders may actually reduce the likelihood of CEO duality. It is unclear which effect dominates.

Jensen (1993, p. 865) suggests that a small size enhances the board's ability to perform its monitoring functions because large boards are "less likely to function effectively and are easier for the CEO to control." Consistent with this, Yermack (1996) finds an inverse association between board size and firm value. If small boards are less likely to be dominated by the CEO, then the need for separating chairman and CEO positions may be lower at firms with small boards so that the probability of CEO duality

⁴ An alternative possibility is that the CEO becomes entrenched at higher ownership levels and takes on the additional powers of board chairman. Unfortunately, it is impossible to differentiate between these two effects in the context of this paper, that is, one cannot tell whether higher ownership positively affects the probability of CEO duality because of incentive alignment or CEO entrenchment.

decreases in board size. Conversely, the management literature (e.g., Goodstein, Gautam, and Boeker, 1994) relies on resource dependence theory to argue that larger boards are better. Based on a meta-analysis of 131 samples, Dalton et al. (1999) conclude that board size is positively related to firm performance. Thus, the association between board size and CEO duality can go in either direction.

The last governance dimension considered under the governance structure hypothesis is board independence. An independent board is one dominated by non-employee directors who have no business or personal relationship with the firm or its employee directors. Such boards are believed to be effective in monitoring the CEO (see Brickley and James (1987) and Jensen (1993), for example). This being so, it is efficient for firms with independent boards to combine the CEO and chair positions because doing so saves the costs of non-duality while helping to maintain some balance of power in the boardroom.⁵ Finkelstein and D'Aveni (1994, p. 1099) argue that board independence favors duality because duality “contributes to a unity of command at the top of a corporation that helps ensure the existence of or the illusion of strong leadership.” Thus, I hypothesize a positive association between CEO duality and board independence.

[Please insert Table 1 about here]

As a concise reference point, I summarize the hypotheses discussed above in Table 1. The table also contains the various proxies employed, the specific manner in which they are measured, and their predicted association with CEO duality.

⁵ This point is emphasized by General Motors, ExxonMobil, Verizon Communications, and several other firms in opposing shareholder proposals recommending separation of CEO and chairman responsibilities.

3. Sampling and data

I begin with the 3,823 definitive proxy statements filed with the U.S. Securities and Exchange Commission in 1995. From this group, I remove mutual funds, real estate investment trusts, limited partnerships, subsidiaries, duplicate filings, and firms with incomplete data in COMPUSTAT. This yields a sample of 2,166 firms. Reading through each proxy statement, I collect data on leadership structure, CEO age and tenure, managerial ownership, unaffiliated block ownership, board independence, and board size for each firm. In cases where full information is not available in the proxy statement, I supplement it with data from annual reports. My choice of 1995 as the sample year is informed by a desire to avoid more recent years, since these are more likely to reflect external pressures on firms to separate CEO and chairman positions rather than the effect of underlying economic factors on the choice of leadership structure.

Vancil (1987) suggests that the normal approach to CEO succession in most firms involves a process in which an executive is first appointed president, then promoted to president and CEO, and finally CEO and chairman. Thus, the cross-section of non-dual CEOs at any point in time includes firms that practice non-duality and those firms which, while basically duality practitioners, are yet to promote the incumbent CEO to the additional position of board chairman. I address the possibly confounding effect of this process as follows. First, I classify all CEOs who were also board chairmen in 1995 as dual CEOs. Then, since Vancil (1987) reports that probationary CEOs are on average appointed chairmen after 2.3 years of becoming CEOs, I classify non-dual CEOs with tenures of six years or more as non-dual. If a non-dual CEO has been in office for five years or less, I classify him as non-dual if his immediate predecessor (excluding any

interim CEOs) was also non-dual. The intuition is that if a firm has had at least two regular non-dual CEOs, it is reasonable to presume that the firm does not practice CEO duality. If the immediate predecessor was dual, I exclude the firm from my sample since it is impossible to determine if the firm has changed to non-duality or if it simply has not yet promoted the current CEO. This eliminates 283 firms, reducing the sample to 1,883.

I obtain financial data from the COMPUSTAT database. These are data on firm size, asset characteristics, and sales growth. My measure of firm size is the natural logarithm of total assets in 1994 dollars, averaged over 1990-1994, while I measure asset characteristics as the ratio of net property, plant, and equipment to total assets, also averaged over 1990-1994. I define sales growth as five-year average annual growth rate of real sales during the same period. I obtain data on press visibility by searching for each CEO's name (as printed in the 1995 proxy statement) in Factiva's "Major News and Business Publications" from January 1, 1990 to December 31, 1994.⁶

Table 2 provides full-sample descriptive statistics for these variables. As in earlier studies, a majority (78%) of the firms in my sample vest the CEO and chairman positions in the same individual. The median CEO is 56 years old; he has been CEO for nine years. Between 1990 and 1994, he was mentioned in seven articles in major news and business publications. The median board has nine members, 60% of whom are unaffiliated with the firm beyond their directorships. On average, the CEO owns 10.21% of outstanding shares, with median ownership of 2.70%. These numbers are comparable to those reported by Holderness, Kroszner, and Sheehan (1999). Sixty-two percent of the sample

⁶ These publications include *Wall Street Journal*, *Financial Times*, *BusinessWeek*, *Fortune*, *Forbes*, *Newsweek*, *Time*, *Washington Post*, *New York Times*, and *USA Today*. See Factiva for a complete listing. Press appearances range from zero to 2,877, with mean and median values of 26.5 and seven, respectively. Thus, to reduce potential problems with outliers, I follow Milbourn (2003) and use standardized article counts (based on the empirical cumulative density function of press appearances) in my regressions.

firms have at least one unaffiliated shareholder controlling 5% or more of voting shares. Average and median blockholdings are 10.19% and 7.11%, respectively.

[Please insert Table 2 about here]

Table 2 also shows considerable diversity among the sample firms. Average and median total assets are \$3.10 billion and \$257.98 million, respectively. On average, net property, plant, and equipment constitute 31.30 of total assets. The median value is 26.2% while the standard deviation is 23.8%. Over the five-year period, sales growth averaged 12.0%, with a median of 7.2% and a standard deviation of 20.9%.

4. Empirical analysis

As a first step in understanding the effect of firm and CEO characteristics on the choice of leadership structure, I partition the sample into two groups based on CEO duality and perform univariate comparisons of the two subsamples on each of the variables described in Table 2. The first group consists of the 1,467 firms whose CEOs also serve as board chairmen while the second group consists of the remaining 416 firms.

Table 3 provides a strong preliminary support for the CEO reputation hypothesis as dual CEOs are significantly more likely to be referenced in major news and business publications. Between 1990 and 1994, mean and median press appearances for dual CEOs are 31 and nine, respectively. In contrast, non-dual CEOs are mentioned 10 times on average, with a median of four press appearances. Both the mean and median are significantly different at the 1% level.

[Please insert Table 3 about here]

Table 3 also offers some support for the organizational complexity hypothesis in that firms that vest their CEOs with the chairman title are significantly larger than those that do not. Average size for these firms is 5.855, compared to 4.834 for non-dual CEO firms. Median firm size is 5.774 and 4.849, respectively. Both statistics are significantly different at the 1% level. However, neither sales growth nor the ratio of net property, plant, and equipment to total assets is significantly different across the two subsamples.

Consistent with the governance structure hypothesis, Table 3 shows significantly higher mean and median equity ownership for dual CEOs: 11.58% and 3.29%, compared to 5.39% and 2.10% for non-dual CEOs. The table also shows that firms with dual CEOs have larger boards than those with non-dual CEOs, although outside block ownership and board independence are comparable for both categories of firms.

I subsequently estimate a probit regression relating leadership structure to my measures of organizational complexity, CEO reputation, and governance structure. The dependent variable is a binary variable which equals one for dual CEOs, zero otherwise. The regression includes a separate intercept term for each two-digit SIC code to control for unobservable industry effects. I also control for the CEO's age, since it is plausible that older CEOs are more likely to serve as chairmen because of their greater experience. In addition, I include the ratio of long-term debt to total assets as a control for cross-sectional differences in financing and/or contracting environment. Results are presented in Table 4.

[Please insert Table 4 about here]

The probit regression provides strong evidence in support of the organizational complexity hypothesis. The coefficient of firm size is positive and significant at the 1%

level, indicating that the probability of CEO duality increases significantly with firm size. The coefficient estimates suggest that an increase of one standard deviation in the natural logarithm of total assets while other variables are held at their sample medians increases the likelihood of CEO duality by about 11%. Thus, the larger the firm, the more likely it is to vest the chairman position in its CEO. Similarly, the coefficient of sales growth is positive and significant, indicating that high-growth firms are more likely to appoint their CEOs to the chairman position. The coefficient estimates imply that increasing average sales growth by one standard deviation increases the probability that the CEO also serves as chairman by about 4%. The regressions also show that CEO duality is more likely as the firm's assets become less tangible.

These results suggest that firms consider the complexity of their operations in choosing their leadership structure. An economic explanation for this is that complex organizations are more likely to place a higher premium on CEO flexibility and minimizing information sharing costs at the organization's highest level. For these firms, CEO duality appears intuitively appealing. The evidence presented here suggests that they are indeed more likely to have their CEOs also serve as board chairmen.

Table 4 also provides evidence in support of the CEO reputation hypothesis. The measure of CEO reputation is positively and significantly related to the probability of CEO duality, thus suggesting that reputable CEOs are more likely to be appointed as chairmen of their companies' boards. If a reputable CEO is less likely to engage in acts that can tarnish his reputation and damage his legacy, then the additional costs of separating chairman and CEO positions are economically unnecessary since the incremental control benefits are minimal. The regression results suggest that firms weigh

these considerations in deciding on whether to appoint the CEO to the additional position of board chairman.

The probit regression further suggests a trade-off among governance mechanisms along the lines posited by the governance structure hypothesis. Specifically, CEO equity ownership is significantly positively related with duality. Its coefficient implies that an increase of one standard deviation in CEO ownership increases the probability of duality by 9.4%. If firms consider equity ownership as a binding constraint on managerial actions, then the need for additional control structures including separating chairman and CEO positions will decrease as managerial ownership increases, which is consistent with a trade-off among corporate governance provisions.⁷

The board size result also points in the same direction. The marginally significant negative coefficient on board size suggests that companies with smaller boards are more likely to have dual CEOs. This is consistent with previous work on the effectiveness of small boards, suggesting that firms consider the monitoring capabilities of alternative governance provisions before incurring the additional costs of separating CEO and chairman positions. However, I do not find any relation between CEO duality and board independence or block equity holdings.

4.1. Relationship among variables

A reasonable concern with the above results is whether the measures employed for each hypothesis are jointly independent. This is particularly important for the organizational complexity hypothesis. For example, if firm size, sales growth, and asset tangibility capture the same dimension of organizational complexity, then the results may

⁷ As previously acknowledged, this result is also consistent with an entrenchment argument.

be biased. I investigate this issue by examining the Pearson correlation coefficient between each pair of variables used for this hypothesis.

The Pearson correlation coefficients are 0.098 between firm size and asset tangibility, -0.065 between asset tangibility and sales growth, and -0.209 between sales growth and firm size. Each is significant at the 1% level. Thus, these proxies appear to be significantly collinear so that including them in the same regressions can bias the coefficient estimates and test statistics.

I address this concern in two ways. First, I repeat the probit regression of Table 4 with the modification that I include only one of firm size, sales growth, and asset tangibility as the measure of organizational complexity in alternate specifications. Results are similar to those in Table 4, and are not reported to conserve space.

My second attempt at addressing dependence among the proxies involves extracting one common factor from the variables originally utilized to measure each firm characteristic. Using principal component analysis, I extract an organizational complexity factor from firm size, sales growth, and asset tangibility, and a governance structure factor from CEO ownership, block ownership, board size, and board independence. The factor loadings are shown in Table 5.

[Please insert Table 5 about here]

The organizational complexity factor assigns loadings of 0.7229 to firm size as measured by the natural logarithm of total assets, -0.1091 to the ratio of net property, plant, and equipment to total assets, and 0.6823 to sales growth. This factor gives higher scores to large, high-growth companies with relatively fewer tangible assets. The organizational complexity hypothesis predicts a positive relation between this factor and

duality. The governance structure factor puts loadings of -0.6012 on CEO ownership, 0.1276 on block ownership, 0.5489 on board size, and 0.5666 on the fraction of independent directors. This factor contrasts managerial ownership with block ownership, board size, and board independence and assigns lower scores to firms with smaller boards and high CEO ownership. Under the governance structure hypothesis, lower scores on this factor imply the presence of other governance mechanisms that may render the need for separating the CEO and chairman positions less important. Thus, factor scores should be negatively related to CEO duality.

I then estimate a probit regression similar to that in Table 4 with the factors as explanatory variables and industry dummies, CEO age, and leverage as additional control variables. Results are presented in Table 6. The coefficient estimates indicate that the probability of CEO duality increases with factor scores on organizational complexity and CEO reputation but decreases with factor scores on governance structure. Thus, the likelihood that the CEO also serves as board chairman increases as the organization increases in complexity and the CEO becomes more reputable. On the other hand, a relative weakness in alternative governance mechanisms as measured by a high score on the governance structure factor tends to reduce this probability.

[Please insert Table 6 about here]

4.2. *Potential endogeneity*

Another concern that remains is the issue of potential endogeneity of some of the right-hand variables. As discussed in Section 2, I have tried to avoid this problem by choosing proxies that are reasonably exogenous to the choice of leadership structure. However, a plausible case can be made for the endogeneity of some of the governance

structure variables, in particular, board size and board composition. For example, Hermalin and Weisbach (1998) propose a model in which the CEO and incumbent directors bargain over new director candidates. If the CEO is powerful (for instance, if he is also the board chairman or if he has been CEO for long), he dictates who gets appointed to the board when there are vacancies. On the other hand, if the CEO is weaker, other directors largely dictate board size and composition.

I address this concern in two ways. First, I estimate regressions similar to those in Table 4, using only those variables that most will agree are exogenous to the choice of leadership structure. These are the organizational complexity and CEO reputation variables. Results are virtually identical to those in Table 4, and are omitted to conserve space. Secondly, I employ a two-stage, instrumental variable regression approach. The first stage consists of regressions predicting board size and board composition. The set of variables used in first stage regressions for board composition are the natural logarithm of the number of shareholders, return on assets, CEO tenure, and CEO duality. Variables used in first-stage regression for board size are the natural logarithm of sales, ratio of net property, plant, and equipment to total assets, and the natural logarithm of the number of shareholders. I then use predicted values of board composition and board size as instrumental variables in second stage regressions predicting leadership structure. Once again, the results are similar to those in Table 4. They are omitted to conserve space but are available from the author upon request.

4.3. *So what?*

The preceding sections demonstrate the role of economic fundamentals in the choice of corporate leadership structure. An important related question is whether these

underlying considerations have any implications for the performance effects of CEO duality, since the fact that a phenomenon can be observed must be differentiated from the question of whether or not it is preferable. For example, while it is interesting to show that complex organizations are more likely to practice CEO duality, it is equally important to understand if firm complexity increases the benefits of vesting the chairman and CEO positions in the same executive. Similar arguments hold for CEO reputation and other governance provisions.

I measure firm performance using Tobin's q, which is defined as the ratio of the market value of the firm's assets to their replacement costs and is essentially a measure of the value created by management for every dollar of assets. Following Callahan, Millar, and Schulman (2003), Bebchuk and Cohen (2005), and several other studies, I estimate Tobin's q using the ratio of the sum of the market value of common equity and the book values of preferred equity and long-term debt to the book value of assets. I calculate Tobin's q for each year from 1995-1999 and average the values for each firm. Mean and median Tobin's q for the full sample are 1.41 and 1.01, respectively.

I then estimate regressions examining how CEO and firm characteristics mediate the relation between CEO duality and firm performance. These regressions also control for other factors that have been shown to affect performance, including board size (Yermack, 1996), staggered board elections (Faleye, 2007; Bebchuk and Cohen, 2005), board independence (Rosenstein and Wyatt, 1990), insider ownership (Morck, Shleifer, and Vishny, 1988),⁸ block ownership (Bethel, Liebeskind, and Opler, 1998), the availability of investment opportunities (Yermack, 1996; Faleye, 2007), and current

⁸ Following Morck et al. (1988), the empirical corporate finance literature typically uses breakpoints to control for insider ownership. I employ the same breakpoints as in Morck et al. (1988), i.e., ownership levels of less than 5%, between 5% and 25%, and greater than 25%.

profitability (Yermack, 1996; Faleye, 2007). Following Yermack (1996) and Faleye (2007), I use the ratio of capital expenditures to total assets as a proxy for the availability of investment opportunities and measure current profitability using return on assets (the ratio of operating income to total assets at the beginning of the year). The regressions also control for firm size and leverage, as well as industry characteristics as measured by two-digit SIC code dummies. *P*-values are based on Huber-White robust standard errors.

The first column of Table 7 presents a traditional regression relation CEO duality to performance and the control variables described above. As in many prior studies, duality is not significantly related with firm performance, with a *p*-value of 0.713. Then in the second column, I introduce additional terms interacting CEO duality with scores on my measures of firm complexity, CEO reputation, and governance structure. Under the hypothesis that complex firms benefit from vesting CEO and chair positions in the same individual, the interaction term for firm complexity should be positive and statistically significant. As Table 7 shows, this is indeed the case. The coefficient on the interaction term is 0.3523, significant at less than the 1% level. Factor score for the third quartile firm on organizational complexity is 0.5462. Thus, a complex firm with a dual CEO enjoys an increase of 0.1924 in Tobin's *q*, representing a 14% increase over the sample mean. In contrast, factor score for the first quartile firm is -0.5856, which implies that a non-complex firm with a dual CEO suffers a reduction of 0.2063 in Tobin's *q*, or a 15% value loss relative to the sample average. Similarly, the interaction term between duality and CEO reputation is positive and significant at the 1% level, suggesting that vesting the position of board chairman in reputable CEOs is value-enhancing.

[Please insert Table 7 about here]

Results for governance structure point in the same direction. In interpreting the results for this variable, it is important to recall that the governance structure factor assigns lower scores to firms with other governance provisions that potentially render the need to separate the chairman and CEO positions less important. Thus, if firms benefit from CEO duality in the presence of other CEO-constraining governance provisions, the interaction term between duality and scores on the governance structure factor should be negative and significant. As it turns out, the interaction term is indeed negative, but it is only marginally significant, with a p -value of 0.14.

These results suggest that it matters whether a firm chooses the leadership structure appropriate for its circumstances. Where firm characteristics point to a combination of CEO and chairman positions (e.g. in complex firms and those with high reputation CEOs), duality is associated with improved performance. On the other hand, it is also clear that performance deteriorates if the CEO serves as chairman when firm characteristics suggest a separation of the two roles.

5. Summary and conclusion

Recent corporate scandals have led to increased campaigns for governance structures that facilitate executive accountability. One of the more commonly suggested mechanisms is the separation of CEO and chairman positions. In contrast, this paper argues that observed corporate leadership structure is more likely an outcome of a rational choice process influenced by operational needs and other governance characteristics of individual firms. Hence, a mandated separation of CEO and chairman duties may not produce the desired benefits.

I develop three hypotheses on firm characteristics that explain the choice of corporate leadership structure. These hypotheses focus on how organizational complexity, CEO reputation, and the presence of other governance mechanisms affect the relative cost and benefit of having a non-executive chairman. Testing the hypotheses on a large sample of firms, I find evidence that leadership structure choice is explained by rational economic factors. First, complex organizations are more likely to combine CEO and chairman positions. Since the loss of CEO flexibility and the cost of sharing information between the CEO and a non-executive chairman are likely to outweigh the control benefits of separating the two positions at complex organizations, these firms find it appropriate to vest the two positions in the same individual.

Similarly, I find that a strong reputation increases the likelihood of the CEO also serving as board chairman. I argue that a reputable CEO is constrained by a desire to protect his reputation and thus is less likely to engage in acts detrimental to shareholder interest. As a result, the additional costs of separating the two positions are not warranted. I also find that the CEO is more likely to serve as chairman when he owns a significant fraction of the firm's equity and is potentially more aligned with shareholder interest.

Finally, I examine the role of the aforementioned firm and CEO characteristics in mediating the relation between CEO duality and firm performance. I find that firms predicted as more likely to vest the chairman and CEO positions in the same individuals are also the ones who benefit from practicing CEO duality. Overall, my results are consistent with a rational choice system in which firms adapt their leadership structure to their individual characteristics and enhance their performance in the process. Therefore, I conclude that leadership structure does not appear to develop from a haphazard or self-

serving process that can be significantly improved by mandated changes. Rather, such requirements can have the unintended consequence of pushing many firms away from a rationally chosen leadership structure and be detrimental to firm performance.

References

- Anderson, C. A. & Anthony, R. N. (1986). *The new corporate directors: Insights for board members and executives* (New York: Wiley).
- Baliga, R. B., Moyer, R. C. & Rao, R. S. (1996). CEO duality and firm performance: What's the fuss? *Strategic Management Journal*, 17, 41-53.
- Bebchuk, L. A. & Cohen, A. (2005). The costs of entrenched boards. *Journal of Financial Economics*, 78, 409-433.
- Bethel, J. E., Liebeskind, J. P. & Opler, T. (1998). Block share purchases and corporate performance. *Journal of Finance*, 53, 605-634.
- Bhagat, S. & Black, B. (2002). The non-correlation between board independence and long term performance. *Journal of Corporation Law*, 27, 231-274.
- Boone, A., Field, L. C. Karpoff, J. & Raheja, C. G. (2006). The determinants of board size and composition: An empirical analysis. *Journal of Financial Economics*, in press.
- Brickley, J. A., Coles, J. L. & Jarrell, G. (1997). Leadership structure: Separating the CEO and chairman of the board. *Journal of Corporate Finance*, 3, 189-220.
- Brickley, J. & James, C. (1987). The takeover market, corporate board composition, and ownership structure: The case of banking. *Journal of Law & Economics*, 30, 161-181.
- Business Roundtable (2002) Principles of corporate governance. Retrieved from <http://www.brtable.org/pdf/704.pdf>
- Callahan, W. T., Millar, J. A. & Schulman, C. (2003). An analysis of the effect of management participation in director selection on the long-term performance of the firm. *Journal of Corporate Finance*, 9, 169-181.

- Dalton, D. R., Daily, C. M., Ellstrand, A. E. & Johnson, J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal*, 19, 269-290.
- Dalton, D. R., Daily, C. M., Johnson, J. L. & Ellstrand, A. E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal*, 42, 674-686.
- Dahya, J. 2004. One man two hats - What's all the commotion! Working paper, Baruch College.
- Davidson, W. N., Jiraporn, P., Kim, Y. S. & Nemeč, C. (2004). Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory. *Academy of Management Journal*, 47, 267-275.
- Faleye, O. (2007). Classified boards, firm value, and managerial entrenchment. *Journal of Financial Economics*, 83, 501-529.
- Fama, E. & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law & Economics*, 26, 327-349.
- Finkelstein, S. & D'Aveni, R. A. (1994). CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal*, 37, 1079-1108.
- Francis, J., Huang, A. H., Rajgopal, S. & Zang, A. Y. (2005). CEO reputation and reporting quality. Working paper, Duke University and University of Washington.
- Goodstein, J., Gautam, K. & Boeker, W. (1994). The effects of board size and diversity on strategic change. *Strategic Management Journal*, 15, 241-250.

- Goyal, V. K. & Park, C. W. (2002). Board leadership structure and CEO turnover. *Journal of Corporate Finance*, 8, 49-66.
- Hartzell, J. C. & Starks, L. T. (2003). Institutional investors and executive compensation. *Journal of Finance*, 58, 2351-2374.
- Hermalin, B. E. & Weisbach, M. S. (1998). Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review*, 88, 96-118.
- Holderness, C. G., Kroszner, R. S. & Sheehan, D. P. (1999). Were the good old days that good? Changes in managerial stock ownership since the great depression. *Journal of Finance*, 54, 435-469.
- Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Finance*, 48, 831-880.
- Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305-360.
- Lehn, K., Patro, S. & Zhao, M. (2006). Determinants of the size and structure of corporate boards: 1935-2000. Working paper, University of Pittsburgh and Bentley College.
- Milbourn, T. T. (2003). CEO reputation and stock-based compensation. *Journal of Financial Economics*, 68, 233-262.
- Morck, R., Shleifer, A. & Vishny, R. (1988). Managerial ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20, 293-315.
- Peasnell, K. V., Pope, P. F. & Young, S. (2003). Managerial equity ownership and the demand for outside directors. *European Financial Management*, 9, 99-118.

- Pi, L. & Timme, S. G. (1993). Corporate control and bank efficiency. *Journal of Banking & Finance*, 17, 515-530.
- Rajgopal, S., Shevlin, T. & Zamora, V. (2006). CEOs' outside employment opportunities and the lack of relative performance evaluation in compensation contracts. *Journal of Finance*, 51, 1813-1844.
- Rechner, P. L. & Dalton, D. R. (1991). CEO duality and organizational performance: A longitudinal analysis. *Strategic Management Journal*, 12, 155-160.
- Rosenstein, S. & Wyatt, J. (1990). Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics*, 26, 175-192.
- Shleifer, A. & Vishny, R. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94, 461-488.
- Stoeberl, P. A. & Sherony, B. C. (1985). Board efficiency and effectiveness. (In E. Mattar & M. Balls (Eds.), *Handbook for corporate directors* (pp. 12.1-12.10). New York: McGraw-Hill).
- Vancil, R. F. (1987). *Passing the baton: Managing the process of CEO succession* (Boston: Harvard Business School Press).
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40, 185-213.

Table 1: Summary of hypotheses

This table presents the three hypotheses proposed and tested in this paper, the various proxies employed for their test, the specific manner in which they are measured, and their predicted association with CEO duality.

Hypothesis	Proxies	Variables	Predicted association
Organizational complexity hypothesis	Firm size	Total assets	+
	Asset characteristics	Ratio of net property, plant, and equipment to total assets	-
	Growth opportunities	Growth rate of real sales	+
CEO Reputation hypothesis	CEO press visibility	Number of press articles in which the CEO's name appears	+
Governance structure hypothesis	Managerial ownership	Fraction of shares owned by the CEO	+
	Outside block ownership	Equity ownership of unaffiliated holders of 5% or more	?
	Board size	Number of directors	?
	Board independence	Proportion of unaffiliated directors	+

Table 2: Descriptive statistics

CEO Duality is a binary variable which equals one when the CEO also serves as board chairman, zero otherwise. *CEO Press Visibility* is the number of articles in selected news and business publications in which the CEO's name appears from 1990-1994. *Managerial Ownership* is the proportion of outstanding shares owned by the CEO. *Block Ownership* is the proportion of outstanding voting shares owned by unaffiliated holders of five percent or more. *Block Holder* is a dummy variable which equals one if there is at least one unaffiliated shareholder controlling 5% or more of voting shares. *Board Size* is the number of directors. *Independent Directors* is the proportion of directors who are non-employee directors with no business or personal relationship with the firm or any of its employee-directors. *Independent Board* is a dummy variable set equal to one if at least two-thirds of directors are independent, zero otherwise. *Total Assets* is assets in millions of 1994 dollars. *Sales Growth* is growth rate of real sales. *Net PPE* is net property, plant, and equipment. Governance data are from the 1995 proxy filings and/or annual reports. Financial data are averages over 1990-1994, constructed using data from COMPUSTAT. The sample consists of 1,883 firms, of which 1,467 are dual CEO firms and the remaining 416 are non-dual CEO firms.

Variable	First quartile	Mean	Median	Third quartile	Standard deviation
CEO duality	1.00	0.78	1.00	1.00	0.42
CEO age	51.00	56.29	56.00	61.00	8.49
CEO tenure	4.00	11.42	9.00	16.00	9.92
CEO press visibility	2.00	26.51	7.00	18.00	121.34
Managerial ownership	0.64	10.21	2.70	12.70	16.13
Block ownership	0.00	10.19	7.11	16.54	11.38
Block holder	0.00	0.62	1.00	1.00	0.49
Board size	6.00	8.91	9.00	11.00	3.41
Independent directors	0.43	0.56	0.60	0.71	0.21
Independent board	0.00	0.40	0.00	1.00	0.49
Total assets	56.66	3104.83	257.98	1216.17	13154.99
Log of total assets	4.05	5.63	5.52	7.07	2.17
Net PPE/Assets	12.79%	31.30%	26.17%	45.58%	23.84%
Long-term debt/Assets	3.82%	18.17%	14.58%	28.02%	19.27%
Sales growth	2.11%	12.01%	7.24%	15.50%	20.92%

Table 3: Univariate comparisons of dual CEO and non-dual CEO firms

Dual CEOs also serve as board chairmen. Non-dual CEOs do not. *CEO Press Visibility* is the number of articles in selected news and business publications in which the CEO's name appears from 1990-1994. *Firm Size* is the natural logarithm of total assets in 1994 dollars. *Sales Growth* is the growth rate of real sales. *Managerial Ownership* is the proportion of outstanding shares owned by the CEO. *Block Ownership* is the proportion of outstanding shares owned by unaffiliated holders of five percent or more. *Block Holder* is a dummy variable which equals one if there is at least one unaffiliated shareholder controlling 5% or more of voting shares. *Board Size* is the number of directors. *Independent Directors* is the proportion of directors who are non-employee directors with no business or personal relationship with the firm or any of its employee-directors. *Independent Board* is a dummy variable set equal to one if at least two-thirds of directors are independent, zero otherwise. Data on governance variables are from 1995 proxy filings and/or annual reports. Financial data are from COMPUSTAT, averaged over 1990-1994. Levels of significance for the t- and Wilcoxon tests are indicated by *, **, and *** for 10%, 5%, and 1%, respectively. The sample consists of 1,883 firms, of which 1,467 are dual CEO firms and the remaining 416 are non-dual CEO firms.

Variable	Dual CEO		Non-dual CEO		t-test	Wilcoxon
	Mean	Median	Mean	Median		
CEO press visibility	31.235	9.000	9.882	4.000	5.39***	10.68***
Firm size	5.855	5.774	4.834	4.849	9.86***	8.21***
Net PPE/assets	0.315	0.264	0.307	0.250	0.62	0.72
Sales growth	0.119	0.072	0.123	0.075	-0.37	-0.38
Managerial ownership	11.584	3.285	5.387	2.100	9.60***	5.12***
Block ownership	10.135	7.215	10.373	6.620	-0.37	0.12
Board size	9.042	9.000	8.415	8.000	3.53***	3.34***
Independent directors	0.567	0.600	0.552	0.571	1.24	1.24
Independent board	0.405	0.000	0.372	0.000	1.23	1.23

Table 4: CEO duality and firm characteristics

The dependent variable is a binary variable, which equals one when the CEO also serves as board chairman, zero otherwise. *Firm Size* is the natural logarithm of total assets in 1994 dollars. *Sales Growth* is growth rate of real sales. *Net PPE/Assets* is the ratio of net property, plant, and equipment to total assets. *CEO Press Visibility* is the empirical cumulative density function of the number of articles in selected news and business publications in which the CEO's name appears from 1990-1994. *Managerial Ownership* is the proportion of outstanding shares owned by the CEO. *Block Ownership* is the proportion of outstanding shares owned by unaffiliated holders of five percent or more. An independent director is a non-employee director with no business or personal relationship with the firm or any of its employee-directors. *Board Size* is the natural logarithm of the number of directors. *Board Independence* is a dummy variable which equals one if at least two-thirds of directors are independent, zero otherwise. Data on governance variables are from 1995 proxy filings and/or annual reports. Financial data are from COMPUSTAT, averaged over 1990-1994. The regression also includes two-digit SIC code dummies. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%, respectively.

Table 4 continued: CEO duality and firm characteristics

Variable	Coefficient	Standard error	P-value
Intercept	-2.0757	23.363	0.929
Firm size	0.1924***	0.031	0.000
Sales growth	0.4333**	0.216	0.045
Net PPE/assets	-0.7380***	0.273	0.007
CEO press visibility	0.0089***	0.002	0.000
Managerial ownership	0.0343***	0.004	0.000
Block ownership	0.0029	0.003	0.347
Board size	-0.2061	0.145	0.154
Board independence	0.0967	0.081	0.230
CEO age	0.0361***	0.005	0.000
Long-term debt/assets	0.3083	0.267	0.248
Likelihood ratio χ^2			415.357***
Pseudo R-squared			0.2014
Sample size			1,847

Table 5: Factor loadings

Factors are constructed using principal component analysis. *Sales Growth* is one-year growth rate of net sales averaged over 1990-1994. *Managerial Ownership* is the proportion of outstanding shares owned by the CEO. *Block Ownership* is the proportion of outstanding shares owned by unaffiliated holders of five percent or more. An independent director is a non-employee director with no business or personal relationship with the firm or any of its employee-directors. *Board Independence* is a dummy variable which equals one if at least two-thirds of directors are independent, zero otherwise. *Variation Explained* is the proportion of total variation in the underlying variables explained by the respective factor. Data on governance variables are from 1995 proxy filings and/or annual reports. Financial data are from COMPUSTAT, averaged over 1990-1994. Sample size is 1,883 firms.

Variable	Organizational Complexity Factor	Governance Structure Factor
Log (assets)	0.7229	---
Net PPE/assets	-0.1091	---
Sales growth	0.6823	---
Insider ownership	---	-0.6012
Block ownership	---	0.1276
Board size	---	0.5489
Board independence	---	0.5666
Variation explained	26.22%	39.38%

Table 6: Probit regressions relating CEO duality to common factors

The dependent variable in each regression is a binary variable which equals one when the CEO also serves as board chairman, zero otherwise. Factor loadings for *Organizational Complexity* are 0.7229 on the natural logarithm of total assets, -0.1091 on the ratio of net property, plant, and equipment to total assets, and 0.6823 on sales growth. *CEO Reputation* is the empirical cumulative density function of the number of articles in selected news and business publications in which the CEO's name appears from 1990-1994. Factor loadings for *Governance Structure* are 0.5489 on board size, -0.6012 on CEO equity ownership, 0.1276 on equity ownership of unaffiliated holders of 5% or more shares, and 0.5666 on the proportion of independent directors. Factors are constructed using principal component analysis. Raw governance data used in constructing factors are from 1995 proxy filings and/or annual reports. Financial data are from COMPUSTAT, averaged over 1990-1994. Each regression also includes two-digit SIC code dummies. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1%.

Variable	Coefficient	Standard error	P-value
Intercept	-1.8068	23.671	0.939
Organizational complexity	0.2185***	0.051	0.000
CEO reputation	0.0117***	0.002	0.000
Governance structure	-0.1973***	0.037	0.000
CEO age	0.0417***	0.005	0.000
Long-term debt/assets	0.4751*	0.252	0.060
Likelihood ratio χ^2			322.377***
Pseudo R-squared			0.1602
Sample size			1,847

Table 7: CEO duality, organizational characteristics, and firm performance

The dependent variable in each regression is Tobin's q , calculated as the ratio of the sum of market value of common equity, book value of preferred equity, and book value of long-term debt to the book value of assets. *CEO Duality* equals one when the CEO also serves as board chairman, zero otherwise. *Firm Complexity* is a principal component extracted from the natural logarithm of total assets, the ratio of net property, plant, and equipment to total assets, and sales growth. *CEO Reputation* is the empirical cumulative density function of the number of articles in selected news and business publications in which the CEO's name appears from 1990-1994. *Governance Structure* is a principal component extracted from board size, CEO ownership, ownership of unaffiliated holders of 5% or more shares, and the proportion of independent directors. Principal components are extracted using factor analysis. *Classified Board* equals one when directors are elected to staggered terms, zero otherwise. *Board Independence* is the fraction of directors who are outsiders with no business or personal relationship with the firm or any of its employee-directors. *Insider Ownership I, II, and III* measure officers and directors' ownership less than 5%, between 5% and 25%, and greater than 25%, respectively. *Block Ownership* is the fraction of outstanding shares owned by unaffiliated holders of 5% or more. *Firm Size* is the natural logarithm of total assets in 1994 dollars. *CAPEX/Assets* is the ratio of capital expenditures to total assets. *Current Profitability* is the ratio of operating income before depreciation to total assets at the beginning of the year. *Leverage* is the ratio of long-term debt to total assets. Each regression includes two-digit primary SIC code dummies. Robust standard errors are shown in parentheses under parameter estimates. Levels of significance are indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

Table 7 continued

Variable	I	II
CEO duality	0.0375 (0.713)	-0.1088 (0.293)
CEO duality × Firm complexity	----	0.3523 ^{***} (0.000)
CEO duality × CEO reputation	----	0.0038 ^{***} (0.005)
CEO duality × Governance structure	----	-0.0692 (0.135)
Board size	-0.2727 [*] (0.061)	-0.1873 (0.181)
Classified board	-0.2238 ^{***} (0.000)	-0.1839 ^{***} (0.001)
Board independence	0.1240 (0.492)	0.3237 [*] (0.101)
Insider ownership I	0.0611 ^{**} (0.029)	0.0494 [*] (0.066)
Insider ownership II	-0.0080 (0.238)	-0.0122 ^{**} (0.029)
Insider ownership III	-0.0116 ^{***} (0.000)	-0.0085 ^{***} (0.001)
Block ownership	-0.0117 ^{***} (0.000)	-0.0084 ^{***} (0.004)
Firm size	0.0439 (0.142)	-0.0930 ^{***} (0.009)
CAPEX/assets	1.2588 [*] (0.060)	1.2012 ^{***} (0.012)
Current profitability	-0.1334 (0.906)	0.9956 (0.340)
Leverage	-1.1594 ^{***} (0.000)	-0.9323 ^{***} (0.000)
R-squared	0.1677	0.2142
Sample size	1,664	1,656