

# **Killing the Goose that Lays the Golden Egg? The Costs of Overburdened Independent Directors**

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## **Abstract**

We study the impact of the internal distribution of the board's workload on the effectiveness with which directors perform their monitoring and advising duties. We find that monitoring quality improves when a majority of independent directors serve on at least two of the three principal board committees. These firms exhibit lower excess executive compensation, greater sensitivity of CEO turnover to firm performance, and reduced earnings management. Further analysis shows that the improvement in monitoring quality comes at the significant cost of weaker strategic advising. Firms with internally busy boards exhibit worse acquisition performance and lower firm value. The reduction in value is greater when the firm's operations are complex or the board is small. These results suggest that the recent trend toward smaller boards and greater independent director involvement in board monitoring can have significant unintended consequences.

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## 1. Introduction

Corporate governance and issues of managerial accountability have come under increased scrutiny since the recent spate of corporate scandals. While many solutions have been proffered, the most common cure for corporate woes appears to be increased independence of the board of directors and increased responsibility for independent directors. For example, an editorial in *The Economist* called for increases in the number and power of independent directors.<sup>1</sup> Similarly, Section 303A of the New York Stock Exchange Listed Company Manual requires the three principal board committees (audit, compensation, and nominating) of NYSE listed companies to be composed solely of independent directors. A practical implication of these expectations is that many independent directors serve on multiple principal committees, resulting in the devotion of significant time to compliance and monitoring responsibilities (Heidrick and Struggles, 2007; Leblanc and Gillies, 2005).

In this paper, we study the effects of independent director busyness arising from the internal allocation of committee assignments on the board's effectiveness. We define an internally busy independent director as one serving on at least two of the three principal board committees and argue that the prevalence of such directors can impact the board's effectiveness in fulfilling its advisory and monitoring responsibilities. On the one hand, independent directors who serve on multiple committees can gain a more complete understanding of their company. This broader view can aid such directors in making more informed decisions. However, serving on several committees can burden independent directors with excessive compliance and monitoring responsibilities, leaving them with little time to spend on strategic advising.

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<sup>1</sup> "Under the board talk," *The Economist*, June 15, 2002, pp. 13-14.

Our objectives are thus two-fold. First, we examine whether the quality of board monitoring is better when independent directors serve on multiple major committees. Second, we examine whether and under what circumstances this is associated with weaker strategic advising leading to deteriorations in firm value. We study these questions using firms in the S&P 500, S&P MidCap 400, and S&P SmallCap 600 indexes (collectively S&P 1500) over 1998-2006.

First, we test for improved monitoring by analyzing CEO turnover, executive compensation, and earnings quality. We find that both CEO turnover rate and the sensitivity of turnover to firm performance increase with the prevalence of independent directors serving on multiple monitoring committees. We also find improvements in earnings quality, with less discretionary accruals and more informative earnings. Furthermore, we find a significant reduction in excess executive compensation, although there is no evidence of a corresponding increase in pay-performance sensitivity. Overall, our results suggest that the quality of board monitoring increases when independent directors devote significant time to oversight responsibilities, which is consistent with several prior studies suggesting that independent directors are valuable monitors (Weisbach, 1988; Borokhovich, Parrino, and Trapani, 1996; Brickley and James, 1987).

Nevertheless, improved monitoring obtained in this manner can be costly if independent directors devote precious time to compliance and oversight duties at the expense of providing timely strategic counsel that facilitates the achievement of corporate objectives. One situation that requires high quality board advising is when the firm decides to acquire another company. Thus, we analyze acquisition performance to provide an insight into the advising impact of overburdening directors with compliance

and monitoring duties. We find that firms with internally busy boards suffer from worse acquisition performance, with announcement returns lower by 1.5 percentage points and a significantly lower probability of a positive net present value deal.

Next, we focus on firm value (as measured by Tobin's q) to provide more general evidence. We find that firm value is lower when independent directors are overburdened with compliance and monitoring responsibilities. We then construct an index of the need for strategic advising based on operating complexity as in Coles, Daniel, and Naveen (2008) to test whether the decline in value is greater for firms with significant advising needs. We find concurring evidence: a low advising need firm with an internally busy board suffers a 2.03 percentage points reduction in firm value, compared to a loss of 12.23 points when the need for strategic advising is greater. These results are robust to several controls and adjustments for endogeneity concerns.

We extend this analysis further by examining whether companies exhibit higher valuation when independent directors are completely free from service on any of the principal compliance committees.<sup>2</sup> We find that Tobin's q significantly increases with the fraction and number of free independent directors. In addition, since freedom from compliance committees can arise in two main circumstances, we distinguish two types of free independent directors. The first are those with tenures greater than one year. We argue that these are the truly free independent directors. The second are new independent directors who have served on the board for one year or less. We presume that these are being eased into their directorial duties and are not necessarily free in the sense contemplated by our analysis. Consistent with this, our results suggest that freedom from

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<sup>2</sup> It is most likely that these directors serve on other committees. However, other committees are more likely to engage in activities related to the firm's core objectives.

compliance and oversight committees increases value only when the free independent directors are experienced.

This paper makes several important contributions. The most obvious is our extension of the literature on the impact of directors' busyness on board effectiveness. Fich and Shivdasani (2006) show that firm value suffers when a majority of outside directors are excessively busy through service on multiple corporate boards. Yet the decision to assume additional board appointments is fundamentally different from directors' obligation to sit on additional committees. The compensation and prestige associated with board appointments can motivate directors to justify the allocation of incremental time to each additional board. In contrast, if directors rationally allocate time among their major responsibilities, there will not be a significant change in the time they devote to one particular board when they receive additional committee assignments from that board. Rather, the time spent on additional committees will come at the expense of the time they would otherwise devote to other board responsibilities at the same firm. Our results extend the findings on external busyness by showing that this potential tradeoff has significant implications for the effectiveness with which the board performs its advisory and monitoring functions.

We also contribute to the debate on optimal board size. Since Yermack's (1996) study documenting a negative relation between firm value and board size, the finance literature has grappled with the question of what constitutes an optimal number of directors (see Raheja (2005) and Boone et al. (2007) for example). While we do not directly address this issue, we contribute to the debate by showing that larger boards are less likely to be internally busy and that the value loss from internal busyness is smaller

for larger boards. Furthermore, internally busy larger boards are more likely to completely free some independent directors from service on any of the monitoring committees, potentially allowing them to concentrate on value creating advising duties. Overall, our results suggest that a larger size gives the board greater structural freedom to efficiently allocate its workload among directors.

In addition, we extend the literature on the effect of board attributes on firm value and shareholder outcomes. While originally focused on broad board characteristics including board size and board composition, this literature has recently expanded to include micro board features such as specific types of directors (see, for examples, Guner, Malmendier, and Tate (2008) on directors with financial expertise and Faleye (2008) on directors who are CEOs of other firms). We extend this literature by providing evidence on the implications of and tradeoffs surrounding the board's internal work assignments.

Finally, our results also have important policy implications. Our findings of improved monitoring provide some empirical basis for recommendations of increased independent director involvement in oversight duties. However, the deterioration in advising quality associated with a preponderance of overcommitted independent directors suggests that this should be done in such a manner as to minimize the monitoring and compliance burden on individual independent directors. This can potentially be accomplished in a number of ways: (1) increase the number of independent directors, (2) reduce committee sizes, and/or (3) allocate committee assignments in such a way that the number of overcommitted directors is minimized. Each of these has potential drawbacks, and we do not advocate a one-size-fits-all approach. Rather, we hope that our results will encourage firms to make appropriate tradeoffs based on their individual characteristics so

that independent directors are not overburdened with purely compliance duties. After all, it is no use killing the goose that lays the golden egg.

The rest of the paper is organized as follows. The next section discusses the relevant literature and develops the hypotheses. The third section presents the sample and variables. Results of the analysis of the effects of internal busyness on monitoring quality and firm value are presented in the fourth and fifth sections, respectively. The sixth section concludes the paper with a brief summary.

## **2. Background, related studies and hypotheses**

The board of directors is the primary internal governance mechanism through which shareholders exercise control over the firm. Its functions are two-fold: monitoring and advising top management (Jensen, 1993; The Business Roundtable, 1990). The monitoring role involves overseeing management with a view to minimizing potential agency problems, while the advising role involves helping management in strategy formulation and execution, as well as providing counsel in other areas of top-level decision making.

Boards typically delegate much of these responsibilities to committees, the principal ones being the audit, compensation, and nominating committees. The audit committee oversees the financial reporting process and the firm's internal control system. The compensation committee is responsible for assessing the firm's overall compensation structure, as well as administering and reviewing all executive compensation programs. The nominating committee evaluates and suggests candidates for board positions and is

oftentimes responsible for reviewing the performance of individual directors and assessing the strength of the firm's corporate governance structure.

Several studies have examined the impact of overall board structure on firm performance and board effectiveness (see Adams, Hermalin, and Weisbach (2008) for a recent review). Yet relatively few have considered the effects of internal committee structure, and most of these focused on the audit committee (Pomeroy and Thornton (2008) provide a summary and meta-analysis of these studies). Among the few studies that analyzed other committees, Faleye (2008) reports poorer executive compensation incentives when outside CEOs serve on the compensation committee, while Zhang (2008) shows that firms with independent nominating committees are less likely to dismiss newly appointed CEOs.

An important question unanswered by previous research is how the board's distribution of its workload among individual directors affects corporate governance effectiveness. Most boards consist of a mixture of directors who are affiliated with the firm and independent directors who have no significant relationships with the company beyond being directors. Independent directors usually possess considerable reputational capital and expertise acquired in other contexts (Fama and Jensen, 1983; Fich, 2005) and are often viewed as valuable monitors and advisers. As a result, greater independent director involvement in board oversight is often suggested as a means of improving managerial accountability and protecting shareholders. Specifically, the major stock exchanges either mandate (NYSE) or highly recommend (Nasdaq) that the compensation, nominating, and audit committees be entirely staffed with independent directors, while



Section 301 of the Sarbanes-Oxley Act of 2002 requires the same for the audit committee.

These requirements restrict the structural freedom of boards to allocate committee assignments, potentially burdening independent directors with oversight and compliance duties at the expense of strategic advising. Heidrick & Struggles (2007) report that 84% of respondents in their survey of directors indicated that “to at least some extent they are now spending more time on monitoring and less on strategy.” In another survey, Leblanc and Gillies (2005) report that “directors spoke on their desire to move beyond their ‘compliance’ (monitoring) role to a more ‘value-added’ (strategic) role.”

We hypothesize two contrasting effects for this phenomenon. First, independent directors have been shown as valuable monitors in various contexts.<sup>3</sup> Also, Vafeas (2005) shows that monitoring quality improves when directors increase the time devoted to oversight duties. In addition, service on multiple major committees potentially broadens independent directors' understanding of the firm and its operating environment, thereby enhancing their ability to make better-informed decisions. Overall, this suggests that assigning more oversight responsibilities to independent directors can lead to significant improvements in monitoring quality. We summarize this in our first major hypothesis: Monitoring quality is positively associated with internally busy boards, where an internally busy board is one on which a majority of independent directors serve on at least two of the three principal monitoring committees.

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<sup>3</sup> For example, Brickley and James (1987) show that managerial consumption of perquisites is lower when the board is dominated by independent directors, while Weisbach (1988) and Borokhovich, Parrino, and Trapani (1996) report that firms with more independent directors are more likely to remove poorly performing CEOs and to select replacements from outside the firm.

Nevertheless, overcommitting independent directors to compliance duties can detract from general board performance. Fich and Shivdasani (2006) and Core, Holthausen, and Larcker (1999) find that board effectiveness deteriorates when directors are overcommitted as a result of serving on multiple corporate boards. The dynamics of internal work assignments suggests an even greater effect for overcommitment deriving from committee responsibilities. The expected marginal utility of each additional board appointment is strictly positive, given the prestige and compensation associated with board service. Thus, directors can rationalize devoting incremental time to each additional board. In contrast, the expected utility from sitting on a particular board is relatively fixed. Therefore, rational independent directors will not significantly increase the time devoted to a particular board when that board increases their monitoring responsibilities. Rather, they will simply spend less time on their other major duty, strategic advising. Furthermore, director litigation exposure is such that directors who face the tradeoffs between advising and oversight duties will opt to spend more time on the latter in order to reduce their personal liability exposure (Klausner, Black, and Cheffins, 2005). Overall, this suggests that membership on multiple monitoring committees by a significant percentage of independent directors will negatively impact the ability of directors to perform their advisory duties. This leads to our second major hypothesis: The effectiveness of board advising is negatively associated with internally busy boards. We focus on acquisition performance and overall firm value to test this hypothesis.

Our second hypothesis has at least two important corollaries. First, firms differ in their need for strategic advising. Thus, if internal busyness detracts directors from their

advising duties, we would expect any concomitant value loss to increase with the firm's need for advising. Coles, Daniel, and Naveen (2008) argue that operating complexity increases the need for advising. They show that larger boards, with their bigger talent pools and wider contracting networks, are value-enhancing among complex firms. Thus, the first corollary of our second hypothesis is that the reduction in firm value stemming from internal busyness increases with operating complexity.

The second corollary focuses on the ideological opposite of internally busy directors, i.e., independent directors completely freed from service on any of the principal oversight committees. Liberating directors from monitoring duties in this manner potentially allows the firm to utilize them better in strategy formulation and execution, as well as other advising responsibilities. Therefore, we hypothesize a positive association between firm value and the presence of free independent directors.

### **3. Sample and variables**

#### *3.1. Sample construction*

Our sample consists of companies in the S&P 1500 index. We obtain data on these firms from five different sources. Data on individual directors and other board attributes come from the Investor Responsibility Research Center (IRRC) director database. This database provides detailed information on each director, covering such items as age, gender, primary occupation, interlocking relationships, independence status, and service on the three principal board committees (audit, compensation, and nominating committees). We are primarily interested in directors' independence status

and membership on the three principal committees. Since IRRC's coverage of this information begins in 1998, our sample also begins in that year.

We obtain accounting and financial data from Compustat, stock return data from the Center for Research in Security Prices (CRSP) database, CEO compensation and turnover data from Execucomp, and acquisition data from the Securities Data Corporation (SDC) database. We start with 14,381 firm-years from IRRC, and eliminate 1,623 observations due to missing board structure or financial information. We then impose the following two restrictions. First, we require all companies in our sample to have at least two of the three principal committees, resulting in an additional elimination of 127 observations. Second, due to differences in regulatory oversight that can limit the board's role, we eliminate financial firms and utilities, further reducing our sample by 1,995 firm-years. Our final sample thus includes 10,636 firm-years from 1998-2006.<sup>4</sup>

Using these data, we construct several variables which we utilize in all our empirical tests. These variables include measures of director's internal busyness, external busyness, board structure, and firm characteristics. These are discussed below. In later sections, we discuss variables utilized in specific tests, including our measures of board monitoring quality, effectiveness in strategic advising, and relevant control variables.

### 3.2. *Variable definitions*

We define an independent director as internally busy if he/she serves on at least two of the three principal board committees. We then aggregate this measure at the board level and define an internally busy board as one on which a majority of independent directors are internally busy. Essentially, this variable measures the extent to which

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<sup>4</sup> Our sample size varies based on the type of analysis we perform.

independent directors are devoted to monitoring/compliance duties on a particular board. Prior studies (e.g. Core, Holthausen, and Larcker, 1999; Fich and Shivdasani, 2006) show that service on multiple boards is another important dimension of directors' time commitment. Therefore, we control for directors' external busyness to properly isolate the effect of our variable of interest. Following Fich and Shivdasani (2006), we define an externally busy board as one on which a majority of independent directors serve on three or more corporate boards.

We also create variables measuring other board and firm characteristics that are known to affect directors' effectiveness. These include board size, which we measure as the natural logarithm of the number of directors, board composition (the fraction of independent directors), and director ownership (proportion of outstanding shares owned collectively by directors). Others are firm size (natural logarithm of market capitalization), the availability of investment opportunities (ratio of capital expenditures to sales), and industrial and geographic diversification (number of business and geographic segments, respectively).

Table 1 presents descriptive statistics for these variables. The median board has nine members, 66.7% of whom are unaffiliated with the firm beyond their directorships. On average, these independent directors sit on 1.52 principal committees, with a median of 1.50 committee memberships. Mean and median number of internally busy independent directors are 2.8 and 3.0, respectively, and 56.9% of our sample boards are internally busy. In contrast, only 21.5% are externally busy, which is comparable to the 21.4% reported by Fich and Shivdasani (2006). On average, directors collectively own 10.1% of outstanding shares, with a median ownership of 4.1%. As expected, Table 1

also shows that our sample firms are fairly large, with average and median market capitalization of \$6.57 billion and \$1.37 billion, and average and median total assets of \$4.75 billion and \$1.23 billion. They are also well diversified, operating on average in 11 geographical and business segments, with a median of nine. Between 1998 and 2006, the average firm earned an 8.73% annual return on assets while spending 8.1% of sales revenue on new capital investments.

#### **4. Internal busyness and monitoring quality**

We focus on three dimensions of board monitoring: CEO turnover, executive compensation, and earnings quality. Our analysis for each is discussed below.

##### *4.1. CEO turnover*

Hermalin (2005) argues that the board plays a significant role in few corporate decisions, notably those relating to the selection, oversight, and replacement of the CEO, and that the probability of dismissal increases with the intensity of board monitoring. Consistent with this, Weisbach (1988) shows that boards dominated by outsiders are more likely to replace the CEO following weak performance, while Yermack (1996) reports analogous results for smaller boards. In contrast, prior research suggests that a decrease in turnover rate and performance sensitivity generally coincides with weaker monitoring, for example, in situations where executives own significant equity blocks (Denis, Denis, and Sarin, 1997) or the positions of CEO and board chair are vested in the same individual (Goyal and Park, 2002). In this section, we examine whether committing independent directors to mostly compliance and oversight duties leads to better

monitoring by examining the impact of internal busyness on the incidence and performance sensitivity of CEO turnover.

Following recent studies (e.g. Bebchuk, Cremers, and Peyer, 2008; Faleye, 2008), we use the Execucomp database to identify CEO turnovers. Thus, a turnover occurs in a year if a new executive is identified in Execucomp as the firm's CEO for that year. This produces 973 CEO changes between 1998 and 2006, representing an overall turnover rate of 12.24%, which is comparable to the 11.82% reported by Bebchuk, Cremers, and Peyer (2008) and 11.78% reported by Faleye (2008) over 1998-2005.

Next, we estimate regressions predicting turnover as a function of the board's internal busyness, controlling for other factors known to affect the likelihood of executive turnover. Coughlan and Schmidt (1985) and Warner, Watts, and Wruck (1988) find a higher likelihood of CEO turnover following weaker market-adjusted returns, while Denis, Denis, and Sarin (1997) show that the probability of turnover is significantly influenced by differences in ownership structure. In addition, Yermack (1996) reports a negative association between board size and CEO turnover. Similarly, Goyal and Park (2002) show that the probability of turnover is significantly lower when the CEO also serves as board chairman, while Weisbach (1988) reports a positive effect for board composition as measured by the dominance of outside directors.

Therefore, we control for these variables in our cross-sectional time-series logistic models, with standard errors corrected for clustering at the firm-level. The dependent variable is a binary variable coded as one for firm-years with CEO turnovers and zero for firm-years with no turnovers. Our main explanatory variable of interest is the internally busy board variable. We expect this variable to be positive and statistically significant

under the hypothesis that more intense monitoring by independent directors increases the likelihood of CEO turnover.

We measure performance using market-adjusted stock returns, where the market is defined as the CRSP value-weighted portfolio of NYSE/Amex/Nasdaq stocks. As a robustness check, we also estimate regressions using the equal-weighted portfolio as the market portfolio. We control for differences in ownership structure with two variables: the respective percentages of outstanding shares owned by the CEO and institutional investors. We measure board size as the number of directors and CEO duality using an indicator variable that equals one when the CEO also serves as board chair, zero otherwise. Following Weisbach (1988), we control for board independence using a binary variable that equals one when a majority of directors are independent.<sup>5</sup> Finally, we control for CEO age, as well as industry and year effects. All variables (with the exception of year and industry dummies) are measured with one year lags to ensure that the values correspond to the departing CEO (or the board that replaced the CEO).

Table 2 presents results of these regressions. In the first column, we measure performance relative to the value-weighted market portfolio, while the second column measures performance relative to the equal-weighted market portfolio. In both cases, we replicate the well-known result that the probability of CEO turnover is significantly negatively related with firm performance. More important for our purpose, the internal busyness variable is positive and statistically significant in both regressions; thus, the probability of CEO turnover increases significantly when independent directors devote considerable time to oversight responsibilities. Its coefficient in the first column implies

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<sup>5</sup> The independent board dummy variable equals one when more than 50% of directors are independent, zero otherwise. Results are invariant to alternative definitions that use 60% and 75% as the cutoff point.



that an internally busy board increases the likelihood of top executive turnover by 1.54 percentage points, evaluating other variables at their sample means. Since the unconditional turnover rate in our sample is only 12.24%, this represents a non-trivial increase in the probability of CEO turnover. In comparison, the coefficient of market-adjusted return in the same regression is -0.4589, indicating that a ten percentage point reduction in market-adjusted return increases the probability of turnover by only 0.45 percentage points. Similarly, the coefficient for managerial ownership is -2.2613, that is, a ten percentage point increase in managerial ownership reduces the likelihood of turnover by 2.01 percentage points. Thus, it requires a performance deterioration of almost 34 percentage points or a change in managerial ownership of approximately 7.7 percentage points to achieve the same increase in the probability of CEO turnover as having an internally busy board.

In the third and fourth columns of Table 2, we examine the impact of internal busyness on the performance sensitivity of CEO turnover by adding interaction terms between our performance proxies and the internally busy board dummy variable. Norton, Wang, and Ai (2004) show that the coefficient on the interaction term in a nonlinear model (such as a logistic regression) does not equal the marginal effect of the interaction term. Following their approach, we estimate the marginal effect of internal busyness on turnover-performance sensitivity across different probability thresholds and values for the independent variables. In the third column, the average interaction effect is -0.041, with a standard error of 0.019 and a z-statistic of -2.106, which is significant at the 5% level. This implies that the CEO is more likely to be terminated for poor performance when independent directors devote significant time to monitoring duties. In particular, a one

standard deviation decline from the mean of market-adjusted return while holding other variables at their sample averages increases the probability of executive turnover by 3.3 percentage points at firms where a majority of independent directors serve on at least two monitoring committees but by only 1.2 percentage points at other firms. Results for the fourth column are qualitatively similar.<sup>6</sup>

Other results in Table 2 are broadly similar to those in prior studies. As stated earlier and consistent with Coughlan and Schmidt (1985) and Warner, Watts, and Wruck (1988), the coefficient on market-adjusted return is negative, implying that poorer performance significantly increases the likelihood of a turnover. We also find that turnover probability significantly decreases in managerial ownership, as in Denis, Denis, and Sarin (1997). Consistent with several prior studies, CEO age is positively related with the probability of a turnover. However, we do not find any significant effect for board independence and CEO duality, while board size has a positive effect.

#### 4.2. *Executive compensation incentives*

In addition to hiring and firing the CEO, an important board function is providing appropriate managerial incentives through well-designed compensation contracts. In a rational principal-agent world, observed compensation is the outcome of arm's-length bargaining between self-interested executives and a board of directors seeking to maximize shareholder wealth. Thus, executive compensation and changes in it will depend strictly on economic variables such as managerial labor market conditions and firm performance. Critics including Bebchuk and Fried (2004) and Crystal (1991) argue

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<sup>6</sup> Note that while the coefficient on the interaction term in this regression is not significant, the estimated average marginal effect of the interaction is -0.031 with a z-statistic of -1.658, which is significant at the 10% level.

that the reality is anything but efficient contracting and that management often manipulates the pay setting process to its advantage and the detriment of shareholders.

These issues have been the subject of extensive prior research, with the broad conclusion that compensation incentives improve with the strength of board monitoring and vice versa. Specifically, Yermack (1996) finds that compensation incentives are better among companies with smaller boards while Hallock (1997) reports excess compensation for CEOs in interlocking directorships with their board members. Core, Holthausen, and Larcker (1999) show that CEO compensation is positively related with CEO duality, board size, director age, and the proportion of affiliated directors, but negatively related with the percentage of the firm's stock owned by the CEO. They also show that CEOs enjoy excess pay when a majority of outside directors serve on multiple other boards. Similarly, Lambert, Larcker, and Weigelt (1993) find that excess CEO pay increases with the number of directors appointed by the CEOs while Faleye (2008) reports similar results for the proportion of directors who are active CEOs of other firms.

Based on these results and under our hypothesis that internal busyness facilitates better monitoring, we expect improved compensation incentives at firms with internally busy boards. We focus on two related issues. First, we examine the association between excess executive compensation and internal busyness, expecting a negative relation. Next, we analyze the impact of internal busyness on pay-performance sensitivity. In this case, our improved monitoring hypothesis predicts a positive effect.

We measure excess compensation as the residuals from a baseline regression predicting normal compensation as a function of the economic determinants of executive pay. Standard economic theory implies that CEO compensation depends on the relative

demand and supply of top executive talent. In this regard, prior theoretical and empirical work (e.g. Rosen, 1982; Core, Holthausen, and Larcker, 1999) suggests that the demand for managerial talent (and thus the necessity and willingness to pay higher wages) increases with firm size, growth opportunities, and operational complexity. Similarly, since managerial talent is difficult to measure with any reasonable degree of precision and executive effort is largely unobservable, agency theory places a significant emphasis on firm performance as an economic determinant of CEO compensation. Furthermore, Core, Holthausen, and Larcker (1999, p. 379) argue that “firm risk, both as a measure of the firm’s information environment and the risk of its operating environment, is a potentially important determinant of the level of CEO compensation.” Based on these considerations, our model of normal compensation expresses the CEO’s pay as a function of firm size, operating complexity, growth opportunities, performance, and risk.

Similar to Core, Holthausen, and Larcker (1999), we use total assets as a proxy for firm size and operational complexity, and book/market ratio (calculated as the ratio of the book value of equity to the market value of equity) as a proxy for investment opportunities. We measure firm performance using annual stock returns and return on assets (ROA), and employ the standard deviation of both over the preceding five years as proxies for firm risk. Results of these regressions are presented in the first panel of Table 3. The first column presents results for total compensation, while the second and third columns present results for equity-based compensation (stock option and restricted stock grants) and cash compensation (salary and bonus). As expected, we find a positive and significant association between total compensation and each of firm size, market/book

ratio, stock returns, ROA, the standard deviation of ROA, and the standard deviation of stock returns. Results for equity and cash compensation are broadly comparable.

Panel B of Table 3 presents regressions of our excess compensation measures on the internally busy board variable and control variables that capture other dimensions of the firm's monitoring environment. These include board size, CEO duality, directors' external busyness, and the number of directors who are CEOs of other firms. The regressions also include year and industry fixed effects, with standard errors corrected for clustering at the firm level.

As the first column shows, excess total compensation declines by approximately 4.6 percentage points when a majority of independent directors serve on multiple monitoring committees. This is statistically significant at the 5% level. In the second column, the dependent variable is a binary variable that equals one when excess total compensation is positive, zero otherwise. Thus, this regression examines the effect of internal busyness on the propensity to overpay the CEO. The results indicate a significant reduction in the likelihood of excessive executive rent extraction when the board is internally busy. Specifically, the coefficient implies that an internally busy board is associated with a reduction of 3.45 percentage points in the probability of overpaying the CEO when other variables are evaluated at their respective sample means. Since the unconditional probability of overpayment is 50.7%, this is economically non-trivial.

Columns 3-6 present results of analogous regressions for equity-based and cash compensation. As shown in the table, the excess cash compensation results are not statistically significant, suggesting that independent directors' internal busyness has no impact on excess cash payments to the CEO. In contrast and similar to the results for total

pay, the internally busy board variable is negative and statistically significant in the equity-based compensation regressions. Overall, we conclude that our results suggest that both the propensity to over-compensate the CEO and the dollar amount of over-compensation decline significantly when a majority of independent directors are committed to monitoring responsibilities.

Next, we examine the effect of internal busyness on the CEO's pay-performance sensitivity. Jensen and Murphy (1990) define pay-performance sensitivity as the dollar change in CEO compensation per \$1,000 change in shareholder wealth, estimated by regressing annual changes in CEO compensation on annual changes in shareholder wealth. Using data from the CRSP database and following this approach, we calculate the change in shareholder wealth for each year as the product of the percentage return to shareholders during the year and the firm's market value at the end of the preceding year. We then regress the first difference of total CEO compensation on the one-year lagged change in shareholder wealth, introducing an interaction term between our measure of internal busyness and the change in shareholder wealth to capture the effect of independent directors' monitoring intensity on pay-performance sensitivity. We expect this interaction term to be positive and significant under the hypothesis that internal busyness facilitates improved compensation incentives. We also control for other variables that potentially affects CEO pay-performance sensitivity, including directors' external busyness, board size, CEO duality, firm risk, and growth opportunities. Results are summarized in Table 4.

The first column confirms the established result of a positive association between changes in shareholder wealth and changes in executive compensation. In the second

column, we include the interaction term between the internally busy board measure and changes in shareholder wealth. As it turns out, the interaction term is positive but statistically insignificant. We obtain similar results for changes in equity-based compensation and cash compensation. Overall, it does not appear that independent directors' internal busyness has any statistically discernible effect on the CEO's pay performance sensitivity.

#### 4.3. *Earnings quality*

The separation of ownership and control inherent in the modern corporation necessitates the production of regular financial reports to inform shareholders of the firm's activities. Yet, since executive compensation and other evaluation metrics are often tied to reported accounting performance, this provides opportunity for the manifestation of severe agency problems in the form of earnings management. As shareholders' representatives, directors are responsible for ensuring the quality of information presented in the firm's financial reports and prior research has examined the association between corporate governance attributes and the quality of board monitoring over financial reports. Klein (2002) shows that independent boards and audit committees are associated with better earnings quality as measured by lower discretionary accruals. Xie, Davidson, and DaDalt (2003) report similar results for board and audit committee composition and meeting frequency, while Peasnell, Pope, and Young (2005) document similar findings for outside directors in the U.K. In this section, we examine whether earnings quality improves when independent directors are excessively devoted to purely monitoring and compliance duties.

We use discretionary accruals as a proxy for the degree of bias infused into the financial statements by management and tolerated by the board. The purpose of accrual accounting is to improve the informativeness of the financial reports. Under accrual accounting, firms measure and report their performance by recognizing economic events when they occur rather than when payments are made or received. However, because the determination of accruals often involves estimates and judgment, earnings management often manifests itself through discretionary accruals. Absent a specific theory that predicts the direction of accruals management (either income increasing or income decreasing), we employ tests using the absolute value of abnormal accruals. Using the unsigned value of abnormal accruals more completely identifies the discretion afforded managers by their boards and in this context does not require assumptions about the board's tolerance with regard to the direction of accounting accruals.

The most notable discretionary accruals model is the Jones (1991) model. We use two variants of the original Jones (1991) model to test the association between our measure of internal busyness and the absolute value of discretionary accruals. The first is developed by Dechow et al. (1995) and is commonly termed the modified Jones model, so called because Dechow et al. augmented the original Jones model with the one year change in receivables in order to reduce the estimation error arising from management's discretion over revenues. Following this approach, we estimate  $\alpha_1$ ,  $\alpha_2$ , and  $\alpha_3$  from (1) below by running cross sectional regressions for each year and two-digit SIC code.

$$TACC = \alpha_1(1/TA_{t-1}) + \alpha_2(\Delta REV_t - \Delta REC_t) + \alpha_3(PPE_t) + \varepsilon_t \quad (1)$$

Here, TACC is total accruals measured as the difference between net income (Compustat data item 172) and cash flow from operations (data item 308),  $TA_{t-1}$  is



lagged total assets,  $\Delta REV_t$  is the change in revenues from year  $t$  to year  $t-1$ ,  $\Delta REC_t$  is the one year change in receivables, and  $PPE_t$  is the gross property plan and equipment. All variables are scaled by the lagged total assets. The estimated coefficients from (1) are used in (2) for the calculation of discretionary accruals (DACC). We use the absolute value of DACC as our metric for earnings management. Its mean and median are 0.0438 and 0.0294, respectively.

$$DACC = \hat{\alpha}_1(1/TA_{t-1}) + \hat{\alpha}_2(\Delta REV_t - \Delta REC_t) + \hat{\alpha}_3(PPE_t) \quad (2)$$

Our second measure of discretionary accruals is based on the methodology of Kothari, Leone, and Wasley (2005) who augmented the modified Jones model with a control for firm performance<sup>7</sup>. Thus, we augment (1) and (2) with the ratio of net income (Compustat data item 172) to total assets. The average and median of this measure are 0.0417 and 0.0285, respectively.

Next, we estimate the association between the absolute value of discretionary accruals and independent directors' internal busyness. Since prior research shows that discretionary accruals are correlated with firm characteristics and performance (Dechow et al., 1995; McNichols, 2000), we control for firm size using the natural log of total assets, leverage (ratio of total assets to total liabilities as in DeFond and Jiambalvo, 1994), book to market ratio, the absolute value of the change in net income, and an indicator variable for firms with two or more consecutive years of negative income (Klein, 2002). Similar to Klein (2002) and Larcker, Richardson, and Tuna (2007) we also control for board size, board independence, and audit committee independence.

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<sup>7</sup> This model includes an intercept term. Although the original and modified Jones models do not include an intercept, Kothari et al. (2005) argue that including a constant term reduces the misspecification of the model.

The first column of Table 5 reveals that internally busy boards are associated with significant reductions in discretionary accruals. Thus, boards on which a majority of independent directors serve on multiple monitoring committees are better able to curtail earnings management. The second column shows that this result persists after controlling for firm performance in the accrual estimation process. In contrast, but similar to Larcker, Richardson, and Tuna (2007), we find that externally busy boards have no significant impact on earnings management.

Results for other variables are consistent with prior work. Specifically, we find that earnings management is lower among larger firms and higher among firms with significant net income changes or those reporting consecutive net loss, which is consistent with Klein (2002). We also find that smaller, more independent boards are associated with significant reductions in earnings management, which is similar to Klein (2002) and Larcker, Richardson, and Tuna (2007). However, we do not find any significant effect for audit committee independence.

## **5. Internal busyness and strategic advising**

Results presented in the preceding section suggest that board monitoring is significantly better when a majority of independent directors are mostly committed to compliance and oversight responsibilities through service on multiple principal committees. In this section, we examine the impact of this internal busyness on the board's other major function, strategic advising. Although advising and monitoring activities are not destined to compete, the balance between these two is not always clear. In reality, time spent on one activity is time spent away from another. In the context of

our paper, this would suggest that increasing monitoring effort could reduce the effort spent on advising. This follows from the argument that, on average, independent directors would be willing to spend a fixed amount of time on their board responsibilities. Therefore, if directors choose or are asked to spend more time on monitoring, it is likely that this will come at the expense of time spent on value creating activities.

We focus on two issues. First, we consider a discrete event involving significant board advising (acquisitions). Next, we analyze firm value as a measure of the overall advising impact of independent directors' internal busyness. We predict a negative association in both cases, expecting worse acquisition performance and lower firm value among boards that are internally busy with monitoring.

### *5.1. Acquisitions*

An acquisition is a major strategic initiative involving significant board input, with directors' role including target identification, contacting and negotiating with target management, and structuring and approving the deal. As a result of this significant board involvement, an acquisition provides the natural context of a discrete event for studying whether independent directors' internal busyness affects the performance of their advising duties. We focus on two related issues: acquisition returns and time to deal completion.

We obtain acquisition data from the Securities Data Corporation (SDC) database. The data cover 1998-2006 and include all deals valued at \$150 million or more involving a U.S. acquirer. There were 3,078 deals in total. After eliminating private acquirers and those with insufficient or unavailable data in the Compustat, CRSP, Execucomp, IRRC

directors, and IRRC corporate takeover defenses databases, the sample is reduced to 776 acquisitions involving 397 unique acquirers.

#### *5.1.1. Acquisition returns*

We employ standard event study methodology to estimate the market model for each acquisition over a period of 255 days (-301, -46) preceding the announcement date and then use estimated parameters to calculate cumulative abnormal returns (CAR) over a period of three days centered on the event date, i.e. over days [-1, +1]. Mean and median CAR are -0.75% and -0.35%; both are statistically significant at the 5% level. For robustness purposes, we also calculate CAR over a period of seven days centered on the deal announcement date, i.e. over days [-3, +3]. Mean and median CAR for this window are -0.85% and -0.30%. Both are significant at the 1% level.

Next, we estimate regressions of acquisition returns on the internally busy board variable to examine the impact of independent directors' devotion to monitoring responsibilities on acquisition performance. We control for several deal, acquirer, and CEO characteristics shown by prior work as significant determinants of acquisition returns. These include the method of payment (Travlos, 1987); deal size relative to the acquirer (Asquith, Bruner, and Mullins, 1983); whether the contracting parties operate in the same or different industries (Morck, Shleifer, and Vishny, 1990); and acquirer's size (Moeller, Schlingemann, and Stulz, 2004), leverage (Maloney, McCormick, and Mitchell, 1993), takeover defenses (Masulis, Wang, and Xie, 2007), board size (Yermack, 1996), board independence (Byrd and Hickman, 1992), leadership structure (Masulis, Wang, and Xie, 2007), outside CEO directors, CEO age, and tenure (Faleye, 2008).

We measure method of payment as the percentage of deal value paid in cash, relative size as the ratio of the deal value to the acquirer's market capitalization at the end of the year prior to the deal, and intra-industry deals using a binary variable that equals one when the target and acquirer operate in the same two-digit primary SIC code industry. We measure firm size as the natural logarithm of total assets, leverage as the ratio of long-term debt to total assets, and takeover defenses using the G-index of Gompers, Ishii, and Metrick (2003). Furthermore, we control for board size with the natural logarithm of the number of directors, board independence with the fraction of independent directors, board leadership structure with an indicator variable that equals one when the CEO also serves as board chair, and the proportional representation of outside CEOs with the fraction of directors who are active CEOs of other firms. We also include industry and year fixed effects and correct the standard errors for heteroskedasticity and clustering at the firm level.

Results are presented in Table 6. The dependent variable in the first column is the three-day cumulative abnormal return, CAR [-1, +1], while the second column uses CAR [-3, +3]. In the first column, the internally busy board variable is negative and significant at the 5% level. Its coefficient implies that acquisition returns are lower by approximately 1.53 percentage points when independent directors are overcommitted to compliance and monitoring duties. The second column reports similar findings.

Nevertheless, acquisitions are largely independent projects and different firms presumably face different acquisition opportunity sets. Thus, focusing on the size of acquisition returns can be potentially misleading. For this reason, we examine the effect of internal busyness on the probability of a positive net present value (NPV) acquisition

in the third and fourth columns of Table 6. The respective dependent variables in these regressions are binary variables that equal one when CAR [-1, +1] and CAR [-3, +3] are positive, zero otherwise. As these regressions show, the likelihood of a positive NPV acquisition decreases significantly when independent directors are internally busy with monitoring responsibilities. Specifically, the internal busyness variable is negative and statistically significant in both regressions, with  $p$ -values lower than 0.05. Its coefficient of -0.3946 in the CAR [-1, +1] model (evaluating other variables at their respective sample averages) implies that overburdening independent directors with compliance duties reduces the likelihood of a positive NPV acquisition by 9.8 percentage points. Since only 47.7% of CAR [-1, +1] is positive, this amounts to an economically non-trivial 20.5% decrease in the likelihood of a wealth-enhancing acquisition.

Other results in Table 6 are comparable to those in prior studies. As suggested by Travlos (1987), cash payments are positively related with acquisition returns and the likelihood of a positive NPV deal. In contrast, returns significantly decrease with relative deal size, which is similar to Moeller, Schlingemann, and Stulz (2004). We also find a positive effect for the fraction of outside CEO directors, as documented by Faleye (2008). None of the other board structure and CEO characteristics variables is significant at conventional levels.

### *5.1.2. Time to deal completion*

We measure time to deal completion as the number of days from the announcement date to the effective date, both as reported in the SDC database. Mean and median days to completion are 97 and 77, respectively. We then estimate regressions of days to completion on the internal busyness variable and the other control variables in

Table 6. Since it is plausible to expect significant delays in deal completion when there are competing bidders, we include the number of bidders as an additional control variable. Results are presented in Table 7. In the first column, the dependent variable is the number of days to deal completion. The second column uses the natural logarithm of this variable, while the third column utilizes a dummy variable that equals one when the number of days to deal completion is greater than the sample median. As the table shows, the internal busyness variable is positive in each regression, suggesting that deals take longer to complete when independent directors are overburdened with monitoring duties. However, the coefficients are not statistically significant at conventional levels.

Overall, our acquisition results suggest that independent directors' effectiveness in fulfilling their advisory responsibilities is hampered by the devotion of excessive time to oversight activities. We recognize, however, that acquisitions are discrete events and that many firms make no attempts at acquiring other firms. Therefore, we also consider the effect of internal busyness on firm value to provide additional insights into this issue.

## 5.2. *Firm value*

As in several prior studies, we measure firm value using Tobin's  $q$ , defined as the book value of assets minus the book value of equity plus the market value of equity divided by the book value of assets. In our regressions, we control for other variables that are known to explain differences in firm value, including board size (Yermack, 1996), board composition (Rosenstein and Wyatt, 1990), directors' external busyness (Fich and Shivdasani, 2006), managerial ownership (Morck, Shleifer, and Vishny, 1988), firm size and diversification (Berger and Ofek, 1995; Denis, Denis, and Yost, 2002), the

availability of investment opportunities (Yermack, 1996), and operating profitability (Yermack, 1996).

As elsewhere in this paper, we measure board size as the natural logarithm of the number of directors, board composition as the percentage of independent directors, and directors' external busyness using an indicator variable that equals one when a majority of independent directors serve on three or more corporate boards. We use the percentage of independent directors serve on three or more corporate boards. We use the percentage of outstanding shares owned by officers and directors as a measure of insider ownership, the natural logarithm of market capitalization as a measure of firm size, and the number of geographic and business segments as a measure of firm diversification. Our measures of investment opportunities and operating profitability are the ratio of capital expenditures to sales and the ratio of operating income after depreciation to total assets, respectively. We also include industry and year fixed effects and correct standard errors for clustering at the firm level. Results are presented in Table 8.

As the first column of the table shows, the internally busy board variable is negative and statistically significant at the 1% level, which is consistent with our hypothesis that internally busy boards are not able to allocate sufficient time to effectively perform their value creating responsibilities. Its coefficient of -0.1133 implies that an internally busy board is associated with a reduction of 11.33 percentage points in Tobin's q. Compared to the sample average Tobin's q of 2.10, this implies a reduction of 5.4% in the typical firm's total market value. Since the market value for the average sample firm during this period is \$10 billion, a 5.4% reduction in q-ratio amounts to an economically significant \$540 million reduction in the typical firm's market value.



### 5.2.1. *Potential endogeneity*

A common concern in empirical research relating firm value to board structure is the potential for endogeneity issues to confound the relation under study. Thus, while results in the first column of Table 8 suggest that the excessive commitment of independent directors' to monitoring duties results in lower firm value, they could also be consistent with an alternative explanation where poorly performing firms require more extensive monitoring by independent directors. We address this concern by estimating an additional regression in which the internally busy board variable is replaced by its value in 1998. If a company was not covered by IRRC in 1998, we use the internally busy variable from the firm's first appearance in the dataset, provided that the first appearance is not later than 2000. This allows us to examine the influence of prior year internal busyness on subsequent performance, which should mitigate the concern about reverse causation. This is the same approach followed by Bebchuk and Cohen (2005), Faleye, Mehrotra, and Morck (2006), and Cheng (2008) in similar contexts. As the second column of Table 8 shows, results obtained with this approach are similar to the main results in the first column.

Yet another concern is the possibility that the results are due to the effect of some unobservable factors on both firm value and independent directors' internal busyness. A common solution is instrumental variables two-stage least squares, which we implement by using 1998 values of total committee size and board independence as instruments in a first stage regression predicting internal busyness. The  $p$ -value for Hansen's J test of overidentification is 0.542, which implies that the instruments are uncorrelated with the error term in the second stage regression and are therefore valid. Results of the second

stage regression are reported in the third column of Table 8. Once again, we find the same result as before, i.e., internally busy boards are associated with significant reductions in firm value.

Overall, while it is impossible to completely rule out endogeneity issues in the absence of controlled experiments, the results presented above indicate that our basic findings are not mere artifacts of some confounding underlying issues. Rather, they suggest that overburdening independent directors with monitoring and compliance duties weakens the effectiveness of the board's advising function, thereby hindering the firm's ability to create value.

#### *5.2.2. Internal busyness, advising needs, and firm value*

Our results thus far point to an inverse relation between firm value and the preponderance of internally busy independent directors. We have attributed this relation to these directors devoting more time to compliance and monitoring duties at the expense of their advising responsibilities. In this section, we pursue this reasoning further by examining how the firm's need for advising mediates this relation. The rationale is simple. Firms differ in their need for strategic advising. Therefore, if internal busyness detracts directors from their advising duties as we propose, we would expect any associated value loss to increase with the firm's need for advising.

Coles, Daniel, and Naveen (2008) argue that the need for advising increases with operating complexity. Therefore, we use a firm's operating complexity as a proxy for its advising need. We recognize that complexity can be measured along many dimensions and that a firm can be complex along some but not other dimensions. To account for this, we employ principal component analysis to extract a complexity factor from three

common measures of operating complexity. The first measure is the number of business and geographic segments in which the firm operates. Firms operating in multiple industries face multi-dimensional operating challenges and competition. Furthermore, firms operating in multiple geographic segments confront additional challenges including understanding the cultural, legal, and political environments of their diverse operating locations. Our second measure is R&D intensity, which we define as the ratio of research and development expenditures to total assets. This is widely used in the literature as a proxy for operating complexity (see Coles, Daniel, and Naveen, 2008; Faleye, 2009 for examples). Finally, we include a measure of asset intangibility, defined as one minus the ratio of net property, plant, and equipment to total assets. The factor loadings are 0.263 on the number of business and geographic segments, 0.687 on R&D intensity, and 0.678 on asset intangibility. Thus, the factor assigns higher complexity to diversified R&D intensive firms with less tangible assets. It explains 43.8% of the variation in the underlying variables.

Table 9 presents results for this analysis. The first column shows that the complexity factor is positive and significant at less than the 1% level. Thus, complex firms in general attract higher valuation, which is consistent with prior research. In the second column, we introduce an interaction term between the internal busyness variable and the complexity factor. As the table shows, the interaction term is negative and statistically significant at the 5% level. Thus, operating complexity exacerbates the value loss from independent directors' internal busyness. Specifically, the coefficient of -0.079 on the interaction term together with the -0.073 on the main internal busyness variable imply that a third quartile firm on the complexity factor having an internally board busy

suffers a 12.23 percentage points reduction in Tobin's  $q$ , compared with a reduction of only 2.03 percentage points for a first quartile firm with an internally busy board.

This result indicates that overburdening independent directors with monitoring duties when the need for advising is great significantly increases the value loss from internally busy boards, which is interesting in its own right. It also provides additional evidence that our main results are not due to some spurious underlying factors. If that was the case, we should find no differential effects among different categories of firms, in this instance, complex versus non-complex firms.

### *5.2.3. Free directors*

The negative association between firm value and the board's internal busyness reported above suggests an important extension. Specifically, if overcommitting independent directors to monitoring duties hinders their advising effectiveness, then arranging the board's workload so that some independent directors are completely free from service on the three principal monitoring committees potentially allows the firm to utilize them better in strategy formulation, execution, and other advising responsibilities, which should have a positive impact on firm value.

We test this hypothesis by estimating regressions analogous to those in Table 8 but including additional terms measuring the impact of free directors, whom we define as independent directors serving on none of the three principal monitoring committees. On average, 8.9% of independent directors are free, while 36.8% of our sample observations have at least one free director. Regression results are presented in Table 10. In the first column, we use the ratio of free directors to the number of independent directors, while the second and third columns respectively employ the number of free directors and a

dummy variable that equals one when the firm has at least one free director, zero otherwise. As the table shows, the free director variable is positive and significant in each regression, suggesting that firm value is higher when independent directors are freed from oversight responsibilities. Specifically, the first column shows that each additional free director is associated with an increase of 4.2 percentage points in Tobin's q, while the third column indicates that the presence of at least one free director on the board increases Tobin's q by 8.6 points.

We find it interesting to note that the reduction in firm value associated with internally busy boards (9.7 percentage points in the third column) is almost completely offset by the increase in value from the presence of at least one free director (8.6 percentage points). Thus, the negative effects of an internally busy board dissipate when the board is able to arrange its workload in such a manner as to free some independent directors from oversight responsibilities.

Next, we classify free directors into two categories: those that are new to the board and experienced directors with longer tenure. Some firms follow a policy of slowly transitioning new directors into their roles by exempting them from committee duties at first. Thus, these directors will appear as free when they are really only settling into their board responsibilities. In contrast, experienced directors not assigned to any of the three principal committees have both the time and institutional knowledge to engage in value creating activities. Based on this, we expect the effect we documented earlier to be concentrated mainly among experienced free directors, whom we define as free directors with tenures greater than one year. We test this conjecture by estimating additional regressions where the free director variable is split into its two components. In

untabulated results, we find that although both free director variables are positive, only the experienced free director variable is statistically significant. Thus, relieving experienced independent directors of service on the principal monitoring committees appears to be value additive while the process of transitioning directors into committee duties over time has no significant impact on firm value.

#### *5.2.4. Internal busyness, board size, and firm value*

Early papers on board size (Yermack, 1996; Eisenberg, Sundgren, and Wells, 1998) report a negative association between firm value and the number of directors, suggesting that larger boards are less effective on average. Nevertheless, a negative average effect need not imply the absence of situations where larger boards are beneficial. Hermalin and Weisbach (2003) highlight this, raising the question of why the market permits larger boards to exist if they are dominated by smaller boards. Similarly, Coles, Daniel, and Naveen (2008) show that larger boards are value-enhancing among complex firms. Here, we examine this issue from another perspective, focusing on the impact of board size on the degrees of freedom the board has in effectively allocating its workload.

First, we examine the association between board size and the propensity to overburden independent directors with compliance and monitoring duties. We find that 65.5% of smaller boards (those with less than the median number of directors) are internally busy, compared with only 41.9% of larger boards. The difference is statistically significant at the 1% level. Furthermore, the average size of internally busy boards is 8.36, compared to 9.66 for non-busy boards. Again, the difference is significant at the 1%

level. This suggests that larger boards are less likely to overburden independent directors with monitoring duties.

Next, we investigate whether the value implications of internal busyness differ for different board sizes by estimating regressions similar to those in Table 8. We first estimate a model where we interact internal busyness with the natural logarithm of board size. The interaction term provides an insight into how board size affects the relation between firm value and internal busyness but constrains other variables to have the same coefficients for larger and smaller boards. Therefore, we also estimate separate models for larger boards and smaller boards, which permits other variables to have different coefficients for the two categories. Results are presented in Table 11.

In the first column, the interaction term is positive and statistically significant while the main busy board effect itself also remains significantly negative. Thus, while overburdening independent directors with compliance duties is value destroying on average, the impact is significantly lower for larger boards. Specifically, the coefficients on the main busy board effect and the interaction term together imply that an internally busy first quartile board having seven directors is associated with a reduction of 18.1 percentage points in Tobin's  $q$ , compared with a reduction of only 7.7 percentage points for an internally busy third quartile board having 10 members. The second and third columns present corroborating evidence. The internally busy board variable is negative and statistically significant in both the regression for larger and smaller boards. Nevertheless, both the magnitude (-0.235 vs. -0.083) and statistical significance (0.005 vs. 0.066) are much stronger for smaller boards.

A possible explanation for these results is that internally busy larger boards are better able to completely free some independent directors from compliance duties than internally busy small boards, thus allowing those directors to focus on advising duties which enhances firm value. Consistent with this, we find that 34.5% of larger internally busy boards have at least one free director, compared with only 21.7% of smaller internally busy boards. The difference is significant at the 1% level. Similarly, average board size among internally busy boards with at least one free director is 9.02, which is significantly larger than the corresponding average size of 8.13 for internally busy boards with no free director.

These results suggest that a larger size gives the board greater structural freedom to efficiently allocate its workload among directors. Specifically, in those situations where several independent directors serve on multiple monitoring committees, a larger size allows the board to completely relieve other independent directors of service on these committees, thereby freeing them to concentrate on value creating advising duties.

## **6. Summary and conclusion**

This paper studies the impact of the internal distribution of the board's workload on the effectiveness with which directors perform their monitoring and advising duties. The push for greater independent directors' involvement in corporate governance has meant that many of these directors serve on several committees devoted to monitoring and compliance duties. We argue that this creates a conflict between directors' responsibility to monitor management and their duty to provide top level strategic counsel. While committing independent directors to oversight duties can improve



monitoring quality, the economics of board service suggests a concomitant deterioration in advising quality and possibly overall board effectiveness.

We study these issues using the sample of S&P 1500 firms over 1998-2006. Focusing on CEO turnover, executive compensation, and earnings management, we show that monitoring quality improves significantly when independent directors are predominantly assigned to oversight duties. Next, we examine the advising impact of this phenomenon, finding worse acquisition performance and reduced firm value. In addition, we find that the reduction in value is greater when the firm's operations are complex or the board is small.

These results highlight the importance of the tradeoffs a board faces as it seeks to optimally distribute its workload among directors. Two recent developments make these findings particularly relevant. The first is the requirement that the principal monitoring committees be entirely or predominantly staffed with independent directors, while the second is the trend toward smaller board sizes (Spencer Stuart, 2008). As our results demonstrate, the confluence of these two forces have significant ramifications for board effectiveness, especially among complex firms. We hope that our results will promote public policy that encourages firms to allocate board responsibilities in such a manner as to not overburden independent directors with purely compliance duties.

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**Table 1: Descriptive statistics**

The sample consists of 10,636 annual observations for 2,051 firms between 1998 and 2006. Board size is the number of directors. Independent directors are directors with no business or personal relationship with the firm or any of its employee-directors. Board independence is the percentage of independent directors. Internally busy directors are independent directors serving on at least two of the three principal board committees (audit, compensation, and nominating). Internally busy board equals one when a majority of independent directors are internally busy, zero otherwise. Average committee membership is the average number of principal committees on which independent directors serve. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards. Insider ownership is the proportion of outstanding shares owned by all directors. Market capitalization and total assets are in millions of dollars. Return on assets is the ratio of operating income after depreciation to total assets. Corporate diversification is the sum of reported geographical and business segments. Investment opportunities is the ratio of capital expenditures to sales.

Variable	Mean	Median	25th percentile	75th percentile	Standard Deviation
<b><i>Board characteristics</i></b>					
Board size	8.918	9.000	7.000	10.000	2.383
Independent directors	5.803	6.000	4.000	7.000	2.277
Board independence	0.648	0.667	0.545	0.800	0.176
Internally busy directors	2.843	3.000	2.000	4.000	1.746
Internally busy board	0.569	1.000	0.000	1.000	0.495
Average committee membership	1.524	1.500	1.200	1.800	0.484
Externally busy board	0.215	0.000	0.000	0.000	0.411
Insider ownership	0.101	0.041	0.015	0.121	0.149
<b><i>Company characteristics</i></b>					
Market capitalization	6,572.710	1,371.890	534.967	4,256.210	1,7443.510
Total assets	4,753.930	1,229.340	514.384	3,495.770	1,1357.640
Return on assets	0.087	0.093	0.048	0.142	0.112
Corporate diversification	11.171	9.000	5.000	15.000	7.902
Investment opportunities	0.082	0.041	0.024	0.077	0.139

## **Table 2: Internal busyness and executive turnover**

The dependent variable in these regressions is a binary variable that equals one for firm years with CEO turnovers and zero for firm-years with no turnovers. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees. Excess value-weighted return is annual stock return less same-period return on the CRSP value-weighted portfolio of NYSE/Amex/Nasdaq stocks. Excess equal-weighted return is annual stock return less same-period return on the CRSP equal-weighted portfolio of NYSE/Amex/Nasdaq stocks. Board size is the number of directors. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards. Board independence equals one when a majority of directors are independent, zero otherwise. CEO duality equals one when the CEO also serves as board chairman, zero otherwise. CEO age is measured in years. Managerial ownership is the proportion of outstanding shares (including exercisable options) owned by the CEO as reported in Execucomp. Institutional ownership is the percentage of outstanding shares owned by institutional investors. Firm size is the natural logarithm of total assets. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 2: continued**

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Internally busy board	0.1602** 2.16	0.1603** 2.16	0.1623** 2.2	0.1465** 1.96
Excess value-weighted return	-0.4589*** -5.05	----	-0.2634** -2.03	----
Excess equal-weighted return	----	-0.4623*** -5.08	----	-0.3193** -2.39
Internally busy board × Excess value-weighted return	----	----	-0.3524** -2.03	----
Internally busy board × Excess equal-weighted return	----	----	----	-0.2565 -1.45
Externally busy board	0.0900 1.04	0.0898 1.04	0.0931 1.08	0.0916 1.06
Board size	0.0484** 2.43	0.0484** 2.43	0.0490** 2.46	0.0492** 2.47
Board independence	0.0785 0.73	0.0784 0.73	0.0766 0.71	0.0759 0.71
CEO duality	-0.0309 -0.38	-0.0311 -0.38	-0.0335 -0.41	-0.0320 -0.4
CEO age	0.0480*** 6.83	0.0481*** 6.83	0.0484*** 6.85	0.0482*** 6.85
Institutional ownership	-0.4879** -2.07	-0.4866** -2.07	-0.4820** -2.05	-0.4850** -2.06
Managerial ownership	-0.0226*** -2.71	-0.0226*** -2.71	-0.0232*** -2.76	-0.0230*** -2.74
Firm size	-0.0749** -2.26	-0.0748** -2.26	-0.0760** -2.29	-0.0757** -2.28
Sample	7,947	7,947	7,947	7,947
Global fit statistic	263.05***	263.50***	267.69***	265.87***



### **Table 3: Internal busyness and excess executive compensation**

Panel A presents regressions predicting normal CEO compensation as a function of the economic determinants of executive pay. Total compensation is the natural log of the sum of salary, bonus, the value of stock options and restricted stock granted during the year, long-term incentive payouts, and other miscellaneous compensation amounts. Equity compensation is natural log of the value of stock options and restricted stock awarded during the year. Cash compensation is natural log of salary plus cash bonus. Firm size is the natural log of total assets. Book/market is the book value of equity divided by the market value of equity. Stock return is the annual stock return less same-period return on the CRSP value-weighted portfolio of NYSE/Amex/Nasdaq stocks. ROA is operating income after depreciation divided by total assets. STDRET is the standard deviation of percentage stock return over the preceding five years. STDROA is the standard deviation of ROA over the preceding five years. Each regression also includes year and two-digit SIC code industry dummies. Panel B presents regressions explaining excess compensation, defined as residuals from the respective Panel A regressions. The dependent variable in columns 1, 3, and 5 is the actual residual, while the dependent variable in columns 2, 4, and 6 equals one when excess compensation is positive. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the total number of directors. CEO duality equals one when the CEO also serves as board chairman, zero otherwise. CEO directors is the number of directors who are CEOs of other firms. Test statistics based on robust standard errors clustered at the firm level are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 3 continued***Panel A: Economic determinants*

	<i>Total compensation</i>	<i>Equity compensation</i>	<i>Cash compensation</i>
Firm Size	0.501*** 77.180	0.611*** 59.96	0.315*** 35.930
Book/market	-0.002** -2.090	-0.004** -2.930	0.001 -0.040
Stock return	0.163*** 8.140	0.100*** 3.230	0.224*** 8.270
ROA	1.373*** 14.180	1.726*** 11.120	1.249*** 9.550
STDRET	0.024*** 6.690	0.060*** 11.000	-0.019*** -3.970
STDROA	2.359*** 11.110	4.960*** 14.350	-0.256 -0.890)
Sample size	9,118	6,876	9,092
Global fit statistic	119.860***	74.550***	37.300***

*Panel B: Excess compensation*

	<i>Total compensation</i>		<i>Equity compensation</i>		<i>Cash compensation</i>	
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Internally busy board	-0.047** -1.980	-0.138** 5.783	1.028*** 5.580	-0.162** 6.118	0.016 0.500	-0.040 0.499
Externally busy board	0.022 0.670	0.178** 6.141	-0.094*** -2.730	0.137* 2.886	-0.011 -0.300	0.082 1.383
Board size	-0.160*** -2.780	-0.451*** 11.426	0.066* 1.650	-0.818*** 27.853	0.146 1.580	0.152 1.224
CEO duality	0.099*** 3.830	0.257*** 16.466	-0.502*** -5.980	0.114 2.486	0.126*** 3.17	0.390*** 35.845
CEO directors	0.036*** 3.650	0.071*** 7.329	0.083** 2.130	0.036 1.504	-0.001 -0.070	0.048* 3.744
Sample size	9,118	9,118	6,876	6,876	9,092	9,092
Global fit stat	8.00***	87.42***	8.64***	70.70***	4.23***	108.67***

**Table 4: Internal busyness and pay-performance sensitivity**

The dependent variable in these regressions is the inflation-adjusted change in CEO compensation, in thousands of dollars.  $\Delta$ Shareholder wealth is the product of the percentage return to shareholders during the year and the firm's inflation-adjusted market value at the end of the preceding year, in millions of dollars. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the total number of directors. CEO duality equals one when the CEO also serves as board chairman, zero otherwise. Firm size is the natural log of total assets. STDRET is the standard deviation of percentage stock return over the preceding five years. STDROA is the standard deviation of return on assets over the preceding five years. Book/market is the book value of equity divided by the market value of equity. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

	$\Delta$ Total Compensation	$\Delta$ Equity Compensation	$\Delta$ Cash Compensation
Internally busy board	-161.391	-142.139	11.882
	-1.510	-1.39	0.780
$\Delta$ Shareholder wealth	0.119***	0.117***	-0.001
	4.030	3.930	-0.270
$\Delta$ Shareholder wealth $\times$ Internally busy board	0.016	0.009	0.002
	0.250	0.160	0.360
Externally busy board	58.272	32.148	1.705
	0.400	0.240	0.090
Board size	-108.451	-80.720	-41.938
	-0.460	-0.370	-1.170
CEO duality	281.489***	237.897**	-9.336
	2.820	2.480	-0.680
Firm size	-60.154	-129.608	34.139***
	-1.180	-2.580	5.290
STDRET	46.785	55.974	-3.885
	1.070	1.210	-1.040
STDROA	-2811.589**	-3211.069**	-295.038**
	-2.020	-2.410	-2.180
Book/market	-71.282***	-49.314***	-16.925***
	-4.440	-4.380	-3.550
Sample size	6,198	6,198	6,198
Global fit statistic	37.510***	164.710***	131.750***

**Table 5: Internal busyness and earnings quality**

The dependent variable in the first column is the absolute value of discretionary accruals generated from the modified Jones model. The dependent variable in the second column is the absolute value of discretionary accruals generated from the modified Jones model augmented with a control for firm performance. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the total number of directors. Board independence is the percentage of directors that are unaffiliated with the firm beyond their directorship. Audit committee independence is the percentage of independent directors on the audit committee. Firm size is the natural logarithm of total assets. Book/market is the book value of equity divided by the market value of equity. The absolute change in net income is the absolute value of the change in net income between years t-1 and t. Loss is an indicator variable for firms with two or more consecutive years of negative income. Leverage is the ratio of total assets to liabilities. Test statistics based on robust standard errors clustered at the firm level are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

	1	2
Internally busy board	-0.003 <sup>***</sup>	-0.003 <sup>***</sup>
	-2.91	-2.68
Externally busy board	0.003 <sup>**</sup>	0.004 <sup>***</sup>
	2.47	3.28
Board size	-0.010 <sup>***</sup>	-0.009 <sup>***</sup>
	-4.10	-3.92
Board independence	-0.010 <sup>***</sup>	-0.010 <sup>***</sup>
	-2.68	-2.98
Audit committee independence	0.000	0.000
	-0.14	0.14
Firm size	-0.003 <sup>***</sup>	-0.003 <sup>***</sup>
	-6.52	-6.74
Book/market	0.001	0.001
	0.46	0.43
Absolute change in net income	0.118 <sup>***</sup>	0.089 <sup>***</sup>
	10.75	9.67
Loss	0.006 <sup>***</sup>	0.004 <sup>***</sup>
	4.43	3.24
Leverage	0.004	0.005 <sup>*</sup>
	1.45	1.75
Sample size	9,809	9,809
Global fit statistic	77.63 <sup>***</sup>	41.60 <sup>***</sup>

### **Table 6: Internal busyness and acquisition returns**

The dependent variables are CAR [-1, +1] for column 1, CAR [-3, +3] for columns 2, a binary variable that equals one if CAR [-1, +1] is positive, zero otherwise for column 3, and a binary variable that equals one if CAR [-3, +3] is positive, zero otherwise for column 4. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Percent cash is the percentage of the deal value paid in cash by the acquirer. Relative size is the ratio of the deal value to the acquirer's market capitalization at the end of the year prior to the deal. Firm size is the natural logarithm of total assets. Intra-industry equals one when the target and acquirer operate in the same two-digit primary SIC code industry, zero otherwise. Leverage is the ratio of long-term debt to total assets. Board independence is the percentage of directors that are unaffiliated with the firm beyond their directorship. CEO directors is the percentage of all directors who are CEOs of other firms. G-index is an index of 24 state-imposed and firm-adopted takeover defenses (see Gompers, Ishii, and Metrick (2003) for details about the index). CEO age is measured in years. CEO tenure is the number of years the CEO has served as such. CEO duality equals one when the CEO also serves as board chair, zero otherwise. Each regression includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors corrected for firm level clustering are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 6 continued**

	1	2	3	4
Internally busy board	-0.015** -2.28	-0.013** -2.17	-0.395** 5.47	-0.418** 5.85
Externally busy board	0.006 0.88	-0.001 -0.02	-0.049 0.07	-0.141 0.58
Board size	0.014 0.86	0.014 0.81	0.188 0.19	0.338 0.56
Percent cash	0.028*** 3.23	0.032*** 4.71	0.536** 6.49	0.688*** 12.29
Relative size	-0.014* -1.79	-0.009 -1.27	-0.571** 5.11	-0.444** 4.02
Firm size	-0.005 -1.56	-0.002 -0.66	-0.065 0.61	-0.035 0.185
Intra-industry	0.002 0.32	0.007 1.11	0.094 0.29	0.177 0.88
Leverage	0.022 0.78	0.010 0.41	0.273 0.17	0.905 1.99
Board independence	-0.023 -1.01	-0.036* -1.91	-0.547 1.01	-1.341** 5.36
CEO directors	0.052* 1.88	0.072*** 2.76	1.498** 4.61	1.709** 5.58
G-index	-0.002 -1.20	-0.001 -0.77	-0.016 0.20	-0.013 0.15
CEO age	0.001 0.61	-0.001 -0.39	0.011 1.26	-0.002 0.04
CEO tenure	0.001 1.54	0.001 1.25	0.017 1.68	0.002 0.02
CEO duality	-0.016* -1.95	-0.001 -0.04	-0.309* 2.76	0.123 0.42
Sample Size	776	776	776	776
Global fit statistic	135.20***	6.31***	76.69***	84.47***

### **Table 7: Internal busyness and time to deal completion**

The dependent variable in the first column is the number of days from the deal announcement date to the effective date. In column 2, the dependent variable is the natural log of the variable in the first column. In column 3, the dependent variable equals one when the number of days to deal completion is greater than the sample median, zero otherwise. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Percent cash is the percentage of the deal value paid in cash by the acquirer. Relative size is the ratio of the deal value to the acquirer's market capitalization at the end of the year prior to the deal. Firm size is the natural logarithm of total assets. Intra-industry equals one when the target and acquirer operate in the same two-digit primary SIC code industry, zero otherwise. Leverage is the ratio of long-term debt to total assets. Board independence is the percentage of directors that are unaffiliated with the firm beyond their directorship. Bidders is the number of competing bidders. CEO directors is the percentage of all directors who are CEOs of other firms. G-index is an index of 24 state-imposed and firm-adopted takeover defenses (see Gompers, Ishii, and Metrick (2003) for details about the index). CEO age is measured in years. CEO tenure is the number of years the CEO has served as such. CEO duality equals one when the CEO also serves as board chair, zero otherwise. Each regression includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors corrected for firm level clustering are shown under parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 7 continued**

	<i>1</i>	<i>2</i>	<i>3</i>
Internally busy board	4.706 0.77	0.039 0.51	0.009 0.01
Board size	28.148* 1.76	0.173 0.86	-0.123 0.07
Externally busy boards	-1.287 -0.21	-0.037 -0.38	-0.092 0.018
Percent cash	-34.281*** -4.89	-0.300*** -3.29	-1.284*** 25.61
Relative size	56.553*** 5.94	0.692*** 5.88	2.083*** 13.62
Firm size	3.090 1.09	0.067* 1.83	0.208** 3.94
Intra-industry	6.206 1.12	0.164* 1.91	0.163 0.59
Leverage	33.460 1.34	0.398 1.55	0.137 0.03
Board independence	14.562 0.84	0.469* 1.83	-0.237 0.13
Bidders	66.118*** 4.01	0.484*** 4.34	1.122** 3.83
CEO directors	-11.867 -0.50	-0.515 -1.55	-1.090 2.00
G-index	1.807* 1.66	0.022 1.43	0.107*** 8.91
CEO age	-0.037 -0.17	-0.006 -1.47	-0.019** 4.11
CEO tenure	0.666 1.02	0.003 0.41	0.003 0.03
CEO duality	-3.689 -0.47	-0.001 -0.01	0.466** 4.45
Sample Size	725	725	725
Global fit statistic	11.09***	29.36***	200.16***



### **Table 8: Internal busyness and firm value**

The dependent variable is Tobin's  $q$ , defined as total assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Column 1 present results utilizing contemporaneous values of the internally busy board variable. In column 2, we replace the internally busy board variable with its historical value in 1998, 1999, or 2000, depending on each firm's first appearance in our sample. The internally busy board variable in column 3 is the predicted value from a first stage regression of the internally busy variable on historical total committee size and board independence. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Board independence is the percentage of directors who are unaffiliated with the firm beyond their directorship. Firm size is the natural log of the market value of equity. ROA is operating income after depreciation divided by total assets.  $ROA_{t-1}$  and  $ROA_{t-2}$  are the one- and two-year lag values of ROA. Corporate diversification is the sum of reported geographical and business segments. Investment opportunities is the ratio of capital expenditures to sales. Insider ownership is the proportion of outstanding shares owned by all directors. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown after parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 8 continued**

	<i>1</i>	<i>2</i>	<i>3</i>
Internally busy board	-0.113 <sup>***</sup> -2.96	-0.127 <sup>***</sup> -2.54	-1.362 <sup>***</sup> -7.47
Externally busy board	-0.174 <sup>***</sup> -3.71	-0.181 <sup>***</sup> -3.53	-0.088 -1.44
Board size	-1.483 <sup>***</sup> -13.88	-1.456 <sup>***</sup> -12.47	-1.791 <sup>***</sup> -15.82
Board independence	-0.161 -1.21	-0.139 -0.96	-0.845 <sup>***</sup> -6.08
Firm size	0.464 <sup>***</sup> 20.41	0.490 <sup>***</sup> 19.40	0.626 <sup>***</sup> 37.42
ROA	1.958 <sup>***</sup> 6.40	2.076 <sup>***</sup> 5.63	2.000 <sup>***</sup> 10.57
ROA <sub>t-1</sub>	1.236 <sup>***</sup> 3.76	0.989 <sup>***</sup> 2.66	0.013 0.06
ROA <sub>t-2</sub>	-0.056 -0.15	-0.210 -0.47	-0.328 <sup>***</sup> -1.69
Corporate diversification	-0.026 <sup>***</sup> -7.69	-0.027 <sup>***</sup> -7.47	-0.017 <sup>***</sup> -6.35
Investment opportunities	0.979 <sup>***</sup> 3.72	0.990 <sup>***</sup> 3.38	0.241 1.60
Insider ownership	0.361 <sup>***</sup> 2.66	0.390 <sup>***</sup> 2.62	0.291 <sup>***</sup> 2.15
Hansen's J-statistic ( <i>p</i> -value)	----	----	0.373 (0.542)
Sample size	10,636	9,222	9,222
Global fit statistic	46.39 <sup>***</sup>	40.78 <sup>***</sup>	3285.95 <sup>***</sup>

### **Table 9: Internal busyness, advising needs, and firm value**

The dependent variable is Tobin's  $q$ , defined as total assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. Operating complexity is factor score based on a principal component analysis of R&D intensity, corporate diversification, and asset characteristics. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Board independence is the percentage of directors who are unaffiliated with the firm beyond their directorship. Firm size is the natural log of the market value of equity. ROA is operating income after depreciation divided by total assets.  $ROA_{t-1}$  and  $ROA_{t-2}$  are the one- and two-year lag values of ROA. Investment opportunities is the ratio of capital expenditures to sales. Insider ownership is the proportion of outstanding shares owned by all directors. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown after parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 9 continued**

	<i>1</i>	<i>2</i>
Internally busy board	-0.075** -2.08	-0.073** -2.05
Operating complexity	0.493*** 15.70	0.534*** 14.93
Internally busy board × Operating complexity	----	-0.079** -2.11
Externally busy board	-0.148*** -3.29	-0.146*** -3.25
Board size	-1.297*** -13.54	-1.293*** -13.53
Board independence	-0.130 -1.02	-0.131 -1.03
Firm size	0.396*** 18.80	0.396*** 18.81
ROA	3.020*** 10.17	3.019*** 10.16
ROA <sub>t-1</sub>	1.325*** 4.04	1.302*** 3.96
ROA <sub>t-2</sub>	0.217 0.58	0.220 0.59
Investment opportunities	1.763*** 6.84	1.767*** 6.83
Insider ownership	0.599*** 4.62	0.601*** 4.62
Sample size	10,615	10,615
Global fit statistic	52.54***	52.00***

### **Table 10: Internal busyness, free directors and firm value**

The dependent variable is Tobin's  $q$ , defined as total assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. A free director is an independent director serving on none of the three principal committees. Proportion of free directors is the ratio of free directors to independent directors. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Board independence is the percentage of directors who are unaffiliated with the firm beyond their directorship. Firm size is the natural log of the market value of equity. ROA is operating income after depreciation divided by total assets.  $ROA_{t-1}$  and  $ROA_{t-2}$  are the one- and two-year lag values of ROA. Corporate diversification is the sum of reported geographical and business segments. Investment opportunities is the ratio of capital expenditures to sales. Insider ownership is the proportion of outstanding shares owned by all directors. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown after parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 10 continued**

	1	2	3
Proportion of free directors	0.311 <sup>***</sup> 2.66	----	----
Number of free directors	----	0.042 <sup>***</sup> 2.16	----
Free director dummy	----	----	0.086 <sup>**</sup> 2.55
Internally busy board	-0.095 <sup>**</sup> -2.46	-0.098 <sup>**</sup> -2.55	-0.097 <sup>**</sup> -2.53
Externally busy board	-0.169 <sup>***</sup> -3.61	-0.17 <sup>***</sup> -3.63	-0.170 <sup>***</sup> -3.64
Board size	-1.505 <sup>***</sup> -13.89	-1.518 <sup>***</sup> -13.85	-1.515 <sup>***</sup> -13.78
Board independence	-0.159 -1.20	-0.192 -1.44	-0.193 -1.45
Firm size	0.465 <sup>***</sup> 20.45	0.464 <sup>***</sup> 20.45	0.464 <sup>***</sup> 20.46
ROA	1.968 <sup>***</sup> 6.43	1.966 <sup>***</sup> 6.43	1.970 <sup>***</sup> 6.44
ROA <sub>t-1</sub>	1.239 <sup>***</sup> 3.77	1.243 <sup>***</sup> 3.78	1.240 <sup>***</sup> 3.77
ROA <sub>t-2</sub>	-0.051 -0.13	-0.058 -0.15	-0.057 -0.15
Corporate diversification	-0.026 <sup>***</sup> -7.69	-0.026 <sup>***</sup> -7.70	-0.026 <sup>***</sup> -7.71
Investment opportunities	0.976 <sup>***</sup> 3.73	0.977 <sup>***</sup> 3.73	0.974 <sup>***</sup> 3.72
Insider ownership	0.344 <sup>**</sup> 2.54	0.348 <sup>**</sup> 2.57	0.348 <sup>**</sup> 2.57
Sample size	10,636	10,636	10,636
Global fit statistic	45.47 <sup>***</sup>	45.04 <sup>***</sup>	45.46 <sup>***</sup>

### **Table 11: Internal busyness, board size and firm value**

The dependent variable is Tobin's  $q$ , defined as total assets minus the book value of equity plus the market value of equity divided by the book value of total assets. Internally busy board equals one when a majority of independent directors serve on at least two of the three principal board committees, zero otherwise. The first column presents results for the full sample, while the second and third columns presents results for observations with board sizes at or below the first quartile (seven directors) and at or above the third quartile (10 directors), respectively. Externally busy board equals one when a majority of independent directors serve on three or more corporate boards, zero otherwise. Board size is the natural logarithm of the number of directors. Board independence is the percentage of directors who are unaffiliated with the firm beyond their directorship. Firm size is the natural log of the market value of equity. ROA is operating income after depreciation divided by total assets.  $ROA_{t-1}$  and  $ROA_{t-2}$  are the one- and two-year lag values of ROA. Corporate diversification is the sum of reported geographical and business segments. Investment opportunities is the ratio of capital expenditures to sales. Insider ownership is the proportion of outstanding shares owned by all directors. Each regression also includes year and two-digit SIC code industry dummies. Test statistics based on robust standard errors clustered at the firm level are shown after parameter estimates. Levels of significance are indicated by \*\*\*, \*\*, and \* for 1%, 5%, and 10%, respectively.

**Table 11 continued**

	<i>Full sample</i>	<i>Small boards</i>	<i>Large boards</i>
Internally busy board	-0.748** -2.09	-0.235*** -2.80	-0.083* -1.84
Board size	-1.658*** -10.65	-1.661	-0.901*** -4.30
Internally busy board × board size	0.291* 1.84	----	----
Externally busy board	-0.177*** -3.75	-0.050 -0.50	-0.173*** -3.35
Board independence	-0.168 -1.26	0.413* 1.82	-0.292* -1.81
Firm size	0.466*** 20.43	0.664*** 15.27	0.316*** 10.78
ROA	1.957*** 6.40	1.246*** 4.12	2.720** 2.11
ROA <sub>t-1</sub>	1.230*** 3.74	0.310 0.71	3.478*** 3.17
ROA <sub>t-2</sub>	-0.046 -0.12	-0.036 -0.07	-0.491 -0.50
Corporate diversification	-0.026*** -7.69	-0.027*** -4.37	-0.019*** -4.44
Investment opportunities	0.981*** 3.72	1.251** 2.34	1.381*** 4.98
Insider ownership	0.368*** 2.71	0.369* 1.63	0.243 1.45
Sample size	10,636	3,299	3,884
Global fit statistic	46.89***	18.60***	17.72***