

**CORPORATE BOARD:
ROLE, DUTIES & COMPOSITION**

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ОБЯЗАННОСТИ И СОСТАВ**

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EDITORIAL

Dear readers!

This issue of the journal is devoted to several issues of corporate board practices.

Brian Bolton explores that in October 2009, the United States Treasury Department and Congress considered new regulations requiring executives and directors to receive much of their compensation in the form of long-term stock. One concern with this is that it may have negative consequences by entrenching managers and directors over the long term. This study compares the potential benefits of long-term director ownership with the potential costs of entrenchment. Using the dollar amount of stock owned by independent directors, the results suggest that the incentive effect dominates any costs related to entrenchment: firms with greater stock ownership outperform other firms, regardless of the degree of managerial entrenchment that may be present. The implication for policy-makers is that providing directors with incentives through stock ownership can be a very effective corporate governance mechanism.

Mohammad Azim investigates the role of monitoring mechanisms within a corporate governance structures, focusing on top 500 publicly-listed companies in Australia. Specifically, it examines whether different monitoring mechanisms affect firm performance. Previous studies have been conducted to examine various monitoring mechanisms and firm performance. However, none of the have consider the interaction among the monitoring mechanisms when examining the relationship. In management and behavioural researches it is well established that Structural Equation Modelling can handle the problem of interaction among the variables. Therefore, we have decided to use Structural equation modelling to identify the complex inter-relations between the corporate governance monitoring mechanisms. We conclude that there is a possibility of having a substitution or complementary links among monitoring mechanisms which explains why there is no consistent empirical evidence between individual monitoring mechanisms and firm performance.

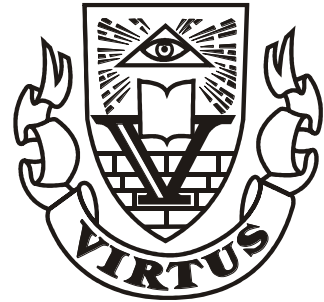
Jamel Chouaibi, Younes Boujelbene, Habib Affes focused on the relationship between the characteristics of the board of directors and the innovation policies in the Tunisian context from a cognitive perspective of corporate governance. The method used in this study is based on the regression analysis. We directly regress the board of directors' characteristics with the firm level of innovation. Our model includes some control variables such as the firm's size, the firm's sector of activity and even whether firm is listed or not. We empirically demonstrate that only the inside directors and the duality of the CEO are positively and significantly associated with the firm's level of innovation. Moreover, the empirical results show that the big size of the board has a negative impact on the development of innovative firms. In the same way, we demonstrate that the compensation system which is based on long-term objectives has no influence on the determination of the innovation policies in Tunisian firms.

Derek Oler, Bradley Olson, Christopher J. Skousen examined whether governance and CEO power matter for acquisitions. Acquisitions are frequently beneficial to the CEO of the acquiring firm, but can often be value-destructive to acquirer shareholders and other stakeholders such as employees. We find that corporate governance does not appear to influence whether a firm will become an acquirer after controlling for CEO power, but superior governance is associated with greater relatedness between the target and acquirer. We also find that the effect of CEO power on a firm's acquisition activity varies according to the source of that power. Our results suggest that the relationships between governance, CEO power, and acquisition activity are complex.

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THE LONG-TERM BENEFITS OF DIRECTOR STOCK OWNERSHIP

Brian Bolton*

Abstract

In October 2009, the United States Treasury Department and Congress considered new regulations requiring executives and directors to receive much of their compensation in the form of long-term stock. One concern with this is that it may have negative consequences by entrenching managers and directors over the long term. This study compares the potential benefits of long-term director ownership with the potential costs of entrenchment. Using the dollar amount of stock owned by independent directors, the results suggest that the incentive effect dominates any costs related to entrenchment: firms with greater stock ownership outperform other firms, regardless of the degree of managerial entrenchment that may be present. The implication for policy-makers is that providing directors with incentives through stock ownership can be a very effective corporate governance mechanism.

Keywords: Corporate governance, agency problems, boards, directors, incentive alignment, entrenchment, ownership

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1. Introduction

Over the past ten years, corporate governance has come under considerable scrutiny due to corporate failures such as Enron, to investor frauds such as Bernie Madoff, and to systemic panics such as the global financial crisis. Regulators, practitioners, and academics have been searching for ways to improve the relationship between managers of firms and the ultimate stakeholders, in hopes of finding a ‘best’ corporate governance structure. The Sarbanes-Oxley Act was passed in 2002 in the United States, and it stipulated new requirements for independent audits and new responsibilities for boards of directors. The major U.S. stock exchanges required listed firms to have a majority of independent directors in 2003, moving all firms towards a standard corporate governance structure. “Say on Pay” practices are widespread in Europe and are becoming more common in the U.S., allowing shareholders more input into the corporate governance process. And, in the wake of the U.S. financial crisis, regulators are considering a broad range of new initiatives, such as limiting executive compensation, outlining new requirements for boards of directors and encouraging firms to compensate directors and officers with long-term stock benefits rather than direct compensation.

All of these initiatives presuppose that there is an optimal corporate governance structure. Policies attempting to regulate and standardize how firms and their corporate governance environments are structured are intended to improve shareholder rights and to improve the agency costs inherent in the corporate form. If there is one structure that is indeed optimal, then all firms should move towards it. Prior academic literature has focused on the ownership of the firm. In theory, if the managers own 100% of the firm then there is no agency conflict. When managers own less than 100%, agency conflicts arise. The goal of any corporate governance policies should be to minimize these agency conflicts and, thus, to maximize the benefits to external stakeholders.

While firm ownership has been the primary focus of the academic literature, recent work has moved beyond ownership. In general, the research suggests that there is no single ‘best’ model for corporate governance that can be applied to all firms¹. In general, the work analyzing complex indices composed of many corporate governance factors have failed to show that these indices can measure the quality of a firm’s corporate governance environment. In equilibrium, each firm should choose its structure and

¹ See, for example, Gillan, Hartzell and Starks (2006), Wintoki (2007), and Bhagat, Bolton and Romano (2008).

unique features because they are optimal for that firm. In this sense, it is possible that the quality of a firm's corporate governance environment may best be measured by concentrating on individual characteristics.

With this in mind, recent strands of the literature have focused on two firm characteristics that should be directly related: ownership and entrenchment. Providing directors with the same incentives as common stockholders should better align the interests of the principals and agents, but allowing the officers and directors to become too entrenched might impose significant costs on shareholders. In their seminal work, Morck, Shleifer and Vishny (1998) identified this inherent conflict. They found that firm value increases when officers and directors have some incentives, but value decreases when they own 'too much,' presumably because they become too entrenched and are not necessarily always representing the interests of shareholders.

The purpose of this paper is to directly compare the potential benefits of directors owning common stock with the potential costs of officers and directors becoming too entrenched. In most firms, both effects will be present: there will be incentives provided to directors – through compensation, stock ownership, or non-monetary benefits – and there will be a certain amount of entrenchment – through tenure, charter provisions, or organizational structure. There will be trade-offs between these two effects. The primary research question in this study is which governance mechanism is more dominant in large U.S. firms: director ownership or management entrenchment. By directly comparing these two effects, and by considering any dynamic interactive effects between the two variables, this study will attempt to clarify how each of these factors influences a firm's long-term performance.

Using the dollar value of stockholdings owned by various classes of directors as the measure of the incentive effect and both the *G-Index* from Gompers, Ishii and Metrick (2003) and whether or not the CEO is also the board chair as measures of entrenchment, the results suggest that the incentive effect dominates. This result is robust to a number of different specifications, approaches, and controls. It is economically significant, as well. This suggests that the benefits of providing directors and officers with the appropriate incentives outweigh the potential costs associated with directors and officers becoming entrenched. Firms that have greater ownership by directors outperform those with lower ownership, regardless of any institutional costs of entrenchment. This result suggests that efforts to improve corporate governance should focus on ways to increase stock ownership by directors to better align their incentives with the incentives of the firm's stakeholders.

2. Motivation

The study of corporate ownership forms has a long history in the corporate finance literature. Berle and Means (1932) warned that too much power in the hands of managers, or a board of directors that is controlled by the managers, could present serious problems. Jensen and Meckling (1976) showed that agents acting in their own rational self-interest might not always be acting in the owners' best interest. The solution to this conflict was to better align the interests of agents and principals, which might be best addressed by giving the managers of the firm ownership of the firm. Morck, Shleifer and Vishny (1988) studied this empirically and found that firm value does indeed increase when the managers and directors own up to 5% of the outstanding common stock. However, this benefit is not monotonic: value decreases when managers own between 5% and 20% of the firm, but increases again at ownership levels greater than 20%. This suggests that both incentive and entrenchment effects may be present in firms. Using the most recent standards for measuring ownership and entrenchment, this study analyzes the effects that each has on firm and shareholder value.

The corporate governance literature has identified countless measures of ownership. Morck, Shleifer and Vishny (1988) use the percentage of common stock owned by officers and directors. Among others, McConnell and Servaes (1990, 1995) consider the percentage of stock owned by blockholders and institutions. Denis and Denis (1994) consider majority stock ownership by insiders. Hermalin and Weisbach (1991) focus on the percentage of stock owned by the CEO. And, Bhagat and Bolton (2008) studied the dollar value of stock ownership by directors.

This study relies on the approach taken in Bhagat and Bolton (2008) and considers the dollar value of stock ownership of directors. The argument for focusing on dollar value of ownership rather than percentage ownership is simple. Imagine two directors. Director A owns a 0.10% stake in a \$1 billion firm; Director B owns a 1.00% stake in a \$100 million firm. The value of each stake is exactly \$1,000,000. As rational economic agents, both directors have the same incentives and we would expect both directors to devote the same time and expertise to their work. If we focused on the percentage ownership, we would say that Director B has greater incentives, which is likely not the case.

While ownership by officers and directors is observable, entrenchment is not. As such, researchers have had to use a number of proxies to measure entrenchment. Jensen (1993) argues that it is important

to separate the roles of CEO and board chair positions. Gompers, Ishii and Metrick (GIM, 2003) analyze the relationship between firm value and an equally-weighted index of 24 corporate charter provisions and find that firms with fewer provisions, or fewer restrictions, have higher Tobin's Q and stock returns. Core, Guay and Rusticus (2007) show that GIM's *G-Index* is also associated with superior operating performance. Regardless of the measure, the story is the same: entrenchment is harmful and poses a significant cost to shareholders.

The purpose of this study is to compare the costs and benefits of these two effects: incentive alignment and entrenchment. Firms do not *choose* one effect over the other. All firms have some degree of incentive alignment and all firms have some degree of entrenchment. Using the latest measures of incentive alignment and entrenchment – director ownership and the *GIM G-Index* – I compare these two effects to see which dominates (if either does). Ex ante, either effect could dominate. Morck, Shleifer and Vishny (1998) observed that the incentive effect dominates at lower and higher levels of ownership, while the entrenchment effect dominates at moderate levels of ownership. But, as Wintoki (2007) explains, a firm's corporate governance environment is both nuanced and unobservable. If each firm has a unique, but different, optimal corporate governance structure, we might actually expect to see the two effects cancel each other out. Because it is impossible to observe the costs and benefits of corporate governance, which effect dominates is ultimately an empirical question.

3. Data and Methodology

The primary database for this study is the RiskMetrics database. This database tracks governance data for approximately 1,500 of the largest firms in the United States from 1998-2007². The corporate charter provisions and director ownership data are all taken from RiskMetrics. Compustat's annual database, Compustat's Execucomp database, and CRSP are used for the financial and stock market variables. The sample consists of more than 12,000 firm-year observations, with more than 2,200 unique firms tracked during the 10 year sample period.

The primary relationship studied is the relationship between firm performance, director ownership and managerial entrenchment. The primary equation is:

$$(1) \quad Performance_t = DirectorOwnership_t + Entrenchment_t + Performance_{t-1} + IndustryPerformance_t + FirmSize_t + Leverage_t + CEOOwnership_t + MarketBook_t + Volatility_t + BoardSize_t + Independence_t$$

Return on Assets is used as the measure of *Performance*³ and the dollar value of stock owned by the median independent director is used as the measure of *DirectorOwnership*.⁴ This variable is derived from Bhagat and Bolton (2008) who use the stock ownership of the median director because they believe it is the best measure of incentive alignment. Of all directors, the independent directors should be the least entrenched because their only tie to the firm is through their board duties. Thus, their ownership incentives should work to directly offset any entrenchment in the firm. Gompers, Ishii and Metrick's (2003) *G-Index* is used as one measure of entrenchment and whether or not the CEO is also the board chair (*CEO-Duality*) is used as another. *FirmSize* is the natural log of total assets. *Leverage* is the firm's long-term debt to assets ratio. *CEOOwnership* is the percentage of stock owned by the CEO. *MarketBook* is the firm's market value of equity to book value of equity ratio. *Volatility* is the standard deviation of the firm's stock returns over the preceding 60 months. Finally, *BoardSize* is the number of directors on the board, and *Independence* is the percentage of directors who are neither employees nor related to the firm in some manner. All regressions also include intercepts and year dummy variables, and standard errors are corrected for clustering at the firm level (Petersen, 2009).

However, as discussed above, firms do not choose between having incentive effects and entrenchment effects; all firms have both effects, to some extent. Thus, it is possible that the two effects work in combination with each other. If the combination is indeed the dominant effect, then it would be the interaction of the two effects, rather than either effect independent of the other, that would be dominating the corporate governance environment. To investigate this, equation (2) includes an interactive term composed of *DirectorOwnership* and *Entrenchment*.

$$(2) \quad Performance_t = DirectorOwnership_t + Entrenchment_t + (DirectorOwnership_t \times Entrenchment_t) + Performance_{t-1} + IndustryPerformance_t + FirmSize_t + Leverage_t + CEOOwnership_t + MarketBook_t + Volatility_t + BoardSize_t + Independence_t$$

² Select data is available for more years, but all of the variables used in this study are only reliably tracked beginning in 1998.

³ The results are qualitatively similar using *Tobin's Q* as the measure of *Performance*.

⁴ The results are robust to alternative measures of *Director Ownership*, such as stock ownership of the median director and total stock ownership of all independent directors.

Since both *DirectorOwnership* and *Entrenchment* are continuous variables (except for *CEO Duality*), the coefficients on the interactive terms may be difficult to interpret. Thus, indicator variables are created to identify ‘good’ levels of *DirectorOwnership* and *Entrenchment*. For *DirectorOwnership*, if the amount of ownership is greater than the sample median, it is defined as ‘good’ and the indicator variable is equal to 1, and it is equal to 0 otherwise. Similarly, if the *G-Index* score is less than the sample median, it is considered ‘good’ and the indicator variable is equal to 1, and it is equal to 0 otherwise. For *CEO-Duality*, it is considered ‘good’ if the positions are separated. If the effects of *DirectorOwnership* and *Entrenchment* only work in combination with each other, then we would expect to see a significant coefficient on the interactive terms but not on the individual governance variables.

Finally, to see if the results are time specific, the above analyses are performed by year. The 1998-2007 time-period has been a unique period with respect to corporate governance, during which we observed many high-profile corporate governance failures, the introduction of the Sarbanes-Oxley Act in 2002 and governance regulations mandated by the major U.S. stock exchanges. It is possible that individuals’ and firms’ attitudes with respect to various corporate governance mechanisms have changed over time. If so, we might expect to see the relationships from the above analyses change over time. Equation (1) is estimated by year to assess how consistent these relationships are over time.

4. Results

Table 1 presents the descriptive statistics for the full sample. The median director owns stock worth approximately \$900,000. The median independent director owns stock worth approximately \$500,000 and the sum of the holdings of all independent directors is \$5.7 million. Based on the *G-Index*, the average firm has about 9 (out of 24) anti-takeover provisions. The sample firms are generally larger firms, with about 9 board members, 6 of whom are independent. The CEO is also the board chair in about 60% of the firms. The *Performance* and control variables are comparable to other similar studies for this time period.

The primary relationship that is analyzed is from equation (1), with results presented in Table 2. The results are striking: in both cases, the *DirectorOwnership* variables are positive and highly significant (p -values < 0.01), while neither of the measures of *Entrenchment* are significant. These results suggest that the incentive effect of director ownership leads to greater long-term firm performance and valuation, despite any costs associated with directors and officers being entrenched. This result is in contrast to Gompers, Ishii and Metrick (2003), who did not control for director ownership in their finding that firms with low entrenchment outperform firms with higher entrenchment.

It is possible that these effects impact firms in combination with one another. To control for this, equation (2) allows *DirectorOwnership* and *Entrenchment* to interact to affect *Performance*. Table 3 presents the results estimating equation (2). For conciseness, while the entire equation (2) is estimated, only the coefficients and t -statistics for the three variables of interest are presented. However, three different specifications are included. Dummy variables for ‘good’ levels of *DirectorOwnership* and *Entrenchment* are assigned, as detailed above. This applies a structure such that all measures of ‘good’ governance have a value of 1 and measures of ‘weak’ governance have a value of 0. Three variations of interactive terms are considered: dummy for *DirectorOwnership* with continuous value of *Entrenchment*, dummy for *Entrenchment* with continuous value of *DirectorOwnership*, and dummy variables for both effects. We see that *DirectorOwnership* is still positively and significantly related to ROA in 4 of the 6 specifications, while *Entrenchment* is in only specifications (5) and (6). In models (1) and (2), the interaction term in Panel A includes the continuous value of *DirectorOwnership* interacted with whether or not *Entrenchment* is better than the median; in both models, the interaction term is not significant. This suggests that ‘good’ levels of *Entrenchment* are not critical to leading to better firm performance through director ownership. In models (3) and (4), the interaction term includes the continuous value of *Entrenchment* and an indicator variable for whether or not the firm has ‘good’ levels of director ownership; in both models, the interaction term is negative and significant. Because the continuous measures of *Entrenchment* are descending variables, this suggests that ‘good’ *DirectorOwnership* combined with better levels of *Entrenchment* does lead to superior performance. Taken with models (1) and (2), this suggests that the *DirectorOwnership* effect dominates the *Entrenchment* effect. Finally, in models (5) and (6), the interaction term includes the two indicator variables. The positive and significant coefficients suggest that when both factors are ‘good,’ the firm experiences better operating performance. This means that analyzing the two effects in combination with each other can provide important inferences.

The final analysis presented in Table 4 considers the results with respect to the sample time period. The sample years, 1998-2007, were certainly a time of evolving corporate governance, and relationships may have changed during this period. Equation (1) is estimated by year for the relationship between

Director Ownership and *GIM G-Index*. In addition, Fama and MacBeth (1973) analyses are performed over the 10-year period. We see the primary results persist when we focus on the analyses on a year-by-year basis. Except for 1999, *DirectorOwnership* is positively and significantly related to *ROA*. *Entrenchment – GIM G-Index* – is not significantly related to *Performance* in any of the 10 years. Given that the sample sizes are much smaller in several years, the strength of the *DirectorOwnership* result is striking. Finally, a Fama-MacBeth (1973) analysis is performed on the annual coefficients on *DirectorOwnership* and *Entrenchment* to determine the relative constancy of the relationships. Again, the Fama-MacBeth coefficient for *DirectorOwnership* is positive and significantly related to *Performances*. The coefficient for *Entrenchment* is not significantly related to *Performance*. This could be due low power of the sample size, but the result is nonetheless consistent with all prior analyses.⁵

5. Conclusion

The primary finding of this study is that providing boards of directors with properly aligned incentives through the use of stock ownership leads to better long-term firm performance and higher firm values. This benefit exists despite any potential costs associated with managers and directors being too entrenched to function in the shareholders' interests. This is a novel finding, and has significant implications for both future corporate governance regulation and research. First, it suggests that regulators should proceed with caution in attempting to mandate standardized corporate governance regulations. Second, it suggests prior results showing the significance of entrenched officers and directors may be overstated. That result largely disappears when *DirectorOwnership* is included as a control. Finally, these results show the importance of considering the dollar value of stock ownership of officers and directors as a corporate governance mechanism.

While certain relationships have been identified as statistically significant, of more importance may be whether or not these results are economically significant. Measuring the elasticity of effects at the means, a 1.00% increase in *Director Ownership* leads to a 0.33% increase in *ROA*. This is quite meaningful as it suggests that increasing *Median Director Ownership* by less than \$10,000 can yield substantial benefits to shareholders. In contrast, a 1.00% increase in the *G-Index* leads to a 0.10% decrease in *ROA*. Small efforts to improve the incentives to directors seem to provide benefits that far outweigh any associated costs related to directors becoming too entrenched.

The primary research purpose of this study was to identify how incentives and entrenchment affect the performance of firms, and to assess whether one effect dominates the other. The results from this study clearly suggest that the incentive effect dominates the entrenchment effect. The benefits to firm performance and firm value associated with directors owning more stock seem to outweigh the costs of systematic entrenchment by the boards of directors or executive officers. From a policy perspective, this suggests that efforts to improve corporate governance environments by mandating shareholder access or board structure may be misguided. Providing directors and managers with greater stockholdings may make them more entrenched, but the benefits of these agents having their incentives at least partially aligned with those of external suppliers of capital seem to far outweigh any costs associated with entrenchment. From an academic research perspective, this suggests that the dollar value of stock owned by directors should continue to be a proxy for governance. And, from a practitioner perspective, this suggests that efforts to improve corporate governance relationships between firms and their stakeholders should focus on providing the board of directors with properly aligned incentives through greater stock ownership. The long-term benefits seem to outweigh the costs and shareholders seem to be better off because of it.

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⁵ A number of sensitivity tests were performed, including controls for endogeneity, earnings management, past stock returns and different sub-periods within the 10 years. The primary results are unchanged and are available upon request.

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Appendices

Table 1. Descriptive Statistics

This table presents the descriptive statistics for the primary variables in the analysis. The number of observations, and the mean, median, 5th percentile and 95th percentile values are presented for all firms in the full sample.

	# of observations	Mean	Median	5th percentile	95th percentile
<i>Median Director Own (\$)</i>	12,410	\$887,739	\$925,929	\$82,485	\$9,876,762
<i>Median Outsider Own (\$)</i>	12,321	\$492,974	\$585,409	\$42,955	\$4,699,252
<i>All Outsiders Own</i>	12,321	\$5,713,580	\$5,799,675	\$335,256	\$118,277,226
<i>GIM G-Index</i>	11,616	9.18	9.00	5.00	14.00
<i>CEO Duality</i>	13,135	59.55%	100.00%	0.00%	100.00%
<i>Board Size</i>	13,135	9.25	9.00	5.00	14.00
<i>Independence</i>	13,135	67.03%	70.00%	33.33%	90.00%
<i>ROA</i>	12,885	12.55%	12.38%	0.07%	28.79%
<i>Firm Size (\$m)</i>	13,135	\$2,144	\$1,822	\$181	\$40,764
<i>Leverage</i>	12,436	18.56%	16.14%	0.00%	48.04%
<i>Market Book</i>	12,404	2.36	2.18	0.07	6.59

Table 2. Performance, DirectorOwnership and Entrenchment Relationship

This table presents the results from estimating equation (1), the impact of *DirectorOwnership* and *Entrenchment* on *Performance*. Ordinary Least Squares estimation is used. *Return on Assets (ROA)* is the dependent variable. Intercept terms and year dummy variables are included but not presented. Standard errors are adjusted for clustering at the firm level. Coefficients are presented with *p*-values below in parentheses.

Dependent Variable: Return on Assets_t		
	(1)	(2)
<i>GIM G-Index_t</i>	-0.001 (0.88)	- -
<i>CEO Duality_t</i>	- -	0.000 (0.83)
<i>ROA_{t-1}</i>	0.760 (0.00)	0.759 (0.00)
<i>Industry ROA_t</i>	0.197 (0.00)	0.197 (0.00)
<i>Firm Size_t</i>	-0.001 (0.12)	-0.001 (0.12)
<i>Leverage_t</i>	-0.007 (0.18)	-0.007 (0.20)
<i>CEO % Ownership_t</i>	-0.001 (0.63)	-0.001 (0.69)
<i>Market Book_t</i>	0.000 (0.01)	0.000 (0.02)
<i>Volatility_t</i>	-0.086 (0.00)	-0.102 (0.00)
<i>Board Size_t</i>	0.000 (0.91)	0.000 (0.76)
<i>Independence_t</i>	-0.010 (0.01)	-0.010 (0.01)
<i>Director Ownership_t</i>	0.002 (0.00)	0.001 (0.00)
<i>R-squared</i>	0.708	0.703
<i># of observations</i>	9,236	9,791

Table 3. Performance, DirectorOwnership and Entrenchment Relationship, with Interactive Term

This table presents the results from estimating equation (2), the impact of *DirectorOwnership* and *Entrenchment*, plus a (*DirectorOwnership* x *Entrenchment*) interactive term, on *Performance*. OLS estimation is used. *Return on Assets (ROA)* is the dependent variable. Only the coefficients on *DirectorOwnership*, *Entrenchment* and the interactive term are shown; all other terms in equation (2) are included in the estimation but are not presented. Intercept terms and year dummy variables are included but not presented. In models (1) and (2), the interactive term is the continuous value of *DirectorOwnership* x a dummy variable equal to 1 if the *Entrenchment* value is below the sample median. In models (3) and (4), the interactive term is the continuous value of *Entrenchment* x a dummy variable equal to 1 if *Director Ownership* is above the sample median. In models (5) and (6), the interactive term is the product of *Director Ownership* and *Entrenchment* dummy variables. Standard errors are adjusted for clustering at the firm level. Coefficients are presented with *p*-values below in parentheses.

	<i>Dependent Variable: Return on Assets_t</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Median Outsider Own_t</i>	0.002 (0.00)	0.001 (0.02)	0.001 (0.17)	0.001 (0.13)	0.001 (0.07)	0.001 (0.09)
<i>GIM G-Index_t</i>	-0.001 (0.85)	- -	-0.001 (0.25)	- -	0.000 (0.09)	- -
<i>CEO Duality_t</i>	- -	0.004 (0.74)	- -	-0.002 (0.22)	- -	0.004 (0.07)
<i>Ownership_t x DumEntrenchment_t</i>	-0.001 (0.90)	0.001 (0.75)	- -	- -	- -	- -
<i>DumOwnership_t x Entrenchment_t</i>	- -	- -	0.001 (0.00)	0.004 (0.01)	- -	- -
<i>DumOwnership_t x DumEntrenchment_t</i>	- -	- -	- -	- -	0.006 (0.00)	0.006 (0.01)
R-squared	0.708	0.703	0.709	0.703	0.709	0.703
# of observations	9,236	9,791	9,239	9,791	9,236	9,791

Table 4. Performance, DirectorOwnership and Entrenchment Relationship, by firm characteristics

This table presents the results from estimating equation (1), the impact of *DirectorOwnership* and *Entrenchment* on *Performance*. *Return on Assets* (ROA) is the dependent variable. Within each panel, the analysis is performed on quartiles based on *FirmSize*, *MarketBook* and *Independence*. Equation (1) is estimated, but only the *DirectorOwnership* and *G-Index* variables are presented for conciseness. OLS estimation is used. Intercept terms and year dummy variables are included but not presented. Standard errors are adjusted for clustering at the firm level. Coefficients are presented with *p*-values below in parentheses.

<i>Dependent Variable: Return on Assets_t</i>				
	Low <i>FirmSize</i> Firms <-----> High <i>FirmSize</i> Firms			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
<i>Director Ownership_t</i>	0.007 (0.00)	0.005 (0.00)	0.001 (0.05)	0.002 (0.00)
<i>GIM G-Index_t</i>	-0.001 (0.25)	0.000 (0.49)	0.000 (0.95)	0.000 (0.19)
<i>R-squared</i>	0.646	0.712	0.730	0.833
# of observations	1,693	2,328	2,566	2,664
<i>Dependent Variable: Return on Assets_t</i>				
	Low <i>MarketBook</i> Firms <-----> High <i>MarketBook</i> Firms			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
<i>Director Ownership_t</i>	0.002 (0.06)	0.001 (0.04)	0.001 (0.06)	0.001 (0.07)
<i>GIM G-Index_t</i>	0.000 (0.31)	0.001 (0.16)	0.000 (0.73)	0.000 (0.35)
<i>R-squared</i>	0.618	0.625	0.698	0.716
# of observations	2,124	2,355	2,400	2,372
<i>Dependent Variable: Return on Assets_t</i>				
	Low <i>Independence</i> Firms <-----> High <i>Independence</i> Firms			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
<i>Director Ownership_t</i>	0.002 (0.00)	0.002 (0.03)	0.004 (0.00)	0.003 (0.00)
<i>GIM G-Index_t</i>	0.000 (0.50)	0.000 (0.95)	0.000 (0.18)	0.000 (0.71)
<i>R-squared</i>	0.675	0.737	0.788	0.663
# of observations	1,973	2,334	2,379	2,565

Table 4. Performance, Director Ownership and Entrenchment Relationship, by Year

This table presents the results from estimating equation (1), *Director Ownership* and *GIM G-Index* on *Performance*, by-year from 1998-2007. OLS estimation is used. *Return on Assets (ROA)* is the dependent variable. Intercept terms and year dummy variables are included but not presented. Standard errors are adjusted for clustering at the firm level. Coefficients are presented with *p*-values below in parentheses. A Fama-MacBeth (1973) analysis is also performed on the annual coefficients for both *Director Ownership* and *GIM G-Index*, with the FM coefficient and *t*-statistic presented in each Panel.

YEAR	Median Director Own _{<i>t</i>}		GIM G-Index _{<i>t</i>}		R-squared	# of observations
	Coefficient - β	<i>t</i> -Stat	Coefficient - β	<i>t</i> -Stat		
1998	0.0021	(0.06)	-0.0004	(0.56)	0.552	661
1999	0.0020	(0.15)	0.0004	(0.59)	0.583	695
2000	0.0007	(0.08)	-0.0009	(0.35)	0.675	741
2001	0.0056	(0.03)	-0.0004	(0.67)	0.585	708
2002	0.0039	(0.03)	-0.0001	(0.91)	0.730	663
2003	0.0067	(0.00)	-0.0005	(0.37)	0.840	1,091
2004	0.0030	(0.01)	0.0002	(0.74)	0.784	1,209
2005	0.0031	(0.01)	0.0009	(0.14)	0.818	1,146
2006	0.0041	(0.00)	0.0009	(0.16)	0.777	1,208
2007	0.0038	(0.01)	0.0004	(0.43)	0.757	1,129
FM β	0.0035		0.0001			
FM <i>t</i> -Stat	2.007		0.087			

ROLE OF MONITORING WITHIN A GOOD CORPORATE GOVERNANCE STRUCTURE: EVIDENCE FROM AUSTRALIA

Mohammad Azim*

Abstract

This study investigates the role of monitoring mechanisms within a corporate governance structures, focusing on top 500 publicly-listed companies in Australia. Specifically, it examines whether different monitoring mechanisms affect firm performance. Previous studies have been conducted to examine various monitoring mechanisms and firm performance. However, none of the have consider the interaction among the monitoring mechanisms when examining the relationship. In management and behavioural researches it is well established that Structural Equation Modelling can handle the problem of interaction among the variables. Therefore, we have decided to use Structural equation modelling to identify the complex inter-relations between the corporate governance monitoring mechanisms. We conclude that there is a possibility of having a substitution or complementary links among monitoring mechanisms which explains why there is no consistent empirical evidence between individual monitoring mechanisms and firm performance.

Keywords: Monitoring; Performance; Structural equation modelling; Performance

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1. Introduction

This study investigates the effects of corporate monitoring mechanisms on firm performance under different conditions of agency conflict. Following the much-reported collapses of publicly-listed companies such as Enron, World Com, HIH and One. Tel, corporate monitoring is an issue that has emerged at the forefront of the debate on corporate responsibility. The separation of ownership and control in publicly owned firms has the potential to create conflict between the interests of managers and shareholders. Such conflict can be reduced by devising effective monitoring mechanisms.

Previous research has focused on examining different governance mechanisms, typically studying one or two governance variable(s), such as board of directors (Hermalin and Weisbach, 2001), concentration of ownership (Shivdasani, 1993; Kaplan and Minton, 1994), external auditors (Watts and Zimmerman, 1990), audit committees (Ramsay, 2001), in terms of their effects on firm performance. However, firm performance depends on the efficiency of a bundle of monitoring mechanisms in controlling the agency problem, the conflict between interests of management and shareholders, rather than on any single monitoring mechanism (Rediker and Seth, 1995, p. 87; Agrawal and Knoeber, 1996, p. 378). This study considers the effective monitoring mechanisms as a bundle and examines their effect on firm performance.

Prior research examining different monitoring mechanisms that reduce agency problems is largely based on American, British, Japanese and German companies (Farrar, 2008). There is less research in other countries such as Australia which has a very different capital market, board structures and governance objectives than above mentioned countries. Therefore, conclusions reached in previous studies may not be applicable to Australia (Farrar, 2008). However, no previous studies paid attention to the joint effects of monitoring mechanisms in Australian context.

This study is motivated by a need for understanding how monitoring mechanisms work in Australia, and the role of market-specific factors versus governance characteristics in determining the effectiveness of Australian corporate monitoring mechanisms. This task is specially difficult as there is not a well-developed theory about the complex, multi-dimensional nature of corporate governance (Larcker, Richardson and Tuna, 2007).

This study is also motivated to provide evidence to regulators on the effectiveness of monitoring mechanisms after a series of major corporate collapses in Australian companies, particularly HIH, One. Tel and Harris Scarfe. This is especially timely in Australia with the release of the second version of Australian Stock Exchange (ASX) Corporate Governance Council's much anticipated report *Principles of Good Corporate Governance and Best Practice Recommendations* in March 2003 (revised version issues in August, 2007), as well as the 2006 *Horwath Corporate Governance Report* (mid-sized Australian ASX companies) which is critical of Australian companies' current corporate governance practices in general (Kang *et al.*, 2007). In order to improve corporate governance, the ASX established guidelines emphasising improved standards of board monitoring, shareholders' rights, and financial reporting. For example, the *Corporate Law Economic Reform Act 2003* introduced major changes to the *Corporations Act 2001* regarding auditor independence, the role of independent directors on company boards, and executive responsibility for financial reports and understanding of financial statements.

This paper is composed of six sections: section 2 develops a conceptual view of monitoring mechanisms and performance using an agency perspective; section 3 discusses our research propositions and methodology; section 4 describes sample selection and descriptive statistics for the research; section 5 provides the analysis; and section 6 provides concluding comments and highlights possible future research.

2. Monitoring mechanisms and performance

In order to understand the possible relationships among monitoring mechanisms and their potential influence on performance, this section places monitoring mechanisms in the context of the agency problem which arises from the separation of ownership and control. In this section a conceptual model (Figure 1) is developed to show the potential effects of monitoring mechanisms on firm performance.

[FIGURE 1 ABOUT HERE]

2.1 Monitoring by the board of directors

Boards are responsible for ensuring that management's behaviour and actions are consistent with the interests of the owners. They have the power to hire, fire and compensate executive managers and to ratify and monitor important decisions (Fama and Jensen 1983a; Jensen, 1993). A board's monitoring helps to reduce agency costs and safeguard the interests of shareholders.

There has been a great deal of empirical research on this board of directors monitoring and firm performance (e.g., Jensen, 1993; Agerwal and Knoeber, 1996; Hermalin and Weisbach, 2001). Various studies argue there are particular characteristics needed for effective monitoring of the board. Jensen (1993) considers three characteristics – board composition, board leadership structure and board size – to illustrate the monitoring ability of the board. Regarding board composition, the greatest concern has been placed on the proportion of independent directors on the board. For example, Agerwal and Knoeber (1996) examine a range of governance variables and find that board independence is the only governance mechanism that consistently affects corporate value. In case of board leadership, conflict of interest arises when the CEO and Chair are the same person (1991, 2001). Regarding size, the general finding is that smaller boards are more effective as they promote candid discussion, make quick decisions, and are easier for management to control (e.g., Lipton and Lorsch, 1992; Jensen, 1993).

Hermalin and Weisbach (2001) cover most aspects of board monitoring. They report a number of findings: smaller boards and the greater proportion of independent directors each appear to lead management teams to take actions that are more in line with shareholders' interests; boards with greater proportions of outsiders are more likely to remove a poorly performing manager, as are smaller boards; firms whose boards have greater proportions of outsiders appear to make better acquisition-related decisions; and firms with smaller boards set CEO remuneration plans that are more sensitive to CEO performance.

The theoretical role of the board in monitoring and disciplining management is firmly grounded in the agency framework of Fama and Jensen (1983). Empirical examination of board characteristics and firm performance focuses on: board size (e.g. Jensen, 1993; Yermack, 1996); independent directors (Dechow *et al.*, 1996; Beasley, 1996, 2001); separate role of Chairperson (Chair) and Chief Executive

Officer (CEO) (Jensen, 1993); financial literacy (DeZoort, 1997) and board committees (Austin, 2002; Menon and Williams, 1994). However, the United States experience where the debate and tests have generally concentrated, offers little scope for generalising to Australia. For example, the argument put forward by Shivdasani and Yermack (1999) that CEOs influence board membership and select members less disposed to monitoring management is inconsistent with the structure of Australian boards and the less authoritative role of CEOs. However, Authur (2001) provides some evidence supporting the notion that Australian CEOs are influential in determining board composition.

For effective and efficient monitoring process board also have different committees for inducing a close look at management activities and their decision-making. To improve the functioning of board committees, particularly audit, compensation and nomination committees, legislation requires that such committees be independent (Austin, 2002), and have sufficient size and technical expertise to discharge their mandate effectively. This study considers the presence of three most important committees of the board: Nomination, remuneration and audit committees. The nomination committee advises on and searches for potential directors. Nomination committees engage in a detailed behaviour analysis of prospective candidates and recommending the person for board membership if they think that person can contribute to the boards' decision-making process (Leblanc, 2004). Remuneration committee taking into consideration the company's needs together with the interests of its shareholders and other stakeholders (Bosch, 1995). The main function of remuneration committees is to determine and review remuneration packages for senior executives (Klein, 1998). Monitoring ability of the nomination and remuneration committee is measured by: (i) number of meetings and (ii) proportion of non-executive directors on the committee.

And the *audit committee* is delegated specific financial oversight responsibilities (Menon and Williams, 1994). The primary function of the audit committee is to review management information, financial statements and internal control systems (Bosch, 1995; Klein, 1998). There is currently no legal requirement in Australia for a company to have an audit committee. However, the ASX requires listed companies to disclose whether an audit committee exists, and if not, to explain why. However, the ASX does not provide any prescription as to composition if one does exist. Similar to the full board, the effectiveness of audit committee monitoring is dependent on: (i) number of meetings, (ii) independence of the board, and (iii) financial literacy of the directors.

2.2 Monitoring by shareholders

Share ownership by managers and directors is known as insider ownership. Several studies argue that stock ownership by senior or top management and board members gives them an incentive to ensure that the firm is running efficiently (Brickley *et al.*, 1988). The role of director ownership (shareholding by board of directors) and managerial ownership (shareholding by top management) as a monitoring mechanism has been the subject of much empirical analysis (Mork *et al.*, 1988; McConnell and Servaes, 1990, 1995). When board members and executives have considerable holdings in a company's shares, their decisions have an impact on their own wealth (e.g., Brickley *et al.*, 1988; Demsetz and Lehn, 1985; Denis and Denis, 1994).

Brickley *et al.* (1988) argue that share ownership by the CEO and board members provides them with incentives to ensure the firm operates efficiently and to monitor managers carefully. Morck *et al.* (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991) investigated the relationship between ownership structure and firm value and provide evidence of a significant non-linear relationship between corporate value and managerial ownership. Specifically, value increases with managerial holdings for low levels of ownership. At some level, managers become entrenched within the firm resulting in a decrease in firm value. However, whereas Morck *et al.* (1988) document further changes in the corporate value–managerial holdings relationship at high levels of equity ownership, McConnell and Servaes (1990) report no such change.

The degree of ownership concentration in a company determines the distribution of power between its managers and shareholders. When ownership is dispersed, shareholders' control tends to be weak; when ownership is concentrated, major shareholders can play an important role in monitoring management. However, major shareholders may act in their own interests at the expense of minority shareholders and other investors—such as paying themselves special dividends, committing the company to disadvantageous business relationships with companies they control, and taking on excessively risky projects.

Major shareholders are paying attention to corporate monitoring and maximising returns. Such shareholders can work effectively for monitoring management, reducing the scope of managerial opportunism (Shleifer and Vishney, 1986). Major shareholders, due to their greater bargaining power over the firm relative to individual, are in a position to influence the management of a company, by

minimizing the problems of poor performance, lower profitability, poor investment allocation or other corporate governance problems.

2.3 Monitoring by external auditors

Auditors, as a part of the corporate governance mechanism, serve to increase the quality of financial reporting. Examining the reported performance by the auditors ensures the accountability of the management. Variations in demand for auditing may result from a desire to reduce the consequences arising from information asymmetry. If auditors enhance monitoring through financial reporting, it could be associated with lower use of discretionary accruals to inflate reported earnings. Auditors do not directly monitor management, however, they provide an assurance service that improves the quality of financial information.

Publicly traded companies in Australia are required to have audits under the *Corporations Act 2001*. However, quality of audits, and subsequent ability to reduce agency costs, varies significantly (DeAngelo, 1981). DeAngelo (1981) defines *audit quality* as the joint probability that an auditor will (i) detect a material misstatement in the financial report if one exists (auditor competence), and (ii) report the misstatement if it is detected (auditor independence). This definition separates audit quality into two, namely competence and independence.

When audit competence increases, it impacts on the probability of discovering misstatements and will eventually increase the reliability of financial statements. Lack of auditor independence will reduce audit quality through a reluctance of the auditor to report any detected misstatements. Therefore, with respect to auditor monitoring, the general finding is that high level of competence and independence is compulsory for a high quality audit.

Empirical studies find that *Big 4* audit firms have brand names that are associated with higher quality audits (DeAngelo, 1981, Dye, 1993, and Craswell *et al.*, 1995). DeAngelo (1981) argues that large audit firms have stronger incentives to protect their reputations because they lose clients if they produce low quality audits. Dye (1993) argues that large audit firms face greater risk of litigation, and hence, large audit firms have stronger incentives to avoid litigation by supplying high audit quality. Craswell *et al.* (1995) find large audit firms earn significantly higher fees and they attribute part of this premium to investments in expertise by large audit firms. From the above findings it is reasonable to assume that audit firm size is a good proxy for audit quality.

A major threat to auditor independence, identified in the literature, is the joint provision of audit and non-audit services. This can both increase the competence and cost-effectiveness of audit firms and reduce the actual or perceived independence of the auditor (Arrunada, 1999). The revenue-based independence threat is suggested by a positive association between audit fees and non-audit service (e.g., Simunic, 1984; Palmrose 1986; Davis *et al.*, 1993; Craswell *et al.*, 1995; Butterworth and Houghton 1995).

2.4 Performance measures

In the absence of strong theoretical work on implementing any particular set of performance measures, this study tests accounting and accounting-market hybrid (hybrid) performance measures by examining the effect of monitoring on selected monitoring mechanisms. Performance measures are necessary for evaluation of the business, including comparing the effectiveness of monitoring methods and maintaining organisational control. This can ensure the achievement of organisational goals and objectives. This study measures the financial performance of firms on the basis of financial accounting information. Financial accounting information is the outcome of any company's accounting and reporting systems. This information provides quantitative data concerning the financial position and how a company has performed over a certain period. The financial statements supplied by the management are subject to external audits to verify their accuracy. Again, accounting information, which is the product of a governance process, is required for most governance mechanisms to operate efficiently (Sloan, 1996, 2001). Market information is also used to measure a company's hybrid performance.

At the level of accounting returns *per se*, it is conjectured that monitoring mechanisms that better safeguard shareholders' interests should result in superior financial returns. The notion that monitoring effectiveness can be observed in financial performance measures is a long-term view and changes to monitoring mechanisms in response to performance deficiencies are likely to be gradual processes that also reflect environmental changes. This reduces the likelihood of observing systematic relationships between alternate monitoring mechanisms and outcomes. However, the results of previous studies show some degree of association between related corporate governance variables and contemporaneous financial performance. For example, both Atkinson *et al.* (1997) and Lindenberg and Ross (1981) report

that accounting and hybrid performance measures are related to corporate governance decisions. Chow et al. (1997, p.22) argue that 'financial measures should be retained and viewed in the larger context of the company's competitive strategies for creating future value'.

In this study we use accounting and hybrid performance measures to examine the effect of monitoring mechanisms on firm performance. ROE, ROA and EPS are used as accounting measures. It is expected that the different monitoring mechanisms will influence management to work for the company's best interests and this will eventually force them to report the correct accounting information. This will have an impact on the firm's performance. Monitoring also influences management to have more influence in the market which could impact on market performance. PER, MBV and DY are used as hybrid (accounting and market) measures of performance.

[FIGURE 2 ABOUT HERE]

The above structural equation model (Figure 2) reflects the range of internal and external monitoring mechanisms. In this model, the key mechanisms of corporate governance control are the board of directors, shareholders and external auditors. Monitoring of shareholders is linked with blockholders and insider shareholders. Monitoring conducted by boards of directors is linked to the board's characteristics, composition and committees. Auditors as a moderator of discretionary accounting impacts are linked to audit quality, i.e. *Big 4* auditor and the proportion of no audit fees.

3. Propositions and methodology

The various indicators or proxy elements associated with the three main players in the monitoring process and their relationship to firm performance are presented as an empirical schema.

The research questions for testing in this study is: To what extent does each of the categories of players in the monitoring process – shareholders, board of directors and auditors - affect corporate financial performance?

What monitoring mechanisms are associated with the main players? First, shareholders are represented by both concentrated ownership (top 1, top 20 shareholders) and the share ownership by the insiders (i.e. shareholding by executive and non-executive directors). Second, the board of directors basically consists of board size, proportion of independent directors, separate CEO and Chair positions, financial literacy of directors, and independent members on the audit, remuneration and nomination committees. Third, mechanisms of monitoring are concerned with the quality of audit namely, *Big 4* audit firm and audit fees. Existing literature supports the premise that these monitoring mechanisms influence firm performance as shown in Shivdasani (1993), Kaplan and Minton (1994), Hermalin and Weisbach (2003) and Holderness (2003).

For testing the propositions we use the *Structural Equation Modelling* (SEM) technique. This specific statistical tool is used here because SEM is able to deal with multicollinearity and reveals potential complex interrelationships between monitoring mechanisms. of indicators. There are three reasons why this research uses SEM. Firstly, in this research on corporate monitoring; most of the variables are not possible to observe directly. These variables are termed latent variables in SEM SEM has the ability to incorporate latent variables into the analysis. By using SEM with multiple indicator variables, it is possible to model important latent variables (Wooldridge, 2003).

Secondly, in all multivariate analyses it is assumed that there is no error in the variables but from practical and theoretical perspectives this is impossible to perfectly measure a latent concept without some degree of error. However this is possible in SEM to consider error and by considering this SEM improves the statistical estimate.

Thirdly, SEM is a powerful tool with which to measure multicollinearity in sets of predictor variables. The SEM examines a series of dependent relationships simultaneously. This is particularly useful when one dependent variable becomes an independent variable in subsequent dependent relationships.

This study addresses the issue of which combination of mechanisms can be applied in an interrelated structural setting. It sets all monitoring mechanisms in a structural equation model in order to establish within the structural setting how the individual monitoring mechanisms affect performance. This will be the first study to analyse a large number of monitoring variables in a structural setting and determine their contribution towards a combined effect on performance in the Australian context.

In SEM there is no single statistical test that describes the goodness-of-fit of the model. Instead, researchers have developed a number of goodness-of-fit measures which assess the results (see Table 2 for details of results and cut-off value). For this type of study it is necessary to have enough data so

important differences or relationships can be observed. SEM applications typically use 200-500 cases to fit models that have from 10-18 observed variables. This research uses Australian *Top 500* companies for the period 2001–2003 from 17 monitoring mechanisms.

4. Data and firm characteristics

The initial sample for this study consists of 1500 firm-year observations from *Top 500* ASX-listed companies from 2004 - 2006. *Top 500* companies are chosen as they must follow “*The Principles of Good Corporate Governance and Best practice Recommendations*” and need to report ‘if not, why not’ basis as to whether they complied with their recommendations for the first financial year commencing 1 January 2003. We rank the companies in terms of market capitalisation for each year. To ensure consistency in the database, companies with missing information are excluded. Ninety companies from the total 1,500 firm-year sample were excluded due to insufficient information. The remaining companies are 475 in 2004, 472 in 2005 and 463 in 2006.

[TABLE 1 ABOUT HERE]

In relation to industry classification, most of the companies in the data set (22%) operate in the financial sector followed by (18%) in the materials sector. The remaining 60% are involved in energy, industrial, consumer discretionary consumer staples, health care, information technology, telecommunication and utilities.

In the study average board size is 6 directors (maximum=17, minimum=3). Average number of board meetings is 10 per annum (maximum=37, minimum=2). Top shareholders, on average, hold 23% of company shares (maximum=97%, minimum=1%). Similarly, top 20 shareholders hold 63% of shares (maximum=100%, minimum=8%) (see Table 1).

In our sample of 1,410 firms, most (n=1,246, 88%) have a board size of 4 to 9 directors, and number of board meetings of 2 to 37 per annum. More than 82% of the firms (1,158) have a board with a majority of independent members. In the sample, there are 168 firms (12%) where the roles of chair and CEO are occupied by one person. One hundred fifty three firms (7%) do not have any audit committee meetings, and 66% of firms (929) have 2 to 4 audit committee meetings per annum. Eighty percent of firms (1,143) have 1 to 4 independent directors on the board. In 383 (27%) companies there are no financially literate members on the board and in 229 (16%) all directors are financially literate. In the sample, 79% (1,117 firms) have between 1 to 3 meetings per annum. Only 288 (20%) firms have a nomination committee. Of these, 239 companies have 1 to 4 nomination committee meetings per annum. Only in three committees there are no non-executive directors.

On average the top 20 shareholders hold 63% of shares. In our sample, 1,059 firms (75%) have the top 20 shareholders holding more than 50% of shares and 431 firms (31%) more than 75% of shares.

From the sample, 1,158 firms (82%) are audited by a *Big 4* auditor. It is expected that the auditing by a ‘Big 4’ auditor will improve the audit quality. The average non-audit fees earned by the external auditor is AU\$8369. In the sample 36% of firms (508) have earned higher non-audit fees compared to audit fees. On average, the board of directors holds 16% of shares, and in 154 firms (11%) the top shareholder holds more than 50% of shares.

5. Analysis of the results

The model of monitoring mechanisms and their effect on the firm performance fits the data well for 2004, 2005 and 2006 for all the performance measurements (see Table 2). The models of monitoring mechanisms and their effect on the ROE fit^{††} the data well for 2004, 2005 and 2006 ($\chi^2 = 234.11$ □ 297.03, $p = .001$); CMIN/DF is between 1.8 □ 2.39 ; RMSEA = .045 □ .054; adjusted goodness-of fit index (AGFI) = .90 □ .92; NFI = .89 □ .93; and CFI = .94 □ .96.

[TABLE 2 ABOUT HERE]

^{††} A smaller value of chi-square represents a better fit. The chi-square-to-degree-of-freedom index is a standardized measure, with value between 1 and 5 representing a better fit, a smaller value indicates a better fit. RMSEA indicates better fit as it approaches .05. Values of AGFI, NFI and CFI approaching 1 represent better fit.

The results were generally consistent, when examining the impact of accounting and hybrid measures of firm performance.

5.1 Monitoring and performance

There are three groups of monitoring mechanisms in the model: shareholders, board of directors and external auditors. The relationships among shareholders, external auditors and board monitoring variables are significant for all the identified paths (see Table 2). In this research, a path diagram is developed which is more than just a visual portrayal of the relationships. These path diagrams allow us to present predictive relationships among constructs (i.e. the dependent-independent variable relationships), as well as associative relationships (correlations) between constructs and indicators.

If it is accepted that the board of directors, through the audit committee, monitor the role of external auditors, the board then influences the quality of the auditor function. Similarly, shareholder concentration appears to influence auditors with respect to the impact on performance: when there are concentrated shareholders, there will be increased pressure on auditors to act as effective monitors of reported performance.

5.1.1 Shareholder monitoring and firm performance

The results of shareholder monitoring and their impact on one year lagged firm performance exhibit inconsistent but significant results in regard to accounting and hybrid performance. The analysis fails to reject the proposition that monitoring by shareholders influences firm performance.

[TABLE 3 ABOUT HERE]

Accounting performance measures

The data in Table 3 shows an association between monitoring by the shareholders and firm performance in the lagged models. A significant relationship for the year 2006 ($p = .028$) is found when performance is measured by ROA. Although this relationship is not consistent over the years, the result is sufficient to say that analysis failed to reject the proposition. After the corporate collapses of 2000-02 there was regulatory emphasis on improving monitoring by implementing superior monitoring procedures (ASX, 2003). However, shareholder monitoring factors in the form of concentration of top shareholdings and insider shareholdings by board members, have been largely unaffected by regulatory changes. The results in Table 3 nevertheless reveal that shareholders monitoring does have some positive effect on accounting performance (for ROA in 2006) but generally there is no significant effect.

In relation to EPS, this performance measure reflects how much has been earned during the financial year for each of the shares held. *Earnings* is an accounting number that reflects both the firm's economics results and management's accounting policy choices of management. The results in Table 3 show no significant relationship between shareholders monitoring and EPS, suggesting that powerful shareholders do not cause a significantly higher or lower EPS. This result does not identify whether stronger shareholders monitoring does, in fact, achieve superior economic result for the firm in any year, which are smoothed in the reported EPS due to accounting policy choice.

Hybrid performance measures

Similar to accounting performance measures, the data in Table 3 shows that there is no significant association between monitoring by the shareholders and hybrid performance measures. Results fail to find any significant relationship between monitoring by shareholders and firm performance measured by PER.

A relatively higher PER could be a reflection of whether investors are willing to pay a market premium relative to current reported earnings due to the monitoring activities of shareholders. In this section, shareholder monitoring is based on shareholders concentration and insider holdings by members of board of directors. Concentrated shareholdings can indicate that powerful shareholders monitor performance and affect PER for their own individual purposes which can vary with their personal investment strategies. It is not surprising therefore, that no relationship is found between shareholders monitoring and PER.

The next hybrid performance measure in Table 3 is MBV. Table 3 shows a significant relationship between shareholder monitoring and MBV for two of the three years analysed (2005 has $p = .037$; 2006 has $p = .052$). Higher market capitalisation to book value of equity is deemed to reflect a stronger intellectual capital and intangibles that are not recorded in book value. The results infer that powerful shareholders' influence over management leads to the development of greater unidentifiable goodwill by the firm. However, many factors affect MBV, so this is a very tentative inference.

The final column in Table 3 provides results of shareholders monitoring and performance measured by the DY. It shows that in 2005 the relationship is significant in the lagged year ($p = .011$), but not

significant in the other two years. This suggests that shareholders concentration can occasionally affect management decision concerning dividend payout relative to market price of shares.

Overall, the results in Table 3 do not provide a clear pattern of relationship between shareholders monitoring and firm performance. One possible reason for these inconsistent results is the presence of substitution or complementary effects among the range of governance mechanisms. These may encourage the firm to rely on various monitoring devices and structures.

5.1.2 Director monitoring and firm performance

Boards of directors are the most active monitors of management. Monitoring efficiency improves when independent, financially literate directors make up the board, and the CEO and Chair are separate persons. Yet, whether monitoring by boards affects firm performance remains unresolved in the literature. The following results show that such monitoring has an inconsistent but statistically significant relationship with firm performance.

[TABLE 4 ABOUT HERE]

Accounting performance measures

The data for monitoring and accounting performance for lagged year (Table 4) show that the impacts of board of directors on ROE, ROA or EPS are not significant. The results are consistent with conclusions reached by Bhagat and Black (2000), who examined the effects of board composition on accounting performance. They failed to find any relationship between board composition and firm performance. In general, board of directors monitoring has been found to have more impact on market performance compared to accounting performance. Board monitoring may improve the transparency of reporting but this is not necessarily reflected in accounting numbers.

Hybrid performance

Table 4 shows that there is almost no relationship between monitoring by the board of directors and hybrid performance measures. Results fail to find any significant result between monitoring by board and firm performance measured by PER or DY. The only significant result is for the performance measure MBV. In 2002 there was a significantly positive relationship ($p = .055$) between board monitoring and MBV in the lagged model.

Overall, this research failed to find significant results for accounting or hybrid performance models, with the exception of one isolated incident across six performance measures in three years. These findings are consistent with Hermalin and Weisbach (1991), Mehran (1995), Klein (1998) and Bhagat and Black (2000), who examined the influence of board composition on firm performance and failed to find any relationships. MacAvoy and Millstein (1999) argue that one reason for not finding any relationship is because they have used “old” data – that is, data that preceded the board monitoring role in the current-year and performance. However, they found no difference in the result when they used the lagged year’s performance.

5.1.3 Auditor-based construct and firm performance

As a monitor of the reported performance of any company, auditors are responsible for safeguarding accounting information which is used for decision-making. Bushman and Smith (2001) argue that publicly reported accounting information, which measures a firm’s financial position and performance, is useful in various corporate governance mechanisms. Monitoring by auditors is reflected in accounting and hybrid performance measures. The following analysis reveals auditor monitoring on firm performance.

[TABLE 5 ABOUT HERE]

Accounting performance measures

Table 5 shows that there is no relationship between monitoring by auditors and firm performance when measured by ROE or ROA. This might be expected because auditor monitoring is concerned with ensuring accounting numbers are *true and fair* without being systematically biased in any year. There is a significant relationship between the monitoring by auditors and their effect on the EPS for 2002 and 2003. In 2002 there is a significantly positive relationship between the variables in the lagged year ($p = .01$) and in 2003 lagged year ($p = .005$).

Hybrid performance measures

Similar to accounting measures, Table 5 shows that there is no relationship between monitoring by auditors and firm performance when measured by price earnings ratio. A further test using MBV and firm

performance shows that a significantly negative relationship exists in lagged years: 2002 ($p = .003$) and in 2003 ($p = .000$). This relationship shows that when auditor monitoring increases, MBV value decreases significantly.

These results again present a quite inconsistent picture. The curious finding is that auditor monitoring is negatively related to MBV. The explanation may be that higher quality auditors will generate financial statements that contain more up-to-date fair values of assets and more recognition of intangible assets, thereby increasing the reported book value of net assets, which can lower MBV.

In the final column of Table 5, there is a significantly positive relationship in the lagged year models for 2002 ($p = .002$) and 2003 ($p = .006$) for DY. Since DY is a reflection in part of sound cash management (i.e. ability to pay regular and increasing cash dividends), the quality of auditing and assurance services would benefit the firm's cash management.

Overall, the results for relationships between auditor monitoring and firm performance are mixed. There was found to be no relationship with accounting performance measures, but some significant relationships, both positive and inverse, for hybrid performance measures. It is again posited that a key reason for not uncovering a consistent pattern of relationships is the presence of substitute effects among the governance variables. The possible interdependence among auditing and other monitoring mechanisms may explain the differences in relationships between individual monitoring mechanisms and performance measures over the period.

5.3 Robustness tests

One set of robustness tests involved verifying the statistical inferences by testing the sample for the two and three years lagged model and seeing how the monitoring effects compared to one year lagged models. All lagged models conclude that one-year lagged models are more reflective of performance compared to these models. However, substitution effect models, similar to one-year lagged models, are showing significant negative relations between shareholders and board monitoring, and shareholders and auditor monitoring.

An attempt was made to check the relationship between monitoring and two-three year lagged performance. For this, companies during the period 2001–2003 are taken into consideration. The above result did not show any significant relationship between shareholder monitoring and two-three year lagged performance. If this result is compared with the finding in the one-year lagged model, a conclusion can be drawn that the effect of monitoring is more reflected in the immediate year, i.e. in the one-year lagged model. It can be argued that shareholders generally react immediately after the financial year. Results shows there is no significant relationship found between board monitoring and firm performance measured by different accounting, market and hybrid measures. If the financial report users are not satisfied with the monitoring done by the board of directors, they have the option to veto and change the directors. Therefore it is assumed that results of current monitoring will be reflected in the year immediately after the financial information is published and not in subsequent years. Auditor-based construct and firm performance does not show any significant relationship in the two-three year lagged model. If the financial report users are not satisfied with the auditor-based construct they have the option to change the auditor at the next annual general meeting. If there is any change in auditors, the previous auditor's performance is not expected to be reflected in the two or three lagged year's performance.

There can be two probable explanations for the results of the robustness tests. Firstly, it suggests that effect of monitoring is reflected on a concurrent basis. As suggested in the literature, if the shareholders are not satisfied with the firm's performance they 'exit' immediately rather than using their 'voice'. The other explanation is that this research failed to document the effect of two or three lagged years monitoring because of using the panel data. In this process the companies selected were among the top 500 and filtered only those that are surviving at the top of the list during these three years. Therefore the result does not reflect the true scenario. We argue, however, for the first context as it is believed that after the financial results are declared people become concerned with those results (immediate performance) compared to previous performance.

6. Conclusion

With few exceptions, all the models suggest that there is limited discernable pattern of significant relationships between monitoring as carried out by shareholders, board of directors and auditors and lagged years performance. This result is consistent with Nandelstadh and Rosenberg (2003) who also find limited combinations of internal and external corporate governance mechanisms associated with firm

performance. They based their conclusion on an analysis of data from Finnish publicly-listed companies during 1990–2000.

If governance mechanisms can complement or substitute for each other, then no clear relationship could be established between monitoring mechanisms when considered independently of each other, and firm performance. This fact can explain why the paper found results of an inconsistent nature. By confirming these relationships, this study adds value to the body of literature on monitoring and its influence on firm performance.

This study has policy implications for the Australian corporate environment. When considering any change in corporate monitoring, the Australian federal government should take into account the nation's business and legal practices and culture. As mentioned previously, in Australia, the Anglo-American model of corporate governance applies (Arens *et al.*, 2007). However, the specifics of corporate governance regulations and norms make it difficult to compare the results of Australian companies with those of the United States and the United Kingdom. Australia's economy (though much more global in nature than a decade ago), is still smaller, its capital markets are relatively small, ownership structures are very different, and local companies are not as well capitalised. Typically, Australian business organisations are characterised by a mix of having, firstly, large blockholders and, secondly, more in terms of separation of the Chair and CEO incumbent compared to the United States and the United Kingdom. Accounting standards in Australia require detailed disclosure of executives' and directors' remuneration and related-party transactions (AASB 124) which, in effect, means publicly accessible information that can be used by shareholders as a corporate monitoring mechanism. The structural differences between the United States and Australian regulatory framework are substantial. These differences include legal duties and responsibilities of directors, structure of board of directors, compensation contracts, shareholders' rights and corporate disclosure requirements.

During the past 6 years, steps have been taken in Australia to toughen the corporate governance code of conduct and reporting practices. The ASX released its corporate governance guidelines, which set out the principles of best practice for companies listed on the ASX. Furthermore, the *Corporate Law Economic Reform Program Act 2004* advocated reforming and adopting principles that provide good governance practice.

6.3 Limitations of the study

There are a number of limitations that may influence the results of this study, and these need to be addressed in order to improve the integrity of future research in this area.

Three accounting bases and three hybrid measurements were used in this study. This strategy may impede some important performance features that could be obtained through other tools. Therefore, this study may not accurately report the intrinsic performance of companies. Accounting measures of performance are subjected to accounting policy choice, while market measures of performance are affected by market inefficiencies.

Another possible limitation of this research concerns sample selection. This research only uses the information for the top 500 companies; however, other listed companies may have systematically different monitoring and other effects on their firm performance. Due to this fact the results may have been different if the remainder of the listed companies or the bottom 500 listed companies were sampled.

This study did not consider other market and regulatory mechanisms as have been used in single country studies. Capital market, managerial labour market and legal systems are common to all firms and there is little scope in differentiating these factors (Agrawal and Knoeber, 1996; Denis and McConnell, 2003). Jensen (1993) states that the legal system, which in itself is a corporate governance mechanism, is too blunt to deal with agency problems between managers and shareholders. The same is true for the labour and capital market.

For future research, the model in this study could be expanded to include more alternative monitoring mechanisms that influence a company's performance. For example, equity-based incentives such as granting of rights, bonus shares and share options to managers are widely used to align the interests of the principals (owners) and the agent (employees). Similarly, there are different control mechanisms such as those derived from the market where managerial talent has the expertise and integrity to reduce agency-related problems. Performance-based cash bonuses can be another mechanism for encouraging the agent to work so that the firm's performance targets are achieved.

Again, in future research should be done to examine whether there is any substitution or complementary effects exist between different monitoring mechanisms, i.e. shareholders and board of directors monitoring; board of directors and auditor monitoring; and shareholders and auditors monitoring and firm performance.

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Figure 1: Monitoring Model

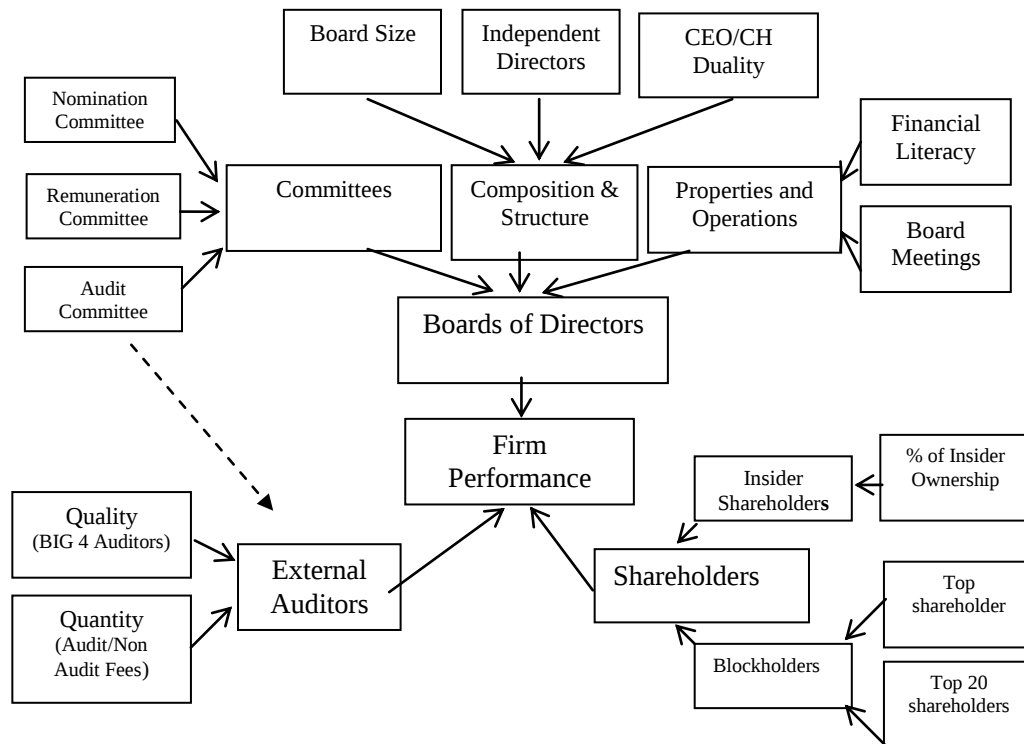
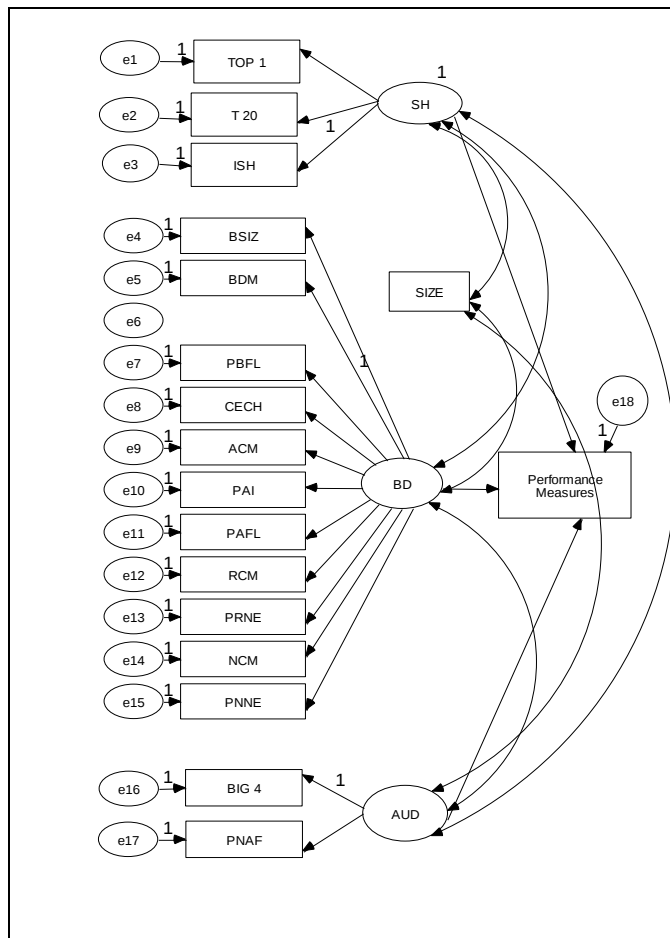


Figure 2: Structural Equation Model



Variables:

Major Shareholders:

Top 1= Share hold by the top shareholder
 Top 20 = Share hold by the top 20 shareholders
 ISH = Insider (directors and top management) shareholders

Board of Directors & Committees:

BSIZ = Number of directors in the board
 BDM = Number of board meetings
 PBI = Proportion of independent directors in the board
 BFL = Number of financial literate directors in the board
 CHCE = CEO and Chair of the board
 ACM = Number of Audit committee meetings
 PAI = Proportion of independent directors in the AC
 AFL = Number of financial literate

Table 1. Descriptive statistics regarding monitoring measures
(Sample Size: 1410 Company –years)

Monitoring Variables	Combined Sample				2004				2005				2006			
	Minimum	Maximum	Mean	S.D.	Minimum	Maximum	Mean	S.D.	Minimum	Maximum	Mean	S.D.	Minimum	Maximum	Mean	S.D.
Top Shareholder (%)	0.96	97.01	23.64	17.79	0.96	93.99	23.7	18.28	1.00	97	23.7	18.09	1.42	88.77	23.40	17
Top 20 Shareholders (%)	7.53	100	63.3	20.1	8	100	63.3	20.63	7.56	99.88	63.7	20.39	7.53	99.86	63.02	19.29
Boards of directors' Shareholdings (%)	0.00	96.69	15.93	21.03	0.00	92.41	16.13	21.21	0.00	96.69	16.75	21.69	0.00	91.87	14.90	20.13
Size of the Boards (number)	3	17	6.31	2.11	3	17	6.24	2.153	3	17	6.31	2.132	3	15	6.38	2.07
Boards of Directors' meetings (per year)	2	37	10.78	4.33	2	33	10.7	4.284	2	32	10.8	4.217	2	37	10.80	4.52
Proportion of Independent directors on the Boards	0	1	0.71	0.195	0	1	0.71	0.203	0	1	0.7	0.202	0	1	0.71	0.18
Proportion of Financial Literate directors on the Boards	0	1	.4139	.2529	0	1	.4365	.2508	0	1	.4350	.2486	0	1	0.36	.25
Dual role of Chair and CEO (0,1)	0	1	0.12	0.320	0	1	0.14	0.344	0	1	0.14	0.343	0	1	0.08	0.27
Number of Audit Committee Meetings (per year, N = 1265)	0	15	3.03	2.02	0	12	2.83	1.85	0	14	3.04	2.024	0	15	3.24	2.16
Proportion of Independent members on Audit Committee (N=1265)	0	1	0.69	0.35	0	1	0.67	0.351	0	1	0.7	0.357	0	1	0.71	0.36
Proportion of Financially Literate directors on the AC (N=1265)	0	1	0.44	0.34	0	1	0.46	0.34	0	1	0.46	0.34	0	1	0.39	0.34
Number of Remuneration Committee Meetings (per year, N = 815)	0	15	1.49	2.12	0	14	1.32	1.98	0	15	1.51	2.245	0	15	1.64	2.11
Proportion of Non-Executive Directors on RC (N = 815)	0	1	0.87	0.223	0	1	0.87	0.218	0	1	0.88	0.196	0	1	0.85	0.249
Number of Nomination Committee Meetings (per year, N = 288)	0	17	0.55	1.57	0	17	0.45	1.626	0	13	0.56	1.674	0	13	0.66	1.41
Proportion of Non-Executive Directors on NC (N = 288)	0	1	0.89	0.208	0	1	0.91	0.208	0	1	0.90	0.203	0	1	0.88	0.213
Big 4 Audit firms (0,1)	0	1	0.82	0.38	0	1	0.81	0.389	0	1	0.83	0.379	0	1	0.82	0.38
Proportion of non-audit service fees (NAF/TAF)	0	0.96	0.39	0.24	0	0.96	0.41	0.25	0	0.92	0.4	0.24	0	0.96	0.35	0.23

Table 2. Model Fitness (lagged year)

2004						
Model	χ^2 (df)	$\Delta\chi^2$ (Δ df)	RMSES	AGFI	CFI	NFI
Return on Equity	267.367	2.156	.049	.911	.960	.929
Return on Assets	274.206	2.211	.051	.910	.958	.927
Earning Per Share	285.162	2.300	.052	.907	.955	.925
Price Earning Ratio	267.438	2.157	.049	.912	.960	.929
Market to Book Value	268.517	2.165	.050	.911	.960	.928
Dividend Yield	278.258	2.244	.051	.909	.957	.926
2005						
Model	χ^2 (df)	$\Delta\chi^2$ (Δ df)	RMSES	AGFI	CFI	NFI
Return on Equity	291.620	2.352	.054	.903	.962	.936
Return on Assets	283.807	2.289	.052	.906	.963	.937
Earning Per Share	288.249	2.325	.053	.904	.963	.937
Price Earning Ratio	287.503	2.319	.053	.904	.962	.936
Market to Book Value	297.032	2.395	.054	.902	.960	.935
Dividend Yield	295.637	2.384	.054	.902	.961	.935
2006						
Model	χ^2 (df)	$\Delta\chi^2$ (Δ df)	RMSES	AGFI	CFI	NFI
Return on Equity	239.456	1.931	.045	.923	.950	.904
Return on Assets	257.017	2.073	.048	.918	.943	.897
Earning Per Share	259.627	2.094	.049	.915	.942	.897
Price Earning Ratio	245.119	1.977	.046	.920	.948	.902
Market to Book Value	234.116	1.888	.044	.924	.953	.907
Dividend Yield	239.337	1.930	.045	.922	.950	.904

Here,

χ^2 (df) = Chi- Square

AGFI = Adjusted goodness of fit index (acceptable limit => .90)

$\Delta\chi^2$ (Δ df) = Normed Chi-Square (Acceptable limit 1 – 5; 1 = best fit, 5 = reasonable fit)

CFI = Comparative fir index (0 = no fit at all, 1 = perfect fit)

RMSES = Root mean square (.05 or less indicate a close fit)

NFI = Normal fit index (0 = no fit at all, 1 = perfect fit)

(Source: Hair, et al. 2006)

Table 3. Shareholder monitoring and performance

	ROE (T+1)	ROA (T+1)	EPS (T+1)	PER (T+1)	MBV (T+1)	DY (T+1)
Shareholder monitoring and Performance (2004)	0.003 (0.852)	0.007 (0.140)	- 0.156 (0.700)	0.545 (0.322)	0.001 (0.970)	0.001 (0.196)
Shareholder monitoring and Performance (2005)	0.023 (0.164)	0.012 (0.273)	0.978 (0.097)	-1.926 (0.217)	-0.099 (0.037)*	0.001 (0.011)**
Shareholder monitoring and Performance (2006)	0.004 (0.701)	0.004 (0.028)*	0.417 (0.600)	0.313 (0.401)	-0.083 (0.052)*	0.000 (0.176)

** Significant at the .01 level.

* Significant at the .05 level.

Table 4. Board of directors monitoring and performance

	ROE (T+1)	ROA (T+1)	EPS (T+1)	PER (T+1)	MBV (T+1)	DY (T+1)
Directors Monitoring and Performance (2004)	0.017 (0.896)	-0.015 (0.694)	7.180 (0.075)	4.496 (0.359)	0.092 (0.768)	0.003 (0.636)
Directors Monitoring and Performance (2005)	0.001 (0.994)	-0.025 (0.727)	-0.149 (0.972)	2.332 (0.826)	0.674 (0.055)*	-0.003 (0.083)
Directors Monitoring and Performance (2006)	0.017 (0.768)	0.000 (0.972)	-2.980 (0.551)	1.654 (0.460)	0.435 (0.110)	-0.003 (0.108)

Table 5. Auditor-based construct and performance

	ROE (T+1)	ROA (T+1)	EPS (T+1)	PER (T+1)	MBV (T+1)	DY (T+1)
Auditor monitoring and Performance (2004)	- 0.013 (0.993)	0.812 (0.075)	- 0.198 (0.996)	- 16.157 (0.771)	0.125 (0.972)	- 0.004 (0.962)
Auditor monitoring and Performance (2005)	1.250 (0.229)	0.901 (0.169)	93.897 (0.010)**	- 0.236 (0.998)	- 8.767 (0.003) **	0.048 (0.002) **
Auditor monitoring and Performance (2006)	0.239 (0.618)	0.121 (0.175)	115.186 (0.005) **	- 0.891 (0.962)	- 7.965 (0.000) **	0.04 (0.006) **

Note: Values in the bracket indicates “P value”.

CHARACTERISTICS OF THE BOARD OF DIRECTORS AND INVOLVEMENT IN INNOVATION ACTIVITIES: A COGNITIVE PERSPECTIVE

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Abstract

This article focuses on the relationship between the characteristics of the board of directors and the innovation policies in the Tunisian context from a cognitive perspective of corporate governance. The method used in this study is based on the regression analysis. We directly regress the board of directors' characteristics with the firm level of innovation. Our model includes some control variables such as the firm's size, the firm's sector of activity and even whether firm is listed or not. We empirically demonstrate that only the inside directors and the duality of the CEO are positively and significantly associated with the firm's level of innovation. Moreover, the empirical results show that the big size of the board has a negative impact on the development of innovative firms. In the same way, we demonstrate that the compensation system which is based on long-term objectives has no influence on the determination of the innovation policies in Tunisian firms.

Keywords: Board of directors, innovation policies, cognitive approach of corporate governance, inside directors

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1. Introduction

The role of the board of directors of a firm in the innovation strategies has for long time been the subject of much debate. However, the research efforts suffered from several deficiencies especially the lack of an overarching theoretical perspective to examine its role in the innovation development. Thus, we need a theoretical framework that helps to explain the role of the board in the innovation development based on cognitive theories of corporate governance.

In the cognitive model of corporate governance, the board of directors can be evaluated by its capacity to promote organizational learning (Lazonick and O'Sullivan, 1998). Therefore the criterion of its efficiency is its capacity to create and protect an organizational value. Nevertheless, considering its disciplinary and strategic role, the board deserves a special attention. Beyond the legal or regulatory requirements, the board members should have specific knowledge and technological skills to help the leaders determinet the investment in innovation. More specifically, Lazonick and O'Sullivan (1998) recommend the existence in the board of the representatives of all the entities: employees, firms, financial institutions. The latter can show have a direct interest in the firm investment to develop organizational learning.

In contractual and strategic theories of corporate governance, the board is a tool of reducing the losses in value due to the conflicts of interest between the various partners, or creating the growth opportunities. It contributes, in this way, to the development of innovation.

The theoretical and empirical literature is interested specifically in the demographic characteristics of the board (Hermalin and Weisbach, 2003). Some studies have found that the outside directors are more

or less interested in all the innovation activities. Chung et al (2003) and Boone et al (2007) found that the proportion of the outside directors was negatively interested with the intensity of R&D. However, a study by Hill and Snell (1988) shows that the presence of the inside directors in the board is positively and significantly correlated in the intensity of the R&D. On the other hand, David et al (2001) did not find any significant correlation. The outside members of the board are considered as an important source of valuable information and undoubtedly they facilitate the access to critical resources.

Similarly, the pioneers of the agency theory suggest that the separation between the functions of the CEO and those of the chairman of the board is considered the best practice. However, this separation may also lead to a failure of communication and information asymmetry between the CEO and the chairman. In addition, and from a cognitive perspective, the board is regarded not only as a mechanism to minimize the agency costs, but a mechanism that facilitates the organizational learning and innovation (Lazonick and O'Sullivan, 2000; Boone et al, 2007).

In this context the firms which like to encourage innovation, the asymmetry of information and knowledge could be considered as an additional cost caused by the separation between the functions of the CEO and those of the chairman of the board (Zahra, 1996; Markman et al, 2001).

Besides, a large size of the board could be seen as a necessary condition to enhance investments in the R&D of the firm and consequently all the innovation activities, since it has a wide diversity of expertise that helps executives make better strategic and financial decisions. The heterogeneity of the board implies a high probability of obtaining skilled managers with necessary scientific expertise, and provides new opportunities for growth. However, Boone et al. (2007) show that a large board is negatively correlated with investment in the R&D. Zahra et al (2000) suggest that the board's average size is better to encourage innovation. In addition, the agency theory assumes that the critical efficiencies that boards generate derive from reducing the agency costs rather than from deploying relevant knowledge.

Similarly, firms which adopt a policy of innovation should include a compensation system that encourages managers to take decisions relates to the promotion of the innovation activities. In this respect, Guay (1999) and Coles et al (2006) suggest that a higher sensitivity of the leader's wealth induces more investment in the R&D. In addition, the use of managerial stock options is positively associated with innovation (the number of patents) and intensity in the R&D (Johnson et al, 2009).

On the basis of these considerations, this article will try to answer the following question: What is the effect of the characteristics of the board of directors on the development of the innovation activities?

The principal purpose of this study is to investigate the impact of the board of directors on the firms' innovation activities. Our research field is Tunisia which represents an example of developing countries being engaged, since 1997, in an important national program whose aim is to help the Tunisian firms face worldwide competition. This national program aims to restructure the Tunisian firms by encouraging them to invest in material as well as in immaterial areas in order to stimulate innovation that leads to competitive advantage.

This study can provide explanations and managerial solutions for the Tunisian firms which have problems with the development of innovation. In other words, it identifies the mechanisms of governance that have the greatest impact on the development of innovation. Our research can help managers, bankers, different types of shareholders and stakeholders holding seats in the board of directors to take the necessary measures related to the governance structure (increased ownership of industry leaders) in order to mitigate the problems of underinvestment in the innovation activities and to make their business among the most competitive companies.

The remaining part of the paper is organised as follows. In the next section we present the theoretical background of the relationship between the board characteristics and the innovation activities based on the approach of cognitive governance (the resource-based view of the firm, evolutionary theory, and the knowledge-based view of the firm). In section 3 we discuss the methodological aspects of this study. The empirical results are presented and discussed in section 4. Finally, section 5 is a conclusion.

2. Effects of the board of directors on innovative activities

Based on a meta-analysis study in corporate governance, it was found that the classical model of corporate governance suffers from several limitations (Dalton et al, 1999; Rhoades et al, 2000). For example, the agency theory, based on a very simplistic assumption, supposed that the shareholders take up only to financial capital and the assumption of the financial risk. This design has a low explanatory power regarding the actual shareholding structures, and requires the cognitive role of the shareholders in order to provide a more satisfactory explanatory model of these structures. Similarly, it blames the classical theories of corporate governance for not being interested in the origin of investment opportunities which are considered by most research as a set of exogenous data. The integration of cognitive dimensions in the skills and knowledge of the various providers of resources could influence the

strategic decisions of the firm by supporting innovation and competitive advantages being the principal vectors of the value creation (Lazonick and O'Sullivan, 2000; Boone et al, 2007).

Using a cognitive approach of corporate governance, we examine, in this section, the effect of the board of directors on the innovation development.

2.1. Insides directors and innovation activities

Xue et al. (2007) showed that the external directors of the board would be more efficient in boards that deal with problems of information asymmetry. In contrast, the inside directors of the board could more effectively support the advice that focuses as on specific issues concerning the strategic orientation of the firm.

In the same way, a criticism of the traditional theories of corporate governance shows that several claims limit the realism of the agency theory to a model of understanding the effectiveness of these governance mechanisms (Hendry, 2002). In this respect, the agency theory assumes that the criticism directed to the effectiveness of the board in reducing the agency costs, fails to deploy the appropriate knowledge. Besides, some evolutionary economists, however, have argued that the choice of investment may depend more on the availability of knowledge (Teece, 1990), rather than on the calculation of agents. The involvement of the leaders in the formulation of the strategy and particularly in the preparation phase of strategic decision making enables them to protect the interest of the shareholders by identifying the problems and defining the appropriate decisions. Therefore, to understand the effectiveness of the board, we need a theoretical framework that explains how the expertise of leaders allows them to contribute the quality of strategic corporate decisions.

In firms that follow a policy of innovation, where a substantial amount of information is produced and analyzed, the outside directors are not able to manage this kind of volume of specific information. After a review of the literature cited in several studies, Kose et Lemma (1998) does not confirm that the presence of the outside directors enhances the performance of the firm. Furthermore, Agrawal and Knoeber (1996) show that the outside directors have a negative effect on the performance of the firm. This can be justified by the fact that they are integrated within the board because the firm in question displays a poor performance or it is simply a political process. Hoskisson et al (2002) state that a board dominated by outside directors will promote the external acquisition rather than the internal innovation projects. In this way, the outside directors, given their time constraints and their access to information, appear to be incapable of controlling the internal operations and by then are interested principally in listed financial and strategic component remains second order. These authors indicate that the inside directors will be more efficient compared to the outside directors. Thus, they have specific information that allows them a direct access to the critical resources, the uncertainty control and the risk of innovation projects.

Similarly, firms with a board dominated by inside directors tend to focus on innovation rather than on external acquisitions. Westphal (1999) suggested that the internal members are beneficial and can improve the social interaction and trust. Therefore, the participation of inside directors in determining the innovation policy by providing knowledge resources and expertise allows the firm to improve its financial performance. For these reasons, we can say that boards dominated by insider directors have a positive impact on the innovation activities involvement.

H₁: The board dominated by inside directors has a significant and positive impact on the innovation level of the firm.

2.2. CEO Duality and innovation activities

The two main roles in a corporation are those of the chief executive officer (CEO), who is legally responsible for ensuring the management of the firm, and of the chairman of the board who represents the interests of the shareholders. The pioneers of the agency theory suggest that the separation between the functions of the CEO and those of the chairman is considered as the best practice of corporate governance.

Although the separation of management and control functions is recommended by theorists of the agency theory, it could also bring about a failure of communication and information asymmetry between the CEO and the chair board. Firms that want to encourage innovation, asymmetry of information and knowledge could be considered as an additional cost due to the separation between these two roles (Zahra, 1996; Markman et al, 2001).

However, this separation of roles could enrich the diversity of opinions among the leaders and the board's chairman and thus can improve the quality of taken the decisions. Markman et al (2001) argue that the diversity of a management team can add value to the firm by bringing "a broader knowledge base

that allows innovation projects to draw on more information sources". In contrast, Dutta et al (2004) found that the separation of these two functions does not affect the R&D intensity of firms.

Based on these mitigated results, we adopt the idea that the separation of functions negatively influences the level of firm's innovation activities. This idea generated from the cognitive arguments that we have adopted in this paper. The additional information that leaders can make available for the management team reduces uncertainty substantively. Similarly, the knowledge that the managers use to interpret information reduces the procedural uncertainty. However, in the case of function separation, the chairman of the board, who is not involved in the operations of the corporation, is unable to manage the risk of uncertainty that relates to the development of innovation projects. Similarly, the specificity of these projects makes the possession of knowledge an asset to improve the quality of decisions. In this sense, the leader who assumes the two functions can enhance growth prospects of the firms by employing information and knowledge; elements which are based on innovation strategies. Therefore, the success of the firm becomes a reflection of the competence of the CEO (Davis and Donaldson, 1997). This leads us to the logical proofs of the resource dependence theory (Pfeffer, 1981). According to this last theory, the power is allocated to the actors who bring resources essential to the operation of the organization and which are not easily replaceable. Thus, the firm will be defined as an entity of accumulation of knowledge and a specific nexus of investment guided by the leaders' vision. The concept of managerial discretion, however, exceeds the single opportunistic dimension which is an essential component of transaction costs theory. Davis and Donaldson (1997) argue that especially leaders need to have a margin of freedom to bring in all their intrinsic motivation that allows them to make effective decisions especially in innovation.

In the same way, the specific investments are not considered as tools to entrenchment, but as means of preserving the specific managerial capital to align the interests of executives with those of the shareholders (Castanier and Helfat, 1992). The CEO could thus develop a network of relations favorable to enhance their prestige and reputation (Geletanycz et al, 2001). The combination of functions is not a source of danger and mistrust, but it is a way to align the cognitive and mental schema to solve problems projects of investment in innovation since the leader is seen as a potential contributor of knowledge and cognitive resources. Thus, the separation of functions is a source of conflict of interests which takes mental and cognitive dimensions. Based on these developments, we can suppose the following hypothesis.

Hypothesis 2 (H2): The duality of the functions of CEO and chairman of the board influences the innovation level of the firm positively.

2.3. Board of directors' size and innovation activities

From a cognitive perspective, the board is regarded not only as a mechanism which minimizes the agency costs but also a mechanism for learning and increasing the allocation of resources of the firm (Lazonick and O'Sullivan, 2000 ; Boone et al, 2007).

In this context, firms need to pursue innovation strategies which are brought to involve the holders of knowledge in the process of decision making. Hence, a large board is a necessary factor to support investments in the R&D and consequently all the innovation activities, since it is more difficult for a CEO to dominate and have a wide diversity of expertise which helps him to make better decisions (Zahra and Stanton, 1988). However, Boone et al. (2007) show that a large board of directors is negatively correlated with investment in the R&D. While Zahra et al. (2000) suggest that the average size of the board is better to support innovation. Therefore a limited size of the board seems inadequate to control the strategic leaders in investment in R & D.

Accordingly, a limited size of the board seems inadequate to control the strategic leadership in investment in the R&D. A large board of directors requires a high probability to obtain skilled managers having specialized scientific knowledge and providing new opportunities for growth (Carter et al, 2003). Daellenbach et al (1999) show that the top management team is positively related to a higher level of intensity in the R&D. Besides, Letendre (2004) specifies that the knowledge and experience of directors are key attributors to good boards.

The board of directors usually acts according to the knowledge and experience of its members. Westphal and Fredrickson (2001) suggest that the board members can use their personal experience as reference marks when they formulate and evaluate strategic solutions. By observing many boards involving members with a little expertise in industry or finance, Pound (1995) concluded that they can not support strategic decisions effectively.

Therefore a large board allows the corporation to have the necessary skills to help it find new growth opportunities and consequently promote investment in innovation.

Wu (2008) shows that firms which are efficient in their R&D efforts, have a large size board of directors. In the Tunisia context, Omri and Mehri (2003) concluded, in a study while covered 43 listed companies over a period of six years (1995 – 2000), that a large number of administrators can benefit to the firm knowledge, specific expertise, and an expanded network of contacts which may be responsible for identifying profitable investment for the firm. Thus, many administrators possessing specific knowledge are the cause of the diversity required to support complex and risky strategies. This allows the firm to have an easier access to the expertise needed in developing the innovation strategies. Based on these developments we can seek the following hypothesis.

Hypothesis 3 (H3): A large size of the board of directors influences the innovation level of firm positively.

2.4. Managerial compensation system and innovation activities

From a cognitive perspective, the role of the board directors is expanding with the construction of the strategic vision and its implementation. It can help the leader identify or build opportunities for growth, expand his strategic vision by comparing the cognitive pattern. A good compensation system is that allows a correct valuation of the expertise brought by the leader in building opportunities for long term growth for the future of the firm.

Miller et al (2002) recommend that firms operating in an uncertain environment should design a compensation system for the leader based on performance. The empirical literature in corporate governance devoted to innovation through the remuneration policy and the incentive managers have some differences. In this respect, the alignment of interests is done to promote the projects of investment in innovation. Holthausen et al. (1995) find that the relationship between innovation and compensation system based on long term is significantly positive. A strong relationship can be observed between the performance of the firm and the leadership remuneration (Hall and Liebman, 1998), but it isn't significant, according to the results found by Eng and Shackell (2001).

Thus, the leader who has the ability and experience required is able to maintain the growth and the survival of the firm to increase its value. Zahra (1996) stipulates that the remuneration systems based on the short term could discourage managers from pursuing the innovation strategies. The question is to know what the motivation for owners to index executive compensation based on achievement of long term objectives. In this sense, the leaders are seen as a source of value creation under the terms of its expertise and its knowledge in the development of specific projects. It would be advantageous for the firm to protect its human capital by the compensation system based on long term goals. Hence, the remuneration system based on specific skills that the leader could bring to the firm could develop these skills. He is a provider of skills and knowledge. This could be reflected positively in the development of the innovation activities conducted by the firm. The value of the contribution of cognitive leadership is, then determined by the type of the compensation system ratified by the board of directors.

A related hypothesis can therefore be formulated as follows:

Hypothesis 4 (H4): The compensation system of the firm based on long term goals influences the innovation level of the firm positively.

2.5. Control Variables

The size of the firm, the sector and the listing of the firms on the stock exchange have been included to control the relationship between the board of directors and innovation. A number of authors have suggested that these variables might influence the innovation level of the firm (e.g., Wu, 2008).

3. Research design

3.1. Model and variables measurements

To test our hypotheses about the relationship between the board characteristics and the innovation level of firm, we propose the following model:

$$\text{INVTIND}_i = \beta_0 + \beta_1 \text{BDINSID}_i + \beta_2 \text{DUAL}_i + \beta_3 \text{BDSIZE}_i + \beta_4 \text{MCSYT}_i + \beta_5 \text{LOGTA}_i + \beta_6 \text{SECT}_i + \beta_7 \text{LIST}_i + \varepsilon_i$$

Where:

INVTIND : Dependent variable.

BDINSID, **DUAL**, **BDSIZE** and **MCSYT** : Independent variables.

LOGTA, **SECT**, and **LIST**: Control variables.

$\beta_0, \beta_1, \dots, \beta_7$: parameters to be estimated.

ε_i : the random error.

i: 1.....95 firms

The following table 1 summarizes variables measurements of this study.

Table 1. Summarizes variables measurements

Variables	Code	Definition
Innovation index	INVTIND	The Innov-index refers to all the innovations in the firm: the leaders were requested to determine the influence of the board of directors in the implementation of the innovation activities.
Percent Inside Directors	BDINSID	Percent Inside Directors shows the percentage of the board members who are employees in the firm.
Duality of CEO and board chair	DUAL	Duality is a dummy variable equal to one if the CEO is also the current chairman of the board of directors, and "0" otherwise.
Board size	BDSIZE	Log (Number Directors) is the number of directors in the board in the previous period.
Managerial compensation system	MCSYT	Binary variable that takes 1 if the compensation system is based on long term goals and 0 otherwise.
Firm size	LOGTA	Firm size is measured as the natural log of the total assets.
Sector	SECT	Binary variable that takes value 1 if the firm belongs to a high-tech sector and 0 if the firm belongs to a traditional sector.
Listed firms	LIST	Binary variable that takes value 1 if the firm is listed on the stock exchange of Tunis and 0 otherwise.

3.2. Sample and Data Collection

Our attention was focused on the problem of the corporate governance system in the promotion of the innovation activities. The popular choice was guided by a criterion essential to know that the legal criterion. It follows that the first criterion of our choice of the population is the limited firm.

Taking into account the diversity of the variables we need in our research, we collected our variables from several sources. Certain information is obtained through a survey administered to the companies in question. Additional information about our sample was collected manually from the following sources of information:

- The financial statements published in the official bulletins of the Stock Exchange of Tunis (SET).
- Reports of companies available to the council of the financial market.

Our sample contains a total of 95, non financial Tunisian anonymous firms, among of which 17 are listed on the Stock Exchange of Tunis while 78 are not. The firms in question were interviewed over a period of three years from 2004 to 2006. The choice of this period is based on the recommendations of the Oslo manual of the OECD (1997) and the empirical studies on the subject in different contexts (Flor and Oltra, 2004; Wu, 2008).

In our study we are interested only in the manufacturing firms. Table 2 presents the firms of the sample and their sectoral affiliations.

Table 2. Distribution of firms in the overall sample

Sector	Number of firms
Agro-alimentary	30
Chemicals	8

Mechanical and Metal	10
Textiles and clothing	12
Electrical and electronic material	15
Constructional material, pottery and glass industry	9
Information technology and communication	11
Total number of firms	95

4. Empirical results and discussion

Statistical Package for the Social Sciences (SPSS) version 11.0 was used to analyze the collected data. Multiple linear regressions were used to determine the important predictors. The relationship between the board characteristics and the innovation level of the firm is tested using the multiple linear regression model.

Table 1 presents the coefficients correlation between the various explanatory variables used in this model. The results presented in this table show that there is not any coefficient which exceeds the 0.7 level as the limit traced by Kervin (1992).

Table 3. Correlation Coefficient

<i>variables</i>	<i>BDINSD</i>	<i>DUAL</i>	<i>BDSIZE</i>	<i>INCSYT</i>	<i>LOGTA</i>	<i>SECT</i>	<i>LIST</i>
<i>BDINSD</i>	1						
<i>DUAL</i>	0.060	1					
<i>BDSIZE</i>	0.015	0.227	1				
<i>INCSYT</i>	-0.027	-0.049	0.006	1			
<i>LOGTA</i>	0.097	0.034	0.182	0.086	1		
<i>SECT</i>	-0.032	0.098	0.122	0.017	0.118	1	
<i>LIST</i>	0.033	0.026	0.092	0.477	0.179	-0.124	1

The intercorrelations for all the explanatory variables are examined using the Variance Inflation Factors (VIF). The VIF analysis reveals no sign of multicollinearity, and the VIF values of all the independent variables range between 1.037 and 1.436; far below the acceptable upper bound of 10. The variance inflation factor (VIF) is reported for each regression to demonstrate the stability of the model.

Both tests suggest that the regression estimates are not degraded by the presence of multicollinearity. Furthermore, the regression estimates consistently yield a Durbin-Watson statistic. This statistic is equal to 0.818, which indicates that the autocorrelation is not a problem.

The empirical results show that 32 % of variation in the innovation level is explained by variables related to the board characteristics and the control variables. Fisher's statistics (F) is equal to (5.979) and confirms the good quality of the model at a significance level less than 1%. Thus the explanatory power of the model is satisfactory since the value of F is significant at the 1%. In this sense, we reject the null hypothesis and state that the regression is significant as a whole.

We can conclude that the model is statistically significant and explains the studied phenomenon. Concerning the significance of the independent variables, we can see three variables statistically significant. Regarding the control variables introduced in the model, the results show that these variables are not statistically significant.

Table 4 below shows beta coefficients, t Student and significance, and a variance inflation factor of this model.

Table 4. Results of multiple linear regressions model

Variables	Coefficients <i>b</i>	<i>t</i> - Student	Significance	VIF
<i>C</i>	1.456	3.082	0.003***	
<i>BDINSD</i>	0.084	4.174	0.000***	1.037
<i>DUAL</i>	0.227	3.145	0.002***	1.091
<i>BDSIZE</i>	-0.996	-2.507	0.014**	1.111
<i>INCSYT</i>	0.027	1.471	0.145	1.436
<i>LOGTA</i>	0.040	0.547	0.586	1.163
<i>SECT</i>	0.080	1.123	0.265	1.058
<i>LIST</i>	-0.040	-0.044	0.658	1.253
<i>Model statistics</i>	<i>F</i> = 5.979 (<i>p</i> = 0.000) <i>R</i> ² = 0.325, <i>R</i> ² adj = 0.27 <i>D-W</i> =0.818			

*** : Significant level 1%; ** : Significant level 5%; * : Significant level 10%

4.1. Analysis of the impact of the inside directors on the board on the level of innovation (H 1)

The results of the model show that the rate of the inside directors in board has a positive and significant effect on the level of innovation ($\beta = 0.084$, $t = 4.174$, $p = 0.000$).

Therefore the first hypothesis (H1) is confirmed in this study. This corroborates the results found by Wu (2008).

In this context, our empirical results show that the inside directors in the board contribute to the shareholders' interests by using information, expertise and other cognitive resources in developing innovation. The inside directors are interested in developing the innovation strategies by putting forward their technical and specific information. Besides, in this new economy, scientific knowledge plays a crucial role in business and emerges as a main force in developing the technological assets of the corporation.

Some studies have described practices, such as the proposed managerial stock options, as a means to integrate the providers of resources or expertise in the organization for a long period. From a cognitive perspective of corporate governance, a high percentage of inside directors in the board of directors is positively correlated with the level of innovation. Indeed, Zahra (1996) shows that directors are more oriented to projects that have a potential to generate positive returns in the long term. Similarly, Godard (1996) has found that more firms invest in the R&D unless the board is composed of outside directors.

Therefore, these results seem inconsistent with the postulates agency theory attributed to the role of the various outsider members of the board as guards of the interests of shareholders (Jensen and Meckling, 1976).

In addition, Baysinger and Hoskisson (1990) show that the inside directors engage in the strategies because they have better access to information and knowledge about the decision making process while the outside directors have a financial control. It appears that the cognitive logic is opposed to the financial one. Therefore, firms that have boards dominated by inside directors are more innovative. In these firms the value creation is no longer limited to the minimization of agency and transaction costs but rather based on the valuation of the innovation activities. Thus, the main effort for most innovation is to attach a great importance to the most qualified and most competent. As a result, the director is regarded as a provider of resources and skills rather than of concepts such as egoism and opportunism. The integration of inside members in the board allows the firm to derive benefits and advantages to continually launch the innovation projects.

In addition, the knowledge-based theory has challenged the agency theory assumption that the presence of outside directors on the board is a necessary condition for a sustainable value creation in the firm. Indeed, the agency theory was based on the control of leaders ignoring the ability of employees and the leader of the firm to innovate and create a cognitive capital (Charreaux, 2002).

The company's employees, especially those who have specific knowledge, are more informed regarding the issues and problems of the firm since their dependence on the leaders facilitates the acquisition of information. Thus, the participation of the inside members in the board allows it to receive information unfiltered by the leader.

The empirical results achieved validate this hypothesis and demonstrate the cognitive contribution of the inside members in the board. This could be interpreted by the importance of experience and

knowledge brought by the directors to conduct effective innovation policies in the firm. Similarly, experienced administrators could easily build relationships with highly skilled resource holders needing the requirements of innovation. These results corroborate the results found by Wu (2008). Many skills are needed in the functioning of the board while enables it to monitor and ensure a policy of innovation. Therefore, the human capital available to the board members could better address the complexity of innovation strategies (Wang et al, 2008).

4.2. Analysis of Duality of CEO and board chair on the level of innovation (H 2)

The results of this model show that the duality of the CEO and the board chair has a positive and a significant effect on the level of innovation ($\beta = 0.227$, $t = 3.145$, $p = 0.002$). Therefore the second hypothesis (H2) is confirmed in this study. This corroborates the results found by Dutta et al (2004) who found that the separation of functions of the CEO and the board chair does not facilitate the firm's commitment to the R&D activities and therefore innovation.

Similarly, this duality of functions allows the firm to benefit from time and the tacit knowledge acquired by the inside directors. Therefore, this duality is not considered dangerous in the Tunisian context. On the contrary it encourages innovation. In this way, an executive director who is also the chairman of the board has an easy access to information and therefore can better coordinate the innovation activities.

Based on the cognitive theory of corporate governance, several recent studies (Belkhir, 2004; Adams and Mehran, 2005) emphasize the benefits following the adoption of duality manifested in the increased knowledge of the environment of the greater firm and greater competence on the part of the leader regarding the development of the firms' internal projects.

Another explanation could be provided. Indeed, the combination of these two functions allows the firm to save time and resources particularly in the context of the innovation development. Similarly, the characteristics of innovation projects, which are translated into uncertain future value, require the convergence of visions and objectives. Separating these two functions could cause problems of coordination and vision and therefore a high probability of failure of these projects. This also allows us to convey the need for an alignment of the mental and cognitive patterns of the decision makers.

4.3. Analysis of the impact of the size of the board on the level of innovation (H 3)

A large size of the board has a negative and significant effect on the level of innovation ($\beta = -0.996$, $t = -2.507$, $p = 0.014$). Based on these results, this hypothesis (H3) is not confirmed. In the context of Tunisia, a large board size has a negative impact on the innovation activities.

The absence of a positive relationship between these two variables could be explained by the fact that the majority of the Tunisian firms in this sample have boards of medium size. Thus, the results found in this study comply, in some way, with those found by Boone et al (2007) suggesting that the board of director's size is negatively correlated with the level of the R&D and thus innovation.

Similarly our results do not support the conclusions of Mehri and Omri (2003), following a study of 43 firms listed on the stock of exchange over a period of six years between 1995 and 2000, who found that a high number of administrators could benefit the business knowledge and expertise and an expanded network of contacts which may be responsible for identifying profitable investment for the firm.

4.4. Analysis of the impact of managerial compensation system of the firm on the level of innovation (H 4)

The statistical results show that the managerial compensation system of the firm has a positive and non significant effect on the level of innovation ($\beta = 0.027$, $t = 1.471$, $p = 0.145$). However, the managerial compensation system of the firm is not significantly related to the innovation level. Consequently, hypothesis (H4) is not supported. This shows that the short term objectives to be reached dominate the long-term objectives.

Hence, the firms of the sample tend to focus on elements that affect short-term profitability to the detriment of long term goals. This goes against the assumptions of the current cognitive governance. In this sense, the functions of the board have a new evidence based on the human capital. The remuneration of the CEO by stock options is not necessarily explained by the objective of aligning its interests with those of the shareholders, as was postulated by the contractual approach to governance, but rather by the encouraging the competent members of the firm to bring new innovative sources of value to the corporation. However, the empirical results found that the Tunisian firms do not give great importance to the managerial compensation system for executives.

5. Conclusion

In this article we have examined the impact of the characteristics of the board of directors in innovation activities. Taking a cognitive perspective, we argue that the board characteristics have an impact on corporate innovation activities in the Tunisian manufacturing firms. Specifically, the results show that the relationship between innovation activities and both variables (percent inside directors in the board and duality of the CEO and the board chair) is significantly positive. This result indicates the importance of the cognitive contribution of the inside administrator in the board in the development of innovation.

Concerning the size of the board, the statistical results show that a big size acts negatively on the development of innovation. This could be explained by the fact that the majority of the Tunisian firms have small sized board. In the same way the empirical results show that the compensation system, which is based on long term objectives, is non significant in the determination of innovation in the Tunisian firms. Finally, the statistical tests show that the variables of control retained in this study (size, sector and listing of the firm on the stock exchange) don't have any impact on the level of innovation. As a result, the potential of innovation of the firms is independent of these control variables.

This study has also some limitations. One limit is a try due to the size of a sample which is relatively reduced. More explicitly, the generalization of the results of this study is not possible. Moreover, because of the difficulty of measuring the capacity of innovation of the firms, we rely only on the declarations of the leaders.

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WHAT EFFECT DOES CEO POWER AND GOVERNANCE HAVE OVER ACQUISITIONS?

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Abstract

We examine whether governance and CEO power matter for acquisitions. Acquisitions are frequently beneficial to the CEO of the acquiring firm, but can often be value-destructive to acquirer shareholders and other stakeholders such as employees. We find that corporate governance does not appear to influence whether a firm will become an acquirer after controlling for CEO power, but superior governance is associated with greater relatedness between the target and acquirer. We also find that the effect of CEO power on a firm's acquisition activity varies according to the source of that power. Our results suggest that the relationships between governance, CEO power, and acquisition activity are complex.

Keywords: Corporate Governance, Acquisitions, Diversification, CEO Power

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1. Introduction

We examine the effect of both CEO power and governance on a firm's acquisition activity. Acquisitions may be pursued by CEOs because they provide personal benefits, such as an increased salary; however, they are often value-destructive to firm shareholders. A recent survey of executives finds that mergers and acquisitions are a major priority in their short term horizon (Krell, 2006). Even executives whose positions are eliminated receive hefty severance packages, such as Gillette's James Kilts who received a \$163 million package (Thornton *et al.*, 2005). Furthermore, some research suggests that more diversifying acquisitions provide additional benefits to the CEO, such as decreased sensitivity of their compensation schemes to firm performance (Anderson *et al.*, 2000).

Acquisitions are a significant feature of the corporate landscape, and the most recent acquisition wave studied in the finance literature (from 1998 to 2001) appears to have resulted in the loss of about \$240 billion dollars for U.S. shareholders (Moeller *et al.*, 2005). The AOL-Time Warner merger alone has cost shareholders more than \$200 billion. One study found that "post" diversified firms decreased shareholder value by approximately 13 – 15 percent (Berger and Ofek, 1995). Thus, the effect of CEO power and governance on acquisition activity is an important question associated with billions of investment dollars.

Prior work on governance did not explicitly control for the CEO's power. We define power as the capacity to assert one's will; when applied to CEOs, power is the ability to exert one's will over the strategic direction of the firm (Finkelstein, 1992). Power allows a powerful CEO to take a firm in bold new directions that improve shareholder value (e.g., Steve Jobs at Apple), or conversely can reduce firm value while maximizing personal utility (e.g., Dennis Kozlowski at Tyco). Strong corporate governance mechanisms can serve as a check against CEO power; ideally, strong firm governance should mitigate the negative effects of CEO power. We examine the relationship between various measures of governance and CEO power on (1) whether the firm will pursue one or more acquisitions in a given year, and (2) the level of relatedness between the acquirer and target.

We find that our governance measures are strongly associated with the level of relatedness between the acquirer and target, where relatedness is defined using the firms' industry classifications. Our

measures of CEO power do not uniformly suggest a greater likelihood of an acquisition or suggest a more or less related acquisition; rather, the source of CEO power is a critical factor in determining the effect of that power on a firm's acquisition activity. CEO power is not a unified construct when it comes to acquisitions.

The remainder of the paper is organized as follows. Section 2 reviews related research and develops our hypotheses, and section 3 describes the sample and provides descriptive statistics. Section 4 reports our empirical findings, and section 5 summarizes and concludes the paper.

2. Review of Related Research and Hypothesis Development

2.1 CEO Benefits from Acquisitions

Acquisitions have been the subject of numerous studies focusing primarily on returns (see Agrawal and Jaffe, 2000, for reviews), and although initiating and overseeing acquisitions are primarily the CEO's responsibilities (Lehn and Zhao, 2006), comparatively little attention has been paid to the role that governance and CEO power plays in the acquisition activity of the firm.

Acquisitions are often value-destructive to acquirer shareholders (Morck *et al.*, 1990; Moeller *et al.*, 2005; Oler, 2008), but can provide significant benefits to the acquirer's CEO. For example, acquisitions increase the firm's size, and this in turn can decrease the CEO's employment risk and increase his personal compensation (Morck *et al.*, 1990). Diversifying acquisitions can be personally more beneficial to CEOs than nondiversifying acquisitions. Rose and Shepard (1997) show that the CEO's compensation is 13% higher in diversified firms vs. non-diversified firms. However, diversifying acquisitions may be more value-destructive to shareholders. Highly diverse firms operate in multiple markets, which increase the complexity of the firm's operations. This complexity decreases the firm's transparency of transactions within the firm's business units, and can provide top executives with an opportunity to engage in self-serving decisions with less risk of detection by shareholders. Unrelated acquisitions, i.e., acquisitions where the target is completely outside the traditional industry of the acquirer, often have negative outcomes (see Gaughn, 111; Berger and Ofek, 1995).

2.2 Corporate Governance

Corporate governance should help companies to control agency costs, including discouraging unhealthy acquisitions. We consider three measures of governance: the size of the board, the proportion of outside directors on the board, and the firm's general governance proxied by Bebchuk *et al.*'s (2004) E-score. The E-score consists of six corporate governance provisions related to executive entrenchment. These provisions include staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments.

The board oversees the strategic decisions of the firm, and can therefore act as a significant counterbalance to the CEO. Strong boards can be important in aligning the interests of the CEO with the shareholders. We operationalize board power as the number of board members and the proportion of independent board members (Sahlman, 1990).

Overall, we expect that relatively stronger corporate governance, proxied by the E score, the size of the board, and the proportion of independent directors, will result in less likelihood of an acquisition in a given year:

H1: The likelihood of a firm announcing at least one acquisition in a given year is decreasing in corporate governance strength.

In addition, because diversifying acquisitions are often viewed as more value-destructive than related acquisitions, we also expect to find that stronger governance is associated with reduced likelihood that a given acquisition will be unrelated (and greater likelihood that a given acquisition will be semi-related or related).

H2: Acquirers with stronger corporate governance are more likely to pursue a related or semi-related acquisition, and less likely to pursue an unrelated acquisition.

2.3 CEO power

Although board members approve acquisitions, the CEO usually initiates them and oversees their progress (Lehn and Zhao, 2006). Accordingly, acquisitions are more likely to be pursued by more powerful CEOs because more powerful CEOs are better able to overcome resistance from other sources, such as stronger corporate governance (Adams *et al.*, 2005). Therefore, acquisitions should be associated with CEO power.

Finkelstein (1992) provides a conceptual framework on how executive power can influence strategic outcomes. He defines power as the ability of individuals to exert their will in corporate decision-making and groups these types of CEO power into more fine-grained categories: expert power, prestige power, structural power and ownership power.

We argue that these forms of power will not be unidirectional in terms of the acquisitions that a firm pursues. Research by Chen *et al.* (2008) and Adams *et al.* (2005) indicates that more powerful CEOs are better able to implement their decisions without scrutiny than weaker CEOs; this can have a positive effect if the CEO makes good decisions, but a negative effect if the CEO makes poor decisions. Their work suggests that CEO power might not have a uniform effect on a firm's acquisition activity.

2.3.1 CEO Expert Power: CEO Tenure and Prior Functional Experience

Expert power encompasses the abilities necessary for success in the firm, and CEO tenure is one form of expert power. Longer tenure as CEO increases the likelihood of developing important relationships with key strategic decision makers. Also, because CEOs can be terminated because of poor strategic decisions (e.g., Lehn and Zhao, 2006), longer tenure may indicate greater competence and skill. While CEOs holding more functional positions within the firm before becoming CEO will have more firm-specific knowledge of the firm's operations and more contacts within the firm.

2.3.2 CEO Prestige Power: Elite Education and Other Directorships

Prestige power is based on the reputation of the CEO (Finkelstein, 1992). Elite education and other corporate directorships are both important forms of prestige power. Elite education provides individuals with valuable knowledge gained through their interaction with elite individuals and institutions (D'Aveni and Kesner, 1993). The reputation acquired through elite educational institutions is another source of prestige power.

Other board directorship appointments also lead to valuable experiences and knowledge, and increase the prestige of the CEO. Directorships give the CEO access to important external information (Pennings, 1980), contacts with other influential and important business elite (Useem, 1979), and ultimately give the CEO greater status and power within his own organization.

We predict that expert and prestige power will have a similar effect on strategic decision making. These forms of power provide the CEO with knowledge and connections that can facilitate the pursuit of acquisitions. Further, expert and prestige power are likely to not be affected by the ultimate outcome of the acquisition – even if the stockholders lose money (for example, a CEO who is powerful because he has a long tenure or because he has an elite education will retain these power sources even if the acquisition proves disappointing). We hypothesize:

H3: The likelihood of a firm announcing at least one acquisition in a given year is increasing in CEO expert and prestige power; and,

H4: The degree of relatedness between the acquirer and target is increasing in CEO expert and prestige power.

2.3.3 CEO Structural Power: Board Chair

Besides informal expert and prestige power, the CEO can have formal structural power that provides legitimate decision making authority. Legitimate power represents formal authority from the individual's position within the firm. From a CEO power perspective, an independent chairperson can serve as an important check on the CEO's power (Baliga *et al.*, 1996). Thus, the structural power of the CEO increases when a firm consolidates the CEO and chair positions.

H5: The likelihood of a firm announcing at least one acquisition in a given year is decreasing in CEO structural power; and,

H6: The degree of relatedness between the acquirer and target is increasing in CEO structural power.

2.3.4 CEO Ownership Power: Shares Owned and Founder of Firm

Greater ownership in the firm's voting stock can affect CEO power in at least two ways. First, ownership gives the CEO increased legitimate power to influence management's decisions (Riahi-Belkaoui and Pavlik, 1993). With this legitimate power, the CEO can also influence the selection of board directors (Fredrickson *et al.*, 1988). Second, Shen and Cannella (2002) argue that ownership enhances the CEO image as a loyal employee that will seek the best interests of the firm, thus increasing the CEO's credibility. Pitcher *et al.* (2000) show that CEOs who have high ownership power are able to insulate themselves from unexpected or involuntary turnover.

H7: The likelihood of a firm announcing at least one acquisition in a given year is decreasing in CEO ownership power; and,

H8: The degree of relatedness between the acquirer and target is increasing in CEO ownership power.

3. Data and methodology

3.1 Sample

To build our sample, we randomly select 300 companies from the Fortune 1000 as of 2004 and collect CEO power, governance, and acquisitions data for the years 1998 to 2004. We eliminate firm-year observations without sufficient data, and therefore our likelihood of an acquisition sample has 271 firms and 1,639 firm-year observations and our level of diversification sample consists of 1,954 acquisitions, as shown in Table 1, Panels A and B.

3.2 Measurement of variables

3.2.1 Governance Variables

We measure the size of the board (*BOARD*) and the proportion of the board made up of outside directors (*OUTSIDE_DIRECTORS*). We also use Bebchuk *et al.*'s (2004) "E" score as another measure of overall governance strength, transformed to be increasing in shareholder rights (and decreasing in CEO power) by taking 6 less the original E score.

3.2.2 Proxies for CEO Power

Expert power – We use two measures of expert power: the CEO's tenure as CEO (Combs and Skill, 2003), calculated as the natural log of the years the CEO has held his position (*CEO_TENURE*), and number of positions (*NUM_POSITIONS*) held prior to becoming a CEO (Finkelstein, 1992).

Prestige Power – We use two measures to estimate prestige power: elite education and corporate directorships. We define an elite education variable as 0 if the CEO had no degree from an elite institution and 1 if the CEO had an undergraduate and/or graduate degree from an elite institution (*ELITE*). We measure corporate directorships as the natural log of the number of for-profit boards (*OTHERBOARDS*) on which the CEO serves.

Structural Power – Structural power is based on whether the CEO is also the board chair. Our measure (*CHAIR*) is operationalized as 1 if the CEO also holds the position of chairperson of the board, and zero otherwise.

Ownership power – Two items are used to measure ownership power. Share ownership (*SHOWN*) is measured as the percentage of the firm's outstanding shares held by the CEO. We set a dummy (*FOUNDER*) to 0 if CEO is not the founder and 1 if the CEO is the founder of the firm.

3.2.3 Defining Relatedness

We define relatedness using three classifications: "related" acquisitions are those where the target and acquirer share at least the same first two digits of their primary SIC codes, "semi-related" acquisitions are those where the target and acquirer share only the first digit of their primary SIC codes and "unrelated" acquisitions are those where the target and acquirer do not share even the first digit of their primary SIC codes.

3.2.4 Other Control Variables

Following Harford (1999), we control for momentum (*MOMENTUM*), proxied by size-adjusted buy-and-hold returns over the prior year, sales growth (*SALESGROWTH*), leverage (*LEVERAGE*), book-to-market (*BTM*), size (*SIZE*), and cash level (*CASHLEV*) in our models. To ensure that our results for CEO tenure are not attributable to older, more established firms buying up younger firms, we control for the firm's age (*FIRMAGE*). Finally, we control for the pre-acquisition level of diversification of the company (*TOTAL_DIV*) following Palepu (1985).

4. Analysis and Results

4.1 Likelihood of an Acquisition

We present descriptive statistics for our variables in Panel C of Table 1. At first glance, it appears that stronger governance is associated with *greater* likelihood of a firm becoming an acquirer (mean E for acquirers is 3.7, vs. 3.5 for non-acquirers, $p < 0.01$). This is contrary to our hypothesized relationship, but it is not possible to draw strong conclusions here because we have not controlled for other factors. With

respect to our CEO power measures, there is little relationship between our CEO power measures and the likelihood of a firm making an acquisition announcement. The one exception is shares owned by the CEO (*SHROWN*), which is significantly lower for acquirers (consistent with our expectations in H7).

Our univariate results suggest that acquirers have higher momentum and sales growth than non-acquirers. Acquirers are also larger than non-acquirers, and have higher cash levels (consistent with Harford, 1999). We also find that acquirers have lower leverage and lower book-to-market ratios, suggesting that acquirers are more likely to be less financially constrained and are more likely to be glamour firms. However, these univariate results may not hold in a multivariate setting.

We test H1, H3, and H5 using a logistic regression shown in Table 2. The dependent variable, *ACQUIRER*, equals one when the firm announces at least one acquisition during the year (whether or not it is ultimately consummated), and zero otherwise. Our regression includes year and industry dummies which are not tabulated. With respect to corporate governance, we do not find any significant relationship between governance (proxied by *BOARD*, *OUTSIDE_DIRECTORS*, and *E*) and the likelihood of an acquisition announcement, so H1 is not supported.

The likelihood of an acquisition increases with CEO tenure, supporting H3, but decreases with the number of positions within the firm held previously by the CEO. Thus, one of our proxies for expert power loads significantly with the expected coefficient sign, but the other loads marginally with the opposite sign. Having an elite education does not appear to have any effect on acquisitions, and interestingly *OTHERBOARDS* loads with a significantly negative coefficient. These results suggest that the more positions the CEO holds on the boards of other firms, the less likely the CEO will pursue an acquisition.

Turning to H5, *CHAIR* (our proxy for structural power), is marginally significant, suggesting that a firm where the CEO is also the board chair is less likely to become an acquirer (after controlling for other factors). *SHROWN* loads significantly negatively, with the expected sign, supporting H7; a firm where the CEO owns more of the company's stock is less likely to become an acquirer. However, *FOUNDER* is not significant.

These results suggest that the source of CEO power plays an important role in determining the likelihood of an acquisition, and that the relationship is complex. A CEO with longer tenure is more likely to undertake an acquisition, as expected, but if that CEO is more familiar with the pre-acquisition operations of the firm (proxied by the number of positions held prior to becoming CEO), has stronger relationships with other firms through other board seats, is the board chair, or has more personal wealth at risk, then the CEO is less likely to "rock the boat" by undertaking an acquisition.

4.2 Relatedness between Acquirer and Target

Table 3 reports our findings for relatedness. We consider 938 related acquisitions (based on the first 2-digits of the SIC codes), 354 semi-related acquisitions (1-digit), and 662 unrelated acquisitions in our dataset. We test H2, H4, H6, and H8 with a logistic regression using dummy variables for related, semi-related, or unrelated acquisitions.

We include the same control variables as those in Table 2, and add three more controls to pick up other aspects of the proposed acquisition. Specifically, we add a dummy *STOCK* that is set to one if the acquirer offers his own voting stock as consideration to target shareholders (and zero otherwise). We set a dummy *HOSTILE* to one if the acquisition was resisted by target managers, and we set *PUBLIC* to one if the target firm is publicly traded.

A comparison of estimated coefficients between our regressions suggests that there are significant differences in the factors that explain the relatedness of the acquirer and target. Specifically, a larger board is marginally more likely to pursue a related acquisition, but less likely to pursue a semi-related acquisition. In contrast, a board with more outside directors is less likely to pursue a related acquisition but more likely to pursue a semi-related acquisition, perhaps because an outside director is more likely to add greater familiarity with other industries that are still somewhat related to the firm. Overall corporate governance strength, proxied by *E*, is positively associated with related and semi-related acquisitions, and negatively associated with unrelated acquisitions, supporting H2. Stronger corporate governance appears to be effective in reducing the ability of a CEO to pursue an acquisition that is more likely to be value-destructive.

An acquisition is marginally less likely to be related if the CEO has longer tenure, but the relationship between CEO tenure and a semi-related or unrelated acquisition is not significant. This implies that a CEO with longer tenure is less likely to pursue a related acquisition. A CEO with an elite education is marginally less likely to pursue a related acquisition and significantly more likely to pursue an unrelated acquisition, partially supporting H4.

CEOs who are also board chairs are marginally more likely to pursue a related acquisition, significantly less likely to pursue a semi-related acquisition, but marginally more likely to pursue an unrelated acquisition. These confusing results do not support H6. The likelihood of a semi-related acquisition is marginally higher in CEO stock ownership and a CEO who is also the firm founder is more likely to pursue a related acquisition. These results partially support H8.

If the target is also publicly traded, the acquisition is more likely to be related and less likely to be unrelated. Firms that are already highly diversified are marginally less likely to pursue a related acquisition, more likely to pursue a semi-related acquisition, but less likely to pursue an unrelated acquisition.

4.3 Additional analysis

As additional analysis, we look at the market response to acquisitions announcements based on the market-adjusted (using CRSP's equal-weighted market return) cumulative acquirer return from day -5 to day +5 relative to the announcement. Our results (not shown) suggest that the market appears to value CEO experience positively in acquisitions. If the CEO is also the founder, the market response is significantly lower, suggesting that the market may prefer a founding CEO to "stick to the knitting" (i.e., what he presumably knows best), rather than acquire other firms. Consistent with Moeller *et al.* (2004), the announcement of the acquisition of a public target firm elicits a significantly lower market response than that for a private target.

5. Conclusions

We investigate the relationship between various measures of corporate governance, CEO power, and acquisitions. We show that our measures of governance do not appear to affect whether a firm undertakes an acquisition, but that stronger governance (as proxied by a higher "E" score) are associated with a greater likelihood of a related or semi-related acquisition and with reduced likelihood of an unrelated acquisition. These results are consistent with governance restricting the CEO from pursuing an acquisition that is more likely to be value-destructive (Gaughn, 2002).

Our results vary considerably depending on the source of CEO power: the likelihood of an acquisition is increasing in CEO tenure, but decreasing in the number of positions the CEO held prior to his appointment. CEOs who have gained a wider perspective of the firm from past positions such as vice president of operations and marketing may not want to risk changing the firm's operations (and, by so doing, render their prior experience obsolete).

Acquisitions are also less likely if the CEO sits on the boards of other firms, if the CEO is also board chair, and if the CEO holds more of the company's stock. CEOs who sit on other boards may not want an increase in workload related to an acquisition placed on their already hectic schedules. These CEOs may also prefer to form relationships with other firms through less radical means (such as sitting on their boards). CEOs with more wealth tied to firm performance likely do not wish to jeopardize that wealth by pursuing an acquisition.

With respect to the degree of relatedness between the acquirer and target, CEOs with an elite education are marginally less likely to pursue a related acquisition and significantly more likely to pursue an unrelated acquisition. Investors/boards seeking to diversify a company's holdings may want to consider a CEO educated from an elite institution.

CEOs who are also chairman of the board are marginally more likely to pursue a related acquisition, significantly less likely to pursue a semi-related acquisition, but marginally more likely to pursue an unrelated acquisition. Although these results generally support our argument that CEO duality will increase the chances of related diversification strategies, the results indicating that a CEO/chairperson will pursue unrelated diversification strategies is contrary to our argument. The relationship between the CEO/Chair combination and the relatedness of the target firm appears to be complex, and future research may help explain our results. We encourage future researchers to consider expanding on our study to include the entire top management team instead of just the CEO. We believe this might provide greater insight into the real influence a CEO has.

If the CEO is also the firm's founder, a given acquisition is significantly more likely to be related. This finding is expected as founders are often highly specialized in a specific industry and understand what it takes to succeed in that industry. Founding CEOs also would likely prefer to not delve into areas where they have reduced expertise.

Overall, our results suggest that governance matters with respect to the relatedness between the target and acquirer. Our results also suggest that the source of CEO power has a significant impact on how that power affects the firm's acquisition activity. However, the relationship between CEO power

and acquisition is complex: One cannot simply say that a more powerful CEO is more likely to pursue an acquisition, or is more likely to pursue a diversifying acquisition. Investors concerned with the potential of value-destructive acquisitions should consider the combination of governance and CEO power.

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Appendices

Table 1 - Sample Selection and Descriptive Statistics

Panel A: Likelihood of an Acquisition Sample Selection

	<u>Likelihood of an Acquisition</u>
Randomly Selected firms from Fortune 1000	300
Collected data for years 1998 to 2004	7
Total number of firm year observations	2100
Less observations missing data	461
Total number of firm years	<u>1639</u>
Number of acquisition announcement firm years	773
Number of non-acquisition announcement firm years	866
Total number of firm years	<u>1639</u>

Panel B: Likelihood of Diversification Sample Selection

	<u>Likelihood of Diverisfication</u>
Randomly selected firms from Fortune 1000	300
Less firms without an acquisition	68
Number of firms announcing an acquisition	232
Total number of acquisition announcements	<u>1954</u>
Related Acquisitions (same 2-digit SIC)	938
Semi-Related Diversifications (different 2-digit, same 1-digit SIC)	354
Unrelated Diversifications (different 1-digit SIC)	662
Total number of acquisition announcements	<u>1954</u>

Table 1 - Sample Selection and Descriptive Statistics (*Continued*)

Panel C: Descriptive Statistics

The sample consists of 1,639 firm-years (773 acquisition announcement firm-years and 866 non-acquisition announcement firm-years) from 1998-2004.

Variable	Acquirer		Non-Acquirer		<i>p</i> -value
	Mean	Std Dev	Mean	Std Dev	t-test
Governance					
BOARD	2.4490	0.2287	2.4338	0.2196	0.1707
OUTSIDE_DIRECTORS	0.7718	0.1593	0.7799	0.1693	0.3194
E	3.6843	1.3384	3.4711	1.3333	0.0013
Exper Power					
CEO_TENURE	1.6805	0.8958	1.6233	0.9201	0.2033
NUM_POSITIONS	2.5977	2.3174	2.5069	2.3232	0.4295
Prestige Power					
ELITE	0.4049	0.4912	0.4030	0.4908	0.9372
OTHERBOARDS	0.7347	0.5686	0.7495	0.5779	0.6017
Structural Power					
CHAIR	0.7361	0.4410	0.7667	0.4231	0.1515
Ownership Power					
SHROWN	0.0082	0.0268	0.0131	0.0410	0.0047
FOUNDER	0.0957	0.2944	0.0889	0.2848	0.6341
Control Variables					
MOMENTUM	0.1034	0.5209	0.0171	0.4452	0.0003
SALESGROWTH	0.1411	0.3057	0.0990	0.3107	0.0058
LEVERAGE	0.8408	1.1527	1.0024	1.4882	0.0149
BTM	0.3813	0.2678	0.5189	0.4280	<0.0001
SIZE	8.8802	1.2763	8.7048	1.2528	0.0051
CASHLEV	0.0896	0.1226	0.0783	0.1163	0.0550
FIRMAGE	3.2346	0.8003	3.2512	0.8068	0.6766
TOTAL_DIV	1.2604	0.4210	1.1505	0.4229	<0.0001

*Variable definitions are provided on pages 9 and 10.

Table 2: Results of Logistic Regression Analysis on the Likelihood of an Acquisition
The dependent variable is Acquirer; it equals 1 for firms announcing at least one acquisition during the year and 0 otherwise. The sample consists of 1,639 firm-years (773 acquisition firm-years and 866 non-acquisition firm-years) during the years 1998-2004. P-values less than 0.05 are in bold; p-values between 0.10 and 0.05 are in italics.

Variables	Hypotheses/ Predictions	Estimate	Pr > ChiSq
Governance			
<i>BOARD</i>	H1 (-)	0.338	0.267
<i>OUTSIDE_DIRECTORS</i>	H1 (-)	-0.406	0.258
<i>E</i>	H1 (-)	0.005	0.906
Expert Power			
<i>CEO_TENURE</i>	H3 (+)	0.198	0.008
<i>NUM_POSITIONS</i>	H3 (+)	-0.051	<i>0.051</i>
Prestige Power			
<i>ELITE</i>	H3 (+)	-0.117	0.331
<i>OTHERBOARDS</i>	H3 (+)	-0.221	0.035
Structural Power			
<i>CHAIR</i>	H5 (-)	-0.280	<i>0.056</i>
Owernship Power			
<i>SHROWN</i>	H7 (-)	-7.433	<0.001
<i>FOUNDER</i>	H7 (-)	0.155	0.499
Control Variables			
<i>MOMENTUM</i>		0.199	0.116
<i>SALESGROWTH</i>		0.484	0.015
<i>LEVERAGE</i>		-0.111	0.011
<i>BTM</i>		-0.921	<0.001
<i>SIZE</i>		0.383	<0.001
<i>CASHLEV</i>		-0.003	0.995
<i>FIRMAGE</i>		-0.021	0.773
<i>TOTAL_DIV</i>		0.051	0.734
<i>INTERCEPT</i>		-0.896	<0.001
		Chi-Square	Pr > ChiSq
Likelihood ratio test		252.753	<0.001
Max-Rescaled R ²			0.191
Sample Size (total firms)			1639
Acquisition Firm-years			773
Non-Acquisition Firm-years			866

*Variable definitions are provided on pages 9 and 10. Year and industry dummy variables are omitted from the table.

Table 3: Results of Logistic Regression Analysis - Related, Semi-Related, and Unrelated Acquisitions

The dependent variables are set to 1 for related (acquirer and target share the first 2 digits of their primary SIC code), semi-related (acquirer and target share only the first digit of their SIC code), and unrelated (where the acquirer and target do not share any common digits in their SIC code) acquisitions respectively. P-values of less than 0.05 are in bold; p-values between 0.10 and 0.05 are in italix.

Variables	Hypotheses/ Predictions	Related		Semi-Related		Hypotheses/ Predictions	Unrelated	
		Estimate	Pr > ChiSq	Estimate	Pr > ChiSq		Estimate	Pr > ChiSq
Governance								
BOARD	H2 (+)	0.466	0.095	-0.876	0.015	H2 (-)	0.277	0.330
OUTSIDE_DIRECTORS	H2 (+)	-0.841	0.040	1.485	0.018	H2 (-)	-0.048	0.910
E	H2 (+)	0.121	0.004	0.170	0.002	H2 (-)	-0.224	< 0.001
Expert Power								
CEO_TENURE	H4 (-)	-0.130	0.060	0.028	0.761	H4 (+)	0.094	0.190
NUM_POSITIONS	H4 (-)	0.036	0.174	-0.024	0.485	H4 (+)	-0.020	0.464
Prestige Power								
ELITE	H4 (-)	-0.187	0.094	-0.146	0.317	H4 (+)	0.295	0.011
OTHERBOARDS	H4 (-)	-0.004	0.965	0.135	0.322	H4 (+)	-0.086	0.401
Structural Power								
CHAIR	H6 (+)	0.227	0.079	-0.658	< 0.001	H6 (-)	0.252	0.066
Owemship Power								
SHROWN	H8 (+)	-2.215	0.424	5.691	0.081	H8 (-)	-0.660	0.820
FOUNDER	H8 (+)	0.466	0.025	-0.477	0.117	H8 (-)	-0.253	0.249
Control Variables								
MOMENTUM		-0.030	0.779	0.417	0.003		-0.250	0.035
SALESGROWTH		0.105	0.588	-0.170	0.499		-0.086	0.694
LEVERAGE		0.005	0.934	0.113	0.117		-0.098	0.116
BTM		0.676	0.008	-0.143	0.673		-0.782	0.007
SIZE		-0.184	0.001	0.120	0.075		0.077	0.155
CASHLEV		-1.396	0.008	2.159	0.001		0.032	0.952
FIRMAGE		0.040	0.616	0.137	0.198		-0.093	0.261
STOCK		-0.329	0.108	0.157	0.585		0.331	0.112
HOSTILE		-0.183	0.776	0.077	0.916		0.259	0.717
PUBLIC		0.480	0.002	-0.007	0.974		-0.511	0.002
TOTAL_DIV		-0.272	0.051	1.101	< 0.001		-0.348	0.017
INTERCEPT		-0.130	0.573	-0.918	0.003		-1.175	< 0.001
		Chi-Square	Pr > ChiSq	Chi-Square	Pr > ChiSq		Chi-Square	Pr > ChiSq
Likelihood ratio test		264.368	<0.001	321.280	<0.001		177.471	<0.001
Max-Rescaled R ²			0.169		0.248			0.120
Sample Size (total acquisitions)			1954		1954			1954
Related (Model 2), Semi-Related (3), and Unrelated (4)			938		354			662
Other Acquisitions			1016		1600			1292

*Variable definitions are provided on pages 9 and 10. Year and industry dummy variables are omitted from the tables.

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