

LEAD DIRECTORSHIP, CORPORATE GOVERNANCE AND FIRM
PERFORMANCE

by

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ABSTRACT

LEAD DIRECTORSHIP, CORPORATE GOVERNANCE AND FIRM PERFORMANCE

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This dissertation empirically explores the role of the lead directors in the corporate governance system and strives to empirically examine the association between the lead directorship and firm performance. I measure firm performance by three empirical proxies: Tobin's Q, returns on assets (ROA) and stock returns. I explore the research question on the relationship between lead directorship and firm performance in both cross-sectional and inter-temporal contexts. The sample consists of S & P 500 firms from 2001 to 2004 that have all the required financial, stock returns, and other relevant information. Overall, the empirical results of both cross-sectional and inter-temporal analyses indicate a positive association between lead directorship and firm performance.

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CHAPTER I

INTRODUCTION

This dissertation empirically explores the role of the lead directors in the corporate governance system and strives to answer the following questions: is there any association between the lead directorship¹ and firm performance?

1.1 Overview of the Research Question

Classical agency theory suggests that in the modern firm, shareholders provide investment capital and in return they obtain the ownership of the firm. Professional managers, however, make investment decisions on the capital provided by shareholders and virtually control the operations of the firm. Human nature determines that managers maximize their personal interests rather than those of investors (Jensen and Meckling, 1976).

Board of directors is one of the most important internal corporate governance mechanisms that monitor the management and ensure that the managers are acting in the best interests of shareholders to minimize agency cost. To minimize agency costs, board of directors represents shareholders and is charged with monitoring and advising the management, as well as executive compensation and CEO turnover decisions. Board

¹ Hereafter I use terms of lead director and presiding director interchangeably, following the convention of the business press. There is no definitive distinction between those two in the academic works or in the popular press.

independence is one of the most crucial factors that underlie the board effectiveness since the CEO tries to capture the board of directors so as to maximize the CEO's own interests (Hermalin and Weisbach, 2003). It is generally believed that the board is not truly independent of management since CEOs generally are able to influence the nominations and tenures of independent directors. One of the features in the American corporate governance system, which is constantly criticized by corporate governance researchers, is the CEO duality problem, the problem of CEO and chairman of the board chairman (the monitor of the CEO) being the same person. Another issue inherent in the American corporate governance is the free-rider problem of independent directors. Independent directors have different backgrounds, experiences and opinions on board issues. They enjoy a fraction of benefits but bear 100% costs of their efforts to monitor the management. Hence there exists a free-rider problem for independent directors, similar to the one for common shareholders (Hermalin and Weisbach, 2003).

In the era post Sarbanes-Oxley, corporate governance has received more press ever since and lead directorship is proposed by both investors and regulators as one way to solve some corporate governance problems, especially the problem of CEO duality and the free-rider problem of independent directors, and to improve board independence and corporate governance.

The revised listing requirement for firms listed in NYSE specifically mandates a presiding director for every board: "To empower non-management directors to serve as a more effective check on management, the non-management directors of each listed

company must meet at regularly scheduled executive sessions without management...A non-management director must preside over each executive session of the non-management directors...(p.39)²” The new corporate governance listing requirement went into effect on June 30, 2003 and all companies listed in NYSE will have to comply with the new standards of corporate governance before January 15, 2004 (Section 303A, Corporate Governance Rules, New York Stock Exchange, 2003). NASDAQ passed a similar proposal in October 2002 that requires “regularly convened executive session of the independent directors” without presence of management and there must be an independent director to preside at the meeting, or a presiding (lead) director in those executive sessions and that the firm must disclose properly the information on the presiding director in the proxy statement.³ The new NASDAQ corporate governance proposal became effective with a company’s first annual meeting occurring after January 1, 2004.

Designation of a lead director in the past decade, especially in recent years, has been gaining substantial popularity. In 1996, 27 percent of respondents to the Korn/Ferry International board study of Fortune 500 firms indicated that they had a lead director in their board. Spencer Stuart⁴, an executive recruiting firm, reports in its 20th Annual Spencer Stuart Director Survey that in 2005 a total of 94 percent of all S&P 500

² http://www.nyse.com/pdfs/section303A_final_rules.pdf

³ http://www.nasdaq.com/about/Corp_Gov_Summary101002.pdf

⁴ Spencer Stuart: 20th Annual Spencer Stuart Director Survey (<http://www.spencerstuart.com/about/media/34/>)

boards that responded to their survey had a lead or presiding director, compared with 85 percent in 2004 and just 36 percent in 2003. Moody's 2006 report indicates that more than sixty percent of S&P 500 firms in 2005 had a lead director in their board⁵. Other studies also document a similar trend in recent years.

The role of a lead director in the board dynamics has gained substantial attention for its potential role of improving board effectiveness since several prominent accounting scandals around the turn of the century. Despite the demand for a lead director in the board of directors from the researchers, investors and regulators, whether the designation of a lead director can enhance the board independence and board effectiveness, thus improve firm performance, is an unanswered empirical question.

In this dissertation, I measure firm performance by three empirical proxies: Tobin's Q, returns on assets (ROA) and stock returns, which are the most widely used firm performance proxies. I explore the research question on the relationship between lead directorship and firm performance in both cross-sectional and inter-temporal contexts. The sample consists of S & P 500 firms from 2001 to 2004 that have all the required financial, stock returns, and other relevant information. In the univariate cross-sectional analysis, I compare mean values of firm performance (Tobin's Q, ROA and stock returns) of two mutually-exclusive groups from year 2001 to year 2004 on a year-to-year basis: the set of firms that had a lead director in the board (with-LD group) and the set of firms without a lead director in the board (no-LD group), i.e., one group-mean comparison for each year from 2001 to 2004. I also compare mean values of firm

performance of those two groups for the four years on a pooling basis to see the general effect of the lead directorship on firm performance. In the above cross-sectional univariate analysis, I conduct both parametric t-tests and non-parametric Wilcoxon tests to examine the group difference. In the cross-sectional multivariate analysis, I run both OLS and fixed-effect regressions to assess the relationship between lead directorship and firm performance, controlling other factors that may influence that relationship. I regress proxies of firm performance on lead directorship in the following regression model:

$$F \text{ (Firm performance)} = L \text{ (lead directorship)} + C \text{ (control variables)}.$$

Where: F is proxies of firm performance: either Tobin's Q, return on assets (ROA), or stock returns; L is an indicator variable that is equal to one if there is a lead director in the board, zero otherwise; C comprises of a set of control variables based on prior research, such as firm size, business segments and firm age.

In the univariate inter-temporal analysis, I split the sample into three mutually exclusive groups: (1) the set of firms that had a lead director in the board every year from 2001 to 2004 (always-designation set); (2) the set of firms that never designated a lead director in the board any year from 2001 to 2004 (never-designation set); (3) the remaining set of firms that designated a lead director to the board any year from 2001 to 2004 (new-designation set). I define the year in which a firm added a lead director in the board of directors as event year y , year $y+1$ is one year after the event year, year $y-1$ as one year before the event year y and so forth. During $y+1$, the firm had a lead director for at least 12 months. I then compare changes in firm performance from one year before

⁵ http://www.cfo.com/article.cfm/7264811/c_7246370?f=archives&origin=archive

(year $y-1$) or two years before (year $y-2$) to one year (year $y+1$) after or two years after ($y+2$) the designation of a lead director in the board of directors, in comparison with the other two groups of the corresponding years in an inter-temporal context. I calculate the difference of firm performance from year $y+1$ and year $y-1$ as D_1 , the difference of firm performance from year $y+2$ and year $y-1$ as D_2 , and the difference of firm performance from year $y+1$ and year $y-2$ as D_3 . Therefore, for a firm that introduced a lead director in the board in 2002, the data structure is as follows,

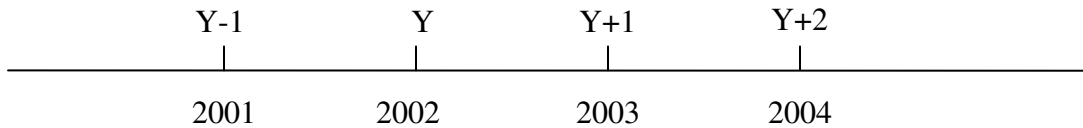


Figure 1 yearly distribution of data (A)

I then compare the performance of year 2001 with that of year 2003(D_1) and 2004(D_2). For a firm that introduced a lead director in the board in 2003, the data structure is as follows,

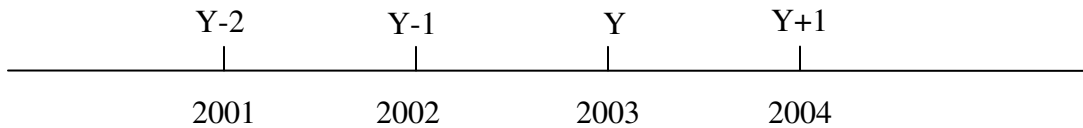


Figure 2 yearly distribution of data (B)

I then compare the performance of year 2004 with that of year 2002(D_1) and 2001(D_3). Due to data limitation and cost-effectiveness of data collection, only the year of 2002 or 2003 when the firm introduced a lead director in the board is categorized as

event year (year y) in the inter-temporal analysis. Hence the sample size in the inter-temporal analyses is smaller than that in the cross-sectional analyses.

Significance tests are also carried for those comparisons. I also use industry and performance-matched benchmarks to exclude the influence of macroeconomic factors on firm performance. For each event year (year y) when a firm introduced a lead director in the board, I identify a firm in the same two-digit SIC industry classification with similar firm performance but without a lead director in the board as a control firm. I then repeat the before-after intertemporal analyses on the control firms.

Unlike cross-sectional multivariate analyses, in the inter-temporal multivariate analyses, I use data of only two years: one year before ($y-1$) and one year after ($y+1$) the event year when the firm introduced a lead director in the board. I run both OLS and fixed-effect regressions. I regress proxies of firm performance on lead directorship in the following regression model:

$$F \text{ (Firm performance)} = L \text{ (lead directorship)} + C \text{ (control variables)}.$$

Where: F is proxies of firm performance: either Tobin's Q , return on assets (ROA), or stock returns; L is an indicator variable that is equal to one if it is one year before ($y+1$), zero if it is one year before ($y-1$); C comprises of a set of control variables based on prior research, such as firm size, business segments and firm age.

In the univariate cross-sectional analyses, I find that the mean and median of both Tobin's Q and stock returns of the firms with lead director in the board are consistently higher than those of the firms without. The similar result is obtained in the multivariate cross-sectional analyses where I regress Tobin's Q and stock returns on

whether the firm had a lead director: there is a statistically significant positive association between Tobin's Q and stock returns and lead directorship, controlling other factors that may impact the relationship. However, the positive firm performance effect of the lead directorship is only statistically significant when the firm performance is measure by Tobin's Q or stock returns that incorporates the market expectation of the future firm performance. There is no immediate firm performance improvement after the introduction of lead directorship in terms of accounting performance measure, the return on assets (ROA). Therefore the cross-sectional hypothesis is supported in terms of firm performance measured by Tobin's Q and stock returns.

In the univariate inter-temporal analyses, I find that the mean and median of both Tobin's Q and stock returns of the firms after a lead director was added in the board were consistently higher than those before a lead director was added, while this performance improvement is not obvious for the other two control groups matched by year, firm size, industry and previous performance.: Always-Designation and Never-Designation. The similar result is also obtained in the multivariate cross-sectional analyses where I regress Tobin's Q and stock returns on two years data: one year before the event year and one year after the event year. Again, the result from the multivariate analysis indicates that there is a statistically significant firm performance improvement one year after the lead director was introduced into the board, controlling other factors that may impact the relationship. Consistent with the results from cross-sectional analyses, however, the positive firm performance effect of the lead directorship is only statistically significant when the firm performance is measured by Tobin's Q or stock

returns that incorporate the market expectation of the future firm performance. There is no immediate firm performance improvement after the introduction of lead directorship in terms of accounting performance measure, the return on assets (ROA), after the introduction of a lead director in the board.

Additional analyses and regression diagnostics are carried out to strengthen the internal validity of the empirical results. Additional analyses include deletions of outliers, other measures of accounting performance and stock returns, and deletion of regulated industries. The results are qualitatively unchanged.

Overall, the empirical results indicate a positive association between lead directorship and firm performance measured by Tobin's Q and stock returns and the association is robust against the effect of outliers, industry, previous performance and regression assumption violations.

1.2 Significance of the Research Question

This dissertation contributes to the literature on corporate boards of directors in the following ways. To my best knowledge, this dissertation is one of the first empirical studies that examine the role of lead directorship in the corporate governance system and the relationship between lead directorship and firm performance. Larcker et al (2005) use corporate governance ratings from various data sources to examine the impact of corporate governance on firm performance. One of the rating criteria is whether a firm has a lead director in the board of directors. Larcker et al (2005) document that companies with a lead director experienced higher stock returns, suggesting the positive association of designation of a lead director and firm value. Larcker et al (2005) explore

the effect of lead directorship on stock returns only and ignore the accounting performance. In the popular piece at Financial Times, they provide only evidence of correlations without controlling other factors that may obscure the true effect of lead directorship, while this dissertation applies more rigorous research design and multivariate regression method to thoroughly explore the effect of lead directorship.

Despite the suggestions from classic agency theory and business community, researchers fail to identify conclusive relationship between board composition and firm performance. The puzzling results may be due to econometrics problem or measurement error issue (Hermalin and Weisbach, 2003), which will be discussed in chapter III. Lead directorship institutes a leadership among the independent directors who traditionally are regarded as a group without a clear leader and improves board independence through “creating a structural barrier between firm management and non-executive directors” (Dalton and Dalton, 2005). This dissertation explores the relationship between lead directorship and firm performance from both cross-sectional and inter-temporal perspectives. In the multivariate context, I run both OLS and fixed effect regression, the latter of which is supposed to control the effect of some time-invariant hidden firm characteristics on the relationship between board composition and firm performance. In the inter-temporal analysis, the addition of a lead director to the board of directors constitutes an exogenous shock to the relationship between board composition and firm performance. The exogenous shock is a natural environment to test if the relationship between board composition and firm performance is genuinely endogenous and if so, the inter-temporal analysis can minimize the econometric effect of the endogeneity and

detect the real effect of the board composition on firm performance, as suggested by Dahya and McConnell (2005). This dissertation complements this stream of studies by implementing the inter-temporal analysis to minimize the effect of endogeneity.

The results of this dissertation should also be interesting to regulators. Both NASDAQ and NYSE require that independent directors should meet at regularly scheduled executive sessions without management and that if an independent director presides the meetings, the information of the presiding director and the process of the director selection should be fully disclosed in the proxy statement. In the amendments to the Section 303A listing standard, NYSE recently further added an additional requirement of the designation of a presiding director⁶. In other words, now the designation of a lead director is a required listing standards for all the firms listed at NYSE. The result of this dissertation should provide ex post empirical evidence of how effective the regulatory requirement of the designation of lead directorship is.

1.3 Organization of the Dissertation

The rest of the dissertation is organized as follows: in chapter II I review the corporate governance literature, including definitions of corporate governance, theoretical foundations of empirical corporate governance research, and the relationship between corporate governance and firm performance; Chapter III discusses the hypotheses of the dissertation, both cross-sectional and intertemporal; Chapter IV summarizes the research methodologies used in the dissertation; Chapter V describes the data and sample; Chapter VI discusses the empirical results and chapter VII provides discussion and conclusion

of the dissertation.

⁶ New York Stock Exchange: http://www.nyse.com/pdfs/proposed_section303A_amendment2.pdf

CHAPTER II

LITERATURE REVIEW⁷

In this chapter, I review the corporate governance literature. First, I will review definitions of corporate governance from the perspectives of agency theory and a broader stakeholder approach. I then explore the major theoretical foundations of empirical corporate governance research: agency theory, stewardship theory, resource dependence theory and power perspective. I also review existing research on the relationship between corporate governance and firm performance, followed by reviews of research on the relationship between board characteristics, board decision quality and firm performance. I conclude this chapter with a summary.

2.1 Definition of Corporate Governance

Corporate governance has recently attracted a great deal of public interest because of its apparent importance for the economic health of corporations and society in general, especially when corporate governance scandals have dominated business headlines for the past few years. However, the concept of corporate governance is defined in distinct ways because it covers a large number of distinct economic phenomena. As a result different people from different fields have come up with different

⁷ Nothing in the chapter of literature review is original of mine. Full credit goes to original authors in the citations.

definitions that basically reflect their own perspectives. I first summarize definitions of corporate governance from the perspectives of academics, regulators and investors.

Most academics, regulators and investors define corporate governance from a theoretical perspective deeply rooted in the agency theory. The modern form of firms separates the ownership (shareholders) from the control (professional managers) and provides professional managers with the opportunity to act in their own self-interest rather than in the interests of owners. The interest conflicts between shareholders and managers exist largely because shareholders and managers have different goals, preferences and eventually different interests. The information asymmetry between the shareholders and managers and the moral hazard problems deteriorate the conflict of interest, often referred to as agency problem. In their seminal paper, Jensen and Meckling (1976) document that a manager that owns anything less than 100% of the firm will act in his or her own interest and compromise the interest of the shareholders.

Shleifer and Vishny (1997) argue that due to the nature of the modern firm, i.e., separation of ownership and control, after investors have contributed capital to the firm, they have little impact on the managers' investment decisions. Thus how to motivate those self-interested professional managers to act in the interests of investors and to return profits back to them is crucial. They define corporate governance as “the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment” (page 742).

Recognizing the danger of the separation of ownership and control, which is inherent in the modern corporate form of organization, Denis (2001) believes that

corporate governance includes “all the institutional and market mechanisms that induce self-interested managers (the controllers) to maximize the value of the residual cash flows of the firm on behalf of its shareholders (the owners)”(page 121).

John and Senbet (1998) also utilize agency theory to interpret corporate governance: “Given the separation of ownership and control (or stakeholding and management) that is endemic to a market economy, how the stakeholders control management is the subject of corporate governance” (page 174).

Some shareholder activists and non-profit organizations also define corporate governance from the perspective of the interest conflict between shareholders and managers. For instance, Organization for Economic Co-operation and Development, a unique forum where the governments of 30 market democracies work together to address the economic, social and governance, defines that “Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance" (OECD, 2004).

Other definitions of corporate governance adopt a stakeholder approach that has been proposed by organizational researchers as an alternative to agency theory. According to Freeman (1984), the forefather of the stakeholder framework, “...the

emergency of numerous stakeholder groups and new strategic issues require a rethinking of our traditional picture of the firm...We must redraw the picture in a way that accounts for the changes” (Page 62). Under the stakeholder approach to corporate governance, corporate governance has moved far from traditional concerns with purely business issues like growth and profitability and now includes social issues and/or environmental issues, such as pollution, equal employment opportunities, insider trading, and criminal conduct.

Some academics have already proposed definitions of corporate governance in the spirit the stakeholder approach. Daily and Cannella (2003) define corporate governance as “the determination of the broad uses to which organizational resources will be deployed and the resolution of conflicts among the myriad participants in organizations.” They continue to elaborate the definition “stands in some contrast to the many decades of governance research (page 34)” that are deeply rooted the agency theory and primarily focus on the protection of shareholders’ interest from the wealth transfer from the self-interested professional managers due to the issue of separation of ownership and control.

In the same vein, Gillan and Starks (1998) view corporate governance as “the system of laws, rules, and factors that control operations at a company (page 29)”. The corporate governance of a firm includes a complete and broad set of structures that define the boundaries of the firm’s operations. This complete and broad set of structures comprises of all stakeholders in the operations, such as professional managers, shareholders, employees, creditors, returns to those stakeholders and the limitations of the structures.

Zigales (1998) also thinks of the corporate governance definition from the perspective of a stakeholder approach. He contends that corporate governance is “the complex set of constraints that shape the ex-post bargaining over the quasi-rents generated by the firm (page. 68)” by a broad set of stakeholders, such as managers, investors, employees, creditors and regulators.

The broader stakeholder approach to the definition of corporate governance is shared not only by academics, but also by some regulator and institutional investors. For instance, in his speech in the global corporate governance forum sponsored by the World Bank in 2002, Sir Adrian Cadbury, director of the Bank of England, argued that "Corporate Governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The corporate governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interests of individuals, corporations and society (page 83)".

The California Public Employees' Retirement System (CalPERS)⁸, the largest public pension plan in the United States and the third largest in the world, also defines corporate governance from a perspective of a broad stakeholder approach as “the relationship among various participants in determining the direction and performance of corporations. The primary participants are: shareholders; company management (led by the chief executive officer); and the board of directors (page 45)” as well as other

⁸ <http://www.calpers-governance.org/principles/domestic/us/page02.asp>

important stakeholders in the whole society, not only the environment where the firm is operating.

In summary, researchers, investors, non-profitable organizations and regulators have defined corporate governance from the perspective of either agency theory that emphasizes the interest conflict between managers and shareholders, or a broader stakeholder approach that embraces all participants of the firm's operations.

2.2 Components of Corporate Governance Mechanisms

Gillian (2006) adopts the broader stakeholder approach to corporate governance and divides the components of corporate governance mechanisms into two basic categories: internal corporate governance mechanism and external corporate governance mechanisms. This division of corporate governance components is also in line with most other corporate governance researches (Shleifer and Vishny, 1997; Denis, 2001) I hereby adopts the categorizations of Gillian (2006) and briefly review the components of corporate governance mechanisms.

2.2.1 Internal corporate governance mechanism

Within a firm, the mechanisms that align the interests of the management with those of shareholders include board of directors, managerial incentive plan, ownership and capital structure, firm bylaw and charter, and internal control systems.

2.2.1.1 Board of Directors

Due to the diffuse stock ownership, individual stockholders have little incentive to monitor the management and it is also expensive for them to do so. Therefore, shareholders elect a board of directors that are charged with the duties of monitoring and

advising the management on operation and investment decisions on behalf of shareholders.

2.2.1.2 Managerial Incentives and Ownership Structure

Management and shareholders have different risk-taking behaviors and preferences (Jensen and Murphy, 1990). Investors typically have invested in a well-diversified portfolio and thus failure of one specific firm does not have much impact on the investor's whole financial wealth. The manager of the firm, however, has tied up most of his human capital and financial capital to one firm and therefore the failure of the firm has potentially much more impact on the manager's wealth than on shareholders.

That is why managers are more risk-averse than shareholders and that risk-aversion has created interest conflicts between managers and investors (Fama, 1980). To influence the risk-taking behaviors of managers, shareholders design managerial incentive plans, such as stock options and bonuses, to better align the interests of managers with those of shareholders.

The literature of ownership structure focuses not only on insider ownership, but also outsider ownership. Insider ownership is an important corporate governance mechanism that ties more executive's financial interests with the firm's success. An increase of executive's holdings of stock will lead to an increase of the sensitivity of executive's wealth to firm performance, which is a measure of the interest alignment between managers and shareholders (Murphy, 1999).

Large investors, especially blockholders, play a crucial role in a successful corporate governance system and in the effective functioning of the firm (Shleifer and

Vishny, 1997). Blockholders that own more than 5% of a corporation's common stock have both the ability and incentive to monitor the firm's manager by various means ranging from information conversations with the management to sitting in the board of directors. Blockholders may be individuals, corporations, or institutional investors.

2.2.1.3 Capital Structure

Shleifer and Vishny (1997) define the nature of the corporate governance is how “suppliers of finance to corporations assure themselves of getting a return on their investment (page 739)”. In the similar vein, Denis (2001) argues that free cash flow is one of the three basic sources of agency problem.

Gillian (2006) suggests that debt serves as a self-enforcing governance mechanism. Managers choose to issue debts and they promise to pay back principle and interests. Legally, managers have the duty to make wise investment decisions to make profits so that they are able to meet interest and principle obligations. Thus, debt has the potential to mitigate the agency costs of free cash flow by forcing managers to return profits to investors.

2.2.1.4 Bylaw and Charter Provisions

Bylaw and charter provisions refer to those governance mechanisms that deter the corporate control from outsiders, such as proxy contests, shareholder proposals, and poison pills. Firms can use poison pills, for example, to fend off the hostile takeover attempts from some shareholders by issuing additional common stocks to shareholders other than the takeover initiator. The poison pills then dilute the voting power of the potential acquirers.

2.2.2 External corporate governance mechanisms

Firms operate in a very competitive environment that is intermingled with legal constraints, market forces and other sources of oversight. Therefore external corporate governance mechanisms play an important role in the corporate governance system.

2.2.2.1 Law/Regulation

The most basic form of external corporate governance mechanisms is the system of laws and regulations that govern all the firms in the economy. Change of laws and regulations can significantly impact the corporate governance system of a firm and shareholder wealth. For example, corporate crimes that have significant wealth transfer effects are highly disciplined by heavy fines, prison sentences, and reputation penalties in the laws (Karpoff, 1998).

2.2.2.2 External Control Market

If internal corporate governance mechanisms fail to align the interests of the management with those of shareholders, there is an opportunity for outsiders to take over the firm by acquiring a firm's common stocks, overhaul the firm's operations and obtain higher returns from the takeover. Generally, poorly performing firms are the target firms in the corporate control market and usually the executives of those poorly performing firms are fired after the takeover from outsiders (Homstrom and Kaplan, 2001; Shleifer and Vishny, 1999).

2.2.2.3 Labor market

Jensen and Meckling (1976) argue that labor market forces and reputation concerns exert a disciplining influence on both the executives and board directors.

Outstanding performance gives testimony to the capability of CEOs and CEOs of those firms will have better upward mobility and very good reputation in the managerial labor market. CEOs of failing firms, in contrast, will lose credibility and reputation, and suffer from the loss of reputation in the labor market. Directors also have strong incentives to establish and maintain the reputation of expert monitors in the labor market for a better career advancement prospect.

2.2.2.4 Product Market

Eventually, the competitiveness of the products in the market determines the returns of the investment of a firm. Inefficient managements that are not able to produce competent products and sell at a competitive price in the market will be penalized by the inferior financial performance, which leads to financial distress or even bankruptcy (Jensen, 1993).

In summary, within a firm, the mechanisms that align the interests of the management with those of shareholders include board of directors, managerial incentive plan, ownership and capital structure, firm bylaw and charter, and internal control systems. There are other factors in the external environment that impact how a firm is controlled or governed, such as laws/regulation and labor market.

2.3 Theoretical Foundations of Corporate Governance Research

In the classical review of the corporate governance research, Shleifer and Vishny (1997) point out that “the subject of corporate governance is of enormous practical importance (p. 127)” and therefore corporate governance field is a field that is largely guided by corporate practices. The relationship between theoretical foundations of

corporate research and the practices in the real corporate America is not obvious yet, as Daily and Cannella (2002) argue that “it has not always been clear, however, whether practice follows theory, or vice versa (p. 278)”.

Next, I summarize four major theoretical perspectives underlying empirical corporate governance research: agency theory, stewardship theory, resource dependency theory and power perspective.

2.3.1 Agency theory

Agency theory has overwhelmingly dominated the corporate governance research for the past several decades since the seminal theoretical paper by Jensen and Meckling (1976). Agency theory explores the ubiquitous agency relationship, in which one party (the principal) delegates work and decision rights to another (the agent). The agency problem arises when (a) the interests, tastes or preferences of the principal and agent conflict and (b) it is difficult or expensive for the principal to verify what the agent is actually doing due to the information asymmetry between the principal and agent, and the moral hazard issue. Another problem with the agency relationship is the problem of risk sharing that arises when the principal and agent have different risk preferences. Generally the principal is assumed as risk-neutral and agent is depicted as risk-averse. The principal and the agent may prefer different actions and agent may make different decisions because of the different risk preferences (Jensen and Meckling, 1976).

The essence of the agency theory is the interest conflict between managers and shareholders due to the separation of ownership and control, a problem inherent in modern firms. In the context where managers do not bear 100% wealth effects of their

decisions, i.e., they own less than 100% of the firm, managers may act not to maximize the wealth of the shareholders, but to maximize their own personal interests (Jensen and Meckling, 1976).

From the perspective of agency theory, corporate governance is the system of laws, rules, and factors that align the interests of agents with those of the principals and often corporate governance mechanisms can be categorized as internal mechanisms or external mechanisms.

Gillan(2006) and Ross et, al (2005) develops a simplified balance sheet model to depict the essence of the agency relationship as shown in Figure 1 below. The left hand side of the diagram demonstrates the internal corporate governance mechanisms that include board of directors and other internal mechanisms, such as executive compensations. Board of directors is at the top of the internal corporate governance mechanisms. Directors are elected by the shareholders and are charged with the duties of monitoring and advising managers, and hiring and firing corporate executives. Managers or agents make operational and investment decisions as to which assets the firm should invest in, how to finance those investments, and how to maximize investment returns.

The right-hand side of the diagram depicts the external corporate governance mechanisms from the perspective of the capital suppliers. Shleifer and Vishny (1997) argue that corporate governance is basically “the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment” after capital suppliers part with the money. If the suppliers of finance want to make sure that managers return the profits to them, they have to resort to some external corporate

governance mechanisms to align the interests of the managers with those of the capital suppliers. As Gillan (2006) explains, the right side of the diagram also emphasizes the fact that there exists in the modern firms a separation of management and control and therefore there is a need for constraints from the external parties (owners or investors).

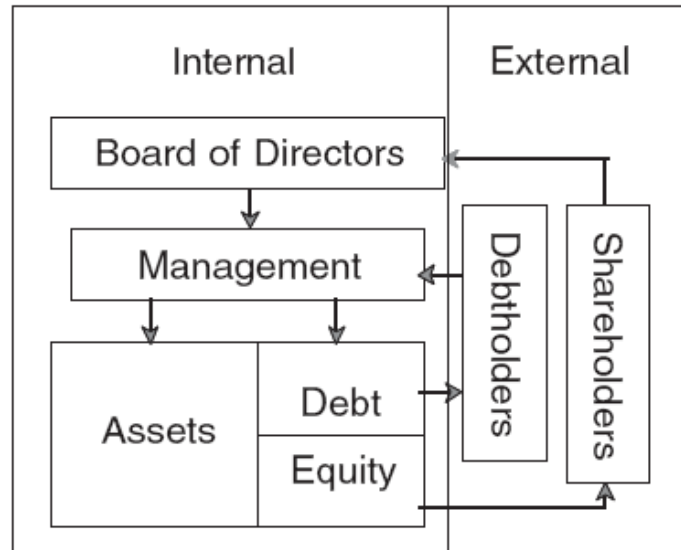


Figure 3 Corporate governance balance sheet model. Gillan (2006) and Ross et al (2005)

Gillan (2006) also develops corporate governance models based on a broader stakeholder approach to define corporate governance, as well as the basic balance sheet corporate governance model. She recognizes that the way of how a firm is operated and controlled is not influenced only by the parties depicted in the basic balance sheet model, but also by other participants in the environment where the firm is operating. Figure 2 is the model further developed to explain the corporate governance system (Gillan, 2006).

In the broader view of corporate governance, a firm is merely a nexus of contracts among various stakeholders, such as employees, customers, shareholders and

suppliers. Other participants in the environment where a firm is operated and controlled and other factors that may influence the corporate governance are brought into consideration, consistent with the corporate governance definitions based on the broader stakeholder approach (Gillan and Starks, 1998; Daily and Cannella, 2003).

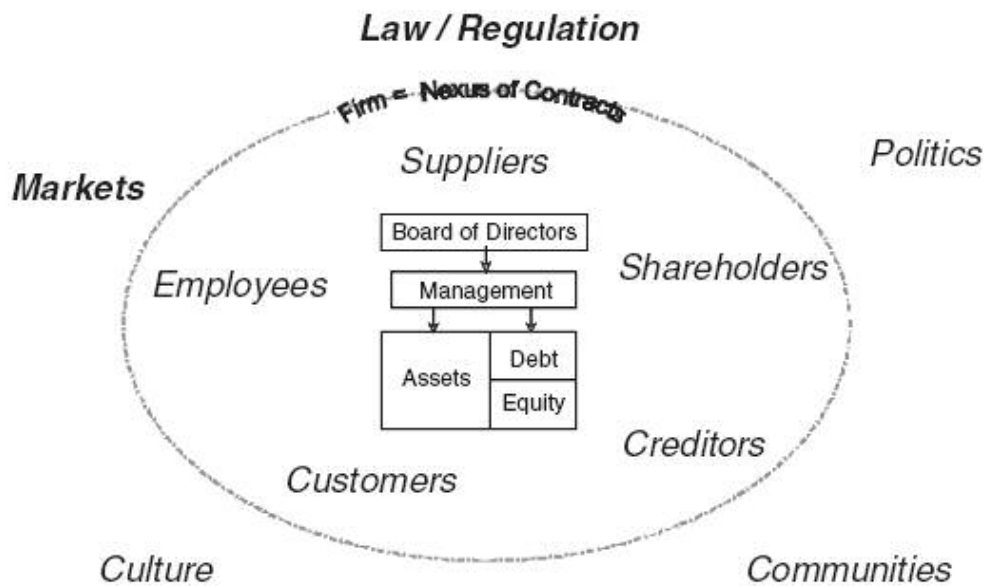


Figure 4 Corporate governance: beyond the balance sheet model. (Gillan, 2006)

2.3.2 Stewardship theory

The first theoretical challenger to the agency model to explain modern firm structure and corporate governance is the stewardship theory. The modern corporation, a term coined by Berle and Means (1933), is a limited liability firm in which management is separated from ownership and corporate control falls into the hands of the managers. Stewardship theory contends that a manager is the steward of a company's assets, not as the agent in the classical agent-principal relationship, hence the term stewardship in the

name. The separation of management of control, which is viewed as the culprit of the agency problem in the classical agency theory, is not a problem to overcome according to the stewardship theory, but is a positive and unavoidable structure that enables managers to make effective operational and investment decisions. The stewardship theory suggests that there are some personal attributes of the managers necessary for the success of the firm such as the depth of knowledge, commitment, access to current operating information and technical expertise. Therefore, the stewardship theory strongly advocates the duality of chairman and CEO, i.e., it is necessary for the firm to concentrate the authority and power on a single executive, while agency theory argues that the board of directors has the duty to monitor the managers (Learmount, 2002).

There is some empirical validity to the argument for duality of CEO/chairman. Muth and Donaldson (1998), for example, used a sample of 145 firms in Australian Stock Exchange and found out that the duality of CEO/chairman can actually bring higher returns to shareholders, contrary to the consistent claims from the shareholder activists for the split of the two positions.

Another crucial difference between agency theory and the stewardship theory to explain corporate governance is that agency theory assumes that every stakeholder in the nexus of contracts (the company) is self-interested and intends to maximize his or her own interests, but stewardship theory suggests that managers often have interests that are isomorphic with those of shareholders. Stewardship theory does not assume the altruism of managers, but instead suggests that there are occasions where executives believe that acting to maximize the interests of the shareholders may also serve their own interests as

well. One such occasion is the reputational cost. Executives tie their personal capital and reputation to the firms' operational performance and they have the incentive to maintain the reputation as expert professional managers or professional decision makers. Executive labor market imposes significant reputational penalty for those executives of the failing companies. Not only corporate executives, but also other stakeholders have significant reputational cost related to the fiduciary duties of their positions, such as board of directors (Fama, 1980).

2.3.3 Resource dependence theory

Another important theory exploring corporate governance, especially the role that directors play in the corporate governance system, is the resource dependence theory. The explanation of the role of directors in the modern corporate governance from the perspective of the resource dependence theory is complementary to that of agency theory. According to the agency theory, the role of the directors in modern firms boils down to the alleviation of the agency problems that arise because the interests of managers and those of shareholders may diverge. Independent board of directors can alleviate the agency problem by monitoring the management and making sure that managers are acting for the best interests of the shareholders. However, resource dependence theory argues that directors are valuable resources to the successful business operations of the firm, or the resource dependence role, and they may fulfill the monitoring and resource dependence roles simultaneously (Hillman et al, 2000).

Resource dependence theory suggests that in the business environment there are a great number of external factors that may give rise to uncertainty and external

dependencies (Daily et al, 1999). Firms have to deal with those uncertainty-generating factors so as to succeed in the competitive environment and directors serve as liaisons between the firm and those uncertainty-generating external factors and help firms deal with those factors and make better investment decisions.

In addition to the aide in the dealing with those external uncertainty-generating factors, directors also possess important information, expertise, skills, access to key outside stakeholders (suppliers, customers, governmental agencies, and creditors) that are beneficial to the firms. Williamson (1984) document that outside directors that have significant experience of dealing with regulators and regulations may significantly reduce the transaction costs between regulators and the firm and improve the operational efficiency of the board.

2.3.4 The power perspective

The agency theory, which has dominated the corporate governance research for the past few decades, focuses primarily on the interest conflict between management and shareholders. However, the power perspective addresses interest conflicts of a broader spectrum: the interest conflicts among management, directors and shareholders.

When examining the power relationship between management and the board of directors, power perspective suggests that while board of directors representing interests of shareholders is on the top of the corporate governance system, there is a power struggle between directors and managers. Directors want to fulfill their duties and managers want to maintain a high level of job security. Some factors may influence the power balance between the board and the management (Cannella & Shen, 2001). CEOs

may also influence the board independence by exercising tactfully influence on the nomination process of outside directors to form a board of directors that often side with the CEO and are less likely to challenge the CEO that has nominated them (Wade et al, 1990). Outside directors also have incentive for a power contest with CEO in that if outside directors start a power challenge to the CEO and the CEO is subsequently dismissed due to the poor performance, it is very likely that the successor may be chosen from the contending outside directors, creating further tension between parties involved in the power struggle (Boeker and Goodstein, 1993; Weisbach, 1988).

Power perspective also instills very useful insights into the power relationship among corporate executives. The intense interest conflict also gives rise to a delicate power relationship between CEOs and other senior executives that have ambitions for better career advancement to the top level. Senior executives have strong desire for the CEO position and thus assume a monitoring role to CEOs in the internal corporate governance mechanism. When senior executives have successfully led the power fight with the CEO with the poor performance, the dismissed CEO loses influence on the CEO succession process or even his CEO job and the next CEO is very likely picked from the pool of contending senior executives (Shen and Cannella, 2002).

In summary, agency theory has been dominating the empirical corporate governance research for the past few decades and there are some other competing theoretical perspectives. Therefore, a multitheoretic approach to empirical corporate governance research is desirable to explore the dynamic nature of the corporate

governance mechanisms and structures, as rightly pointed out by Daily and Cannella (2003).

2.4 Corporate Governance and Firm Performance

Theoretically, good corporate governance has a positive impact on firm performance and valuation (Nam and Nam, 2004). Agency theory suggests that the separation of ownership and control inherent in the modern firms creates the agency problem and corporate governance mechanisms are purported to align the interests of managers better with those of the shareholders (Jensen and Meckling, 1976). Analytical models developed by La Porta, et al. (2002) and Shleifer and Wolfenzon (2002) demonstrate that agency problems may influence the expected cash flow accruing to investors in the forms of dividends or interests and that agency problems may result in lower stock prices because investors believe that with better corporate governance, investors expect less shareholders' monitoring and auditing costs and less management expropriation. Solid corporate governance mitigates agency problem and leads to better interest alignment and therefore, it is an important source of better allocation of economic resources and better firm performance.

Another important reason why good corporate governance may contribute to better firm performance and valuation is the factor of cost of capital. Firms with good corporate governance are also more likely to obtain capital at a lower cost than those firms with bad corporate governance. Investors and creditors are more willing to input capital to those firms with good corporate governance since it is more likely for firms with good corporate governance to return the profits to them by definition (Shleifer and

Vishny, 1997). Investors and creditors are more likely to ask firms with poor corporate governance for a higher cost of capital due to the higher risk and uncertainty that the firms will return the profits to them. Lower cost of capital contributes to better firm performance, which is measured on the difference between earnings and cost of capital.

Popular press also indicates that the business community attaches great importance to corporate governance when they make investment and valuation decisions. According to a survey conducted by McKinsey & Company (2002), titled “McKinsey global investor opinion survey on corporate governance, 2002”, “corporate governance is at the heart of investment decisions (p.35)” of professional investors. More than 200 institutional investors from around the world that collectively manage assets of more than 2 trillion U.S dollars responded to the survey. The survey finds out that the investor community “puts corporate governance on a par with financial performance when evaluating investment decisions (p.27)”. 76% of the professional investors in North America indicated in the survey of that they were willing to pay a premium for a firm with solid corporate governance system. The average premium that they were willing to pay ranged from 12% to 14%. The premium for firms in the other parts of the world is much higher.

Researchers have long strived to investigate and provide empirical evidence of the relationship between corporate governance and firm performance. In this section, I summarize existing empirical research results on this relationship.

Utilizing shareholders’ rights information from the database in the Investor Responsibility Research Center (IRRC) which covers the Standard & Poor’s (S&P) 500

and the annual list of the largest corporations in the publications of Fortune, Forbes, and BusinessWeek, as well as some smaller firms, Gompers et al (2003) graded the level of shareholder rights of approximately 1,500 firms from 1990 to 1999 on a scale of 1 to 24 to form a Governance index (G-index). Companies with the strongest shareholder rights had a G-index less than 5 and were included in the category of “democratic portfolio”, while those with the weakest shareholder rights defined as firms with a G-index greater than 14 were categorized in the “dictator portfolio”. Gompers et al. (2003) document that firms with stronger shareholder rights, or firms in the democratic portfolio, significantly outperformed their autocratic counterparts in the dictators portfolio: an investment of \$1 in the democratic portfolio on September 1, 1990 would have grown to \$7.07 by December 31, 1999, or 23.3 percent annually. In contrast, companies with poor shareholder right protection would have grown to only \$3.39, or 14 percent annually, a difference of more than 9 percent per year.

Gompers et al. (2003) also examine the relationship between shareholder rights and operating performance proxied by Tobin’s Q and Return on Assets (ROA) and document that firms with better shareholder right protections consistently outperform those with poor shareholder right protections in terms of Tobin’s Q and ROA.

Continuing the work of Gompers et al. (2003), Bebchuk et al. (2005) also use the data from the Investor Responsibility Research Center (IRRC) that covers more than 90% of the total market capitalization in the U.S and examine the relationship between staggered board and firm performance and firm value. In contrast to the 24 provisions used in the Gompers et al (2003) G-index, Bebchuk et al.(2005) construct an

entrenchment index based on six provisions from the G-index and document that increases in the level of this index are monotonically associated with lower firm valuation proxied by Tobin's Q. The entrenchment index in the study comprise of four "constitutional" provisions that prevent a majority of shareholders from exercising their rights effectively and two "takeover readiness" provisions that deal with hostile takeover attempts. Bebchuk et al (2005) suggest that their parsimonious index fully replicates the result of Gompers et al (2003) and the entrenchment index drives the Gompers et al (2003) empirical results.

Cremers and Nair (2005) investigate how the market values both internal (market for corporate control) and external corporate governance mechanisms (shareholder activism). They maintain that effective corporate governance consists of both internal and external measures and therefore they supplement IRRC data with shareholder activism to evaluate comprehensively the relationship between corporate governance and firm valuation and firm performance. Cremers and Nair (2005) document a strongly positive relationship between corporate governance mechanisms and firm valuation proxied by Tobin's Q and firm performance proxied by returns on assets.

Brown and Caylor (2005) use data from Institutional Shareholder Services (ISS) to construct a firm-specific governance index that is based on both internal and external governance factors. Brown and Caylor (2005) argue that ISS has a distinct information advantage over the data used in all previous research in that ISS provides 51 corporate governance factors covering extensively both internal and external governance facets. They construct a comprehensive corporate governance index based on the 51 corporate

governance factors (governance score) and demonstrate that this comprehensive summary governance index is significantly and positively related to Tobin's Q.

Larker et al (2005) believe that corporate governance is a complicated and multidimensional construct and generate 14 factors that characterize the dimensionality of 39 individual governance indicators, such as board size, board interlocking. Larker et al (2005) examine the relationship between corporate governance with accrual choices, class action lawsuits, accounting restatements, Tobin's Q and operating performance and document that corporate governance has a positive impact on Tobin's Q, operating performance and negative impact on accounting restatement propensity.

Despite findings of a positive relationship between corporate governance and firm performance, Chidambaran et al (2006) argue that the relationship may be spurious since firms that endogenously choose their governance may see performance improvement when they improve their governance. The authors construct samples of good governance changes and samples of bad governance changes and analyze the performance differences followed by the governance changes. They document that there is no significant performance difference between firms with good governance changes and those with bad governance changes. They therefore maintain that better governance does not necessarily lead to better performance.

In summary, the majority of existing literature provides consistent evidence for a positive relationship between corporate governance, firm valuation and firm performance. However, the endogeneity problem plagues the empirical corporate

governance research and any causal inference should be cautious (Hermalin and Weisbach, 2003).

2.5 Board Characteristics, Firm Valuation, and Firm Performance

In this section, I focus on the relationship between board of directors and firm performance and valuation. I first discuss some conceptual considerations on board of directors. I then summarize past research on some general board characteristics, such as board independence, and board size. Lastly I focus on past research on the relationship between board composition and firm performance.

2.5.1 Conceptual considerations on board of directors

The separation of ownership and control creates agency problem and corporate governance is on how to align the interests of managers with those of shareholders. Adam Smith (1776) is the first economist perceiving the modern firms from a perspective of a primitive agency theory: “The directors of companies, however, being the managers rather of other people’s money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance...Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a (modern) company (p.76)”.

Berle and Means (1932) share a similar view with Adam Smith (1976): “Control will tend to be in the hands of those who select the proxy committee and by whom, the election of directors for ensuing period will be made. Since the proxy

committee is appointed by the existing management, the latter can virtually dictate their own successors (p.135)”.

Board of directors is at the top of the internal corporate governance system within a firm and is charged with monitoring and advising executives, and plays a central role in the corporate governance system. However, the theoretical literature on the board of directors is sparse.

Hermalin and Weisbach (2003) suggest that the corporate failures and scandals due to poor corporate governance indicate that board of directors is “not the first-best efficient solution, but at best the second-best efficient solution” to the agency problems. Therefore, “A more plausible hypothesis is that boards are a market solution to an organizational design problem, an endogenously determined institution that helps to ameliorate the agency problems that plague any large organization (p.232)”. Viewing board of directors as a market solution, but a second-best solution, to agency problems “is the most useful way to study how they are structured and function (p.243)” (Hermalin and Weisbach, 2003).

The effectiveness of the board in its monitoring function hinges on a few parameters, such as independence, size, and composition (John and Senbet, 1998). There are two major approaches to explain the monitoring role played by the board of directors: interest alignment and reputational concern. Interest alignment perspective models the board of directors with a utility function aligned with the interests of the shareholders to accomplish its monitoring function by linking directly the directors’ compensation with firm value. Therefore, the directors have a strong financial incentive to monitor the

management to improve the firm performance so that the financial and reputational interests of the directors can be optimally maximized (Warther, 1998; Hirshleifer and Thakor, 1994). Directors may also have reputational concern that they would like to be viewed as monitoring experts in the labor market. Directors have strong motivations for career advancement and directors from a failing firm may have difficulty placing themselves in the labor market. Thus directors have a strong incentive to perform the monitoring duty (Neo and Rebello, 1996).

A third approach to explain the monitoring role played by the board is the bargaining model proposed by Hermalin and Weisbach (1998), which focused on one specific board task: CEO turnover decision. Figure 3 illustrates the dynamics of the bargaining game model proposed by Hermalin and Weisbach (1998).

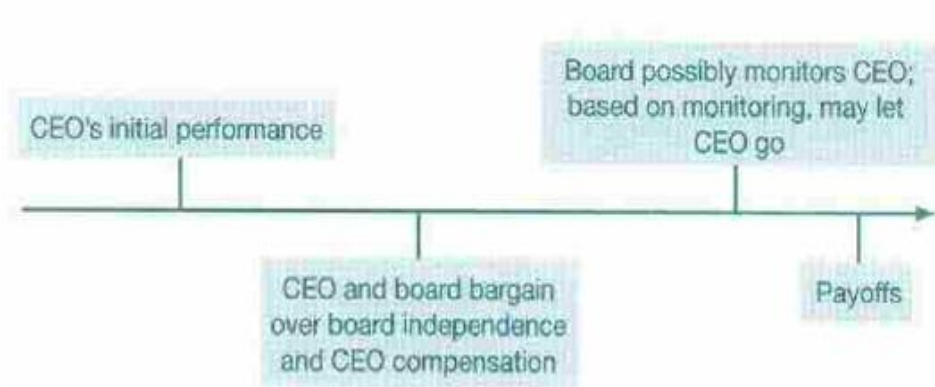


Figure 5 Bargaining model of Hermalin and Weisbach (1998)

2.5.2 Review of empirical research

In contrast to the rarity of the theoretic foundation of the board of directors, empirical studies on board of directors are bountiful. Hermalin and Weisbach (2003)

categorize the existing research on the relationship between board characteristics, firm valuation and firm performance as estimating one of the following equations:

$$(1) \mathbf{a}_{t+s} = \phi \mathbf{C}_t + \epsilon_t$$

$$(2) \mathbf{p}_{t+s} = \beta \mathbf{a}_t + \theta_t$$

$$(3) \mathbf{C}_{t+s} = \mu \mathbf{p}_t + \delta_t$$

Where \mathbf{C} denotes a board characteristic, such as proportion of outside directors; \mathbf{a} denotes an board action (such as executive compensation decision); \mathbf{p} denotes firm performance (such as sales, or net income); ϕ , β , and μ denote parameters to be estimated and ϵ , θ , and δ are other variables in the specification including errors. From the above three equations, one can directly assess the relationship between \mathbf{C} , the board characteristics and \mathbf{p} , firm performance as follows Hermalin and Weisbach (2003):

$$(4) \mathbf{p}_{t+s} = \beta (\phi \mathbf{C}_t + \epsilon_t) + \theta_t$$

Figure 6 illustrates the inter-relationship between the four equations.

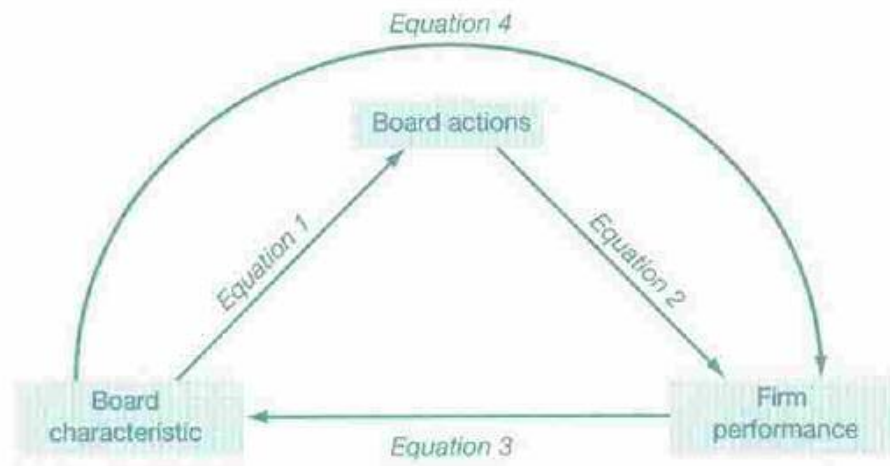


Figure 6 Board characteristics and firm performance. Hermalin and Weisbach (2003)

Generally, there are three empirical approaches to explore the topic (Hermalin and Weisbach, 2003): to examine contemporaneous correlations between accounting measures of performance and the board composition; to use Tobin’s Q as a performance measure which measures the “value added” of intangible factors such as corporate governance; and to investigate the effect of board composition on long-term stock market and accounting performance. I then survey the existing research on the equation 4 that directly assesses the relationship between board composition and firm performance. I divide the empirical studies of board composition and firm performance into two categories: board independence and other board composition issues.

2.5.2.1 Board Independence

Traditionally, the research on board of directors focusing on board independence usually uses the percentage of outside directors in the board as the empirical measure of board independence. Board composition is presumably closely related to board

independence. The board is more independent as the proportion of outside directors in the board increases. Other board characteristics that may impact board independence include relationships among directors, outside director appointments.

Rosenstein and Wyatt (1990) use standard event study to examine the stock market reactions to the announcements of outside board appointments to measure the wealth effects and market perception of these announcements for the period 1980-1985. They document significant positive abnormal returns around the days of the announcements. Thus, the market views the appointments of outside directors as a favorable event and those appointments have a positive effect on shareholders' wealth.

Brickley et al. (1994) also provides corroborating evidence for shareholder wealth effect of the positive role of the outside directors play in the corporate governance system. They examine a sample of 247 firms adopting poison pills over the period 1984-1986. They argue that if outside directors play a crucial monitoring role in the board of directors, the likelihood of adopting a poison pill that entrenches the management and hurt the shareholders' interest should be low. By contrast, if outside directors protect managerial interests, then it is more likely for them to support such a poison bill. The empirical result suggests a significant positive relation between the stock market reaction to the adoption of good poison pills and the fraction of outside directors, which supports the hypothesis that outside directors have their interests aligned more closely with shareholders' and therefore play a positive role in the corporate governance system.

Fich and Shivdasani (2006), however, examine the relationship between the number of external appointments and firm performance using Fortune 500 firms in 1995

for a period of 1989 to 1995. They suggest that a board with a majority of outside directors holding more than three directorships is associated with weak corporate governance and demonstrate poorer performance proxied by market-to-book value, and poorer accounting performance measured by ROA, and higher agency cost proxied by lower CEO turnover sensitivity. Standard event study method shows that departures of busy directors generate positive abnormal returns, indicating that shareholders do not welcome busy directors in the board. They also suggest that busy directors are more likely to leave after the poor firm performance.

To test whether the personal relationships between directors impair board independence and the decision quality of the board, Larcker et al. (2005) explore the association between director linkages and the quality of CEO compensation decision in a comprehensive sample of 22,074 directors for 3,114 firms in U.S. These authors measure the linkage of directors by a social network analysis method and develop a so-called “back door” distance. This measure is the minimum number of other company boards required to establish a relationship between each pair of directors. The closer the distance, the cozier the directors are. They are able to document a negative relationship between the distance between inside directors and outside directors and CEO compensation, which is consistent with the agency theory that CEOs are able to extract excessive compensation when CEOs or inside directors have a cozy relationship with outside directors, especially outside directors in the compensation committee.

Dahya and McConnell (2005) investigate the connection between changes in board composition and firm performance in the UK over a period from 1989 to 1996, a

period that surrounds a regulatory change. The Cadbury Report issued in 1991 by Cadbury Committee of UK government recommends for at least three outside directors in the board. The authors document that firms that added outside directors to conform with this recommendation significantly improved their firm performance measured by returns on assets (ROA) than other control groups.

Mehran (1995) examines the executive compensation structure and board composition of 153 randomly chosen manufacturing firms. Mehran (1995) defines outside directors as directors that are neither top executives, retire executives, or former executives of the firm, nor relatives of the CEO. He documents that firm performance proxied by Tobin's Q and ROA is positively related to the percentage of equity-based executive compensation in the total compensation, firm performance is also positively associated with the percentage of stocks held by executives, and the form, rather than the level of compensation is what motivates managers to strive for better firm performance. The most important finds of Mehran (1995) is that he does not find a significant relationship between the proportion of outside directors in the board and firm performance proxied by Tobin's Q or accounting performance, measured as return on assets (ROA).

Bhagat and Black (2002) conduct a large-sample, long-horizon study of whether the degree of board independence, proxied by the difference between the proportion of outside directors and that of inside directors, has any relationship with various measures of the long-term firm performance of large U.S firm. Their sample consists of 928 large U.S firms for a period from 1985 to 1995. The empirical measures

Bhagat and Black (2002) use are Tobin's Q, return on assets (ROA), ratio of sales to assets, and market adjusted stock returns. They find that firms with unsatisfactory performance will add outside directors into the board, but there is no evidence that firms with a more independent board perform better than those without. They hence conclude that "the conventional wisdom on the importance of board independence lacks empirical support".

Yermack (1996) examines the relationship between board independence and several performance measures, such as Tobin's Q, sales/assets, return on assets, operating income/assets, and operating income/sales in a sample of 3,438 firms from S&P 500 for a period from 1984 to 1991. He documents that there is a negative relationship between the proportion of outside directors and Tobin's Q, but an insignificant relationship with other performance measures.

Agrawal and Knoeber (1996) use Tobin's Q as the firm performance measure and examine the relationship between seven corporate governance mechanisms and firm performance. They document the inter-dependence among the seven governance mechanisms and find out that when the inter-dependence among the mechanisms is accounted for by estimating a simultaneous regression system, there is a negative relationship between the proportion of outside directors and firm performance. The authors claim that their finds are "control mechanisms being chosen optimally except board composition".

Ferris et al. (2003) examine the effect of the number of external appointments of board directors on firm performance in a sample of firms with over \$ 100 million in

total assets in 1995. They first test the reputation effect of the external appointments and find out that the firm performance of the firm in which an individual director sits positively impacts the subsequent number of external appointments of that individual director. In other words, directors build up reputation as expert monitors if the firms that they serve have very good performance. In the multivariate test, Ferris et al. (2003) fail to find any relationship between the number of external appointments and firm performance, or, those busy directors are not necessarily so busy that they are not able to monitor so many firms. Nor do the authors find any relationship between the number of external appointments and the likelihood of shareholder litigation. Subsequent event study documents that the market perceives the external appointments as a positive event to the shareholders interests. The authors conclude therefore that their empirical results do not support the claim that busy directors are not independent enough, and that their results “do not support the calls for limits on directorship held by directors (p.34)”.

Fosberg (1989) uses a paired sample methodology to test the relationship between board composition and various performance measures. Fosberg (1989) argues that if more outside directors present at a board and they are able to monitor more effectively than a board with less outside directors, the firm should have higher level of sales, fewer employees, lower selling, general and administrative expenses, and a higher return on equity than a similar firm but with less outside directors and the management is thus less well monitored. The author uses a random sample of 200 firms in 1979 and a match sample controlling industry, size and capital structure. Fosberg (1989) fails to confirm the hypothesis that presence of a high proportion of outside directors in the board enhances

the firm performance. Fosberg (1989) provides two explanations why there is no relationship between outside directors and firm performance. 1). Management may choose those outside directors that are either unable to or unwilling to discipline management. 2) other mechanisms may play a more important role, leaving little room for the role of outside directors.

2.5.2.2 Other board composition issues

Vafeas (1999) examines the relationship between board meeting frequencies and firm performance. He argues that the intensity of board activities is an important value-relevant board characteristic and documents that there is a reverse relationship between the board meeting frequencies and firm performance proxied by the market-to-book ratio. However, after controlling simultaneity issue, the causal direction flows from poor performance to higher board meeting frequencies. Therefore, Vafeas (1999) provides evidence that firms responds to poor performance by adjusting board structure.

Using Tobin's Q as a proxy for firm valuation and ROA as a measure for accounting performance, Yermack (1996) documents an inverse relationship between size of the board and firm valuation and firm performance in a sample of 452 large U.S firms observed over a period of 1984 to 1991. The inverse relationship between board size and firm value and firm performance proves robust to a variety of tests for alternative explanation. The negative association still holds after many control variables are introduced to control for firm size, industry, board composition, inside stock ownership, growth opportunities, diversification, company age, and different corporate governance structures.

Several other studies explore the structure and activity of board subcommittees. For example, Klein (1998) examines board structures of S & P 500 firms listed in 1992 and 1993 and suggests a linkage between board structure and firm performance by examining the structure of committees and the role of directors within those committees. She fails to identify a general relationship between firm performance and board composition. However, when she looks into the inner connections and board committee compositions, she identifies a strong relationship between firm performance and board committee composition. She suggests that there is a positive relation between the percentage of inside directors on finance and investment committees and accounting performance (ROA) and stock market performance. She also documents that the increases in the inside directors in those two committees lead to increases in accounting performance and stock market performance. She argues that the positive relationship between board committee structure and firm performance is due to the fact that inside directors provide valuable information to boards about the firms' long-term financing and investment decisions, which in turn improves the quality of those decisions and firm performance accordingly.

Other studies look at the financial expertise of the directors and the effect of the expertise on fraud likelihood. Agrawal and Chadha (2005) analyze a sample of 159 firms that had earnings restatements in the past and a control firms matched on industry and size. They document that several key corporate governance mechanisms are unrelated to the accounting frauds. These key corporate governance mechanisms include the ratio of outside directors in the board, the ratio of outside directors in the audit committee, the

extent outside auditors provide non-auditing service to the clients, and big-four auditor vs. non-big-four auditors. However, the authors suggest that it is less likely for a firm to commit accounting fraud if the audit committee has an independent director with substantial financial expertise and it is more likely for a firm to commit accounting fraud if the CEO is from the founding family.

Chidanbaran et al. (2006) construct an index of changes in governance in terms of thirteen different governance measures: three measures of the board of directors, five measures of pay-performance sensitivity, two measures of shareholder rights, one measure of institutional ownership, one measure of insider ownership, and one measure of CEO turnovers. They regress the two performance measures, returns on assets and intercept from Fama-French-Carhart regression, on the index of changes in governance and find out that there is no relationship between governance changes and firm performance: better governance does not lead to better firm performance or vice versa. They conclude that their results “represent strong evidence against the argument that better governance...can cause performance to improve (p.145).”

The inconclusive relationship between board composition and firm performance is also suggested by Hermalin and Weisbach (1991). They find out that there is no relation between board composition, namely, the proportion of outside directors, and performance, but there is a significant relationship between ownership structure and performance.

In summary, despite the suggestions from classic agency theory and business community, researchers fail to identify conclusive relationship between board

composition and firm performance. The puzzling results may be due to econometrics problem or measurement error issue (Hermalin and Weisbach, 2003), which is discussed in the following section.

2.6 Research Design Issues in Research on Board Characteristics and Performance

Empirical research in corporate governance reviewed in the previous section suggests an inconclusive relationship between board characteristics and firm performance (Fosberg, 1989; Agrawal and Knoeber, 1996; Yermack, 1996). Many scholars have explored the reasons of this inconclusive impact of board composition on firm performance from the empirical results, despite a solid theoretical indication (John and Senbet, 1998; Bhagat and Black, 1999; Hermalin and Weisbach, 1998; Hermalin and Weisbach, 2003; Holderness, 2003).

One reason is related to the validity of the empirical proxies of firm performance. In the empirical studies of the relationship between board characteristics and firm performance, there are three commonly used proxies for firm performance: Tobin's Q, return on assets (ROA), and stock returns. Each empirical proxy for firm performance has its own advantages and disadvantages (Mehran, 1995).

Tobin's Q is the most popular among all three and is calculated as the ratio of market value to asset replacement value. However, it is difficult to measure with confidence what it is supposed to measure (problematic construct validity) (Mehran, 1995).

Some researchers (Fisher and McGowan, 1983; Benston, 1985) challenge the validity of using return on assets (ROA) as an empirical proxy for firm performance and they argue that measures of accounting performance as a proxy for firm performance, such as return on assets, deliver very little information on economic returns, which should be the essence of firm performance. Others argue that stock return is the most valid measure for firm performance for all-equity firms, but may not be adequate for firms with complex capital structure.

Another reason is related to econometric problems. Hermalin and Weisbach (1998) suggest that firms may optimally structure the board composition to suit their specific environment. Therefore, any cross-sectional examination will naturally fail to detect any impact of board composition on firm performance.

Hermalin and Weisbach (1998) maintain that board composition and firm performance are jointly endogenous: the causal direction may be more complicated as suggested by the classical agency theory. Hermalin and Weisbach (1998) find supportive evidence of the joint endogeneity that firm performance is jointly determined by actions of previous directors as well as those of future directors.

The primary econometric issue with the empirical corporate governance research is that almost all variables of board characteristics, such as proportion of outside directors or CEO duality, are choice variables that are dependent on corporate decisions. It is rather difficult to detect and pinpoint the true reasons behind those corporate decisions. Therefore, those variables may be correlated with other firm characteristics that also influence firm performance, conventionally referred to as unobserved

heterogeneity problem or correlated variable problem that may mask the true relationship to be discovered (Holderness, 2003).

Hermalin and Weisbach (2003) use the out-of-equilibrium vs. equilibrium structure to illustrate the problem of unobserved heterogeneity in interpreting empirical results (Figure 7).

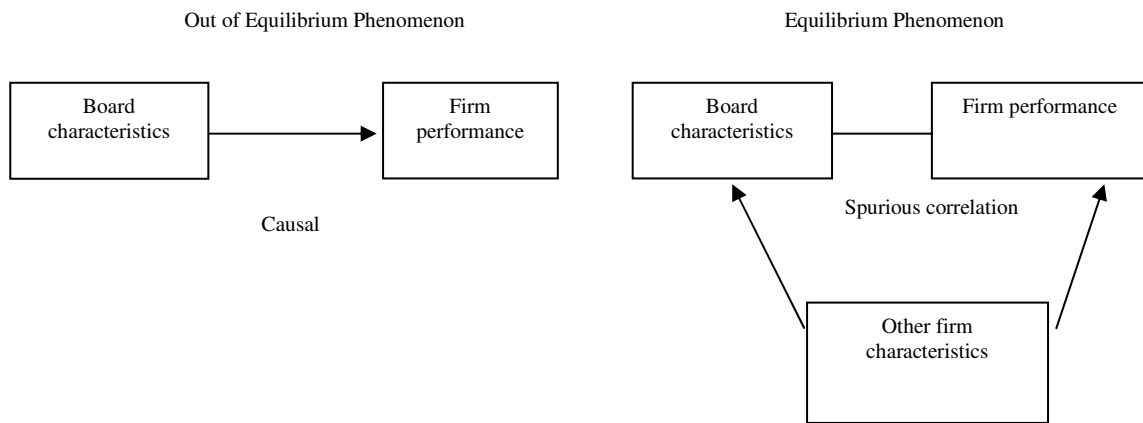


Figure 7 Equilibrium vs. out-of-equilibrium. (Hermalin and Weisbach, 2003)

One such firm characteristic in the equilibrium picture that may make spurious the relationship between board composition and firm performance may be growth opportunity (Bhagat and Black, 1999). Any cross-sectional research without proper controlling the factor of growth opportunity may generate spurious empirical interpretation.

Most of the existing empirical research investigating the relationship between board composition and firm performance are plagued by the causal interpretation from

the out-of-equilibrium picture and researchers often find inconsistent empirical results. This epidemic is correctly cautioned by Gompers et al. (2003) as they conclude their empirical study in which they document a positive impact of corporate governance on firm value: “It is also possible that the results are driven by some unobservable firm characteristic. These multiple causal explanations have starkly different policy implications and stand as a challenge for future (corporate governance) research (p.258)”.

In the case of endogeneity, ordinary least square analysis is no longer valid since the regression coefficients will be biased. One econometric approach in previous corporate governance literature to deal with endogeneity is to use instrumental variables and simultaneous equations (Palia 2001; Brick et al. 2006). Valid instrumental variables in practice are hard to identify. Simultaneous equations do not necessarily produce a more reliable and unbiased regression coefficients because simultaneous equations techniques are highly sensitive to the model specifications of the tested model (Barnhart and Rosenstein, 1998).

In the case of unobserved heterogeneity, one common econometric technique is to use fixed-effects regression, assuming unobservable characteristics are time-invariant. However, as Himmelberg et al. (1999) point out, some firm characteristics are actually changing over time and are thus not truly time-invariant. Therefore, fixed-effect regression is not able to eliminate all the effects of the omitted variables and thus are not appropriate in most of the cases in the empirical corporate governance research.

2.7 Summary

In this chapter, I briefly review relevant literature to answer the following questions: What is corporate governance? What are the components of corporate governance? What are the theoretical foundations of corporate governance research? What is the relationship between corporate governance and firm performance? What is the relationship between board composition and firm performance?

Generally, researchers, investors, non-profitable organizations and regulators have defined corporate governance from the perspective of either agency theory that emphasizes the interest conflict between managers and shareholders, or a broader stakeholder approach that embraces all participants of the firm's operations. Corporate governance therefore is generalized as means to align interests of the management with those of shareholders.

Within a firm, the mechanisms that align the interests of the management with those of shareholders include board of directors, managerial incentive plan, ownership and capital structure, firm bylaw and charter, and internal control systems. There are other factors in the external environment that impact how a firm is controlled or governed, such as bylaw/regulation and labor market.

Agency theory has been dominating the empirical corporate governance research for the past few decades and there are some other competing theoretical perspectives, such as stewardship theory and power perspective. Therefore, it is reasonable that a multitheoretic approach to empirical corporate governance research is

desirable to explore the dynamic nature of the corporate governance mechanisms and structures.

Although the majority of existing researches provides consistent evidence for a positive relationship between corporate governance, firm valuation and firm performance, researchers fail to identify any conclusive relationship between board composition and firm performance. The puzzling results may be due to an econometrics problem or a measurement error issue.

Finally, I review research design literature of the empirical corporate governance research on the relationship between board characteristics and firm performance. Generally, there are two approaches in the empirical board of director research. One is to regress cross-sectionally the variables of board characteristics on empirical proxies of firm performance. The other is to examine the relationship between changes of firm performance and changes of board characteristics. Failure to detect any impact of board characteristics on firm performance may be due to either the validity of empirical measures of firm performance or the econometric problems in the research designs.

CHAPTER III

HYPOTHESES DEVELOPMENT

In this chapter, I first introduce the institutional background of lead directorship. I discuss the early years of lead directorship in 1980s and 1990s and then I explore the relationship between lead directorship and CEO duality. I then discuss the impact of Sarbanes-Oxley law on the functions of lead directors. Finally, I present hypotheses of my dissertation.

3.1 Institutional Background of Lead Directorship

3.1.1 1980s: Early phase of lead directorship

The trend of setting a lead directorship in the board of directors began in the 1980s and it became prominent in the corporate board when General Motors dismissed its CEO during a financial crisis in 1992. Throughout the 1980s, a small percentage of boards created this position primarily to empower one of their independent directors to serve as an ad hoc trouble-shooter in some critical times in response to a temporary crisis, or as a task force leader in executing a specific board initiative. The duties of the lead directors in the 1980s were not clearly defined and generally varied from leading the CEO selection and transition process and some other specific assignments of crisis-response nature. In early phases of this trend, for example, lead directors were sometimes selected for the limited purpose of leading a search for a new CEO, or for unexpected

board vacancies. Other times lead directors were appointed to fulfill special board assignments, such as working closely with some outside consultants and facilitating the board with the decision-making process on a major prospective corporate events, such as merger or acquisitions, or hostile takeover bids, which could have significant impact on the company's future directions.

3.1.2 1990s: Lead directorship and CEO duality

In the 1990s when corporate governance became a prominent issue and shareholder activism picked up its momentum, lead directorship was not synonymous with crisis and stop-gap measure any more, but was rather proposed as a solution to the problem of CEO duality: the chairperson of the board of directors and CEO are the same person.

As a result of strong shareholders activism in the 1990s, investors and corporate governance researchers have increasingly called for U.S. firms to separate the chairman and CEO jobs, a model of corporate governance that is prevalent in the United Kingdom as well as in most European countries. Fama and Jensen (1983) called the CEO duality “the proverbial fox guarding the chicken coop (p.28)”.

A key strength of separation of CEO and chairman in the board is that a separate chairman empowers the board versus the CEO. The board has a clear leader that is supposed to monitor and help CEO to run the firm. In general, directors in a board should focus on the functioning of the board-its agenda, the adequacy of the information provided, the quality of debate, and quality of the board decisions, such as CEO compensation and CEO turnover decisions. Monitoring of the management is the primary

duty of the board and the separation of the board chairman and CEO enhances the board's oversight capabilities. CEO duality compromises the board's functioning when the CEO is charged with leading both the board and the management.

Another strength of the separation of CEO and chairman of the board is that the CEO can focus on running the company without having to pay attention to leading the board. A CEO is not distracted by the board affairs and is able to focus on maximizing shareholders' interests. The chairman of the board can focus on the board agenda and lighten the CEO's load substantially. A non-executive chairman of the board can also have "tremendous value in placating unhappy shareholders and representing the firm to governmental bodies, trading associations, employees and suppliers as well as assuming other responsibilities (page 29)" (Lorsch, 2005).

Unlike firms in U.K where more than 80% of the major listed companies have separated CEO and the chairman of the board, less than 20% of the U.S firms have their CEO and chairman of the board separated and the vast majority of U.S CEOs are opposed to separating the two roles by arguing that (1) the separation of the two posts would dilute their capability to provide effective leadership of the company; (2) the separation would create potential power struggle and power divisiveness between the two posts; (3) the non-executive chairman may be too close to the CEO to monitor the CEO and; (4) less clear-cut division of power and duties between the two posts and both CEO and the chairman may represent the firm externally for public affairs (Lorsch and Lipton, 1993).

Shareholders have increasingly viewed the lead directorship as a fast track to improved board independence in the case of CEO duality. For example, in the wake of

poor financial performance in 2000, Boeing shareholders requested in the shareholder proposal that “the Board of Directors take all necessary steps to adopt a policy of requiring an independent outside Lead Director when the office of Chair and CEO are held by the same person” and claimed that a lead director “will enable independent oversight of management to improve Boeing performance”⁹. When First BanCorp announced in 2005 the establishment of a lead directorship in its board, it specifically indicated that the move was to “bring additional independence to the board of directors from bank management (when board chair and CEO are the same person)”¹⁰.

Some prominent institutional investors and business associations also consistently press for the designation of lead directorship as an improvement of board independence if CEO and board Chair is the same person. For example, TIAA-CREF, one of the nation’s largest pension funds, in its 2004 Policy Statement on Corporate Governance¹¹ states: “when the board chooses not to separate the positions, it should designate a lead or presiding director who would preside over executive sessions of independent directors and, if the board determines it to be appropriate, would participate actively in the preparation of board agendas.” CalPERS, another leading institutional investor in the nation, specifically includes the designation of a lead director as one of the corporate governance rating criteria in its Corporate Governance Focus List¹² if the CEO

⁹ 2000 proxy statement, Boeing company:

<http://www.boeing.com/companyoffices/financial/finreports/annual/00proxy/proposal6.html>

¹⁰ First BanCorp announces board and management changes, Caribbean Business, February 23, 2006

¹¹ TIAA-CREF: Policy Statement on Corporate Governance

http://www.tiaa-cref.org/pubs/html/governance_policy/index.html

¹² CalPERS: 2003 Focus List: <http://www.calpers-governance.org/alert/focus/2003/default.asp>

and board chair is not separated. Conference Board¹³, the nation's most respected business association, also recommends in its 2003 Commission on Public Trust and Private Enterprise that when the chairman is not an independent director or when the chairman is the CEO of the firm, then a lead independent director or a presiding director should be specifically established to improve the board's independence.

In its Report of the NACD Blue Ribbon Commission on Board Leadership, National Association of Corporate Directors, a non-profit membership organization dedicated exclusively to serving the corporate governance needs of directors and boards, clearly states¹⁴:

“...We do believe that there is a need for leadership to focus the work of the independent directors. So, where the chair and CEO roles are not separated, we believe that there should be a designated leadership role for an independent director to serve as a focal point for the work of all the independent directors, with clarity of role and continuity of who performs that role. ” It further proposes that one form for effective leadership of the work of the independent directors is a lead director combined with the CEO/Chair: “In this arrangement, the CEO and chair roles are combined and a new leadership role is created to provide a focal pint for the independent work and independent functions of the independent directors (p.63).”

Some researchers also support the designation of a lead director as an improvement to corporate governance. Dalton and Dalton (2005) argue that the

¹³ Conference Board: http://www.conference-board.org/pdf_free/758.pdf

¹⁴ http://www.nacdonline.org/images/BRC_boardleadership.pdf

installation of a lead director has yielded numerous benefits of improved independence and effectiveness: “Importantly, the LID (lead independent director) can serve a vital function in contexts where CEO duality is the norm (p.24)”. They clearly suggest that in firms with CEO duality structure, lead directorship is an effective substitute for a non-executive chairperson and that the board with a lead director has a clearly defined leadership in the board for independent directors to solve the free-rider problem of independent directors. The free-rider problem arises when all of the individual members of a group can benefit from the efforts of each member and all can benefit substantially from collective action, but none of the member is willing to assume the leadership, risk and responsibility (Freeman, 1984). In the context of board of directors, all independent directors benefit from the collective action and assume joint responsibility, but everyone in the board is hesitant to assume the leadership and the resulting risk and responsibility.

3.1.3 Lead directorship: The new millennium, Sarbanes-Oxley and post SOX era

In response to a number of major accounting scandals at the turn of the new century that resulted in a decline of public trust in accounting and financial reporting quality, the U.S Congress passed the Sarbanes-Oxley law, or SOX, in 2002. Sarbanes-Oxley law deals with many corporate governance issues, including executive compensation and the use of independent directors. Without a doubt, the Sarbanes-Oxley Act is the single most important piece of legislation affecting corporate governance, financial disclosure and the practice of public accounting since the US securities laws of the early 1930s. The purpose of the Sarbanes-Oxley law is to “improve quality and transparency in financial reporting and independent audits and accounting services for

public companies, to create a Public Company Accounting Oversight Board, to enhance the standard-setting process for accounting practices, to strengthen the independence of firms that audit public companies, to increase corporate responsibility and the usefulness of corporate financial disclosure, to protect the objectivity and independence of securities analysts, to improve Securities and Exchange Commission resources and oversight and for other purposes.¹⁵” One of the focus point of Sarbanes-Oxley laws is the corporate governance.

Never before have boards of directors faced the challenge of improving governance practices quickly and effectively to quiet the ominous rumblings of increased regulation from the SEC and outrageous investors. Among the potential improvements to board independence and corporate governance is the lead directorship.

Following the Sarbanes-Oxley law passed by the U.S Congress that aims at improving corporate governance and financial reporting quality, New York Stock Exchange (NYSE) set up an Accountability and Listing Standards Committee to assess the potential of tightening listing requirements to improve board independence and corporate governance. On June 6, 2002, the committee made a comprehensive set of recommendations to the NYSE board of directors. The recommendations led to revisions of the listing requirements in the area of corporate governance and the requirements were approved by SEC on June 30, 2003.

¹⁵ http://www.citeusa.org/articles/ox.htm#_edn2

The revised listing requirement of corporate governance of firms listed in NYSE specifically mandates a presiding director for every board: “To empower non-management directors to serve as a more effective check on management, the non-management directors of each listed company must meet at regularly scheduled executive sessions without management...A non-management director must preside over each executive session of the non-management directors...(p.39)¹⁶” The new corporate governance listing requirement went into effect on June 30, 2003 and all companies listed in NYSE will have until the earlier of their first annual meeting after January 15, 2004 or October 31, 2004, to comply with the new standards of corporate governance (Section 303A, Corporate Governance Rules, New York Stock Exchange, 2003).

NASDAQ passed a similar proposal in October 2002 that requires “regularly convened executive session of the independent directors” without presence of management and there must be an independent director to preside at the meeting, or a presiding (lead) director in those executive sessions and that the firm must disclose properly the information on the presiding director in the proxy statement.¹⁷ The new NASDAQ corporate governance proposal became effective with a company’s first annual meeting occurring after January 1, 2004.

Designation of a lead director in the past decade, especially in recent years, has been gaining substantial popularity. In 1996, 27 percent of respondents to the Korn/Ferry International board study of Fortune 500 firms indicated that they had a lead

¹⁶ http://www.nyse.com/pdfs/section303A_final_rules.pdf

¹⁷ http://www.nasdaq.com/about/Corp_Gov_Summary101002.pdf

director in their board. Spencer Stuart¹⁸, an executive recruiting firm, reports in its 20th Annual Spencer Stuart Director Survey that in 2005 a total of 94 percent of all S&P 500 boards that responded to their survey had a lead or presiding director, compared with 85 percent in 2004 and just 36 percent in 2003. Moody's 2006 report indicates that more than sixty percent of S&P 500 firms in 2005 had a lead director in their board¹⁹. Other studies also document a similar trend in recent years.

In summary, in the era post Sarbanes-Oxley, corporate governance has received more press ever since and lead directorship is proposed as one of the ways to improve board independence and corporate governance by both investors and regulators.

3.2 Lead Directors and Their Duties

In this dissertation, I adopt the brief definition of lead director from corporate governance glossaries compiled by Investor Responsibility Research Center²⁰: "A director who assumes responsibility for certain subject matters and acts as an independent conduit of communication between the board and management."

Traditionally, the role of lead directorship emerged in response to a financial or succession crisis, such as occurred at GM in 1992. The lead director took responsibility for guiding the search for a new CEO and assisted during the transition period. Nowadays the duties of a lead director have expanded to other areas in the board,

¹⁸ Spencer Stuart: 20th Annual Spencer Stuart Director Survey (<http://www.spencerstuart.com/about/media/34/>)

¹⁹ http://www.cfo.com/article.cfm/7264811/c_7246370?f=archives&origin=archive

²⁰ Investor Responsibility Research Center: <http://www.irrc.org/resources/glossary.htm>

such as facilitating efficient operation of the board, preparing for board meetings, managing and running the non-executive meetings (See the appendix for detailed sample duties of a lead director in Hospitals Inc). According to the Conference Board, the world's preeminent business membership and research organization, the duties of the lead director or the presiding director “should be clearly articulated and should, at a minimum, include: presiding at board meetings in the absence of the Chairman; presiding at executive sessions of the non-management directors; serving as the principal liaison to the independent directors; having ultimate approval over information sent to the board; having ultimate approval over the board meeting agenda; and setting meeting schedules to assure that the directors have sufficient time for discussion of all agenda items (p.29)” (Conference board, 2004). The appendix shows the sample duties of a lead director as in Hospitals Inc. The annual report of 2001 Hospitals Inc claims that “The lead director is responsible for consulting with the Chairman and providing him with counsel between board meetings, coordinating the agenda for board meetings with the Chairman, and serving as a liaison for communications between the Chairman and the other directors between meetings.”

3.3 Hypotheses Development

The research question in this dissertation relates to the relationship between lead directorship and firm performance. In this section, I develop hypotheses from the perspective of the relationship among the quality of board monitoring, board independence and firm performance.

3.3.1 Corporate governance and firm performance

Theoretically, good corporate governance has a positive impact on firm performance and valuation due to the reduced agency costs and lowered cost of capital (Nam and Nam, 2004). Agency theory suggests that the separation of ownership and control inherent in the modern firms creates the agency problem and corporate governance mechanisms are purported to better align the interests of managers with those of the shareholders (Jensen and Meckling, 1976). Analytical models developed by La Porta, et. al (2002) and Shleifer and Wolfenzon (2002) and empirical studies (Gompers et al., 2003) demonstrate that agency problems may influence the expected cash flows accruing to investors in the forms of dividends or interests and that agency problems may result in lower stock prices because, for firms with better corporate governance, investors expect less shareholders' monitoring and auditing costs and less management expropriation. Effective corporate governance thus mitigates agency problems and leads to better resource allocations and firm performance.

Another important reason why good corporate governance may contribute to better firm performance and valuation is due to lower cost of capital. Firms with good corporate governance are also more likely to obtain capital at a lower cost than those firms with bad corporate governance. Investors and creditors are more willing to input capital to those firms with good corporate governance since it is more likely for firms with good corporate governance to return the profits to them (Shleifer and Vishny, 1997). Investors and creditors are more likely to ask firms with poor corporate governance for a higher cost of capital due to the higher risk and uncertainty that the firms will return the

profits to them. Lower cost of capital contributes to higher net income, the difference between earnings and cost of capital.

Ashbaugh et al (2004) empirically verify the negative relationship between corporate governance and cost of capital. They find out that firms with more independent directors in the audit committees, higher institutional ownership, more five-percent blockholders and higher shareholder rights score have a lower cost of capital. They argue that “collectively, the governance attributes we examine explain roughly 8% of the cross-sectional variation in firm’s cost of capital” (p.3).

Popular press also indicates that the business community attaches great importance to corporate governance when they make investment and valuation decisions (McKinsey & Company, 2002).

3.3.2 Lead directorship and corporate governance

Prior research suggests that good corporate governance improves firm performance. I now discuss how lead directorship contributes to good corporate governance by improving board monitoring quality and board independence.

Lead directorship improves board independence through “creating a structural barrier between firm management and non-executive directors” (Dalton and Dalton, 2005). One way to improve board independence and to reduce agency costs, consistently argued by institutional investors and some researchers of corporate governance, is to separate the positions of CEO and board chairman. CEO duality, by granting a CEO an undue influence on the board of directors that is supposed to monitor the performance of management, may compromise the effectiveness of the board decision-making and

increases the likelihood that the CEO will “take actions that deviate from the interests of residual claimants....(fox guarding a henhouse) (p.34)” (Fama and Jensen, 1983). In firms where CEO and the board chairman is the same person, lead directorship brings greater power balance the board/management relationship and more power check to the CEOs that strongly influence the monitoring board, and creates a more engaged board that is more independent of management influence. Lead independent directors usually preside at board meetings in the absence of the CEO and executive sessions of the non-management directors and have ultimate approval over information sent to the board and ultimate approval over the board meeting agenda. Therefore, lead directorship is an effective substitute for the non-management chairman and substantially improves the board monitoring effectiveness (Dalton and Dalton, 2005).

Lead directorship also enhances the board monitoring effectiveness by establishing a clear leadership among independent directors and thus contributing to the mitigation of free-rider problem in the board of directors. Independent directors have both financial incentives from director compensations and reputational incentives from director labor market to monitor the management. However, the incentives of independent directors to monitor management effectively also depend on the actions of other independent directors as a group. Classical game theory defines the problem of free-rider as “A situation commonly arising in public goods contexts in which players may benefit from the actions of others without contributing (they may free ride). Thus, each person has incentives to allow others to pay for the public good and not personally contribute. In short, the free rider problem occurs because one does not have incentive to

account for the global benefits of a private act, such as in the tragedy of the commons game.”²¹ In the context of board of directors, individual independent directors bear 100% of the costs associated with monitoring, but enjoy only a fraction of the benefit. Therefore, individual independent directors are hesitant to increase their efforts of monitoring, nor assume the leadership and the resulting risk and responsibility, thus creating a free-rider problem in the board of directors (Hermalin and Weisbach, 2003). What exacerbates the free-rider problem of the outside directors in the board of directors is that CEOs usually have substantial influence in both the nomination of outside directors and the determination of tenures of the outside directors. Therefore, outside directors may fear to face the retaliations from the closely-monitored CEOs and hesitate to challenge them. Through the designation of a lead independent director, the independent directors as a group have a clearly-defined leadership and hold executive sessions without the presence of management at which the lead director presides. These non-management sessions provide a critical forum for independent directors to more candidly discuss sensitive issues including executive compensation, performance reviews and CEO turnovers, which may not be possible to discuss with the presence of CEOs. A clearly-defined leadership in the group of independent directors acts as a conduit of communication between CEO, who controls the director nominations and has influence on director evaluation, and independent directors, thus making individual independent director worry less about the monitoring costs and increase monitoring efforts. The

²¹ <http://www.gametheory.net/dictionary/FreeRiderProblem.html>

purpose of the post of lead directorship is to “promote a candid discussion environment and improve the board independence” (Conference board, 2004).

If the lead directorship, as regulators, shareholder activists, institutional investors and some academics argue, may improve the board independence and board effectiveness, I hypothesize that the designation of a lead director should improve board decision quality and ultimately enhance firm performance due to the improved board independence and board effectiveness. In this dissertation, I use both cross-sectional analysis and inter-temporal analyses to explore the relationship between lead directorship and firm performance. The hypotheses, stated in alternative form, are as follows:

H₁ (Cross-sectional hypothesis):

Cross-sectionally, firms with a lead director in their board exhibit better financial performance than firms without a lead director in the board.

H₂ (Inter-temporal hypothesis):

Inter-temporally, firms experience better firm performance in a period with a lead director in the board than in a period without a lead director.

CHAPTER IV

METHODOLOGY

In this chapter, I first describe the empirical proxies of firm performance in this dissertation. Then I discuss the research methodology that is used to test both cross-sectional and inter-temporal hypotheses. I first outline the procedures for cross-sectional analysis, followed by description of the procedures for inter-temporal analysis.

4.1 Measures of Firm Performance

I measure firm performance by three empirical proxies: Tobin's Q, returns on assets (ROA) and stock returns, which are the most widely used firm performance proxies. As discussed in chapter 2(section 2.6.3), all of the above three empirical measures have their own shortcomings as far as empirical validity is concerned, but they are highly correlated with each other such that "the qualitative nature of the results (of the empirical studies) should not be affected by the choice of the proxy" (Mehran, 1995).

Tobin's Q is named after the Nobel price winner James Tobin from Yale University and is calculated as the ratio of market value to asset replacement value (Yermack, 1996).

Tobin's Q is calculated as:

$$\text{Tobin's Q} = (\text{Market value of assets}) / (\text{Replacement cost of assets})$$

As an approximation, the market value of assets is computed as market value of equity plus book value of assets minus book value of equity, following Brown and Caylor (2006). The asset replacement value is taken as the book value of assets. A Tobin's Q ratio greater than one indicates the good quality of the investment decisions: it has invested in positive NPV investment projects rather than in negative NPV investment projects and the returns meet or exceed expectations. In contrast, Tobin's Q lower than one suggests that the firm did not even earn its returns expected from investors from the investment projects to cover the cost of capital. Return on assets is calculated as earnings before depreciation, interests, and taxes divided by the beginning-of-the-year total assets.

Return on assets (ROA) indicates how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is generally displayed as a percentage. Sometimes this is referred to as "return on investment", an indicator of how profitable a company is:

$$\text{Return on assets (ROA)} = (\text{Net income}) / (\text{Total assets})$$

Stock returns are measured as buy-and-hold returns compounded during the whole fiscal year. Financial data is from S&P Compustat database and insider equity ownership data is from S&P ExecuComp database, while data of stock returns is from Center for Research in Security Prices (CRSP).

4.2 Cross-sectional Analysis

4.2.1 Univariate analysis

My sample consists of S & P 500 firms from 2001 to 2004 that have all the required financial and stock returns information. In the univariate cross-sectional

analysis, I compare mean values of firm performance (Tobin's Q, ROA and stock returns) of two mutually-exclusive groups from year 2001 to year 2004 on a year-to-year basis: the set of firms that had a lead director in the board (with-LD group) and the set of firms without a lead director in the board (no-LD group), i.e., one group-mean comparison for each year from 2001 to 2004. I also compare mean values of firm performance of those two groups for the four years on a pooling basis to see the general effect of the lead directorship on firm performance. In the above cross-sectional univariate analyses, I conduct both parametric t-test and non-parametric Wilcoxon test to test the group difference. If the designation of a lead director in the board of directors improves the board independence and the board monitoring effectiveness, I predict that overall, the firm performance is significantly better for the groups of with-LD than the group of no-LD for both the year-by-year and the pooling univariate analyses.

4.2.2 Multivariate analysis

The second part in the cross-sectional analysis is the multiple regressions. I use both OLS and fixed effect regressions to estimate directly the relationship between lead directorship and firm performance, following Yermack (1996). I regress proxies of firm performance on lead directorship, controlling other factors influencing firm performance.

$$F \text{ (Firm performance)} = L \text{ (lead directorship)} + C \text{ (control variables)}.$$

Where: F is proxies of firm performance: either Tobin's Q, return on assets (ROA), or stock returns; L is an indicator variable that is equal to one if there is a lead

director in the board, zero otherwise; C comprises of a set of control variables based on prior research.

In the first regression where the proxy for firm performance is Tobin's Q (Compustat item 6+ item 199* item 25- item 60- item 74/ (item 6))²², the regression model is:

$$\begin{aligned} \text{Tobin'Q} = & a_1\text{LEAD} + a_2\text{BSIZE} + a_3\text{DUALITY} + a_4\text{FOUNDING} + \\ & a_5\text{OUTSIDE} + a_6\text{DIOWNL1} + a_7\text{DIOWN1T5} + a_8\text{DIOWN5T20} + a_9\text{SIZE} \\ & + a_{10}\text{BM} + a_{11}\text{LEVERAGE} + a_{12}\text{SEGMENT} + a_{13}\text{DELAWARE} + a_{14}\text{ROA} \\ & + a_{15}\text{LAGROA} + a_{16}\text{AGE} + \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (1)$$

LEAD is an indicator variable that has the value of one if the firm had a lead director in the board, zero otherwise. I include some corporate governance variables related to board structure and independence as control variables, based on previous research on the relationship between firm performance and those corporate governance variables.

BSIZE refers to the log of board size. Yermack (1996) suggests that board size is inversely associated with firm performance measured by Tobin's Q and return on assets (ROA) and thus I expect the coefficient of BSIZE to be negative.

DUALITY is a dummy variable that is equal to one if the position of CEO and chairperson of the board of directors is the same person, and zero otherwise. The relationship between CEO duality and firm performance is not conclusive. Some studies (Yermack, 1995; Shivdasani and Yermack, 1998) indicate that firms with CEO duality

have experienced inferior firm performance, while others (Berg and Smith, 1978; Baliga et al. 1996) fail to identify any relationship. Thus I do not have any prediction on the sign of DUALITY.

FOUNDING is an indicator variable that is equal to one if the CEO is the founding CEO, zero otherwise. Empirical studies, such as DeAngelo and DeAngelo (2000), document that the founding CEOs in public firms extract private rents through special dividends, excessive compensations, and with related-party transactions, and thus firm performance is inversely related to the founding CEO status. I therefore predict a negative effect of FOUNDING on firm performance proxied by Tobin's Q.

Another board characteristic is the equity ownership by all the insider directors in the board. Classical agency theory (Jensen and Meckling, 1976) suggests that equity ownership can properly align the interests of the management with those of shareholders and empirical studies also provide evidence of it. Morck et al (1988) and McConnell and Servaes (1990) find evidence of a curvilinear relationship between firm performance proxied by Tobin's Q and the insider equity ownership: Tobin's Q initially increases as insider equity ownership increases up to 5 percent and then falls as insider ownership increases to 25 percent, after which the Tobin'Q increases again. Consistent with Panasian et al. (2005), I divide insider equity ownership into four categories since the relationship between insider equity ownership and firm performance is curvilinear: if the insider as a group owns less than 1 percent of the total outstanding shares (DIROWN1), between 1 and 5 percent (DIROWN1T5), between 5 and 20 percent (DIROWN5T20) and

²² The calculation of Tobin's Q is following Brown and Caylor (2005).

over 20 percent (DIROWN20). Note that in the regression model, DIROWN20 is subsumed in the intercept term and is thus not included in the regression model. Based on previous research, I predict DIROWN1T5 to be positive, DIROWN5T20 to be negative. I do not have any prediction on DIROWNL1.

OUTSIDE is the percentage of outside directors in the board of directors. As discussed in section 2.6.2, the empirical studies have not reached a conclusive agreement on the relationship between the percentage of outside directors and firm performance. Therefore, I do not have expectation of the sign of the coefficient of OUTSIDE.

Following previous research (Morck et al, 1988; Yermack, 1996; Shin and Stulz, 2000; Daines, 2001 and Gompers et al, 2003), I include other control variables in multiple regressions: firm size, growth opportunities, investment opportunities, leverage ratio and firm age.

SIZE is the firm size, as measured by the log of total assets (Compustat item 6). The proxy for growth opportunities is BM (book to market ratio). Following Gompers et al (2003), BM is defined as the ratio of book value of common equity (Compustat item 60) to market value of common equity (Compustat item 199* item 25). I also use capital expenditure scaled by total assets (Compustat item 128 divided by item 6) as an alternative proxy for growth opportunities in the robustness test.

LEVERAGE is defined as long-term debt to total assets (Compustat item 9 divided item 6). Jensen and Meckling (1976) suggest that debt covenant can act as an internal corporate governance mechanism to mitigate agency problems, especially free cash flow problem. On the other hand, Myers (1977) argues that the inherent information

asymmetry between the firm and outsiders may hinder firm's efforts to raise capital from outsiders and thus firm's growth may be slowed down. Therefore, the relationship between the leverage ratio and firm performance is dependent upon the specific scenarios and which force is more dominating. Thus, I do not have any expectation of the direction of the sign of LEVERAGE.

SEGMENT is the number of business segments reported in COMPUSTAT. Lang and Stultz (1994) and Berger and Ofek (1995) document that diversified firms have lower Tobin's Q values and therefore I predict a negative sign for the coefficient of SEGMENT.

Following Daines (2001), I control a firm's profitability and include return on assets (ROA) and the ROA of prior year (LAGROA). Return on assets (ROA) is defined as operating income (Compustat data item 178) divided by lagged total assets (Compustat data item 6). Daines (2001) argues that a firm's profitability positively impacts a firm's Tobin's Q and therefore I expect a positive sign for both ROA and LAGROA.

DELAWARE is an indicator variable that is equal to one if the firm was incorporated in the state of DELAWARE, zero otherwise. Daines (2001) presents evidence that Delaware corporate law improves firm value and thus I expect a positive sign for the variable of DELAWARE.

AGE is the log of total fiscal quarters a firm has existed in Compustat, consistent with Brown and Caylor (2006). The longer the firm age, the less business risk and the more mature the firm is and the higher Tobin's Q. I expect therefore a positive

sign for the variable of AGE. Finally, I use dummy variables (INDUSTRY and YEAR) to control industry (two-digit SIC) and time period effect in the multiple regression.

In the second regression where the proxy for firm performance is return on assets (ROA), return on assets (ROA) is defined as operating income (Compustat data item 178) divided by lagged total assets (Compustat data item 6). The regression model is:

$$\begin{aligned} \text{ROA} = & b_1\text{LEAD} + b_2\text{BSIZE} + b_3\text{DUALITY} + b_4\text{FOUNDING} + \\ & b_5\text{OUTSIDE} + b_6\text{DIROWNL1} + b_7\text{DIROWN1T5} + b_8\text{DIROWN5T20} + \\ & b_9\text{SIZE} + b_{10}\text{BM} + b_{11}\text{LEVERAGE} + b_{12}\text{SEGMENT} + b_{13}\text{AGE} + \\ & \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (2)$$

All the variables in regression (2) are defined as in regression (1). Vafeas (1999) documents that firms with higher growth opportunities will have better accounting performance. Therefore, I predict the sign of BM is negative. For the other control variables, I do not have any specific prediction of the direction of the coefficients. I use dummy variables (INDUSTRY and YEAR) to control industry (two-digit SIC) and time period effect in the multiple regression.

In the third regression where the dependent variable is the stock returns (buy-and-hold returns compounded over the fiscal year), the regression model is:

$$\begin{aligned} \text{RET} = & c_1\text{LEAD} + c_2\text{BSIZE} + c_3\text{DUALITY} + c_4\text{FOUNDING} + \\ & c_5\text{OUTSIDE} + c_6\text{DIROWNL1} + c_7\text{DIROWN1T5} + c_8\text{DIROWN5T20} + \\ & c_9\text{SIZE} + c_{10}\text{BM} + c_{11}\text{AGE} + \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (3)$$

The variables in the regression are defined as in regression (1) and (2). For the control variables, I do not have specific predictions of the directions of the coefficients. I also use dummy variables (INDUSTRY and YEAR) to control industry (two-digit SIC) and time period effect in the multiple regression.

4.3. Inter-temporal Analysis

In the section of inter-temporal analysis, I examine changes in firm performance from before to after the adoption of the lead directorship. I define the year in which a firm added a lead director in the board of directors as event year y , year $y+1$ is one year after the event year, year $y-1$ as one year before the event year y and so forth. During $y+1$, the firm had a lead director for at least 12 months. Tobin's Q , returns on assets (ROA) and stock returns of three sets of firms are analyzed based on the years before and after the event year.

Following Dahya and McConnell (2005) and Panasian et al (2005), I split the sample into three mutually exclusive groups: (1) the set of firms that had a lead director in the board every year from 2001 to 2004. I name this group the always-designation set; (2) the set of firms that never designated a lead director in the board any year from 2001 to 2004. I call this group never-designation set; (3) the remaining set of firms that designated a lead director to the board any year from 2001 to 2004. I call this group of firms the new-designation set.

4.3.1 Univariate analysis

I compare the change of firm performance within the three groups: always-designation set, new-designation set and never-designation set, on a before-and-after

inter-temporal basis from years before event year y to years after the event year y . Following Dahya and McConnell (2005), I compare changes in firm performance from one year before (year $y-1$) or two years before (year $y-2$) to one year (year $y+1$) after or two years after ($y+2$) the designation of a lead director in the board of directors, in comparison with the other two groups of the corresponding years in an inter-temporal context. I calculate the difference of firm performance from year $y+1$ and year $y-1$ as D_1 , the difference of firm performance from year $y+2$ and year $y-1$ as D_2 , or the difference of firm performance from year $y+1$ and year $y-2$ as D_3 .

I then compare the performance of year 2001 with that of year 2003(D_1) and 2004(D_2) for the three mutually-exclusive groups defined above.

Similarly, I compare the performance of year 2004 with that of year 2002(D_1) and 2001(D_3) for the three mutually-exclusive groups defined above. Due to the limitation of data limitation and cost-effectiveness of data collection, only the year of 2002 or 2003 when the firm introduced a lead director in the board is categorized as event year (year y) in the inter-temporal analysis. Hence the sample size in the inter-temporal analyses is smaller than that in the cross-sectional analyses.

Significance tests are also carried for those comparisons. If the designation of a lead director in the board of directors improves the board independence and the board monitoring effectiveness, I predict that the firm performance is significantly better for the group of new-designation after the firm added a lead director in the board, i.e., firm performance of one year after the designation ($y+1$) and two years after the designation ($y+2$) is significantly better than one year or two years before the designation ($y-1$ and $y-$

2), or, D_1 , D_2 and D_3 are significantly positive. And for the other two groups, D_1 , D_2 and D_3 of the corresponding years are insignificant.

The second step in the univariate before-after inter-temporal analysis is also based on the comparison with industry and performance-matched benchmarks. Following Barber and Lyon (1996), I generate a set of always-designation firms and a set of never-designation firms that match the new-designation firm on the basis of two-digit SIC industry classification. From those industry-matched firms, I select the one whose firm performance (Tobin's Q, ROA and stock returns) during year $y-1$ is closest to the firm performance (Tobin's Q, ROA and stock returns) of the new-designation firm so long as the matching firm's firm performance (Tobin's Q, ROA and stock returns) lies within 75% or 125% of the adopting firm's firm performance (Tobin's Q, ROA and stock returns). As in the analysis based on unmatched samples described before, I conduct comparisons of firm performance of years before the designation of a lead director in the board ($y-1$, $y-2$) with one year and two years after the designation ($y+1$, $y+2$) for each firm of the new-designation group and other firms of other two groups in the corresponding years. I calculate the difference of firm performance from year $y+1$ and year $y-1$ and D_1 , and the difference of firm performance from year $y+1$ and year $y-2$ as D_2 , or the difference of firm performance from year $y+1$ and year $y-2$ as D_3 . Significance tests are also carried for those comparisons. If the designation of a lead director in the board of directors improves the board independence and the board monitoring effectiveness, I predict that the firm performance is significantly better for the group of new-designation after the firm added a lead director in the board, i.e., firm performance

of $y+1$ and $y+2$ is significantly better than the years of $y-1$ and $y-2$, or, D_1 , D_2 and D_3 are significantly positive. And for the other two groups, D_1 , D_2 and D_3 of the corresponding years are insignificant.

4.3.2 Multivariate analysis

As in the analyses before, I define the year in which a firm added a lead director in the board of directors as event year y , year $y+1$ is one year after the event year, year $y-1$ as one year before the event year y and so forth. During $y+1$, the firm had a lead director for at least 12 months. Tobin's Q , returns on assets (ROA) and stock returns of three sets of firms are analyzed based on the years before the event year and after event year.

The multivariate inter-temporal analysis is based on the data of year $y+1$ and year $y-1$ only, or the year before the year when the firm added a lead director and the year after the firm has added the lead director in the board. The sample is limited to those firms that added a lead director into the board in either 2002 or 2003 due to the data restriction. I compare the performance difference between year $y-1$ and $y+1$, controlling other factors that may influence firm performance, as well as lead directorship. I run the OLS regressions, using the same regressions models as in the multivariate cross-sectional analysis, except that the variable LEAD is defined differently. In the multivariate inter-temporal analysis, LEAD is a dummy variable equal to one if the year is $y+1$, zero otherwise. If the designation of a lead director in the board of directors improves the board independence and the board monitoring effectiveness, I expect that the variable LEAD is significantly positive, indicating that the firm performance of one year after the

designation of a lead directorship is significantly better than that of one year before. As in the analyses before, I measure firm performance by three empirical proxies: Tobin's Q (regression model 4), return on assets (regression model 5) and stock returns (regression model 6). All the variables in the regression models are defined as in the multivariate cross-sectional analyses, except the variable of LEAD explained above.

$$\begin{aligned} \text{Tobin'Q} = & d_1\text{LEAD} + d_2\text{BSIZE} + d_3\text{DUALITY} + d_4\text{FOUNDING} + \\ & d_5\text{OUTSIDE} + d_6\text{DIOWNL1} + d_7\text{DIOWN1T5} + d_8\text{DIOWN5T20} + \\ & d_9\text{SIZE} + d_{10}\text{BM} + d_{11}\text{LEVERAGE} + d_{12}\text{SEGMENT} + d_{13}\text{DELAWARE} + \\ & d_{14}\text{ROA} + d_{15}\text{LAGROA} + d_{16}\text{AGE} + \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (4)$$

$$\begin{aligned} \text{ROA} = & e_1\text{LEAD} + e_2\text{BSIZE} + e_3\text{DUALITY} + e_4\text{FOUNDING} + e_5\text{OUTSIDE} \\ & + e_6\text{DIOWNL1} + e_7\text{DIOWN1T5} + e_8\text{DIOWN5T20} + e_9\text{SIZE} + e_{10}\text{BM} \\ & + e_{11}\text{LEVERAGE} + e_{12}\text{SEGMENT} + e_{13}\text{AGE} + \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (5)$$

$$\begin{aligned} \text{RET} = & f_1\text{LEAD} + f_2\text{BSIZE} + f_3\text{DUALITY} + f_4\text{FOUNDING} + f_5\text{OUTSIDE} \\ & + f_6\text{DIOWNL1} + f_7\text{DIOWN1T5} + f_8\text{DIOWN5T20} + f_9\text{SIZE} \\ & + f_{10}\text{BM} + f_{11}\text{AGE} + \text{INDUSTRY} + \text{YEAR} \end{aligned} \quad (6)$$

4.4 Summary

In this chapter, I first describe the empirical proxies of firm performance in this dissertation. Then I discuss the research methodology that is used to explore the research question: "Is there any relationship between lead directorship and firm

performance?” I outline the procedures for cross-sectional analysis, followed by description of procedures for inter-temporal analysis.

In the univariate cross-sectional analysis, I compare mean values of firm performance (Tobin’s Q, ROA and stock returns) of two groups: the set of firms that had a lead director in the board any year or all four years from 2001 to 2004 (with-LD group) and the set of firms that never designated a lead director in the board any year from 2001 to 2004 (no-LD group). In the univariate inter-temporal analysis, I split the sample into three mutually exclusive groups: (1) the set of firms that had a lead director in the board every year from 2001 to 2004 (always-designation set); (2) the set of firms that never designated a lead director in the board any year from 2001 to 2004 (never-designation set); (3) the remaining set of firms that designated a lead director to the board any year from 2001 to 2004 (new-designation set). I then compare changes in firm performance from before to after the introduction of a lead director in the board of directors (new-designation set) in comparison with the other two groups in an inter-temporal context. I also use industry and performance-matched benchmarks to exclude the influence of macroeconomic factors on firm performance in the univariate inter-temporal analysis. In the multivariate cross-sectional and multivariate inter-temporal analyses, I use both OLS and fixed-effect regressions to control other factors impacting firm performance.

CHAPTER V

EMPIRICAL RESULTS

In this chapter, I present empirical results of the analyses outlined in the above chapters. I describe the sample and the descriptive characteristics of the sample, followed by the empirical results of both cross-sectional and inter-temporal analyses. I conclude this chapter with a discussion of additional analyses and a brief summary of the empirical results.

5.1 Descriptive Statistics

My sample consists of S & P 500 firms from 2001 to 2004 that have all the required , board, financial and stock returns information. Board information, such as stock ownership, director type, is hand-collected from the proxy statements. Financial information is from Stand & Poor Compustat database and stock returns information is from CRSP database. I require complete and continuous four-year financial, returns and board data for each firm to conduct fixed-effect regressions, consistent with Yermack (1996). Table 1 reports the sample derivation process. Starting from financial data from Compustat, I lose one hundred and twenty eight firms due to incomplete financial data or no-coverage of Compustat database. I require at least two hundred fifty trading days for each firm to calculate the fiscal year stock returns and I lose another fifty six firms due to incomplete returns data or no-coverage of CRSP database. Information of board

characteristics is collected from firm proxy statements. I lose ten firms due to incomplete board or equity ownership information. The total sample size is 306 firms and 1,224 firm years for four years.

Out of the 306 firms in the S&P 500 from 2001 to 2004 that have complete financial and stock returns information, only thirteen firms, or 4.3% of my sample, disclosed detailed definitions and duties of the lead directorship in their board of directors. Table 2 summarizes the duties of the lead director disclosed by those thirteen firms. Of those thirteen firms, all firms have the lead director chair executive sessions of independent directors; twelve firms (92.3%) have the lead director establish agendas for meetings of independent directors; ten firms (76.9%) have the lead director act as principal liaison between independent directors and CEO; six firms (46.1%) have the lead director provide feedback to CEO on meetings of independent directors; nine firms (69.2%) have the lead director assist in interviewing board candidates; five firms (38.46%) have the lead director mentor new directors; six firms (46.1%) have the lead director lead Board in anticipating and responding to crisis situations by convening the Executive Committee; seven firms(53.6%) have the lead director assist the Board in fulfilling its responsibility for reviewing, evaluating and monitoring the company's strategic plans by meeting with the CEO, and such other members of senior management as the CEO designates from time to time, on a regular, periodic basis to receive and review strategic updates. Table 1 indicates that currently it is not common for a firm with a lead director in the board to disclose the detailed duties of a lead director.

In the unreported industry analysis, the industry distribution of the sample based on the two-digit SIC classification. It indicates that the sample is concentrated on some industries: Chemicals and Allied Products (10.46%); Industry & Commercial Machinery and Computers (9.8%); Electrical and Electronic Equipment (9.48%); Business Services (7.52%); Measuring and Analyzing Instruments (6.54%). In the multiple regressions, I use industry dummy variables to control the potential industry effect on the empirical results.

Table 3 reports the basic descriptive statistics of the sample. I also compare the sample of this dissertation, S&P 500 firms, with the rest of the firms in the Compustat database, non S&P firms. As panel A shows, compared with non-S&P firms from year 2001 to 2004, in terms of mean values, the 306 S&P firms in my sample are more likely to be incorporated in Delaware (61.44% vs. 49.89%), are bigger in terms of total assets (16,169 millions vs. 1,364 millions), are more mature in terms of the number of quarters in the Compustat database (90.85 quarters vs. 47.43 quarters), have higher growth opportunities measured by book-to-market ratio (0.17 vs. 0.37) and higher leverage ratio (0.20 vs. 0.18), and have better accounting performance measured as ROA (.116 vs. .043), and better Tobin's Q (2.73 vs. 2.32). The above comparisons are based on the mean values of the measures and all are statistically significant at conventional 5% significance level. Median statistics also suggest very similar patterns.

Panel B shows the descriptive statistics of board characteristics of the sample. Consistent with previous corporate governance research (Yermack, 1996; McConnell,

1990), the sample suggests that corporate insiders²³ do not own a significant portion of the equity of the firms: out of the 1,224 firm years from year 2001 to 2004 for the S&P 500 firms in my sample, 72% (mean) of the firm-years have an insider equity ownership of less than one percent, 20% (mean) of the firms have an insider equity ownership between one percent and five percent, 5% (mean) of the firms have an insider equity ownership between five percent and twenty percent, while only 3% (mean) of the firms have an insider equity ownership above twenty percent. Panel B also suggests that CEO duality is also very common in U.S corporations (67%), 7% of my sample firms have a CEO from the founding family, and 58% have a lead director in the board. The average (median) board size of the sample is 10.74 (11), the average percentage of the outstanding shares owned by corporate insiders is 2% (0), the percentage of outside directors in the board is 73% (75%), and the average fiscal-year stock returns is 13% (9%).

Table 4 shows the result of correlation analyses, in which the portion above the diagonal is the result of Pearson correlations while the section below the diagonal is the result of Spearman correlations. Consistent with previous research, the result of Pearson correlations suggests that firms incorporated in the state of Delaware tend to have higher Tobin's Q value ($r=0.041$, $p<0.1$), firms with longer firm age, thus more mature and less business risk, also tend to have higher Tobin's Q ($r=.27$, $p<.001$), board size is negatively associated with Tobin's Q ($r= -0.188$, $p<0.001$), insider equity ownership is positively associated with Tobin's Q ($r=0.14$, $p<.001$), CEO duality is

²³ Corporate executives and board directors as a group

negatively related to Tobin's Q ($r = -0.11, p < .001$), firms with a founding member as its CEO also tend to have lower Tobin's Q ($r = -0.15, p < .001$), and the percentage of the outside directors in the board is also positively correlated with both Tobin's Q ($r = 0.12, p < .001$) and stock returns ($r = 0.06, p < .05$). The variable of interest, whether the firm has a lead director in the board of directors, is found to be positively correlated with both Tobin's Q ($r = 0.003, p < .001$) and stock returns ($r = 0.07, p < .01$), indicating the existence of a positive relationship between lead directorship and firm performance. The empirical result of correlations does not indicate any statistically significant association between lead directorship and accounting performance measured by return on assets (ROA).

5.2 Cross-sectional Analyses

5.2.1 Univariate analyses

Table 5 presents the empirical results of the cross-sectional analyses. Panel A is the yearly distribution of lead directors for the 1,224 firm years. For the year of 2001, 82 firms, or 26% of the 306 firms in the sample had a lead director in the board. In 2002, 34 firms added a lead director into the board of directors, boosting the total number of firms with a lead director to 116, or 38% of the total 306 firms. The year of 2003 when the regulatory change took effect witnessed a drastic increase of number of firms that added a lead director into the board: 109 firms introduced a lead director and the number of firms that had a lead director in the board in 2003 increased to 225, or 74% of the 306 firms in the sample. Fifty more firms designated a lead director in the board in 2004 and the total number of firms with a lead director in the board reached 275 or 90% out of 306 firms. Altogether, eighty two firms have always had a lead director in the board for each

of the four years from 2001 to 2004, while thirty one firms did not have a lead director for any of the four years. Those eighty two firms constitute the always-designation group and the thirty firms comprise the never-designation group in the inter-temporal analyses.

Panel B of table 5 examines the Tobin's Q difference between the firms with a lead director in the board and those without for each of the four years from 2001 to 2004. For each of the four years, firms with a lead director in the board had consistently higher mean Tobin's Q and t-tests suggest that the differences are all statistically significant at the conventional five percent significance level. I also pool Tobin's Qs of all four years and conduct an overall mean difference t-test. The overall mean and median differences for the all four years also indicate that firms with a lead director in the board have statistically significant higher Tobin's Q. The less powerful non-parametric Wilcoxon median tests are able to find significant differences of Tobin's Q for three of the four years from 2001 to 2004.

Panel C of table 5 examines the returns on assets (ROA) difference between the firms with a lead director in the board and those without for each of the four years from 2001 to 2004. Neither the t-tests nor the non-parametric Wilcoxon tests find any statistically significant difference between those two groups except a t-test of group mean difference for the year of 2002, which is significant at 0.1 level. Thus, in terms of returns on assets (ROA), there is no univariate cross-sectional evidence that firms with a lead director in the board outperform the group of firms without.

Panel D of table 5 examines the stock market performance difference between the firms with a lead director in the board and those without for each of the four years from

2001 to 2004. For three of the four years, firms with a lead director in the board had consistently higher mean stock returns and t-tests suggest that the differences are all statistically significant at the conventional five percent significance level. The non-parametric median tests also confirm the similar pattern. In the tests of pooled four-year stock returns, both the t-test of the group means and the non-parametric Wilcoxon median test are able to find significant differences of stock returns.

Therefore, the univariate cross-sectional analyses indicate that firms with a lead director in the board generally outperformed those without in terms of Tobin's Q and stock returns, but not ROA.

5.2.2 Multivariate analyses

Table 6 provides empirical results of the multiple regressions in which firms performance measures are regressed on the lead directorship and other factors that may impact the relationship between firm performance and lead directorship. Panel A is the empirical result of the regression with Tobin's Q as the dependent variable. The coefficient of LEAD, an indicator variable equal to one if a firm had a lead director and zero otherwise, is positive and statistically significant in both of the basic OLS model ($a_1=0.01$, $p<0.1$) and the fixed effect model (FE model hereafter) that controls the time-invariant factors ($a_1=0.01$, $p<0.1$), indicating that there is a positive relationship between lead directorship and firm performance measured by Tobin's Q, after controlling other factors that may influence the relationship of interest.

Consistent with previous research, the result suggests that firms with a larger board size tend to have a lower Tobin's Q ($a_2= -0.6$ in OLS and -0.5 in the FE model

respectively, $p < 0.01$), firms with a founding member as CEO have a lower Tobin's Q ($a_4 = -0.01$ in OLS and -0.02 in the FE model respectively, $p < 0.01$), firms with a higher percentage of outside directors have a higher Tobin's Q ($a_5 = 0.19$ in OLS and 0.14 in the FE model respectively, $p < 0.01$), firms with higher growth opportunities have higher Tobin's Q ($a_{10} = -0.15$ in OLS and -0.24 in the FE model respectively, $p < 0.01$), firms with more business segments have lower Tobin's Q ($a_{12} = -0.09$ in OLS and -0.08 in the FE model respectively, $p < 0.01$), firms incorporated in the state of Delaware have higher Tobin's Q ($a_{13} = 0.29$ in OLS and 0.46 in the FE model respectively, $p < 0.01$), and firms with bigger firm age and thus with less business risk have higher Tobin's Q ($a_{16} = 0.06$ in OLS and 0.07 in the FE model respectively, $p < 0.01$). Consistent with Morck et al (1988) and McConnell and Servaes (1990), I find a curvilinear relationship between insider equity ownership and Tobin's Q: firms having an insider ownership of less than one percent and less than five percent enjoy a higher Tobin's Q ($a_6 = 0.09$ and $a_7 = 0.02$ in OLS, and $a_6 = 0.08$ and $a_7 = 0.06$ in the FE model respectively, $p < 0.01$). However, when the insider equity ownership is between five percent and twenty percent, there is a negative association between insider equity ownership and Tobin's Q ($a_8 = -0.05$ in OLS and -0.07 in the FE model respectively, $p < 0.01$), due to the more entrenched position the CEO has (Morck et al, 1988; McConnell and Servaes, 1990). The adjusted R squares are 0.34 for the basic OLS model and 0.37 for the fixed effect model respectively.

Panel B presents the empirical result of the regression with ROA as the dependent variable. The coefficient of LEAD, an indicator variable equal to one if a firm had a lead director and zero otherwise, is positive but not statistically significant in either of the

basic OLS model ($b_1=0.01$) or the fixed effect model ($b_1=0.08$). Consistent with previous research, the result suggests that firms with a larger board size tend to have a lower ROA ($b_3= -0.1$ in OLS and -0.02 in the FE model respectively, $p<0.01$), firms with a founding member as CEO have a lower ROA ($b_4= -0.09$ in OLS and -0.08 in the FE model respectively, $p<0.01$), firms with a higher percentage of outside directors have a higher ROA ($b_5=0.03$ in OLS and 0.05 in the FE model respectively, $p<0.01$), firms with higher growth opportunities have higher ROA ($b_{10}= -0.03$ in OLS and -0.02 in the FE model respectively, $p<0.01$), and firms with bigger firm age and thus with less business risk have higher ROA ($b_{13}=0.01$ in OLS and 0.03 in the FE model respectively, $p<0.01$). Consistent the regression model with Tobin's Q as the dependent variable, I find a curvilinear relationship between insider equity ownership and accounting performance: firms having an insider ownership of less than one percent and less five percent but greater than one percent enjoy a higher ROA ($b_6=0.02$ and $a_7 =0.09$ in OLS, and $b_6=0.08$ and $b_7 =0.1$ in the FE model respectively, $p<0.01$). However, when the insider equity ownership is between five percent and twenty percent, there is a negative association between insider equity ownership and ROA ($b_8= -0.01$ in OLS and -0.09 in the FE model respectively, $p<0.01$). The adjusted R squares are 0.28 for the basic OLS model and 0.31 for the fixed effect model respectively.

Panel C presents the empirical result of the regression with stock returns as the dependent variable. The coefficient of LEAD, an indicator variable equal to one if a firm had a lead director and zero otherwise, is positive and statistically significant in both of the basic OLS model ($c_1=0.01$, $p<0.1$) and the fixed effect model that controls the time-

invariant factors ($c_1=0.01$, $p<0.1$), indicating that there is a positive relationship between lead directorship and firm performance measured by fiscal annual stock returns, controlling other factors that may influence the relationship of interest. Consistent with previous research, the result suggests that firms with a larger board size tend to have a lower stock returns ($c_3= -0.9$ in OLS and -0.04 in the FE model respectively, $p<0.01$), firms with a founding member as CEO have a lower stock returns ($c_4= -0.09$ in OLS and -0.07 in the FE model respectively, $p<0.01$), firms with a higher percentage of outside directors have a higher stock returns ($c_5=0.06$ in OLS and 0.07 in the FE model respectively, $p<0.01$), and firms with bigger firm age and thus with less business risk have higher stock returns ($c_{12}=0.09$ in OLS and 0.08 in the FE model respectively, $p<0.01$). Consistent the regression model with Tobin's Q and ROA as the dependent variables, I find a curvilinear relationship between insider equity ownership and accounting performance: firms having an insider ownership of less than one percent and less five percent but greater than one percent enjoy a higher stock returns ($c_6=0.1$ and $a_7=0.13$ in OLS, and $c_6=0.12$ and $c_7=0.09$ in the FE model respectively, $p<0.01$). However, when the insider equity ownership is between five percent and twenty percent, there is a negative association between insider equity ownership and stock returns ($c_8= -0.06$ in OLS and -0.02 in the FE model respectively, $p<0.01$). The adjusted R squares are 0.21 for the basic OLS model and 0.19 for the fixed effect model respectively.

In summary, the evidence from cross-sectional analyses indicates that there exists a positive relationship between lead directorship and firm performance measured by Tobin's Q and stock returns.

5.3 Inter-temporal Analyses

5.3.1 Univariate analyses

Table 7 presents the descriptive statistics for the three groups: Always-Designation, New-Designation and Never-Designation group. For the sample of total 306 firms across four years from 2001 to 2004, there were eighty two firms that had a lead director in the board for all the four years, while there were thirty one firms that never had a lead director in the board for any of the four years. The third group, New-Designation group, includes firms that added a lead director into the board of directors in any of the four years from 2001 to 2004: sixteen firms added a lead director in the year of 2001, thirty four firms added a lead director in the year of 2002, one hundred and nine firms added a lead director in the year of 2003 and fifty firms did so in the year of 2004. Note that the New-Designation group is composed of firms that added a lead director at various points in time during the four-year period. However, sixteen firms that added a lead director in 2001 are included in the group of Always-Designation because these sixteen firms maintained the lead directorship for all the four years from 2001 to 2004. Therefore the sample size for the group of New-Designation is one hundred ninety three firms, rather than two hundred and nine.

Figure 1 presents the yearly distribution of firm performance of the three groups across four years from 2001 to 2004. Panel A is the result of Tobin's Q. In the years of 2001 and 2002 when there were not many firms that added a lead director, the values of Tobin's Q are pretty similar between the group of Never-Designation and New-Designation. The Tobin's Q of Always-Designation group is consistently higher than

those of the other two groups for the year of 2001 and 2002. In the year of 2003 when a lot of firms added a lead director into the board, there was a big jump of Tobin's Q for the group of New-Designation and there is no noticeable difference of Tobin's Q between the group of Always-Designation and New-Designation, but the Tobin's Q of the group of Never-Designation is still inferior to the other two groups. The same pattern lasted for the year of 2004.

Panel B displays the accounting performance (ROA) of the three groups. Generally, there is no discernible difference of accounting performance between the three groups. Panel C for stock returns, however, presents a picture very similar with that of Panel A. In the years of 2001 and 2002 when there were not many firms that added a lead director, stock returns were pretty similar between the group of Never-Designation and New-Designation. The stock returns of Always-Designation group were consistently higher than those of the other two groups for the year of 2001 and 2002. In the year of 2003 when a lot of firms added a lead director into the board, there was a big surge of stock returns for the group of New-Designation and there was no noticeable difference of stock returns between the group of Always-Designation and New-Designation, but the stock returns of the group of Never-Designation were still inferior to the other two groups. The same pattern lasted for the year of 2004.

Overall, the above evidence indicates that the inclusion of a lead director in the board of directors is associated with the improvement of Tobin's Q and stock returns, but not accounting performance.

Table 8 presents the empirical result for the change of firm performance for the years around the event year when a lead director was first introduced into the board of directors. As defined in the chapter of methodology, year Y is the event year when a lead director was introduced to the board. Note that there were thirty four firms that introduced a lead director in the year of 2002 and for the year of 2003 the number was 109, which constitute the sample for the analysis of change of performance: the New-Designation group. The Always-Designation group has eight two firms while the Never-Designation group has thirty firms, as explained in the Table 7. The control firms matched by two-digit SIC industry classification code and previous-year ROA in the Always-Designation group has 75 firms while the control firms in the Never-Designation group has 27 firms. I lost seven firms for the Always-Designation group and four firms for the Never-Designation group respectively due to the unsuccessful matching. Therefore, for the group-by-group comparisons, there are 75 pair groups for Always-Designation vs. New-Designation group comparisons, while there are 27 pair groups for Never-Designation vs. New-Designation group comparisons. Panel A, panel B and panel C are the empirical results of the comparisons between the group of New-Designation firms and the group of Always-Designation firms for the years around the event year in terms of Tobin's Q, ROA and stock returns. For Tobin's Q and stock returns, the New-Designation group consistently experienced performance improvement after the event year while the counterpart group did not, and the differences of the performance changes between the New-Designation group and the Always-Designation group are statistically significant at the five percent conventional significance level for all three comparison

time periods: Y-2 to Y+1, Y-1 to Y+1 and Y-1 to Y+2. Recall that Y is the event year when a lead director was added to the board of directors and those three comparison time periods are either one year or two years before the event year and one year or two year after the event year. The above results are also confirmed by the comparison between the New-Designation group and the control group matched by industry and previous performance. However, I am not able to detect any effect of the designation of the lead directorship on accounting performance measured by return on assets.

Panel D, panel E, and panel F Panel present the empirical results of the comparisons between the group of New-Designation firms and the group of Never-Designation firms for the years around the event year in terms of Tobin's Q, ROA and stock returns. For Tobin's Q and stock returns, the results are very similar to those of panel A, panel B and panel C: the New-Designation group consistently experienced performance improvement after the event year while the counterpart group did not, and the differences of the performance changes between the New-Designation group and the Never-Designation group are statistically significant at the five percent conventional significance level for all three comparison time periods: Y-2 to Y+1, Y-1 to Y+1 and Y-1 to Y+2. The above results are also confirmed by the comparison between the New-Designation group and the control group matched by industry and previous performance. However, consistent with the analyses before, I am not able to detect any effect of the designation of the lead directorship on accounting performance measured by return on assets.

5.3.2 Multivariate analyses

Table 9 presents empirical results of the multiple regressions in which the dependent variables are firm performance measured by Tobin's Q, ROA and stock returns and the key independent variable is an indicator variable that is equal to one if the time period is one year before the event year and one year after the event year. Therefore, this regression model only utilizes data of two years: one year before the event and one year after the event, and the intent of the regression model is to identify whether the performance change around the event year is statistically significant, controlling other factors that may influence the performance change other than the event of interest. Due to data limitation, only year 2002 and 2003 that have one year before and one year after the event year are included in this analysis. Panel A is the empirical result of the model in which Tobin's Q is the dependent variable. In both OLS and FE models, the performance improvement one year after the introduction of a lead director is statistically significant ($d_1=0.02$ for the OLS model and 0.06 for the FE model respectively). Panel B presents the result for the accounting performance (ROA). Consistent with previous analyses, the accounting performance change, one year after the event year vs. one year before the event year, is not statistically significant ($e_1=0.03$ for the OLS model and 0.04 for the FE model respectively). Panel C displays the empirical result for the stock returns. As the result of the Tobin's Q, in both OLS and FE models, the performance improvement of stock returns one year after the introduction of a lead director is statistically significant ($f_1=0.02$ for the OLS model and 0.02 for the FE model respectively). The directions of

coefficients of the other independent variables are consistent with the expectations, as in the results of the multiple regressions of the cross-sectional analyses.

5.4 Additional Analyses

Additional analyses are carried out to check for the robustness of the results. Outliers of financial variables, stock returns and board data, such as ROA, Tobin's Q, board size and stock returns are truncated at 1% and 2% level, the inferences are not changed. Other measures of firm performance are also used. I use return on equity (ROE) as another measure of accounting performance and fiscal year stock returns compounding from three months after the fiscal year end as the measure of stock market performance. Results (not reported) with different firm performance measures are qualitatively similar. I also rerun the analyses without firms in the regulated industries, such as financial services (SIC 49) and utilities (SIC 60-69), and the results are inferentially similar.

Standard procedures of regression diagnostics are carried out. Distributions of each variable in the regression models and error terms are carefully checked for the assumption of normality, linearity and heteroscedasticity. The distributions of both variables in the models and the error terms are robust to those regression assumption violations. I also use Variance Inflation Factor (VIF) to assess the degree of multicollinearity. None of the VIF values of the independent variables is over the threshold of ten that merits further consideration of multicollinearity.

5.5 Summary

In summary, results of both cross-sectional and inter-temporal analyses indicate that there is a positive association between the designation of lead directorship and firm performance measured by Tobin's Q and stock returns, but not accounting performance measured by return on assets, controlling other factor that may influence the relationship. The performance improvement of Tobin's Q and stock returns after the addition of a lead director in the board of directors is statistically significant.

The results are not surprising, given the inherent difference between the three empirical proxies of firm performance and the sample in the study. Tobin's Q is calculated as the ratio of market value to asset replacement value (Yermack, 1996). If Tobin's q is greater than 1.0, then the market value is greater than the value of the company's recorded assets, which suggests that the market value reflects some unmeasured or unrecorded assets of the company. Therefore, Tobin's Q measures better the market expectation (Yermack, 1996) and so do stock returns that hinge on the expectation of future cash flow. The positive association between the designation of lead directorship and Tobin's Q and stock returns indicates that the introduction of a lead director in the board has impact on the future cash flow and thus leads to very high expectation of future performance. In other words, Tobin's Q and stock returns are able to promptly pick up market expectation of *future* performance. Return on assets, however, indicates how efficient management is at using its assets to generate earnings for the *current* period. Lead directorship may not instantly improve accounting performance and it may take several years for the impact of the lead directorship to be

reflected on the accounting performance. The sample consists of only four-year data, in which there is only one year data after the regulatory requirement came into effect. It is therefore not surprising to observe the insignificant influence of the lead directorship on accounting performance given the data structure in this dissertation. A longitudinal study with multiple years of data may be better suited to examine the effect on accounting performance.

CHAPTER VI

SUMMARY AND CONCLUSION

Classical agency theory suggests that the interests of professional managers do not align with those of shareholders perfectly without adjustment or monitoring. Board of directors is one of the most important internal corporate governance mechanisms that monitor the management and ensure that the managers are acting in the best interests of shareholders to minimize agency cost. Board independence is one of the most crucial factors that underlie the board effectiveness since the CEO tries to capture the board of directors so as to maximize the CEO's own interests (Hermalin and Weisbach, 2003). It is generally believed that the board is not truly independent of management since CEOs generally are able to influence the nominations and tenures of independent directors.

After a series of outrageous accounting scandals around the turn of the century, shareholders, creditors, and regulators all blamed the accounting failures on the weak corporate governance system and proposed a series of reforms of corporate governance. One prominent corporate governance reform is the revised listing requirement of NYSE and NASDAQ, which requires a lead director in every board of directors: "To empower non-management directors to serve as a more effective check on management, the non-management directors of each listed company must meet at regularly scheduled executive sessions without management...A non-management

director must preside over each executive session of the non-management directors...(p.39)²⁴”. The new corporate governance listing requirement went into effect on June 30, 2003 and all companies listed in NYSE will have to comply with the new standards of corporate governance before January 15, 2004 (Section 303A, Corporate Governance Rules, New York Stock Exchange, 2003). NASDAQ passed a similar proposal in October 2002 that requires “regularly convened executive session of the independent directors” without presence of management and there must be an independent director to preside at the meeting, or a presiding (lead) director in those executive sessions and that the firm must disclose properly the information on the presiding director in the proxy statement.²⁵ The new NASDAQ corporate governance proposal became effective with a company’s first annual meeting occurring after January 1, 2004. NASDAQ passed a similar proposal in October 2002 that requires “regularly convened executive session of the independent directors” without presence of management and there must be an independent director to preside at the meeting, or a presiding (lead) director in those executive sessions and that the firm must disclose properly the information on the presiding director in the proxy statement.²⁶ The new NASDAQ corporate governance proposal became effective with a company’s first annual meeting occurring after January 1, 2004.

²⁴ http://www.nyse.com/pdfs/section303A_final_rules.pdf

²⁵ http://www.nasdaq.com/about/Corp_Gov_Summary101002.pdf

²⁶ http://www.nasdaq.com/about/Corp_Gov_Summary101002.pdf

The rationale underlying the regulatory reform that requires a lead director in the board is that by chairing the non-management executive sessions of outside directors and by implementing other duties, such as setting up board meeting agenda, the lead directorship can create a more candid environment for the discussion of some sensitive issues among outside directors without the presence of CEOs and exercise more independent control of the board activities, improving the board independence and monitoring effectiveness and eventually creating better returns to the capital providers. However, whether there is an association between lead directorship and board independence and firm performance still remains an open empirical question. This dissertation empirically explores the role of the lead directors in the corporate governance system and strives to answer the following questions: does the lead directorship improve corporate governance and thus enhance firm performance?

In this dissertation, I measure firm performance by three empirical proxies: Tobin's Q, returns on assets (ROA) and stock returns, which are the most widely used firm performance proxies. I explore the research question on the relationship between lead directorship and firm performance in both cross-sectional and inter-temporal contexts. The sample consists of S & P 500 firms from 2001 to 2004 that have complete financial, stock returns, and other relevant information. In the univariate cross-sectional analysis, I compare mean values of firm performance (Tobin's Q, ROA and stock returns) of two mutually-exclusive groups from year 2001 to year 2004 on a year-to-year basis: the set of firms that had a lead director in the board (with-LD group) and the set of firms without a lead director in the board (no-LD group), i.e., one group-mean

comparison for each year from 2001 to 2004. I also compare mean values of firm performance of those two groups for the four years on a pooling basis to see the general effect of the lead directorship on firm performance. In the above cross-sectional univariate analysis, I conduct both parametric t-test and non-parametric Wilcoxon test to test the group difference. In the cross-sectional multivariate analysis, I run both OLS and fixed-effect regressions to assess the relationship between lead directorship and firm performance, controlling other factors that may influence that relationship.

In the univariate cross-sectional analyses, I find that the mean and median of both Tobin's Q and stock returns of the firms with lead director in the board are consistently higher than those of the firms without. The similar result is obtained in the multivariate cross-sectional analyses where I regress Tobin's Q and stock returns on whether the firm had a lead director: there is a statistically significant positive association between Tobin's Q and stock returns and lead directorship, controlling other factors that may impact the relationship. However, the positive firm performance effect of the lead directorship is only statistically significant when the firm performance is measure by Tobin's Q or stock returns that incorporates the market expectation of the future firm performance. There is no immediate firm performance improvement after the introduction of lead directorship in terms of accounting performance measure, the return on assets (ROA). Therefore the cross-sectional hypothesis is supported in terms of firm performance measured by Tobin's Q and stock returns.

In the univariate inter-temporal analyses, I find that the mean and median of both Tobin's Q and stock returns of the firms after a lead director was added in the board

were consistently higher than those before a lead director was added, while this performance improvement is not obvious for the other two control groups matched by year, firm size, industry and previous performance.: Always-Designation and Never-Designation. The similar result is also obtained in the multivariate cross-sectional analyses where I regress Tobin's Q and stock returns on two years data: one year before the event year and one year after the event year. Again, the result from the multivariate analysis indicates that there is a statistically significant firm performance improvement one year after the lead director was introduced into the board, controlling other factors that may impact the relationship. Consistent with the results from cross-sectional analyses, however, the positive firm performance effect of the lead directorship is only statistically significant when the firm performance is measure by Tobin's Q or stock returns that incorporates the market expectation of the future firm performance. There is no immediate firm performance improvement after the introduction of lead directorship in terms of accounting performance measure, the return on assets (ROA), after the introduction of a lead director in the board. Therefore the inter-temporal hypothesis is supported by the empirical evidence from the before-after analyses in terms of firm performance measured by Tobin's Q and stock returns.

Additional analyses and regression diagnostics are carried out to strengthen the internal validity of the empirical results. Additional analyses include different measures to deal with outliers, other measures of accounting performance and stock returns, and deletion of regulated industries. The results are qualitatively unchanged.

Overall, the empirical results indicate a positive association between lead directorship and firm performance measured by Tobin's Q and stock returns and the association is robust against the effect of outliers, industry, previous performance and regression assumption violations.

6.1 Limitation of the Study

The empirical results differ significantly between different measures of firm performance. The positive association between lead directorship and firm performance is only significant for the measures of Tobin's Q and stock returns, but not accounting performance. I believe the difference arises due to the inherent difference among the three empirical proxies of firm performance and the sample in the study. Tobin's Q is calculated as the ratio of market value to asset replacement value. Therefore, Tobin's Q measures better the market expectation (Yermack, 1996) and so do stock returns that hinge on the expectation of future cash flow. The positive association between the designation of lead directorship and Tobin's Q and stock returns indicates that the introduction of a lead director in the board has impact on the future cash flow and thus leads to very high expectation of future performance. In other words, Tobin's Q and stock returns are able to promptly pick up market expectation of *future* performance. Return on assets, however, indicates how efficient management is at using its assets to generate earnings for the *current* period. Lead directorship may not instantly improve accounting performance and it may take several years for the impact of the lead directorship to be reflected on the accounting performance. The sample consists of only four-year data, in which there is only one year data after the regulatory requirement came into effect. It is

therefore not surprising to observe the insignificant influence of the lead directorship on accounting performance given the data structure in this dissertation. A longitudinal study with multiple years of data may be better suited to examine the long-term effect of lead directorship on accounting performance.

6.2 Contribution of the Dissertation

This dissertation contributes to the literature on corporate boards of directors in the following ways. To my best knowledge, this dissertation is one of the first empirical studies that examine the role of lead directorship in the corporate governance system and the relationship between lead directorship and firm performance. Larcker et al (2005) examine corporate governance over ratings from various data sources and detailed corporate governance measurements, and document that companies with a lead director experienced higher stock returns, suggesting the positive association of designation of a lead director and firm value.

Despite the suggestions from classic agency theory and business community, researchers fail to identify conclusive relationship between board composition and firm performance. The puzzling results may be due to econometrics problem or measurement error issue (Hermalin and Weisbach, 2003), which will be discussed in chapter III. This dissertation explores the relationship between board composition and firm performance from both cross-sectional and inter-temporal perspectives. In the multivariate context, I run both OLS and fixed effect regression, the latter of which is supposed to control the effect of some time-invariant hidden firm characteristics on the relationship between board composition and firm performance. In the inter-temporal analysis, the regulatory

requirement of the designation of a lead director in the board constitutes an exogenous shock to the relationship between board composition and firm performance. The exogenous shock is a natural environment to test if the relationship between board composition and firm performance is genuinely endogenous and if so, the inter-temporal analysis can minimize the econometric effect of the endogeneity and detect the real effect of the board composition on firm performance, as suggested by Dahya and McConnell (2005). This dissertation greatly complements this stream of studies by implementing the inter-temporal analysis and taking advantage of the regulatory change around 2003.

The results of this dissertation should also be interesting to regulators. Both NASDAQ and NYSE require that independent directors should meet at regularly scheduled executive sessions without management and that if an independent director presides the meetings, the information of the presiding director and the process of the director selection should be fully disclosed in the proxy statement. In the amendments to the Section 303A listing standard, NYSE recently further added an additional requirement of the designation of a presiding director²⁷. In other words, now the designation of a lead director is a required listing standards for all the firms listed at NYSE. The result of this dissertation should provide ex post empirical evidence of how effective of the regulatory requirement of the designation of lead directorship has been.

²⁷ New York Stock Exchange: http://www.nyse.com/pdfs/proposed_section303A_amendment2.pdf

APPENDIX A

SAMPLE DUTIES OF A LEAD DIRECTOR

LEAD DIRECTOR
OF THE
BOARD OF DIRECTORS

POSITION SUMMARY & PURPOSE

The Lead Director is responsible for consulting with the Chairman and providing him counsel between board meetings, coordinating the agenda for board meetings with the Chairman, and serving as a liaison for communications between the Chairman and the other Directors between meetings. *(The Lead Director role is not designed to replace direct communication between the Chairman and Independent Directors but rather to enhance the effectiveness of communication).* The Lead Director serves as the chair of executive sessions of the Board that consist of the Independent Directors.

ESSENTIAL FUNCTIONS OF THE ROLE

- To serve as principal liaison between the Independent Directors and the Chairman between meetings.
- To assist the Chairman and Independent Directors with effective communication on critical issues.
- To provide the Chairman with input as to the quality, quantity, appropriateness and timeliness of information submitted by management to Independent Directors.
- To develop the agendas for and serve as Chairman of executive sessions of the Board that consists of the Independent Directors.
- To remain fully informed of the Company's progress on key strategies.
- To evaluate, in coordination with the Corporate Governance and Nominating Committee and the Compensation Committee, the Chairman & Chief Executive Officer's performance, and meet with the Chairman & Chief Executive Officer to discuss the Board's evaluation.
- To ensure that he/she is available to conduct exit interviews with resigning senior executives, where appropriate.
- To undertake such further responsibilities that the Independent Directors as a whole may designate to the Lead Director from time to time.

ROLE QUALIFICATIONS

The Lead Director is chosen from among the Independent Directors and is elected by the Independent Directors of the Board.

APPENDIX B

YEARLY DISTRIBUTION OF FIRM PERFORMANCE

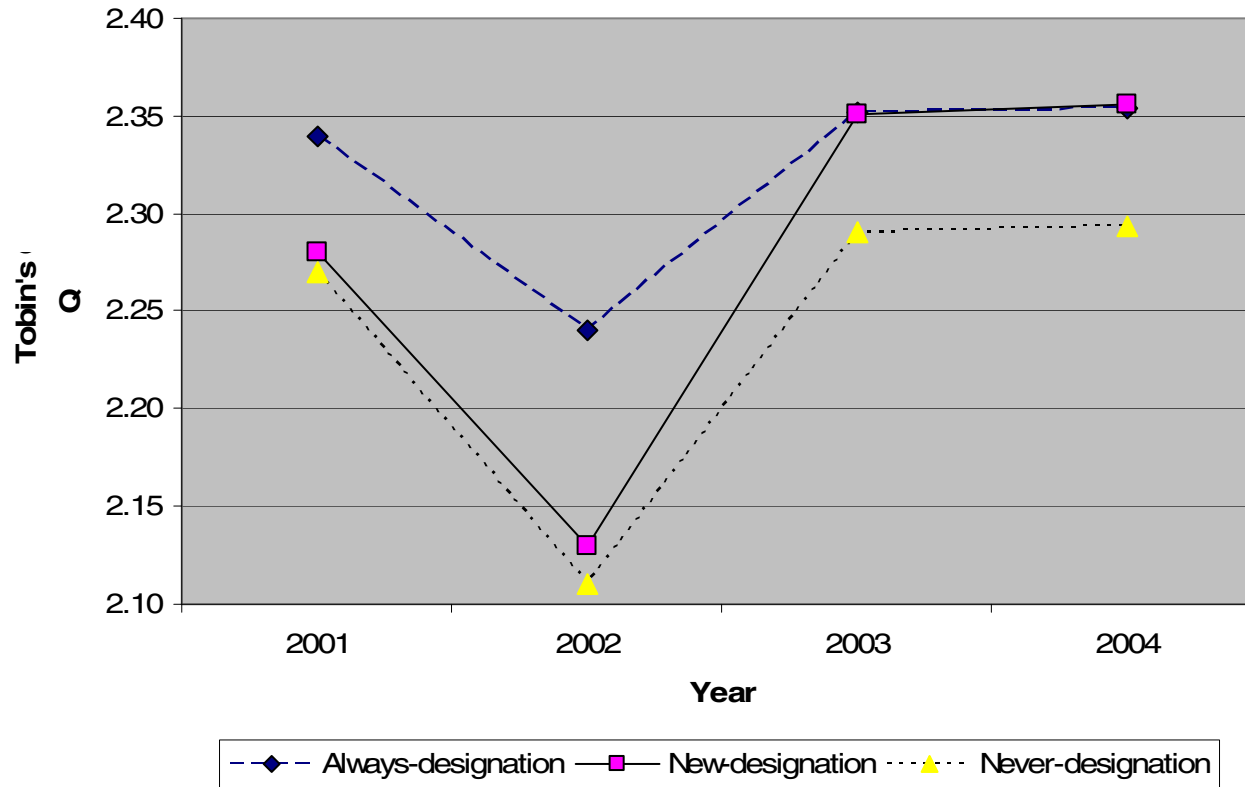


Figure B.1

Tobin's Q

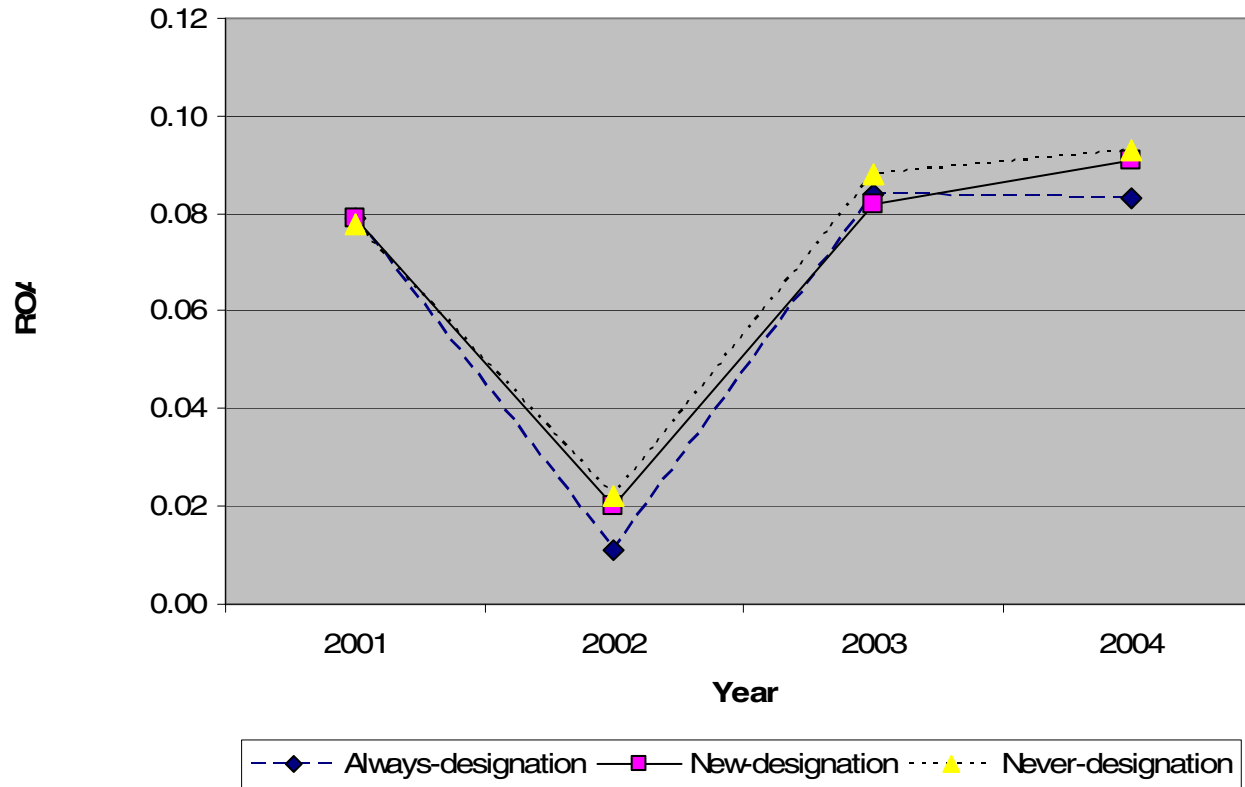


Figure B.2

Return of Assets (ROA)

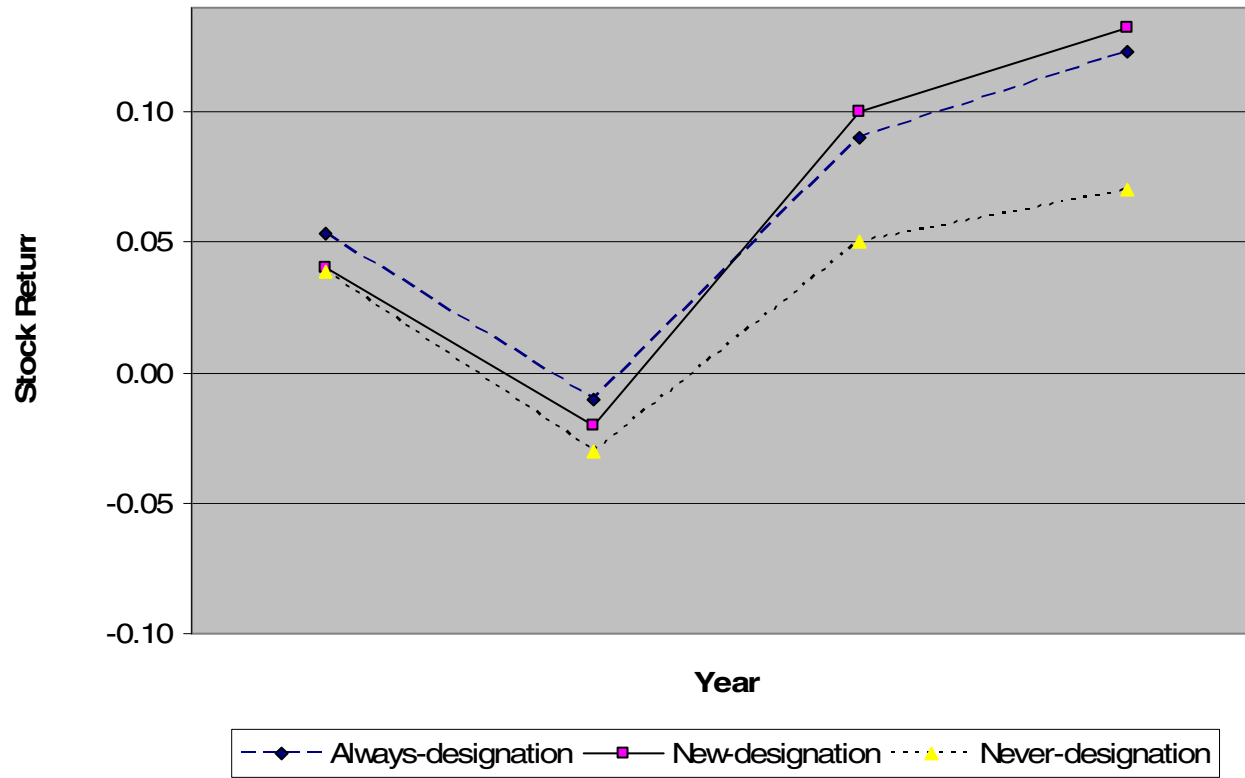


Figure B.3

Stock Returns

APPENDIX C

EMPIRICAL RESULTS

Table 1 Sample derivation

Initial sample: S&P 500 (year 2001-2004)	500 firms
Compustat (incomplete financial data or no-coverage)	(128 firms)
CRSP (incomplete returns data or no-coverage)	(56 firms)
Proxy statements (incomplete board or ownership information)	(10 firms)
Final sample	306 firms

Table 2 Disclosed duties of a lead director

Disclosed duties of a lead director	Number of firms	Percent ^a	Percent ^b
Chair meetings of independent directors	13	4.3%	100%
Establish agenda for meetings of independent directors	12	3.9%	92.3%
Act as principal liaison between independent directors and CEO	10	3.3%	76.9%
Provide feedback to CEO on meetings of independent directors	6	1.9%	46.1%
Assist in interviewing board candidates	9	2.9%	69.2%
Mentor new directors	5	1.7%	38.46%
Lead Board in anticipating and responding to crisis situations by convening the Executive Committee	6	1.9%	46.1%
Assist the Board in fulfilling its responsibility for reviewing, evaluating and monitoring the company's strategic plans by meeting with the CEO, and such other members of senior management as the CEO designates from time to time, on a regular, periodic basis to receive and review strategic updates	7	2.3%	53.6%
Total	13	4.3%	100%

- a. Percentage out of 306 firms in the S&P 500 firms from 2001 to 2004 that had a lead director in the board of directors.
- b. Percentage out of the 13 firms in the S&P 500 firms from 2001 to 2004 that disclosed the duties of the lead director in the board of directors.

Table 3 Descriptive statistics

Panel A

Variable ^b	S&P firms (1,224 firm- years)	Non S&P firms (21,985 firm years) ^a	Difference ^c	S&P firms (1,224 firm- years)	Non S&P firms (21,985 firm years)	Difference ^d
	Mean	Mean		Median	Median	
DELOW						
ARE	0.6144	0.4989	0.12***	1	1	0
TA	16169	1364.1	14804.9***	5929.33	140.03	5789.3***
AGE	90.858	47.438	43.42***	109	38	71***
BM	0.1749	0.3675	-0.14***	0.3056	0.4945	-0.19***
LEVERA						
GE	0.2022	0.1815	0.02***	0.1986	0.0812	0.12***
ROA	0.1161	0.043	0.073***	0.1114	0.0327	0.08***
TOBINQ	2.732	2.3277	-0.40***	1.8206	1.3885	0.43***

Panel B

Variable	Mean	Standard Deviation	Median	Minimu m	Maximu m	Total Firm years
LEADDIR	0.58	0.08	0.55	0	1	1,224
BOARDSIZE	10.74	1.02	11	5	24	1,224
DUALITY	0.67	0.1	0.59	0	1	1,224
FOUNDING	0.07	0.01	0	0	1	1,224
OUTSIDE	0.73	0.07	0.61	0.17	0.95	1,224
DIROWN1	0.72	0.06	0.67	0	1	1,224
DIROWN1t5	0.2	0.02	0	0	1	1,224
DIROWN5t20	0.05	0.01	0	0	1	1,224
TA	16169	1482	5929.3	1923	29182	1,224
BM	0.17	0.06	0.31	0.03	1.66	1,224
LEVERAGE	0.2	0.08	0.1	0.07	0.48	1,224
DELAWARE	0.61	0.13	1	0	1	1,224
ROA	0.12	0.03	0.04	0.01	0.21	1,224
AGE	90.88	15.13	78	38	144	1,224
PEXEOWN	0.02	0	0	0	0.39	1,224
RETURNS	0.12	0.02	0.03	-0.95	2.63	1,224
TOBINQ	2.73	0.46	1.82	0.28	2.69	1,224

***: significant at .01 level; **: significant at .05 level; *: significant at .1 level, all two-tail;

a: All firms covered by the Compustat database from 2001 to 2004. b: DELAWARE is a dummy variable equal to one if the firm is incorporated in Delaware, zero otherwise; TA is total assets in millions(Compustat item 6); AGE is the number of quarters that a firm has existed in Compustat; BM is

the book to market ratio (Compustat item 60/ item 199*item 25); LEVERAGE is long-term debt divided by total assets (item 9/item 6); ROA is the returns on assets (item 178/average item 6); Tobin's Q is calculated as (Market value of assets) / (Replacement cost of assets), or ((Compustat item 6+ item 199* item 25- item 60- item 74)/ (item 6)); DUALITY is a dummy variable that is equal to one if the position of CEO and chairperson of the board of directors is the same person, and zero otherwise. FOUNDING is an indicator variable that is equal to one if the CEO is the founding CEO, zero otherwise. DIROWN1 is an indicator variable that is equal to one if the insiders as a group, corporate executives and board directors, owns less than 1 percent of the total outstanding shares, between 1 and 5 percent (DIROWN1T5), between 5 and 20 percent (DIROWN5T20) and over 20 percent (DIROWN20), zero otherwise. LEADDIR is an indicator variable that has the value of one if the firm had a lead director in the board, zero otherwise. BOARDSIZE is the size of the board of directors; PEXEOWN is the percentage of the shares owned by the insiders; OUTSIDE is the percentage of outside directors in the board of directors; RETURNS is the fiscal year stock returns.

c: parametric t test; d: non-parametric Wilcoxon test.

Table 4 Correlations

	DATA6	Delaware	age	bm	boardsize	pexeown	duality	founder	leaddir	leverage	pctgoutdir	returns	roa	tobinq
DATA6	1	-0.038	0.164	0.023	0.275	-0.07	0.033	-0.06	0.069	0.06	-0.025	-0.041	-0.078	-0.096
Delaware	0.004	1	-0.142	-0.001	-0.09	-0.03	-0.002	0.032	-0.061	0.064	0.014	-0.029	-0.029	0.041
age	0.88	<.0001	1	0.969	0.002	0.29	0.937	0.27	0.034	0.026	0.621	0.317	0.307	0.054
bm	0.346	-0.128	<.0001	1	0.049	0.34	-0.235	0.152	-0.232	0.099	0.084	0.238	0.029	-0.031
boardsize	<.0001	<.0001	0.085	<.0001	1	<.0001	<.0001	<.0001	0.001	0.003	<.0001	0.308	0.278	<.0001
pexeown	0.145	0.008	0.059	1	0.06	-0.054	0.022	0.001	-0.019	0.04	-0.019	-0.167	-0.382	-0.52
duality	<.0001	0.791	0.038	0.037	0.059	0.447	0.965	0.502	0.162	0.518	<.0001	<.0001	<.0001	<.0001
founder	0.477	-0.085	0.334	0.019	1	-0.101	0.032	-0.172	0.058	0.147	0.045	-0.054	0.002	-0.188
leaddir	<.0001	0.003	<.0001	0.503	0	0.257	<.0001	0.042	<.0001	0.119	0.059	0.934	<.0001	<.0001
leverage	-0.409	0.008	-0.332	0.058	-0.238	1	-0.053	0.385	-0.079	-0.047	-0.232	0.009	0.02	0.14
pctgoutdir	<.0001	0.77	<.0001	0.042	<.0001	0.063	<.0001	0.006	0.102	<.0001	0.76	0.481	<.0001	<.0001
returns	0.115	-0.002	0.193	0.05	0.051	-0.084	1	0.109	0.139	0.05	0.167	0.009	-0.018	-0.111
roa	<.0001	0.937	<.0001	0.082	0.074	0.003	0	<.0001	0.081	<.0001	0.741	0.523	<.0001	<.0001
tobinq	-0.117	0.032	-0.238	-0.015	-0.165	0.293	0.109	1	-0.059	-0.137	-0.124	-0.01	-0.04	-0.149
	<.0001	0.27	<.0001	0.593	<.0001	<.0001	0	0.04	<.0001	<.0001	<.0001	0.729	0.162	<.0001
	0.117	-0.061	0.184	0.035	0.049	-0.091	0.139	-0.059	1	-0.045	0.041	0.003	-0.001	0.074
	<.0001	0.034	<.0001	0.216	0.088	0.001	<.0001	0.04	0.118	0.155	<.0001	0.974	0.01	0.01
	0.157	0.039	0.138	0.107	0.168	-0.062	0.049	-0.2	-0.031	1	0.119	0.068	-0.065	-0.256
	<.0001	0.175	<.0001	0	<.0001	0.03	0.088	<.0001	0.278	<.0001	<.0001	0.017	0.72	<.81
	0.122	0.001	0.249	0.027	0.047	-0.277	0.18	-0.126	0.04	0.135	1	0.061	-0.039	0.122
	<.0001	0.969	<.0001	0.34	0.102	<.0001	<.0001	<.0001	0.167	<.0001	0.032	0.171	<.0001	<.0001
	-0.036	-0.047	0.115	-0.131	-0.038	0.043	0.039	-0.035	0.143	0.065	0.052	1	0.098	0.093
	0.208	0.497	<.0001	<.0001	0.189	0.136	0.174	0.216	<.0001	0.023	0.032	0.001	0.001	0.001
	-0.158	-0.071	-0.023	-0.573	0.014	0.045	0.019	-0.008	0.023	0.155	0.058	0.113	1	0.594
	<.0001	0.713	0.412	<.0001	0.617	0.114	0.508	0.776	0.414	<.0001	0.743	<.0001	<.0001	<.0001
	-0.299	0.031	0.183	-0.855	-0.163	0.02	-0.091	-0.097	0.031	0.4	0.122	0.083	0.631	1
	<.0001	0.001	<.0001	<.0001	<.0001	0.479	0.001	0.001	0.071	<.0001	0.82	0.004	<.0001	<.0001

Table 5 Descriptive statistics (Yearly distribution)

Panel A Lead Directors

Year	Without Lead director		Total Firm (C)	Percent (A/C)	Changes
	With Lead Director (A)	(B)			
2001	82	224	306	0.26	16
2002	116	190	306	0.38	34
2003	225	81	306	0.74	109
2004	275	31	306	0.9	50
All four years	82	31	306	0.26	209

Panel B Tobin's Q

Year	Mean			Median		
	With LD ^a	Without LD	Difference ^t	With LD	Without LD	Difference ^c
2001	2.18	2.12	0.06**	2.03	1.97	0.06**
2002	2.01	1.89	0.12***	1.93	1.92	0.01
2003	2.33	2.22	0.11***	2.21	2.18	0.03**
2004	2.38	2.3	0.08**	2.24	2.2	0.04**
All Years	2.35	2.26	0.09***	2.19	2.16	0.03**

Panel C Return on Assets

Year	Mean			Median		
	With LD ^a	Without LD	Difference ^t	With LD	Without LD	Difference ^c
2001	0.09	0.08	0.01	0.08	0.06	0.02
2002	0.03	0.02	0.01	0.02	0.01	0.01
2003	0.11	0.1	0.01	0.1	0.1	0
2004	0.14	0.11	0.03**	0.11	0.1	0.01
All Years	0.11	0.09	0.01	0.09	0.07	0.01

Panel D Stock returns

Year	Mean			Media		
	With LD ^a	Without LD	Difference ^t	With LD	Without LD	Difference ^c
2001	0.07	0.06	0.01	0.06	0.05	0.01
2002	-0.01	-0.03	0.02***	-0.01	-0.03	0.02**
2003	0.11	0.08	0.03**	0.09	0.04	0.05***
2004	0.15	0.07	0.08***	0.12	0.05	0.07***
All Years	0.13	0.07	0.06***	0.11	0.05	0.06***

*** : significant at .01 level; ** : significant at .05 level; * : significant at .1 level, all two-tail;
a: Lead director; b: parametric t test; c: non-parametric Wilcoxon test

Table 6 Multiple regression (Cross-sectional analyses)

Panel A

Tobin's Q = a₀ + a₁LEAD + a₂BFSIZE + a₃DUALITY + a₄FOUNDING + a₅ OUTSIDE + a₆ DIROWNL1 + a₇DIROWN1T5 + a₈DIROWN5T20 + a₉SIZE + a₁₀BM + a₁₁LEVERAGE + a₁₂SEGMENT + a₁₃DELAWARE + a₁₄ROA + a₁₅LAGROA+ a₁₆AGE

Model	N		a ₀	a ₁	a ₂	a ₃	a ₄	a ₅	a ₆	a ₇	a ₈	a ₉	a ₁₀	a ₁₁	a ₁₂	a ₁₃	a ₁₄	a ₁₅	a ₁₆	Adj R ²
OLS	1,124	Coefficient	0.02	0.01	-0.6	-0.03	-0.01	0.19	0.09	0.02	-0.05	-0.12	-0.15	0.38	-0.09	0.29	0.78	0.03	0.06	0.34
		Std. Error	0.0074	0.01	0.18	0.15	0	0.07	0.03	0.01	0.01	0.16	0.08	0.79	0.03	0.09	0.27	0.01	0.02	
		t-value	2.69	1.67	-3.4	-0.2	-3.7	2.58	2.76	2.17	-3.7	-0.75	-1.98	0.48	-2.98	3.17	2.94	2.76	2.85	
		Significance	***	*	***		***	***	***	**	***		**		***	***	***	***	***	***
FE	1,124	Coefficient	0.03	0.01	-0.5	-0.02	-0.02	0.14	0.08	0.06	-0.07	-0.32	-0.24	0.28	-0.08	0.46	0.07	0.01	0.07	
		Std. Error	0.009	0.006	0.172	0.2	0.008	0.06	0.032	0.026	0.022	0.914	0.11	3.111	0.024	0.116	0.022	0.004	0.03	
		t-value	3.22	1.63	-2.9	-0.1	-2.5	2.32	2.47	2.32	-3.2	-0.35	-2.18	0.09	-3.29	3.98	3.18	2.48	2.36	0.37
		Significance	***	*	***		***	**	**	**	***		**		***	***	***	**	**	**

Panel B

ROA = b₀+ b₁LEAD + b₂BFSIZE + b₃DUALITY + b₄FOUNDING + b₅OUTSIDE + b₆DIROWNL1 + b₇DIROWN1T5 + b₈DIROWN5T20 + b₉SIZE + b₁₀BM + b₁₁LEVERAGE + b₁₂SEGMENT + b₁₃AGE

Model	N		b ₀	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈	b ₉	b ₁₀	b ₁₁	b ₁₂	b ₁₃	Adj R ²
OLS	1,124	Coefficient	0.18	0.01	-0.1	-0.6	-0.09	0.03	0.02	0.09	-0.01	0.08	-0.03	0.29	-0.19	0.01	0.28
		Std. Error	0.067	0.014	0.038	1.5	0.032	0.013	0.007	0.028	0.003	0.038	0.015	2.071	1.056	0.003	
		t-value	2.7	0.7	-2.6	-0.4	-2.8	2.35	2.82	3.23	-3.1	2.1	-2.01	0.14	-0.18	3.1	
		Significance	***		***		***	**	***	***	***	**	**			***	
FE	1,124	Coefficient	0.13	0.08	-0.02	-0.8	-0.08	0.05	0.08	0.1	-0.09	0.06	-0.02	0.13	-0.21	0.03	0.31
		Std. Error	0.041	0.078	0.007	2.667	0.026	0.019	0.037	0.036	0.027	0.02	0.008	1.444	0.256	0.009	
		t-value	3.2	1.03	-3	-0.3	-3.1	2.58	2.19	2.81	-3.3	3.03	-2.38	0.09	-0.82	3.2	
		Significance	***		***		***	***	**	***	***	***	**			***	

Table 6 – continued

Panel C

$$RET = c_0 + c_1LEAD + c_2BSIZE + c_3DUALITY + c_4FOUNDING + c_5OUTSIDE + c_6DIROWN1 + c_7DIROWN1T5 + c_8DIROWN5T20 + c_9SIZE + c_{10}BM + c_{11}AGE$$

Model	N		c ₀	c ₁	c ₂	c ₃	c ₄	c ₅	c ₆	c ₇	c ₈	c ₉	c ₁₀	c ₁₁	Adj R ²
OLS	1,124	Coefficien													
		t	0.34	0.01	-0.09	-0.4	-0.09	0.06	0.1	0.13	-0.06	0.45	-0.11	0.09	0.21
		Std. Error	0.105	0.005	0.041	0.444	0.038	0.019	0.036	0.039	0.019	0.938	0.04	0.031	
		t-value	3.24	2.07	-2.2	-0.9	-2.4	3.19	2.8	3.3	-3.2	0.48	-2.75	2.89	
		Significan		***	**	**		**	***	***	***	***		***	***
FE	1,124	Coefficien													
		t	0.83	0.01	-0.04	-0.8	-0.07	0.07	0.12	0.09	-0.02	0.31	-0.13	0.08	0.19
		Std. Error	0.274	0.003	0.016	8	0.028	0.029	0.042	0.037	0.006	1.409	0.068	0.025	
		t-value	3.03	3.14	-2.5	-0.1	-2.5	2.45	2.89	2.45	-3.6	0.22	-1.91	3.2	
		Significan		***	***	**		**	**	***	**	***		**	***

***: significant at .01 level; **: significant at .05 level; *: significant at .1 level, all two-tail;

LEAD is an indicator variable that has the value of one if the firm had a lead director in the board, zero otherwise. BOARD SIZE is the size of the board of directors; DUALITY is a dummy variable that is equal to one if the position of CEO and chairperson of the board of directors is the same person, and zero otherwise; FOUNDER is an indicator variable that is equal to one if the CEO is the founding CEO, zero otherwise; OUTSIDE is the percentage of outside directors in the board of directors; DIROWN1 is an indicator variable that is equal to one if the insider as a group owns less than 1 percent of the total outstanding shares, between 1 and 5 percent (DIROWN1T5), and between 5 and 20 percent (DIROWN5T20); SIZE is total assets in millions(Compustat item 6); BM is the book to market ratio (Compustat item 60/ item 199*item 25); LEVERAGE is long-term debt divided by total assets (item 9/item 6); SEGMENT is the number of business segments reported in Compustat; PEXEOWN is the percentage of the shares owned by the insiders; DELAWARE is a dummy variable equal to one if the firm is incorporated in Delaware, zero otherwise; AGE is the number of quarters that a firm has existed in Compustat; ROA is the returns on assets (item 178/average item 6); Tobin’s Q is calculated as (Market value of assets) / (Replacement cost of assets), or (Compustat item 6+ item 199* item 25- item 60- item 74/ (item 6)); RETURNS is the fiscal year stock returns.

Table 7 Descriptive statistics (Inter-temporal)

Variable	2001				2002				2003				2004			
Panel A: Always-Designation group																
	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min
Board size	9.46	10	22	6	10.21	11	22	7	10.37	11	23	7	10.84	11	23	7
Percentage of outside directors	0.56	0.63	0.87	0.24	0.61	0.88	0.89	0.34	0.74	0.88	0.91	0.36	0.76	0.88	0.91	0.37
Tobin's Q	2.34	2.21	2.87	1.31	2.24	2.23	2.91	1.12	2.35	2.22	2.92	1.37	2.35	2.27	2.93	1.42
ROA(Mean)	0.07	0.03	0.93	0.01	0.02	0.02	0.67	0.01	0.08	0.04	1.01	0.01	0.08	0.04	0.89	0.01
Stock returns	0.05	0.04	0.98	-0.51	-0.01	0	0.78	-0.87	0.09	0.08	0.91	-0.04	0.12	0.09	0.98	0
Panel B New-Designation group																
	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min
Board size	9.49	10	21	4	10.32	11	23	4	10.52	11	24	5	10.73	11	24	5
Percentage of outside directors	0.58	0.61	0.88	0.22	0.63	0.7	0.89	0.34	0.76	0.81	0.9	0.37	0.78	0.8	0.92	0.38
Tobin's Q	2.28	2.17	2.97	1.12	2.13	2.08	2.99	0.91	2.35	2.3	3.04	1.14	2.35	2.38	3.11	1.01
ROA	0.08	0.04	0.89	0.01	0.02	0.03	0.96	0.01	0.08	0.03	0.99	0	0.09	0.06	1.1	0.01
Stock returns	0.04	0.02	0.8	-0.34	-0.02	0	0.76	-0.41	0.1	0.04	0.91	-0.12	0.13	0.09	0.93	-0.01
Panel C: Never-Designation group																
	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min	Mean	Median	Max	Min
Board size	9.87	10	23	5	10.36	11	23	6	10.57	11	23	6	11.01	12	24	6
Percentage of outside directors	0.53	0.63	0.82	0.23	0.58	0.64	0.88	0.28	0.71	0.65	0.9	0.34	0.73	0.7	0.91	0.35
Tobin's Q	2.27	2.13	2.89	1.28	2.11	1.78	2.42	0.87	2.25	2.21	2.98	1.01	2.27	2.22	2.99	1.29
ROA	0.08	0.03	0.87	0.01	0.02	0.01	0.67	0	0.09	0.02	0.87	0.01	0.09	0.04	0.84	0.01
Stock returns	0.04	0.03	0.87	-0.34	-0.03	-0.06	0.41	-0.72	0.05	0.04	0.81	-0.12	0.07	0.05	0.82	-0.02

Table 8 Univariate analysis (Inter-temporal)

Panel A: Change in Tobin's Q (mean)								
Event Year	New-Designation	Sample size ^a	Always Designation	Sample size ^b	Difference (A minus B)	Performance & Industry	Sample size ^d	Difference (A minus C)
Y-2 to Y+1	0.04	109	0.01	82	0.03 ^{***}	-0.01	75	0.05 ^{***}
Y-1 to Y+1	0.03	143	0	82	0.03 ^{***}	0.01	75	0.02 ^{***}
Y-1 to Y+2	0.04	34	0.02	82	0.02 ^{***}	0.02	26	0.02 ^{***}
Panel B: Change in ROA (mean)								
Event Year	New-Designation	Sample size ^a	Always Designation	Sample size ^b	Difference (A minus B)	Performance & Industry	Sample size ^d	Difference (A minus C)
Y-2 to Y+1	0.01	109	0.02	82	-0.01	0.01	75	0
Y-1 to Y+1	0.02	143	0.03	82	-0.01	0.01	75	0.02 ^{***}
Y-1 to Y+2	0.03	34	0.03	82	0	0.02	26	0.01
Panel C: Change in Stock returns (mean)								
Event Year	New-Designation	Sample size ^a	Always Designation	Sample size ^b	Difference (A minus B)	Performance & Industry	Sample size ^d	Difference (A minus C)
Y-2 to Y+1	0.04	109	0.01	82	0.03 ^{***}	0.01	75	0.03 ^{***}
Y-1 to Y+1	0.03	143	0.01	82	0.02 ^{***}	0.02	75	0.01 [*]
Y-1 to Y+2	0.03	34	0.01	82	0.02 ^{**}	0.01	26	0.02 ^{**}

a: Sample size of the New-Designation group. In 2002, 34 firms added a lead director in the board and in 2003, 109 firms did so. Year Y is the event year when a firm introduced a lead director into the board of directors. Thus sample sizes of the New-Designation group vary for different testing periods.

b: Sample size of the Always-Designation group.

c: firms in the Always-Designation group matched by two-digit SIC industry and previous-year ROA with New-Designation group.

d: sample size of firms in the Always-Designation group matched by two-digit SIC industry and previous-year ROA with New-Designation group (Column C).

***: significant at .01 level; **: significant at .05 level; *: significant at .1 level, all two-tail;

Table 8 – continued

Panel D: Change in Tobin's Q (mean)									
Event Year	New-Designation		Never Designation		Difference	Performance &	Difference		
	Firms (D)	Sample size ^c	Firms (E)	Sample size ^f	E)	Industry matched	Sample size ^h	(D minus F)	
Y-2 to Y+1	0.04	109	0.01	31	0.03***	-0.01	27	0.05***	
Y-1 to Y+1	0.03	143	0.02	31	0.01***	0.02	27	0.05***	
Y-1 to Y+2	0.04	34	0.01	31	0.03***	0.01	27	0.03***	

Panel E: Change in ROA (mean)									
Event Year	New-Designation		Never Designation		Difference	Performance &	Difference		
	Firms (D)	Sample size ^c	Firms (E)	Sample size ^f	E)	Industry matched	Sample size ^h	(D minus F)	
Y-2 to Y+1	0.01	109	0.01	31	0	0.01	27	0	
Y-1 to Y+1	0.02	143	0.03	31	-0.01	0.02	27	0	
Y-1 to Y+2	0.03	34	0.02	31	0.01	0.02	27	0.01*	

Panel F: Change in Stock returns (mean)									
Event Year	New-Designation		Never Designation		Difference	Performance &	Difference		
	Firms (D)	Sample size ^c	Firms (E)	Sample size ^f	E)	Industry matched	Sample size ^h	(D minus F)	
Y-2 to Y+1	0.04	109	0.01	31	0.04***	0.03	27	0.01*	
Y-1 to Y+1	0.03	143	0.01	31	0.02***	0.01	27	0.02***	
Y-1 to Y+2	0.04	34	0	31	0.04***	0.03	27	0.01*	

e: Sample size of the New-Designation group. In 2002, 34 firms added a lead director in the board and in 2003, 109 firms did so. Year Y is the event year when a firm introduced a lead director into the board of directors. Thus sample sizes of the New-Designation group vary for different testing periods.

f: Sample size of the Never-Designation group.

g: firms in the Never-Designation group matched by two-digit SIC industry and previous-year ROA with New-Designation group.

h: sample size of firms in the Always-Designation group matched by two-digit SIC industry and previous-year ROA with New-Designation group (Column F).

***: significant at .01 level; **: significant at .05 level; *: significant at .1 level, all two-tail;

Table 9 Multiple regression (Inter-temporal analyses)

Panel A

$$\text{Tobin'Q} = d_0 + d_1\text{LEAD} + d_2\text{BSIZE} + d_3\text{DUALITY} + d_4\text{FOUNDING} + d_5\text{OUTSIDE} + d_6\text{DIROWN1} + d_7\text{DIROWN1T5} + d_8\text{DIROWN5T20} + d_9\text{SIZE} \\ + d_{10}\text{BM} + d_{11}\text{LEVERAGE} + d_{12}\text{SEGMENT} + d_{13}\text{DELAWARE} + d_{14}\text{ROA} + d_{15}\text{LAGROA} + d_{16}\text{AGE}$$

Model	N		d ₀	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	d ₁₂	d ₁₃	d ₁₄	d ₁₅	d ₁₆	Adj R ²
		Coefficient	0.01	0.02	-0.03	-0.01	-0.02	0.08	0.14	0.01	-0.14	0.11	-0.08	0.05	0.14	-0.29	0.23	0.01	0.02	0.31
OLS	143	Std Error	0.004	0.008	0.01	0.029	0.006	0.036	0.063	0.077	0.045	0.033	-0.615	0.019	0.609	0.113	0.094	0.004	0.009	
		t-value	2.43	2.47	-2.94	-0.34	-3.13	2.24	2.24	0.13	-3.12	3.32	0.13	2.58	0.23	-2.57	2.44	2.64	2.11	
		Significance	**	**	***		***	**	**		***	***		**		**	**	***	**	
		Coefficient	0.03	0.06	-0.06	-0.01	-0.04	0.03	0.15	0.02	-0.11	0.18	-0.13	0.04	0.17	-0.34	0.14	0.01	0.01	0.33
FE	143	Std Error	0.009	0.022	0.022	0.024	0.016	0.014	0.063	0.095	0.035	0.061	0.265	0.017	0.37	0.091	0.045	0.004	0.004	
		t-value	3.49	2.73	-2.76	-0.41	-2.57	2.19	2.39	0.21	-3.15	2.93	-0.49	2.35	0.46	-3.72	3.11	2.71	2.73	
		Significance	***	***	***		**	**	**		***	***		**		***	***	***	***	

Table 9 – continued

Panel B

$$ROA = e_0 + e_1LEAD + e_2BSIZE + e_3DUALITY + e_4FOUNDING + e_5OUTSIDE + e_6DIROWN1 + e_7DIROWN1T5 + e_8DIROWN5T20 + e_9SIZE + e_{10}BM + e_{11}LEVERAGE + e_{12}SEGMENT + e_{13}AGE$$

Model	N		e ₀	e ₁	e ₂	e ₃	e ₄	e ₅	e ₆	e ₇	e ₈	e ₉	e ₁₀	e ₁₁	e ₁₂	e ₁₃	Adj R ²
		Coefficient	0.43	0.03	-0.02	-0.04	-0.12	0.04	0.1	0.14	-0.05	0.01	-0.4	0.11	-0.02	0.03	0.21
OLS	143	Std Error	0.196	0.3	0.01	0.4	0.051	0.016	0.043	0.04	0.015	0.004	0.183	0.244	0.022	0.009	
		t-value	2.19	0.1	-2.1	-0.1	-2.34	2.53	2.32	3.52	-3.3	2.5	-2.19	0.45	-0.9	3.5	
		Significance	**		**		**	**	**	**	***	**	**			***	
		Coefficient	0.33	0.04	-0.01	-0.06	-0.32	0.05	0.09	0.11	-0.01	0.06	-0.33	0.13	-0.14	0.06	0.26
FE	143	Std Error	0.143	0.036	0.003	0.3	0.091	0.018	0.036	0.038	0.003	0.026	0.104	0.155	0.255	0.021	
		t-value	2.31	1.1	-3.12	-0.2	-3.5	2.76	2.51	2.92	-3.8	2.3	-3.18	0.84	-0.55	2.8	
		Significance	**		***		***	***	**	***	***	**	***			***	

Table 9 – continued

Panel C

$$RET = f_{0+} f_1 LEAD + f_2 BSIZE + f_3 DUALITY + f_4 FOUNDING + f_5 OUTSIDE + f_6 DIROWN1 + f_7 DIROWN1T5 + f_8 DIROWN5T20 + f_9 SIZE + f_{10} BM + f_{11} AGE$$

Model	N		f ₀	f ₁	f ₂	f ₃	f ₄	f ₅	f ₆	f ₇	f ₈	f ₉	f ₁₀	f ₁₁	Adj R ²
		Coefficient	0.13	0.02	-0.01	-0.09	-0.11	0.1	0.06	0.09	-0.03	0.04	0.22	-0.07	0.22
OLS	143	Std Error	0.038	0.007	0.004	0.2	0.043	0.03	0.024	0.029	0.011	0.018	0.314	0.026	
		t-value	3.41	2.69	-2.5	-0.45	-2.56	3.31	2.45	3.1	-2.8	2.17	0.7	-2.65	
		Significance	**	***	**		**	***	**	***	***	**		***	
		Coefficient	0.15	0.02	-0.03	-0.01	-0.15	0.08	0.11	0.03	-0.05	0.05	0.29	-0.09	0.27
FE	143	Std Error	0.045	0.007	0.011	0.012	0.052	0.028	0.04	0.012	0.016	0.019	0.725	0.026	
		t-value	3.32	2.81	-2.7	-0.84	-2.9	2.87	2.78	2.57	-3.2	2.58	0.4	-3.51	
		Significance	***	***	***		***	***	***	**	***	**		***	

***: significant at .01 level; **: significant at .05 level; *: significant at .1 level, all two-tail;

LEAD is an indicator variable that has the value of one if the time period is one year after the event year, zero if the time period is one year before the event year. BOARDSIZE is the size of the board of directors; DUALITY is a dummy variable that is equal to one if the position of CEO and chairperson of the board of directors is the same person, and zero otherwise; FOUNDER is an indicator variable that is equal to one if the CEO is the founding CEO, zero otherwise; OUTSIDE is the percentage of outside directors in the board of directors; DIROWN1 is an indicator variable that is equal to one if the insider as a group owns less than 1 percent of the total outstanding shares, between 1 and 5 percent (DIROWN1T5), and between 5 and 20 percent (DIROWN5T20); SIZE is total assets in millions(Compustat item 6); BM is the book to market ratio (Compustat item 60/ item 199*item 25); LEVERAGE is long-term debt divided by total assets (item 9/item 6); SEGMENT is the number of business segments reported in Compustat; PEXEOWN is the percentage of the shares owned by the insiders; DELAWARE is a dummy variable equal to one if the firm is incorporated in Delaware, zero otherwise; AGE is the number of quarters that a firm has existed in Compustat; ROA is the returns on assets (item 178/average item 6); Tobin's Q is calculated as (Market value of assets) / (Replacement cost of assets), or (Compustat item 6+ item 199* item 25- item 60- item 74/ (item 6)); RETURNS is the fiscal year stock returns.

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