



Queen's Economics Department Working Paper No. 1243

Monitoring to Reduce Agency Costs: Examining the Behavior of Independent and Non-Independent Boards

Frank Milne
Queen's University

Lynnette Purda
Queen's University

Anita Anand
University of Toronto

Department of Economics
Queen's University
94 University Avenue
Kingston, Ontario, Canada
K7L 3N6

10-2010

Monitoring to Reduce Agency Costs: Examining the Behavior of Independent and Non-Independent Boards

Anita Anand, Frank Milne, and Lynnette Purda[†]

I. INTRODUCTION

Berle and Means's analysis of the corporation—in particular, their view that those in control are not the owners of the corporation—raises questions about actions that corporations take to counter concerns regarding management's influence. What mechanisms, if any, do corporations implement to balance the distribution of power in the corporation? To address this question, we analyze boards of directors' propensity to voluntarily adopt recommended corporate governance practices. Because board independence is one way to enhance shareholders' ability to monitor management, we probe whether firms with independent boards of directors (which we define as boards with either an independent chair or a majority of independent directors) are more likely than firms without independent boards to adopt these practices. We focus on boards' willingness to monitor their firms' agents, examining the relationship between board independence and the voluntary adoption of corporate governance guidelines.

This study relies on a novel, hand-collected dataset drawn from information circulars for approximately 1200 firms listed on the Toronto Stock Exchange (TSX) and contained in the TSX/S&P index during the years 1999 to 2003. We collected information on firms' corporate governance practices, on board composition, and on the ownership structure of the firms' shareholdings. Although widely held firms are predominant in the United States, Canada and many other countries have rela-

[†] Anita Anand is an Associate Professor at the University of Toronto; Frank Milne is a Professor at Queen's University; and Lynnette Purda is an Associate Professor at Queen's University. This paper was presented at the 2008 annual meeting of the Canadian Law and Economics Association, the National Centre for Business Law, the University of Ontario Institute of Technology, the University of Toronto Law and Economics Discussion group, and the Bank of Canada. We thank participants for their comments during these sessions. Funding for this project was provided by the Social Science and Humanities Research Council of Canada. Thanks to Bekhzod Abdurazzakov and Tina Yang for their helpful research assistance.

tively large proportions of family-owned and majority-controlled firms.¹ As a result, we controlled for the presence of large shareholders and identified whether they are executive, family, or institutional investors. Other control variables include firm financial characteristics, year of observation, and whether the firm's stock is cross-listed on a U.S. exchange.

Canada provides the ideal environment for undertaking this inquiry because Canadian law has historically made corporate governance the responsibility of the board of directors. Until 2004, Canada relied solely on a best practices approach to governance in which the TSE set forth recommendations but did not require that firms implement those practices; TSE required only that firms disclose those practices. The voluntary nature of the Canadian governance guidelines and the responsibility of the board to respond to these guidelines allow us to examine two things: first, the extent to which boards vary in their propensity to arm themselves with additional governance tools, and second, whether this variation systematically relates to board independence. As such, the study contributes to the literature on board behavior and provides valuable insights for regulators on both the effectiveness of voluntary guidelines and the influence of independent boards.

We show that both independent and non-independent boards voluntarily adopt corporate governance practices designed to enhance their monitoring capabilities. Voluntary adoption of monitoring mechanisms across all firms has increased in recent years and it seems that board behavior is similar regardless of whether the board is independent or non-independent. However, independent boards place special emphasis on monitoring management through the presence of independent committees. Historically, independent boards have been far more likely to have independent audit and compensation committees. While more non-independent boards have begun to maintain independent audit committees, the difference when compared to their independent peers remains significant, and compensation committees have offered little improvement. An independent board's ability to adopt additional mechanisms beyond independent committees is heavily influenced by the presence of controlling shareholders. When a controlling shareholder is present, the board emphasizes committee composition and is no more likely than non-independent boards to adopt other mechanisms. The results suggest that in many ways, board behavior is similar and that voluntary adoption of monitoring mechanisms across all firms has increased in recent years.

1. See Peter Klein et al., *Corporate Governance, Family Ownership and Firm Value: The Canadian Evidence*, 13 CORP. GOV.: INT'L. REV. 769 (2005); Rafael La Porta et al., *Corporate Ownership Around the World*, 54 J. FIN. 471 (1999).

In addition, voluntary adoption appears to increase if the firm is large or has shares cross-listed in the U.S.

The inconclusive relation between the level of board independence and firm performance has puzzled both academic researchers and practitioners: while regulators strongly advocate the presence of a majority of independent directors on company boards, researchers struggle to find evidence that their presence actually enhances firm performance.² Based on the results of this study, perhaps part of the reason that performance cannot be convincingly linked to board independence lies in the fact that independent boards act similarly to their non-independent counterparts.

Building on the influential work of Berle and Means,³ Part II reviews the relevant literature used to derive the formal, testable hypothesis that independent boards differ in their propensity to voluntarily adopt monitoring mechanisms. Part III outlines governance guidelines in Canada, summarizes the shareholding characteristics of the sample firms, and provides details on the corporate governance guidelines examined in the study. Part IV describes the empirical methodology used in this study and sets forth our empirical results and robustness tests. Finally, Part V discusses the contributions of the study, its limitations, and its legal implications.

II. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

A. Agency Costs and the Role of the Board

Researchers and practitioners in economics, finance, and general management have long used agency theory to describe inherent conflicts of interest among the various stakeholders of a corporation. Broadly speaking, agency theory recognizes that managers who have the ability to make key decisions about the firm's operations may choose alternatives that directly benefit themselves at the expense of shareholders. Managers, for instance, may be tempted to divert valuable resources away from the best interests of the firm and use them for their own personal gain.

Traditionally, agency theory has been viewed as an accurate depiction of the relationship between management and shareholders in widely held corporations. In such firms, separation of ownership (shareholders) and control (management) facilitates management's ability to act in self-

2. For a summary of this research, see David Finegold et al., *Corporate Boards and Company Performance: Review of Research in Light of Recent Reforms*, 15 CORP. GOV.: INT'L REV. 865 (2007).

3. ADOLF BERLE & GARDINER MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (Brace & World, Inc. 1968) (1932).

serving ways because individual shareholders hold a relatively small portion of the company's shares. Typical of the classic Berle and Means view of the widely held firm, the large number of small shareholders implies that a single small shareholder has neither the power nor the incentive to devote significant resources to monitor management's behavior and undertake corrective action when appropriate.⁴

Although widely held corporations are common in some countries, such as the United States, different ownership configurations are more popular in other countries. For example, ownership can be concentrated in large shareholders such as founding families, executives, or institutional investors.⁵ Agency theory is also applicable in this context because large shareholders are often either directly or indirectly involved in managing the affairs of a corporation. As a result, conflicts of interest can still arise, but they may be driven primarily by the divergence of interests between large and small shareholders. Large shareholders may prompt management to behave in a way consistent with their own interests at the expense of smaller, minority shareholders. On the other hand, large shareholders may be better positioned to advocate for value-increasing changes in firm policy when significant conflicts between managers and shareholders do arise.⁶ The loss resulting from these actions and the expense of implementing mechanisms designed to reduce this opportunistic behavior are described as agency costs.⁷

Given the prevalence of agency costs across all firms, regardless of ownership structure, shareholders have devised a variety of ways for attempting to reduce these costs. For example, some corporate governance techniques include increasing the firm's debt level to reduce the amount of cash under management's discretion,⁸ creating compensation contracts aimed at aligning the interests of shareholders and managers,⁹ and relying on the competitiveness of the market for a firm's products and its managerial talent.¹⁰ Most relevant to the current discussion is the use of

4. See *id.*; Andrei Shleifer & Robert Vishny, *Large Shareholders and Corporate Control*, 94 J. POL. ECON. 461 (1986).

5. See La Porta et al., *supra* note 1.

6. Shleifer & Vishny, *supra* note 4, at 472–74.

7. See Michael Jensen & William Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

8. Michael Jensen, *Agency Costs of Free Cash Flow, Corporate Finance and Takeovers*, 76 AM. ECON. REV. 323, 323–29 (1986).

9. See Michael Jensen & Kevin Murphy, *Performance Pay and Top-Management Incentives*, 98 J. POL. ECON. 225, 261–62 (1990).

10. Eugene Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288, 289 (1980).

the board of directors as an active monitor with the ability to observe management's behavior and undertake corrective action as needed.¹¹

Our collective understanding of board processes continues to evolve with recent research that suggests a stewardship role for directors. Under this perspective, directors view themselves as actively collaborating with and advising the management of a firm. However, in most situations, directors see such a role as an addition to their more traditional function as monitors; in this way, directors strive to find a balance between acting as both monitors and advisors to the managerial team.¹²

B. Independent Directors and Board Monitoring

Because it is important to monitor managers, it is unsurprising that many studies seek to find ways for the board to improve its performance of this task. One of the most common recommendations has been to ensure that independent directors are on the firm's board. These independent directors are unassociated with the firm's management team and are free from any business connections linking them with the company. Independent directors may have particularly high incentives to effectively carry out the monitoring function because their reputation and the value of their human capital depend on their expertise in this area.¹³

The idea that independent directors can bring much-needed management oversight to the operations of the board has given rise to advocates for independent boards worldwide. Canadian guidelines initially recommended board independence (formally defined below) when the Toronto Stock Exchange adopted the recommendations of the Report of the Toronto Stock Exchange Committee on Corporate Governance in Canada (Dey Committee) in 1995. The U.S. stock exchanges altered their listing standards to require companies to maintain a majority of independent directors after the enactment of the Sarbanes–Oxley Act (SOX) in 2002.¹⁴ Outside the North American context, international organizations (such as the OECD) and national stock exchanges in many countries, such as the United Kingdom, Australia, Portugal, and Cyprus, have advocated for board independence. Given the call for independence from regulators and investors around the globe, many companies have

11. Eugene Fama & Michael Jensen, *Separation of Ownership and Control*, 26 J. L. & ECON. 301, 311 (1983).

12. See David Anderson et al., *The Evolution of Corporate Governance: Power Redistribution Brings Boards to Life*, 15 CORP. GOV.: INT'L. REV. 780, 791 (2007); Renee Adams & Daniel Ferreira, *A Theory of Friendly Boards*, 62 J. FIN. 217, 218 (2007).

13. Fama, *supra* note 10.

14. Although the Sarbanes–Oxley Act was passed in 2002, it was not until 2003 that the Securities and Exchange Commission approved changes to the governance requirements of the United States' stock exchanges. Pub. L. No. 107-204, 116 Stat. 745 (2002).

responded. U.S. corporations have recently experienced significant increases in board independence,¹⁵ and although this trend has been somewhat slower in other countries, the rate of adoption of independent boards is nevertheless becoming significant around the world. For example, a majority of Irish firms maintain independent boards, as do the largest Greek firms.¹⁶ Moving beyond a single country analysis, Dahya, Dimitrov, and McConnell examined the prevalence of independent boards in a cross-country study of firms from twenty-two countries and showed that the pervasiveness of adopting independent boards is truly global in nature.¹⁷

It has been widely debated whether boards with independent directors actually act as better monitors. If boards with a relatively high proportion of independent members are better boards, then we should expect this difference to be reflected in the firm's performance. However, research linking board structure and firm performance remains inconclusive, and studies have failed to find that having a majority of independent directors results in improved firm financial performance.¹⁸

C. Board Processes vs. Performance Outcome

Because explorations of board composition and firm outcomes have provided inconclusive results, this paper proposes an alternative method to evaluate whether boards with a significant number of independent directors differ from non-independent boards in their propensity to monitor managerial behavior and reduce agency costs. This approach is unique in that it focuses on board actions rather than on firm outcomes such as performance, which can be largely influenced by factors outside of managerial or board control. Instead, our approach examines whether independent boards are more likely to adopt additional tools to assist them in their monitoring function. If independent directors have greater incentives to act as diligent monitors,¹⁹ we would expect that they would equip

15. See Vidhi Chhaochharia & Yaniv Grinstein, *The Changing Structure of U.S. Corporate Boards: 1997–2003*, 15 CORP. GOV.: INT'L REV. 1215 (2007); Sharon Lee & Loring Carlson, *The Changing Board of Directors: Board Independence in S&P 500 Firms*, 11 J. ORG. CULTURE COMM. & CONFLICT 31 (2007).

16. See Niamh Brennan & Michael McDermott, *Alternative Perspectives on Independence of Directors*, 12 CORP. GOV.: INT'L REV. 325 (2004); Lena Tsipouri & Manolis Xanthakis, *Can Corporate Governance Be Rated? Ideas Based on the Greek Experience*, 12 CORP. GOV.: INT'L REV. 16 (2004).

17. Jay Dahya, Orlin Dimitrov & John McConnell, *Dominant Shareholders, Corporate Boards and Corporate Value: A Cross-Country Analysis*, 87 J. FIN. ECON. 73, 74 (2008).

18. See Sanjai Bhagat & Bernard Black, *The Non-Correlation Between Board Independence and Long-Term Firm Performance*, 27 J. CORP. L. 231 (2002); Finegold et al., *supra* note 2; Klein et al., *supra* note 1.

19. Fama & Jensen, *supra* note 11, at 314–15.

themselves with additional tools contained in the list of best practices to facilitate this role. This supposition is formally defined in terms of the following hypothesis: *Firms with independent boards will be more likely than those without independent boards to voluntarily adopt mechanisms designed to enhance the board's capability to monitor management.* This hypothesis can be viewed as an examination of the extent to which the board processes of independent and non-independent boards are similar. In this way, the research provides insights on the “black box of board process”²⁰ while also documenting the extent to which firms adopt voluntary governance mechanisms. In the parts below, we describe the empirical context and the methodology used to test this hypothesis.

III. EMPIRICAL CONTEXT

Several features of the empirical context warrant discussion. First, we outline the specifics of the Canadian corporate governance regime, and then we formally define the board independence used here. Second, we provide summary statistics on the level of board independence for the sample firms over the five-year period under study. Third, we examine shareholder characteristics and the ownership structure of the sample firms. This examination reveals significant deviation from the common view of the corporation as a widely held entity. Finally, we describe the precise monitoring mechanisms that we examined, and we provide summary statistics on their adoption rates.

A. Applicable Regulations Related to Governance and Disclosure in the Canadian Governance Regime

Canadian law has historically made corporate governance the responsibility of the board of directors, and until recently, Canada relied solely on voluntary governance guidelines established by the Dey Committee and the responsibility of the board to respond to these guidelines. An analysis of Canadian corporations therefore allows us to examine whether boards voluntarily adopt corporate governance mechanisms in order to assist them in monitoring firm management.

The current Canadian corporate governance regime originated in 1995 when the Toronto Stock Exchange adopted the recommendations of the Dey Committee Report entitled, *Where Were the Directors?*²¹ (“Dey Report”). Although the TSX set forth these recommendations, corpora-

20. See Richard Leblanc & Mark Schwartz, *The Black Box of Board Process: Gaining Access to a Difficult Subject*, 15 CORP. GOV.: INT'L REV. 843 (2007).

21. TORONTO STOCK EXCHANGE COMMITTEE ON CORPORATE GOVERNANCE IN CANADA, *WHERE WERE THE DIRECTORS? GUIDELINES FOR IMPROVED CORPORATE GOVERNANCE IN CANADA* (1994) [hereinafter Dey Report]. See discussion *infra* Part III.D.

tions were not required to implement them; however, each company listed on the TSX was required to describe in its annual report or information circular whether or not it had adopted the guidelines produced by the committee. If a company decided not to adopt the recommended guidelines, it had to disclose the relevant explanation.

From 1995 to 1998, requirements regarding firm disclosure of these governance practices were not overly stringent or well-defined. Although the regulations required a firm to disclose its compliance with the recommended practices, they did not require firms to conform to a standardized format for such disclosure. A review of information circulars during this period indicates that the extent and the format of the disclosure varied significantly, thus making it difficult to understand firms' governance practices on a comparative basis. The situation changed in 1999 when TSX formally altered the disclosure requirements. With respect to information circulars issued for fiscal year 1999 and onward, the TSX required that firms disclose their compliance with the recommended practices in a standard tabular format.²² As a result, 1999 marks the start of the sample period. The TSX did not implement any significant changes in disclosure requirements during the period of this study.

The voluntary guidelines from the Dey Committee remain the foundation of the Canadian governance regime. The Dey Committee guidelines are one of the earliest adoptions of corporate governance rules among developed nations,²³ but despite the relatively long history of the Canadian guidelines, it is clear that corporate governance of Canadian firms has the potential to be heavily influenced by the proximity of the United States. The United States issued its first formal statement on corporate governance two years after the Dey Report, but substantial changes to U.S. corporate governance practices have been made since then. These changes culminated in 2002 with the Sarbanes–Oxley Act (SOX).²⁴

The governance practices contained in SOX form an integral part of the Canadian governance environment. This is due to two factors: first, several Canadian firms have their shares listed on U.S. stock exchanges and therefore are bound by SOX; and second, several non-cross-listed

22. In 1999, TSX stated that the disclosure should take a certain format. *See* Letter from Clare Gaudet, Vice President Corporate Finance Services, Toronto Stock Exchange (Nov. 17, 1999) (on file with authors).

23. Britain's Cadbury Report was issued in late 1992. For more information on the Cadbury Report, see THE COMMITTEE ON THE FINANCIAL ASPECTS OF CORPORATE GOVERNANCE, THE FINANCIAL ASPECTS OF CORPORATE GOVERNANCE (1992), *available at* <http://www.ecgi.org/codes/documents/cadbury.pdf>.

24. A comprehensive list of corporate governance codes by nation can be obtained from the European Corporate Governance Institute, *available at* <http://www.ecgi.org/codes/>.

firms have begun to voluntarily adopt the requirements set out in SOX.²⁵ In this study's examination of the monitoring mechanisms that firms can but are not required to adopt, elements from both the Dey Committee guidelines and SOX are included.²⁶

The sample period ends in 2003. After that date, cross-listed firms were required to comply with SOX. By 2004, Canadian governance regulations also evolved to include some mandatory elements. Therefore, 2003 marks the last year when adoption of corporate governance mechanisms to assist the board in monitoring firm management was purely voluntary.

For each of the five sample years, we reviewed the information circulars for firms in the TSX/S&P market index (formerly the TSE 300), and we hand-collected the data on the governance mechanisms employed by each firm. In total, we examined over 1200 proxy circulars.

B. Formally Defining Board Independence

Many of the guidelines suggested by the Dey Committee refer to the board of directors and its role. Perhaps most importantly, the Dey Committee recommended that the board should have a structure that enables it to act independently from management. Recommended aspects of this structure include appointing a chair who is not a member of the firm's executive team and maintaining a majority of independent directors. Securities regulations require Canadian firms to include in their proxy circulars details on the members of the board and their relation to the firm with regard to whether they are "unrelated" or "independent." Independent directors are not involved in the firm management, whereas unrelated directors are both independent and "free from any interest and any business or other relationship which could, or could reasonably be perceived to, materially interfere with the director's ability to act with a view to the best interests of the corporation."²⁷

Thus, in our study, classifying each board member as "independent" involves a conservative approach that requires the director to be both independent and unrelated to the firm. While the term "independ-

25. Anita Anand, Frank Milne & Lynnette Purda, *Voluntary Adoption of Corporate Governance Mechanisms*, (Soc. Sci. Res. Network Working Paper, 2006), available at <http://ssrn.com/abstract=921450>.

26. Although the Sarbanes-Oxley Act was officially passed in 2002, many of its recommendations did not immediately take effect. See Sarbanes-Oxley Act, Pub. L. No. 107-204, 116 Stat. 745 (2002). In fact, none of the mechanisms that we examine were mandated for foreign firms for the fiscal year of 2003, and therefore their adoption before this time was voluntary. *Id.* Of course, Canadian firms with cross-listed securities may have begun to adopt these mechanisms in anticipation of required compliance. We address this issue in our robustness tests, *infra* Part IV.E.

27. See Dey Report, *supra* note 21; see also discussion *infra* Part III.D.

dent” is used for brevity and consistency with the prior literature, it should be noted that the term is used in the stricter sense of “unrelated” as defined by the Dey Committee. Similarly, a board is defined as independent if it includes either a majority of independent directors or an independent chair.

The proportion of firms with independent boards remains relatively constant over time. Table 1 examines the proportion of sample firms that maintain an independent chair, a majority of independent directors, or both, and the extent to which adoption of these features has altered from 1999 to 2003. The consistency of board independence is striking: the proportion of boards with a majority of independent members fluctuated only within a narrow range, moving from a low of 82.8% to a high of 87.4%. Even in 1999, the first year with standardized disclosure, over 80% of firms in the sample had boards with a majority of independent directors. Panel A of Table 1 shows that across all years, 85% of firms had boards with greater than 50% independent members. A T-test of the difference in the level of majority independence between 1999 and 2003 fails to find a significant difference in the proportion of firms with independent boards between the first and last years of the sample.

Table 1 also reveals that it is far less common to maintain board independence through the presence of an independent chair. Only 36% of observations across all years had independent chairs. However, this proportion has slowly but monotonically increased from a low of 32.7% in 1999 to high of 41.9% in 2003. Unlike the difference in the proportion of firms with a majority of independent directors, the two proportions stated above are statistically different from one another, which indicates a significant change in the number of independent chairs over the five-year period.

In addition, almost all firms that maintain an independent chair also choose to appoint a majority of independent directors. There is little difference in the sample proportions between firms that maintain independent chairs and those that ensure independence through the combination of the majority of independent directors and an independent chair. Panel B of Table 1 confirms this finding and shows that the presence of an independent chair without an independent board occurs in only 1.5% of the sample. Furthermore, correlation between the presence of an independent chair and the presence of a combination of independent chair and a majority of independent directors is in excess of 0.96.

Based on our research, it appears that having a majority of independent directors is almost a necessary condition for the appointment of an independent chair. As a result, a board is defined to be independent if it

includes either a majority of independent directors or an independent chair.²⁸

C. Shareholder Characteristics of Canadian Firms

The ownership structure of Canadian firms varies significantly. In some cases, the Berle and Means view of widely held firms is an accurate description of Canadian corporations, but there are also a large number of family firms and firms with significant block holdings in our sample.²⁹ Since the underlying shareholding characteristics of the firm are likely to influence its propensity to maintain board independence and to voluntarily adopt additional monitoring mechanisms, the presence of block holdings, majority voters, and cross-listed firms is carefully controlled for by collecting shareholder information from the information circulars of the firms studied.

We collected data on whether firms displayed certain characteristics and the effect those characteristics had on whether the board adopted voluntary monitoring mechanisms. Panel B of Table 2 provides a correlation matrix of five shareholding characteristics that may influence both the propensity of a firm's board to be independent and its likelihood to voluntarily adopt the recommended corporate governance mechanisms: the presence of family blocks, executive blocks, blocks owned by other investors, and majority voters, as well as whether the firm's shares are cross-listed on a U.S. exchange.

Block holdings by firm executives, founding families, or other investors (generally institutions) must be distinguished from one another because their roles in monitoring firm management may differ.³⁰ For instance, family block holders may have incentives to expropriate from smaller shareholders, which implies that firms with family block holdings are less likely to adopt monitoring mechanisms.³¹ In contrast, block holdings composed of institutional investors have been suggested to ac-

28. However, this essentially equates to maintaining a majority of independent directors because only sixteen of 1,078 sample firms maintained an independent chair without a majority of independent directors.

29. BERLE & MEANS, *supra* note 3. In Canada, securities regulations require disclosure of any individual or group with 10% or more of the outstanding shareholder votes. *See, e.g.*, Securities Act, R.S.O., 1990, c.S.5, as amended, part XX, section 102.1 (Can).

30. It is also noteworthy that block holdings of one type are not associated with the presence of block holdings of a different type. Correlations between three types of block holdings are all negative implications that firms maintaining insider block holdings by families or executives are less likely to have significant holdings by institutional investors. This is true despite the fact that the most common type of block holding within the sample is the "other" category, representing 44.84% of observations, followed by the executive block at 18.69% and the family block at 14.85%.

31. *See* Ronald Anderson & David Reeb, *Board Composition: Balancing Family Influence in S&P 500 Firms*, 49 ADMIN. SCI. Q. 209 (2004).

tively participate in monitoring firm management; this suggests a positive relation between voluntary adoption of these mechanisms and the presence of these block holdings.³² The prediction for executive block holdings is not clear; Morck, Shleifer, and Vishny propose a non-linear relation between managerial ownership and firm value, in which value increases when management maintains a relatively small proportion of shares but declines as managerial shareholdings become large and management becomes entrenched.³³ Table 2 shows the likelihood of multiple blocks and the relation between block types.³⁴

A majority voter is defined as an individual or group who has control of over 50% of the firm's votes. We speculate that the incentives for these owners to voluntarily adopt additional corporate governance mechanisms will be low since the owners effectively have control of the company and therefore have little need to please minority investors. In stark contrast to the widely held view of the firm, 28.17% of the observations have a majority voter. The presence of these controlling shareholders is most strongly associated with the presence of family block holdings. Firms with majority voters are less likely to maintain independent boards, as indicated by the correlation of -0.19 between these two characteristics.

In contrast, cross-listing in the United States may force firms to enhance their governance practices³⁵ and to improve the quality of their financial disclosures.³⁶ Firms that are willing to subject themselves to the increased scrutiny through cross-listing may thereby also be willing to voluntarily adopt additional monitoring mechanisms. Table 2 shows that 46.85% of sample observations are cross-listed and that cross-listed firms are less likely to have block holdings of any type.

The widespread presence of significant block holdings, majority voters, and cross-listed firms emphasizes the importance of controlling

32. See Bernard Black, *Shareholder Passivity Reexamined*, 89 MICH. L. REV. 520, 570–75 (1990).

33. Randall Morck, Andrei Shleifer & Robert Vishny, *Management Ownership and Market Valuation: An Empirical Analysis*, 20 J. FIN. ECON. 293 (1988).

34. Data is collected for all block holdings within a firm to incorporate cases where large shareholdings are held by multiple groups, such as both a founding family and an institutional investor. There is no limit on the number of different kinds of block holdings that may be present. In cases where a family member is also a member of management, the block holding is classified to be an executive block.

35. See Andreas Charitou et al., *Cross-Listing, Bonding Hypothesis and Corporate Governance*, 34 J. BUS. FIN. & ACCT. 1286, 1294 (2007).

36. Mark Lang, Karl Lins & Darius Miller, *ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Environment and Increase Market Value?*, 41 J. ACCT. RES. 317, 337 (2003); Mark Lang, Jana Raedy & Michelle Yetman, *How Representative Are Firms That Are Cross-Listed in the United States? An Analysis of Accounting Quality*, 41 J. ACCT. RES. 363, 365 (2003).

for their influence when establishing whether independent boards are more likely to adopt certain governance mechanisms. This evidence also points to the potential for these characteristics to influence the determination of board independence itself. Overall, 85% of the sample firms maintained independent boards, and T-tests from Table 2 show that two of the shareholding characteristics, cross-listings and other block holdings, are associated with significantly higher levels of independence than the sample of firms without these characteristics. In contrast, the presence of a majority voter or block holdings by families and executives are associated with significantly lower rates of board independence.³⁷

D. Voluntary Monitoring Mechanisms

Canada's voluntary monitoring mechanisms are contained in the Dey Committee's report.³⁸ The Dey Report provided fourteen recommendations, or guidelines, with respect to the composition and function of the board of directors. Of these recommendations, Guidelines 1 and 10 are most relevant in terms of outlining the board's governance responsibilities. Guideline 1 charges the board of directors with the ultimate responsibility for the firm's corporate governance: "The board of directors of every corporation should explicitly assume responsibility for the stewardship of the corporation." Guideline 10 specifically recommends the formation of a governance committee: "Every board of directors should expressly assume responsibility for, or assign to a committee of directors, the general responsibility for developing the corporation's approach to governance issues." Three other guidelines recommend practices to ensure that the board operates independently (including appointing the independent chair and a majority of independent directors) and suggest disclosure related to each director's affiliation with the company. Data relating to the remaining guidelines translated easily into four observable monitoring mechanisms that can be coded by variables equal to 1 if the company adopts the recommended practice and 0 otherwise. The precise guidelines examined are:

1. The audit committee is composed entirely of independent directors;

37. Not only do these tests point to the importance of controlling for shareholding characteristics in our analysis, they also make us aware of potential issues of multicollinearity and endogeneity.

38. Dey Report, *supra* note 21, at Guideline 12(i). The TSX adopted the Dey Report in February 1995, and on May 3, 1995, it released TSE By-Law 19.17, which requires companies incorporated in a Canadian jurisdiction and listed on the Exchange to make annual disclosures regarding their corporate governance practices in an annual report or information circular. These guidelines went into effect beginning with companies whose fiscal year ended on June 30, 1995. See Toronto Stock Exchange, *Guidelines*, in TSX COMPANY MANUAL § 472 (2004) (listing the fourteen recommendations of the Dey Committee).

2. The compensation committee is composed entirely of independent directors;
3. Directors are permitted to independently hire advisors; and
4. Formal training is provided for new board members.

The guidelines for which data has not been collected could not be easily coded to reflect a voluntary willingness to enhance the board's monitoring capabilities. For instance, Guideline 7 recommends that the board review its size to ensure that the board can operate effectively. While it can potentially be deciphered whether or not this review has taken place, a subjective judgment would have to be made as to whether the outcome of the review enhanced, deteriorated, or left unchanged the board's ability to reduce agency costs.³⁹ As a result, the analysis does not include this recommendation.

In addition to these four mechanisms, we collected data for three variables that emerged in SOX. Although these variables were prompted by SOX and eventually became mandatory for Canadian firms with cross-listed securities in the United States, early discussions in Canada suggested that Canadian regulators viewed them favorably as well.⁴⁰ Therefore, in keeping with our focus on recommended but not required practices, we collected data on the following additional monitoring mechanisms, which again are easily observed and coded as 1 when adopted and 0 otherwise. These are:

1. Adoption of a code of ethics;
2. Certification of financial statements; and
3. Presence of a financial expert on the audit committee.⁴¹

39. The remaining guidelines for which data was not collected include the following: a recommendation that the board develop position descriptions for directors and the CEO, that there should be a process put in place for evaluating directors, and that the board should review its compensation of directors.

40. These three monitoring mechanisms were to be contained in Canadian legislation proposed in early 2004. To examine the request for comments regarding this initiative, see Request for Comment, *available at* http://www.msc.gov.mb.ca/legal_docs/legislation/notices/58_101notice.pdf. For the final rules, see Multilateral Instrument 52-110: Audit Committees (2004), *available at* http://www.osc.gov.on.ca/Regulation/Rulemaking/Current/Part5/rule_20040326_52-110-audit-comm.jsp; Multilateral Instrument 52-109: Certification of Disclosure in Issuers' Annual and Interim Filings (2004), *available at* http://www.osc.gov.on.ca/Regulation/Rulemaking/Current/Part5/rule_20040326_52-109-cert.jsp; National Policy 58-201, *available at* http://www.osc.gov.on.ca/en/SecuritiesLaw_rule_20050617_58-201_corp-gov-guidelines.jsp. All of these instruments were proposed in January 2004.

41. The Sarbanes-Oxley Act indicates that the Securities and Exchange Commission should define financial expert and provides guidelines in developing that definition:

While none of the sample firms were required to implement these practices during the time period studied, Table 3 shows that a number of the firms chose both to adopt and to voluntarily disclose the adoption of these mechanisms. While Canadian disclosure requirements have been standardized for the Dey recommendations, they do not encompass the practices mandated by SOX. This may cause a downward bias in the number of firms reporting adoption of the mandated practices. Presumably, however, if a firm believes that there are benefits to voluntarily implementing the practice, it is likely to reveal this to potential investors.⁴²

We examined these seven mechanisms both individually and in aggregate through the formation of an index that allocates one point for each mechanism adopted, up to a maximum of seven points. Creation of such indices in corporate governance research is common,⁴³ and no judgment is made on the value of each recommended guideline, weighting each one equally. In addition to the full aggregate index, a second index is defined, reflecting only the last five recommended guidelines. It is plausible that the ability to staff committees exclusively with independent directors is mechanically related to the number and proportion of independent directors available on the board. As a result, the first two mechanisms related to audit and compensation committee composition are excluded from the index to form a reduced index of voluntary adoption.

As a first observation, our results show that in the Canadian context, recommendations can be an effective means of encouraging firms to adopt better governance practices. Table 3 provides a preliminary examination of the adoption of these seven mechanisms both across the

In defining the term “financial expert” for purposes of subsection (a), the Commission shall consider whether a person has, through education and experience as a public accountant or auditor or a principal financial officer, comptroller, or principal accounting officer of an issuer, or from a position involving the performance of similar functions—

- (1) an understanding of generally accepted accounting principles and financial statements;
- (2) experience in—
 - (A) the preparation or auditing of financial statements of generally comparable issuers; and
 - (B) the application of such principles in connection with the accounting for estimates, accruals, and reserves;
- (3) experience with internal accounting controls; and
- (4) an understanding of audit committee functions.

Pub. L. No. 107-204, § 407(b), 116 Stat. 745 (2002).

42. Robustness tests ensure that the primary results are not sensitive to this assumption by including only those mechanisms covered by disclosure guidelines.

43. See, e.g., Paul Gompers et al., *Corporate Governance and Equity Prices*, 118 Q. J. ECON. 107 (2003); Art Durnev & E. Han Kim, *To Steal or Not to Steal: Firm Attributes, Legal Environment, and Valuation*, 60 J. FIN. 1461 (2005).

entire sample and on the basis of independent versus non-independent boards. Overall, the average level of adoption is 3.91 mechanisms, with independent boards adopting slightly more, at 4.02, and non-independent boards adopting fewer—on average, 3.20.

Only a few firm-year observations have chosen not to implement any of the seven recommended practices. Figure 1 illustrates the distribution of index values across the sample for both the full index and the reduced index excluding committee membership. Although adopting all seven practices was also rare during the sample period, the most common adoption level has been 5. For the reduced index, the number of mechanisms adopted most frequently is 3. However, in comparison to the full index, a larger proportion of firms chose not to adopt any of the mechanisms, which may indicate a particular importance placed on committee membership. Table 3, which finds that maintaining an independent audit committee is the most commonly adopted practice across the sample, confirms this observation.

While recommendations related to corporate governance have been in place in Canada since 1995, increased focus on corporate governance in recent years may have influenced firms to change their practices over time. This possibility is examined in Figure 2, which plots the mean values for the full and reduced indices for both independent and non-independent boards in each year of the sample. Three important observations can be made from this figure. First, even in 1999, firms were voluntarily adopting corporate governance regardless of whether they maintained independent boards. The average level of adopted mechanisms was over 3 for independent boards and over 2 for non-independent boards. Second, adoption rates have been increasing steadily across the entire sample period. This is true for both the full and the reduced index as well as for independent versus non-independent boards. Third, independent boards maintain a higher level of voluntary adoption across all years of the sample for the full index. In recent years, however, adoption rates for the reduced index have converged such that there appears to be little difference between the behavior of independent and non-independent boards.

Univariate tests of differences in adoption rates for independent and non-independent firms across each of the seven mechanisms are provided in Table 3. In all cases, a significantly higher proportion of firms with independent boards adopt specific recommendation. Because this analysis does not account for differences in adoption rates over time,⁴⁴ a

44. Figure 2 identifies differences in adoption rates over time as being potentially very important.

more detailed multivariate analysis of adoption rates is required and is described in the part below.

IV. MULTIVARIATE REGRESSIONS

To provide evidence of whether independent and non-independent boards differ in their propensity to voluntarily adopt additional monitoring mechanisms, we conducted a multivariate analysis in which the dependent variable is either the full or the reduced index described above. The independent variables include control variables and a measure of board independence reflecting the presence of a majority of independent directors or an independent chair. We also examined an alternative specification that includes a variable reflecting the presence of a majority of independent directors and an interaction term identifying cases in which both a majority of independent directors and an independent chair exist.⁴⁵ The purpose of this term is to establish whether an independent chair further enhances a board's propensity to adopt recommended governance practices when a majority of independent directors is already present.

A. Additional Control Variables

As we have seen, the shareholder characteristics of a firm may influence both the adoption of additional governance mechanisms and the presence of an independent board. Accordingly, the multivariate analysis controls for the presence of block holdings (family, executive, or "other"), a majority voter, and cross-listed shares. The expectation is that governance adoption will be positively related to cross-listings and other blocks, but negatively related to family blocks and majority voters. The relationship is unclear with respect to executive holdings.

Six additional characteristics that arguably influence firms' governance decisions are also included as independent variables. As evident from Figure 2, governance patterns have changed dramatically over time; therefore, a "Year Count" variable is defined and set equal to 0 in 1999, 1 in 2000 and so on until reaching a maximum value of 4 in 2003. In addition, since many have argued that there are fixed costs associated with implementing certain governance practices and that these costs are therefore more onerous for small firms to bear, the size of the firm is measured by the lagged value of the natural logarithm of total assets.

The remaining four control variables fall into two categories. The first category aims to capture a firm's need to appeal to either existing or potential investors. The intuition is that the more a firm is potentially

45. Recall that there are extremely few cases in which an independent chair exists without a majority of independent directors. See discussion, *supra* Part III.B.

dependent on investors for funds, the more it will attempt to demonstrate that it values the interests of these investors by putting mechanisms in place to ensure that their funds are not expropriated by management or large shareholders. To measure the firm's funding needs, two variables are adapted from Durnev and Kim.⁴⁶ The first variable, investment opportunity, is measured by the annual percentage growth in sales in the year prior to the measurement of the governance indices. The second variable measures the need for external finance, given a certain level of investment opportunities, and is defined as the difference between the firm's sustainable growth rate and its actual growth rate.⁴⁷ Any amount of growth that the firm cannot support on its own must be funded by external sources. Both investment opportunities and the need for external funds are expected to be positively related to a firm's voluntary adoption of governance mechanisms.

The final category of control variables relates to the potential size of the agency costs experienced by the firm. Recall that these costs incorporate uses of cash that are inconsistent with the best interests of shareholders and expenses incurred to prevent these uses. Gompers and Lerner argue that agency problems will be greater when assets are intangible because tangible assets can be more easily sold upon liquidation of the firm and therefore require less monitoring.⁴⁸ In a similar vein, Khanna argues that high levels of research and development (R&D) spending may be consistent with over-spending due to managerial empire building, while Durnev and Kim argue that these expenses proxy for the intangibility of corporate resources and therefore, for greater potential agency costs.⁴⁹

In line with this literature, our study includes two measures of asset tangibility as control variables. The first is the value of property, plants, and equipment scaled by total assets, which is expected to be negatively related to the level of voluntary adoption. Firms with tangible assets need not expend significant resources to monitor these assets. The second is R&D expenses scaled by total assets, which is expected to be

46. Durnev & Kim, *supra* note 43, at 1464.

47. Following Demirgüç-Kunt and Maksimovic, sustainable growth is measured as return on equity/(1 - return on equity), and actual growth is measured as the annual growth rate in total assets. These values are taken from the year prior to the measurement of the governance variables. See Asli Demirgüç-Kunt & Vojislav Maksimovic, *Law, Finance, and Firm Growth*, 53 J. FIN. 2107, 2110-11 (1998).

48. PAUL GOMPERS & JOSH LERNER, *THE VENTURE CAPITAL CYCLE* 164 (MIT Press 2004); Durnev & Kim, *supra* note 43.

49. Arun Khanna, *Managerial Ownership and Firm Value: Agency Problems of Empire Building and Overvalued Equity* at 12 (May 6, 2005), available at <http://www.fma.org/SLC/Papers/ManagerialOwnership3.pdf>; Durnev & Kim, *supra* note 43, at 1474.

positively related to the number of additional monitoring mechanisms adopted.⁵⁰

Table 4 provides summary statistics for these control variables and their expected relation to the voluntary adoption of monitoring mechanisms. Because of potential endogeneity issues between financial characteristics and governance practices, all variables are measured in the year prior to measuring the indices of voluntary adoption. Panel A of the table provides the mean value for each variable for the full sample, its first and ninety-ninth percentiles, and average values across both independent and non-independent boards. T-statistics for differences in the values of these variables across board type are also presented.

There are no systematic differences in the need for funds, asset tangibility, or size across the two sub-samples of firms. Although the average value of market to book for firms with both board types does not enter into the analysis as a control variable, the table also reports it. Market-to-book value has commonly been used as the measure of overall firm performance,⁵¹ and within this sample, there is no systematic difference in its value across boards with independent versus non-independent firms, providing further evidence on the difficulty of establishing a consistent link between governance and performance.

Panel B of Table 4 provides pair-wise correlations among the control variables related to size, year, need for funds, and asset tangibility. The strongest relation is the negative correlation between R&D expenses and firm size. This indicates that the R&D variable may be capturing relatively young start-up firms that are still small in size. Significantly, positive association between investment opportunity and R&D is also consistent with the rapid growth experienced by junior firms. In contrast, size is negatively related to investment opportunities but positively related to the need for external finance, which indicates that larger firms have slowed in their year-to-year sales growth but remain heavily dependent on external capital markets for finance.

Our study collected data for the control variables from the Canadian version of the Compustat database. Despite the fact that the sample includes only firms contained in the S&P/TSX index—the primary market index for Canada—not all firms are included in the database, and for some firms, the data is incomplete. Moving to the multivariate analysis

50. Research and development expenses are frequently missing for observations in Compustat. Rather than eliminating observations with missing data, we follow Durnev and Kim's practice of replacing missing R&D observations with a value of 0. The logic behind this is that firms that fail to report R&D may do so because they do not have R&D expenditures. Eliminating these firms would then bias the sample toward industries whose R&D spending is significant. Durnev & Kim, *supra* note 43, at 1477.

51. See Gompers et al., *supra* note 43, at 151; Klein et al., *supra* note 1.

therefore results in a loss of observations. However, approximately 700 observations remain.

B. Model Specification

The empirical specification linking the index that reflects monitoring mechanisms to the dependent variables can take several forms. While the data contains elements of a panel in that it represents a cross-section of firms over five years, it is a highly unbalanced panel. Not all firms have available data for each year, and the average number of times a firm appears in the sample is only 2.6. When a firm appears multiple times in the sample, it is clear that its level of governance adoption in one year is likely to be correlated with its level in other years. This correlation can be modeled by using either a random effects model⁵² or robust standard errors clustered at the firm level. A significant number of assumptions underlie the random effects model, and the Hausman test rejects its use. Therefore, our study uses clustered standard errors that are robust to the presence of any correlation among observations from the same firm.

The use of clustered standard errors permits a more accurate representation of the dependent variable by using an ordered probit model. Ordered probit models are appropriate for models with discrete dependent variables when these variables are inherently ranked from low to high, which is consistent with the constructed governance indices.⁵³

C. Primary Results

Table 5 provides the first multivariate results relating monitoring mechanisms to board independence, shareholding characteristics, and the additional control variables. The columns of the table are divided into three sections. The first section provides the expected relation between each independent variable and the index reflecting voluntary adoption of monitoring mechanisms. The second section measures board independence using our primary composite measure, including firms with either a majority of independent directors or an independent chair. Finally, the third section replaces this independence definition with a distinct measure of majority independence and the interaction term that identifies firms with both majority independence and an independent chair.

52. A random effects model (versus a fixed effects model) is appropriate when we believe the sampled cross-sectional units were drawn from a large population. See WILLIAM GREENE, *ECONOMETRIC ANALYSIS* (3d ed. 1997). Because the sample includes only 268 individual companies, we believe that this is a consistent representation of the data.

53. GREENE, *supra* note 52.

Because Table 2 identified shareholding characteristics to be correlated with the adoption of an independent board, these characteristics are initially excluded to avoid potential issues of multicollinearity. Under the first specification of the model presented in Table 5, the full index of potential monitoring mechanisms ranging from 0 to 7 is the dependent variable within the ordered probit model, and the second specification uses the reduced index. The number of observations increases slightly when moving to the reduced index because for some observations, it is impossible to establish if the audit and compensation committees were fully independent; thus, the full index could not be created. Under both specifications, all included control variables (with the exception of property, plant, and equipment (PP&E)) are estimated with the correct sign. Surprisingly, PP&E shows a significant positive relation with the adoption of additional monitoring mechanisms, implying that firms with more tangible assets are more likely to adopt these mechanisms. In contrast, R&D shows the expected sign and is significant for the full index, which implies that firms with high levels of R&D and more intangible resources are more likely to protect these resources with additional monitoring.

One possible explanation for counter-results for PP&E is that the variable is proxying for an omitted variable, such as industry effects. We confirm this hypothesis by constructing thirteen dummy variables corresponding to the thirteen industry classifications established by Campbell from 2-digit sic codes.⁵⁴ When these variables are included, the PP&E variable becomes insignificant, while all other variables remain qualitatively similar. The R&D variable, however, maintains its significance even with the industry dummies at a slightly reduced 6% significance level rather than the original 3%.⁵⁵

The control variables most significantly related to the adoption of monitoring mechanisms are the size of the firm, the year of observation, and the need for finance. As expected, larger firms and firms in greater need of external funds adopt more governance mechanisms. Although the relation between need for finance and monitoring mechanisms retains its statistical significance, it is stronger when the full index is examined than when the reduced index excluding committee composition is likewise examined.

54. John Campbell, *Understanding Risk and Return*, 104 J. POL. ECON. 298, 316 (1996).

55. We also verified that the inclusion of industry dummies does not substantially alter the results from the full regression, including both financial and ownership characteristics. While the results in these instances are essentially the same, we chose not to incorporate industry dummies in the reported tables because subsequent tests work with significantly smaller subsamples of the data, and the inclusion of these dummies would have the potential to over-identify the model.

Having established that the control variables largely behave as expected, we turn to the key variable under consideration: board independence. We observe that the role of board independence is highly sensitive to monitoring mechanisms. When the index representing seven potential mechanisms forms the dependent variable, board independence is positively related to adoption of these mechanisms at the 1% level. In contrast, when the two variables related to independent committees are dropped from the analysis, independent boards are seen to be no more likely to voluntarily adopt the remaining five monitoring mechanisms.

The remaining columns in Table 5 confirm this pattern and the special role that board independence plays in ensuring independent board committees. The third and fourth sets of coefficient estimates add the shareholder characteristics to the control variables and repeat the estimation of the ordered probit model. Before doing so, however, an ordinary least squares (OLS) regression is estimated including all eleven controls (two related to tangibility and two related to need for funds, year, size, and five shareholding characteristics). Strictly speaking, OLS is not appropriate for discrete ordered dependent variables; however, OLS estimation allows for the calculation of variance inflation factors to establish the extent to which multicollinearity impacts the model's estimation. Chatterjee, Hadi, and Price suggest that multicollinearity is a problem whenever the largest variance inflation factor exceeds 10 or the average of all factors is significantly greater than 1.⁵⁶ For the variables used here, the average value is 1.17, while the largest factor is only 1.38, thus providing little indication of multicollinearity. As a result, all control variables are simultaneously incorporated into the analysis.⁵⁷

Including all variables confirms many of our previous findings. Size, year, and PP&E are all significantly positively related to monitoring mechanisms, regardless of whether the full or the reduced index is used. However, inclusion of industry dummies eliminates the significance of PP&E. More importantly, however, is the confirmation that board independence is again positive and significant only when the full index of monitoring mechanisms is examined; board independence plays

56. See SAMPRIT CHATTERJEE, ALI S. HADI & BERTRAM PRICE, REGRESSION ANALYSIS BY EXAMPLE (3d ed. 2000) (1977).

57. In addition to testing for multicollinearity, we considered the possibility of a two-stage instrumental variable regression. Under this specification, board independence would be predicted by instruments correlated with independence, but unrelated to corporate governance mechanisms. Board size was considered as a potential instrument based on the findings of Vassallo and Wells that larger boards are more likely to be independent; however, in the current sample, size was found to be unreliably related to independence. Vassallo & Wells, *Firms' Information Environments and Board Independence* (Soc. Sci. Res. Network Working Paper, 2006), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=898065.

no role in establishing the propensity to adopt the reduced index excluding committees.

Additional insights gained from incorporating the shareholding characteristics include the importance of cross-listing shares in the United States and the presence of a majority voter. As expected, these variables have opposite effects, with cross-listings being positively and significantly related to the adoption of additional monitoring mechanisms and the presence of a majority voter negatively influencing this adoption. Interestingly, the majority voter variable shares a similar pattern to board independence in that it is only a significant influence on governance for the full index when committee membership is included and fails to be important as a determinant of the reduced index.

The final two model specifications in Table 5 confirm the role of control variables in that size, year, cross-listings, majority voter, and need for finance retain their significance. All other control variables remain insignificant. What is different in these final specifications, however, is that the incremental value of an independent chair when a majority of independent directors is already in place is established by including both a variable identifying a majority of independent directors and an interaction term for cases in which an independent chair also exists. These specifications make it apparent that the role of independence is highly sensitive to the precise governance mechanisms reviewed. Both measures are positively and significantly related to the full index, with the presence of an independent chair providing significant incremental benefit over and above the importance of majority independence. In contrast, neither is important when the reduced index is examined.

D. Examining Committee Membership

It is clear from the analysis in Table 5 that board independence does not play a consistent role in influencing the adoption of various monitoring mechanisms. For this reason, the seven mechanisms are considered individually in Table 6 using a probit model where the dependent variable is equal to 1 if a particular mechanism is adopted and to 0 otherwise. The same set of control variables are used as in Table 5.

In general, moving from an aggregate index to its individual elements reduces the significance of many of the control variables. However, year of observation remains a powerful predictor of adoption across all mechanisms. This implies that increases in the aggregate index level over time are not merely due to the adoption of more recently introduced mechanisms suggested by SOX, but rather are due to an overall increase in the level of adoption across all governance practices. Size retains its significance across approximately half of the mechanisms, with a code of

ethics, financial certification, and a financial expert on the audit committee being more common for larger firms.

In examining monitoring mechanisms individually, two unique findings are apparent. First, the presence of an independent board is significantly related only to committee independence. While positively related to both audit and compensation committee independence at the 1% level, board independence is an insignificant determinant of all other monitoring mechanisms. Second, the presence of a majority voter plays a distinct role in whether committees are staffed with independent directors. For both audit and compensation committees, the presence of a controlling shareholder makes it less likely that committees are independent. For all other monitoring mechanisms, the majority voter variable is insignificant.

The unique relationship between board independence and committee membership warrants an investigation into whether this relationship is purely mechanical because firms with more independent directors necessarily have more independent members available from whom to choose in staffing committees. Table 7 addresses this issue and provides additional information on the dynamics of committee memberships over time by detailing the proportion of firms that had fully independent audit and compensation committees in each year of the sample for both firms with independent boards and those without.

The first observation from Table 7 is the dramatic historical difference in committee composition between independent and non-independent boards. In 1999, 72.68% of firms with independent boards maintained fully independent audit committees. However, this proportion was only 17.65% for non-independent boards. A dramatic difference was also apparent for the compensation committee, with 62.64% of independent boards maintaining independent committees, compared to 23.53% of non-independent boards.

Examining the dynamics of how these committee compositions have changed over time sheds some light on whether firms with non-independent boards are unable to fully staff committees with independent members, either because boards have a shortage of these members or because boards have the capability to form independent committees but simply choose not to. Investigation of audit committee composition shows that fully independent committees have become far more common for both types of boards. However, the difference in the proportion of firms with independent audit committees in 1999 versus 2003 is statistically significant for both groups. For firms with independent boards, this proportion has increased from 72.68% to 93.05%. While this still significantly exceeds the proportion of non-independent boards, the gap is

much smaller in 2003 than in 1999, when the proportion of independent boards adopting this mechanism was greater by over 55%. In just five years, the proportion of non-independent boards choosing to staff the audit committee solely with independent members has increased from 17.65% to 69.57%. Clearly, non-independent boards have the capacity to staff this committee with independent members if they so choose, with close to 70% making this decision in 2003.

In contrast, the data regarding compensation committees has not demonstrated such a dramatic change. While the proportion of non-independent boards with independent compensation committees has increased from 1999 to 2003, this increase is not statistically significant, nor has it been monotonic across all years. The proportion of non-independent boards adopting this mechanism had a low of 23.53% in 1999, peaked in 2001 at 40%, and then declined to 30.43% in 2003. In all years, independent boards are significantly more likely to maintain independent compensation committees with the proportion of adopters ranging from 62.64% to 81.38%. It is apparent that non-independent boards place a much lower priority on maintaining an independent compensation committee than an independent audit committee. Independent boards have historically viewed both to be important; because of this, independent boards continue to increase their adoption rates of both mechanisms.

E. Robustness Tests

In this section, we explore the sensitivity of the results to sample selection. More specifically, we examine the roles of two key characteristics that may influence a firm's propensity to voluntarily adopt additional monitoring mechanisms: first, whether the firm has shares cross-listed on an American exchange, and second, whether the firm has a majority voter. Cross-listing may unduly influence voluntary adoption of governance mechanisms related to the Sarbanes–Oxley Act. While none of the mechanisms examined here were mandatory for firms within the sample period, firms may have begun adopting them in the expectation that they may become compulsory. Support for this suggestion can be seen in Table 6, in which cross-listing is positively and significantly associated with the individual adoption of independent audit committees, compensation committees, and financial certification. All three of these mechanisms are reforms contained in SOX.⁵⁸ A more stringent test of our hypothesis on the influence of independent boards on monitoring mechanisms would therefore exclude cross-listed firms from the analy-

58. Pub. L. No. 107-204, 116 Stat. 745 (2002).

sis, focusing only on those firms influenced solely by Canadian standards and regulations.⁵⁹

Table 8 provides the results of this more stringent test, again examining both the full and the reduced indices. Our findings are very similar to Table 5. For instance, the year of observation is again seen to be an important determinant of monitoring mechanisms and, for the full index, investment opportunity and the need for external finance retain their significantly positive relation to monitoring. Interestingly, firm size is no longer an important influence on monitoring. However, this result may not be surprising after noting that only the largest Canadian firms choose to cross-list in the United States, and the median size of cross-listed firms in the sample is over 1.5 times that of the median size of non-cross-listed firms.

Turning to the role of independent boards of non-cross-listed firms, we document findings similar to those of the sample as a whole. Again, independent boards positively influence the value of the full index, including committee memberships. This is an impressive finding because firms listed solely in Canada have not faced the same impending requirement to alter the composition of these committees. In a purely voluntary environment, it appears that independent boards are exerting significant influence on the composition of committee memberships. The findings here also confirm that board independence has no influence on the reduced index when committees are excluded from the analysis.

The second subsample analyzed in Table 8 includes only firms without a majority voter. The motivation behind this subsample comes from the observation that majority voters occur in a non-trivial portion of the sample (28.17%), and Table 5 documents that the presence of a majority voter is negatively associated with the level of the full index but not with the level of the reduced index. Table 6, in which the majority voter variable is significantly and negatively associated with the formation of independent committees, gives further support for the influence of a controlling shareholder. Although independent boards advocate inde-

59. The Sarbanes–Oxley Act adds an additional potential complication to the analysis: no standardized format for disclosure exists for firms to reveal whether they have voluntarily undertaken to adopt the measures implied by the Act. As a result, it is possible that some firms have chosen to adopt these measures without disclosing that they have done so. To the extent that this occurs, our analysis is based on disclosed governance adoption rather than on the true, potentially unobservable adoption rates. This is not an issue for the mechanisms recommended by the Dey Report, for which consistent disclosure standards existed throughout the sample period. The main findings are supported by the individual analysis of these mechanisms in Table 6, where it can be seen that independent boards primarily exert influence on the adoption of monitoring mechanisms through committee memberships and have limited impact on other mechanisms. This conclusion holds even when confining the analysis to include only mechanisms with standardized disclosure.

pendent audit and compensation committees, controlling shareholders appear opposed to their formation.

The findings change within this subsample, which implies an interesting dynamic between the board of directors and controlling shareholders. While the control variables behave as in previous results, the role of an independent board strengthens when a majority voter is not present. In this subsample, independent boards are again associated with higher adoption rates for the full index; however, they are also able to exert a positive influence on the reduced index, in which only those mechanisms not pertaining to committee membership are included. The results are therefore sensitive to the presence of a majority voter. When a majority voter is not present, independent boards are more likely to voluntarily adopt a wide range of monitoring mechanisms. When a controlling shareholder is present, however, the board has a reduced ability to adopt these mechanisms and appears to focus its efforts on ensuring that committee membership includes only independent directors—a mechanism to which controlling shareholders are particularly opposed.

V. DISCUSSION AND CONCLUSION

Using hand-collected data from over 1200 proxy circulars for Canadian firms, this study has examined the hypothesis that independent boards are more inclined than non-independent boards to voluntarily adopt mechanisms designed to enhance their ability to monitor firm management. Independent boards have been defined as those with either a majority of independent directors, where the term “independent” is taken to mean both independent and unrelated, or an independent chair. The observations suggest that in almost all cases, the presence of an independent chair coincides with a majority of independent directors.

Relying on the ordered probit methodology, the primary results suggest that independent boards place special importance on maintaining board committees staffed exclusively with independent directors and that their ability to voluntarily adopt other monitoring mechanisms is sensitive to the presence of a controlling shareholder. When a controlling shareholder is not present, independent boards are able to adopt additional monitoring mechanisms of all types.

These conclusions are robust to controlling for the shareholding characteristics of the firm, its need for funds, and the tangibility of its assets. In general, the year of the observation, the firm size, and whether the company has shares listed on a U.S. stock exchange play a large role in establishing the propensity of a firm to adopt monitoring mechanisms, with more recent observations, large firms, and those with U.S. cross-listings scoring higher on both indices of adoption. Formal tests of mul-

ticollinearity, alternative model specifications, and a more stringent test of the hypothesis in the context of only non-cross-listed firms do not change the results.

The theoretical motivation underlying the study is agency theory and the traditional view of the role of the board of directors. Traditionally, the board of directors actively monitors decision-makers who have a tendency to divert firm resources to their own best interests. The results support this view and provide evidence that a non-trivial number of recommended monitoring mechanisms have been adopted by firms and that the adoption rate is increasing for firms with both independent and non-independent boards. Nevertheless, a potential limitation of the study is that it does not incorporate alternative views for the board of directors, such as influencing managerial decisions through an advisory role. In addition, it ignores processes other than board monitoring that may serve to reduce agency costs.⁶⁰ Finally, it confines its consideration of monitoring mechanisms to those formally suggested either by Canadian guidelines or by the Sarbanes–Oxley Act, placing equal weight on each of the chosen mechanisms despite the fact that some may be more effective than others.

Despite these limitations, the study makes several valuable contributions. First, it provides evidence on the effectiveness of non-mandatory governance guidelines. Despite the fact that there is no requirement for firms to adopt the recommended guidelines, the evidence shows that a number of firms do.⁶¹ Second, the study provides insights into board behavior and the processes boards follow rather than focusing on the inconclusive role of the board in influencing firm performance. Although previous literature on boards and performance has been extensive, it has provided few concrete insights. This study takes an alternative approach by shedding light on board dynamics and the influence that boards have on governance mechanisms, which may in turn influence performance. In doing so, the study provides several possible explanations for the inconclusive findings relating performance to board independence, and it therefore points to future avenues for academic research. For instance, there appears to be little difference in the adoption rate across boards of either type for several monitoring mechanisms. This suggests that a possible explanation for a lack of difference in per-

60. See Kenneth Rediker & Anju Seth, *Boards of Directors and Substitution Effects of Alternative Governance Mechanisms*, 16 STRAT. MGMT. J. 85, 97–98 (1995).

61. While this result is clear in the Canadian context, one should exercise caution in extending these findings to developing economies. See Maria Krambia-Kapardis & Jim Psaros, *The Implementation of Corporate Governance Principles in an Emerging Economy: A Critique of the Situation in Cyprus*, 14 CORP. GOV.: INT'L. REV. 126 (2006).

formance is that both kinds of boards are behaving similarly with respect to their actions: there is no difference because behavior is the same.

Alternatively, in cases where there is evidence that independent boards do behave differently, such as the adoption of an independent audit committee, finding no difference in performance may suggest that this particular monitoring mechanism contributes little to the firm's ultimate performance. This could be the case if the mechanism is so excessively costly to implement that any gain from enhanced monitoring is eliminated by this expense. This expense may be monetary in nature, but it may also be a reduction in the board's effectiveness as advisors; for example, a board's effectiveness may be reduced if management is unwilling to provide sensitive information to a board with tendencies toward overzealous monitoring.⁶²

In addition to these academic contributions and suggestions for future research, the study has significant implications for policymakers advocating for independent boards. Perhaps most important is that the presence of an independent board does not guarantee enhanced compliance with all recommended practices. Board independence appears to have a very specific influence on the types of practices adopted, primarily those related to committee membership, and its influence may be dampened by the presence of a controlling shareholder. These results help to address our gap in understanding "the conditions under which regulation of boards will lead to improvements" identified by Hermalin and Weisbach,⁶³ and these results also force regulators to make explicit what they hope to achieve by recommending or mandating independent boards.

62. Adams & Ferreira, *supra* note 12, at 218.

63. Benjamin Hermalin & Michael Weisbach, *Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature*, 9 *ECON. POL'Y REV.* 1, 7–26 (2003).

Table 1: Characteristics of Independent Boards

Panel A: Proportion of Independent Boards Over Time				
Year	Majority Indep. Directors	Independent Chair	Both	Observations with Data for Both Characteristics
1999	84.86%	32.73%	33.82%	207
2000	82.83%	33.92%	33.49%	215
2001	85.06%	35.52%	34.52%	252
2002	87.44%	38.00%	37.95%	195
2003	87.14%	41.90%	39.71%	209
All Years	85.37%	36.29%	35.81%	1078
T-Stat for Difference Between 1999 and 2003	-0.678 (0.498)	-1.972 [*] (0.049)	-1.246 (0.213)	

Panel B: Use of Multiple Independence Mechanisms		
Majority Indep. Directors	Independent Chair	
	No	Yes
No	13.07%	1.48%
Yes	49.62%	35.80%

* Indicates significance at the five percent level

** Indicates significance at the one percent level

Table 1 illustrates the proportion of the sample observations that maintained either a majority of independent directors, an independent chair, or both majority independence and an independent chair. Panel A outlines these proportions by year of observation with the last line in the panel providing the T-Stats and corresponding p-values (in parenthesis) for testing the statistical difference between the proportion of independent boards in 1999 and the proportion in 2003. Only the presence of an independent chair has become more likely during the five year period.

Panel B of the table indicates the propensity of firms to adopt the two independent characteristics of the board in combination with one another. The panel demonstrates that firms are highly unlikely to adopt an independent chair if they do not also maintain a majority of independent directors.

Table 2: Sample Shareholding Characteristics

Panel A: Shareholding Characteristics and Board Independence				
Shareholding Characteristic	Proportion with Characteristic	Proportion with Indep. Board if Maintain Characteristic (1)	Proportion with Indep. Board if Do NOT Maintain Characteristic (0)	T-Test for Difference in Board Independence Across Shareholding Characteristic (0 - 1 = 0)
Cross-Listed	46.85%	87.95%	82.50%	-2.430* (0.015)
Family Block	14.85%	71.95%	86.51%	4.797** (0.000)
Exec. Block	18.69%	75.23%	86.54%	4.171** (0.000)
Other Block	44.84%	87.26%	81.92%	-2.477* (0.013)
Majority Voter	28.17%	73.50%	88.94%	6.566** (0.000)

Panel B: Pair-Wise Correlation Among Independence and Shareholding Characteristics						
	Indep. Board	Cross-Listed	Family Blk	Executive Blk	Other Blk	Majority Voter
Indep. Board	1.00					
Cross-Listed	0.08*	1.00				
Family Block	-0.14**	-0.09**	1.00			
Exec. Block	-0.12**	-0.13**	-0.18**	1.00		
Other Block	0.07*	-0.08*	-0.15**	-0.01**	1.00	
Majority Voter	-0.19**	-0.11**	0.38**	0.17**	0.06**	1.00

* Indicates significance at the five percent level

** Indicates significance at the one percent level

Panel A documents the proportion of the sample with five different shareholding characteristics. Note that the characteristics are not mutually exclusive and a firm may exhibit more than one of them. Columns two and three of Panel A provide the proportion of firms with each characteristic that maintain an independent board either through an independent chair or a majority of independent directors. In the fourth column T-Stats and p-values (in parenthesis) provide statistical tests of whether the proportion of firms with independent boards differs across these characteristics.

Panel B of the table shows the pair-wise correlation between the various shareholding characteristics and board independence. A board is defined to be independent if either a majority of independent directors or an independent chair is present.

Table 3: Voluntary Adoption of Individual Governance Mechanisms

Governance Mechanism	Full Sample Adoption	Independent Board (1)	Non-Independent Board (0)	T-Stat For Difference (0 - 1 < 0)	Observations for Test
Indep. Audit Committee	76.08%	81.15%	45.39%	-10.04 (0.00 ^{***})	1112
Indep. Compensation Committee	61.49%	66.53%	29.80%	-8.92 (0.00 ^{***})	1107
Code of Ethics	18.43%	20.21%	12.15%	-2.54 (0.01 [*])	1156
Board Training	75.38%	79.59%	62.43%	-5.08 (0.00 ^{***})	1151
Financial Expert on Audit Committee	61.12%	63.63%	55.74%	-2.02 (0.04 [*])	1159
Financial Certification	11.57%	12.37%	8.09%	-1.61 (0.05)	1127
Ability to Hire Advisors	71.76%	74.49%	65.38%	-2.55 (0.01 ^{**})	1158
Mean Value of Index (Median)	3.91 (4)	4.02 (4)	3.20 (3)	-6.32 (0.00 ^{***})	1060
Mean Value of Reduced Index (Median)	2.42 (3)	2.53 (3)	2.12 (2)	-4.16 (0.00 ^{***})	1118
Observations for Full/Reduced Index	1063/1148	922/947	138/171		

*Indicates significance at the five percent level

** Indicates significance at the one percent level

Table 3 provides the adoption rates for each of seven voluntary monitoring mechanisms. Rates are provided for the full sample and firms with both independent and non-independent boards. T-stats for testing whether independent boards have higher adoption rates are provided with p-values in parenthesis. Overall mean and median values for the full index (ranging from 0-7) and reduced index excluding the two independent committee mechanisms (ranging from 0-5) are also provided.

Table 4: Financial Control Variables

Panel A: Summary Statistics for Control Variables								
	Expected Relation To Adoption	Full Sample Mean	Full Sample 1 st ptile	Full Sample 99 th ptile	Independent Board Mean (1)	Non-Indep. Board Mean (0)	T-Stat For Difference (0 - 1= 0)	Obs. for Test
Invest. Opportunity	+	0.36	-0.75	3.64	0.37	0.28	-0.40 (0.69)	981
Need for Finance	+	0.29	-1.07	5.63	0.27	0.42	0.88 (0.38)	888
R&D	+	0.02	0.00	0.36	0.02	0.01	-1.74 (0.08)	1157
PP&E	-	0.75	0.01	2.13	0.79	0.53	-1.58 (0.12)	1022
Ln(Assets)	+	7.17	2.76	12.52	7.18	7.13	-0.34 (0.73)	1045
Market to Book		2.71	0.22	19.40	2.68	2.78	0.28 (0.78)	932

Panel B: Pair-Wise Correlation Matrix

	Indep. Board	Invest. Opportunity	Need for Finance	R&D	PP&E	Ln (Assets)	Year Count
Indep. Board	1.0						
Invest Opp.	0.01	1.0					
Need for Finance	-0.03	0.08*	1.0				
R&D	0.05	0.10**	0.05	1.0			
PP&E	0.05	-0.01	-0.06	-0.08 [§]	1.0		
Ln(Assets)	0.01	-0.09**	0.17**	-0.38**	-0.07*	1.0	
Year Count	0.08**	0.00	-0.08*	-0.01	0.02	0.09**	1.0

* Indicates significance at the five percent level

** Indicates significance at the one percent level

Panel A of the table provides the expected relation between the index of monitoring mechanisms and the control variables measuring the firm's need for funds, its asset tangibility and size. Need for funds is measured by variables proxying for a firm's investment opportunities and the need for external finance given these opportunities. Investment opportunities is defined as the annual percentage change of sales growth. The need for external finance is defined as the difference between a firm's actual growth rate and its sustainable growth rate where actual growth is measured as the annual growth rate in total assets and sustainable growth is measured as return on equity/(1-return on equity). Tangibility is measured by R&D expenses and property plant and equipment (PPE) where both values are scaled by total assets. Missing R&D values are coded as zero. Characteristics of the distribution of each of these variables are provided in the table for the full sample. Mean values for firms with and without independent boards are also provided as are T-tests for differences in these values with p-values in parenthesis.

Panel B of the table provides pairwise correlations among the control variables and board independence. A board is defined to be independent if either a majority of independent directors or an independent chair is present.

Table 5: Factors Influencing Voluntary Adoption of Monitoring Mechanisms

	Expected Sign	Composite Measure of Independence				Majority Independence and Independent Chairs			
		Full Index (0-7)	Reduced Index (0-5)	Full Index (0-7)	Reduced Index (0-5)	Full Index (0-7)	Reduced Index (0-5)	Full Index (0-7)	Reduced Index (0-5)
Independent Board	+	0.59** (0.00)	0.22 (0.14)	0.47** (0.00)	0.10 (0.55)	0.40* (0.02)	-0.00 (0.98)	0.40* (0.02)	-0.00 (0.98)
Majority Indep.	+					0.24* (0.03)	0.01 (0.90)	0.24* (0.03)	0.01 (0.90)
Indep. Chair × Majority Indep.	+					0.45** (0.00)	0.32** (0.00)	0.45** (0.00)	0.32** (0.00)
Cross Listed	+			0.41** (0.00)	0.29** (0.01)				
Family Block	-			-0.12 (0.44)	-0.07 (0.64)				
Executive Block	-/+			0.12 (0.37)	0.05 (0.67)				
Other Block	+			-0.08 (0.46)	0.01 (0.89)				
Majority Voter	-			-0.40** (0.01)	-0.02 (0.90)				
Invest. Opportunity	+	0.01 (0.06)	0.01 (0.15)	0.01* (0.03)	0.01 (0.12)	0.01 (0.06)	0.01 (0.12)	0.01 (0.06)	0.01 (0.12)
Need for Finance	+	0.04** (0.00)	0.03* (0.03)	0.03* (0.03)	0.01 (0.36)	0.03* (0.03)	0.02 (0.30)	0.03* (0.03)	0.02 (0.30)
R&D	+	1.28* (0.03)	0.54 (0.45)	0.77 (0.19)	0.32 (0.64)	0.57 (0.32)	0.26 (0.71)	0.57 (0.32)	0.26 (0.71)
PP&E	-	0.03** (0.00)	0.03** (0.00)	0.03** (0.00)	0.02** (0.01)	0.03** (0.00)	0.02** (0.00)	0.03** (0.00)	0.02** (0.00)
Size	+	0.13** (0.00)	0.14** (0.00)	0.13** (0.00)	0.12** (0.01)	0.11** (0.00)	0.12** (0.00)	0.11** (0.00)	0.12** (0.00)
Year	+	0.47** (0.00)	0.48** (0.00)	0.48** (0.00)	0.47** (0.00)	0.48** (0.00)	0.47** (0.00)	0.48** (0.00)	0.47** (0.00)

Cut-off Points						
μ_0	-0.18	0.40	-0.78	0.07	-0.85	-0.06
μ_1	0.67	1.31	0.50	1.11	0.41	1.02
μ_2	1.38	2.07	1.17	1.80	1.08	1.75
μ_3	2.16	3.36	2.01	3.15	1.94	3.12
μ_4	2.89	4.43	2.73	4.23	2.67	4.20
μ_5	3.93		3.84		3.80	
μ_6	4.82		4.78		4.73	
Observations	789	821	687	706	680	690
Pseudo R ²	0.10	0.11	0.12	0.11	0.13	0.11

* Indicates significance at the five percent level

** Indicates significance at the one percent level.

Table 5 provides coefficient estimates with p-values in parenthesis for several specifications of the ordered probit model relating board independence, shareholding characteristics, and control variables to an index measuring the voluntary adoption of monitoring mechanisms. Variables are as defined in previous tables. The first two model specifications exclude the shareholding characteristics due to possible multicollinearity between these variables and board independence. In both instances, a board is categorized to be independent if it maintains either a majority of independent directors or an independent chair. The dependent variable in the first specification is the full index of monitoring mechanisms which can take on a maximum value of 7. The second specification excludes mechanisms related to committee memberships and forms a reduced index with a maximum value of 5. The next two model specifications include the shareholding characteristics and repeat the model estimation for both the full and reduced index. Finally, the last two specifications alter the measure of board independence to include as separate variables the presence of a majority of independent directors and an interaction term identifying cases in which both an independent chair and independent majority exist.

Table 6: Factors Influencing the Adoption of Individual Governance Characteristics

	Indep. Audit	Indep. Compensate	Code of Ethics	Hire Advisors	Financial Certification	Financial Expert	Train Board
Independent Board	0.84** (0.00)	0.79** (0.00)	0.05 (0.83)	0.00 (0.99)	-0.08 (0.78)	0.04 (0.81)	0.30 (0.13)
Cross listed	0.42** (0.01)	0.32* (0.04)	0.20 (0.17)	0.35* (0.03)	0.41* (0.01)	0.15 (0.31)	0.01 (0.94)
Family Block	-0.17 (0.44)	-0.16 (0.51)	-0.16 (0.54)	0.45 (0.08)	-0.29 (0.32)	-0.29 (0.20)	0.34 (0.15)
Executive Block	0.27 (0.16)	0.02 (0.91)	-0.18 (0.35)	0.23 (0.24)	0.19 (0.47)	-0.19 (0.27)	0.44* (0.02)
Other Block	-0.30* (0.04)	-0.01 (0.92)	0.13 (0.36)	-0.12 (0.44)	0.21 (0.22)	-0.17 (0.22)	0.09 (0.57)
Majority Voter	-0.39* (0.02)	-0.81** (0.00)	-0.08 (0.70)	0.05 (0.80)	0.19 (0.34)	0.08 (0.63)	-0.13 (0.48)
Invest. Opportunity	0.01 (0.63)	0.01 (0.62)	-0.00 (0.73)	0.19* (0.02)	-0.11 (0.35)	0.02 (0.35)	0.08 (0.23)
Need for Finance	0.04 (0.21)	0.01 (0.89)	0.03 (0.33)	-0.01 (0.81)	0.02 (0.56)	0.01 (0.64)	-0.01 (0.86)
R&D	0.61 (0.64)	2.80 (0.07)	0.24 (0.81)	-0.04 (0.97)	0.74 (0.52)	0.19 (0.85)	1.57 (0.21)
PP&E	0.04 (0.46)	0.08 (0.77)	-0.01 (0.75)	0.29 (0.07)	0.01 (0.53)	0.07 (0.28)	0.13 (0.41)
Size	0.06 (0.20)	0.04 (0.88)	0.16** (0.00)	0.05 (0.25)	0.19** (0.00)	0.10* (0.05)	-0.01 (0.84)
Year	0.30** (0.00)	0.17** (0.00)	0.67** (0.00)	0.31** (0.00)	0.38** (0.00)	0.19** (0.00)	0.30** (0.00)
Constant	-0.91* (0.03)	-1.03* (0.01)	-3.87** (0.00)	-0.72 (0.12)	0.38** (0.00)	-0.56 (0.15)	-0.23 (0.62)
Observations	712	712	728	728	713	729	722
Pseudo R ²	0.15	0.16	0.26	0.11	0.18	0.06	0.08

* Indicates significance at the five percent level

** Indicates significance at the one percent level

Table 6 estimates a series of probit models in which the dependent variable is one of the monitoring mechanisms that a company could choose to adopt. Coefficient estimates and p-values (in parenthesis) are provided. The table examines whether the adoption of each particular mechanism is a function of board independence, shareholding characteristics or a series of control variables where variables are as defined in Table 4. A board is defined to be independent if either a majority of independent directors or an independent chair is present.

Table 7: Proportion of Firms with Independent Committees for Independent and Non-Independent Boards

	Independent Audit Committee			Obs.	Independent Compensation Committee			Obs.
	Indep. (1)	Non- Indep. (0)	T-Stat for Difference (0-1 < 0)		Indep. (1)	Non- Indep. (0)	T-Stat for Difference (0-1 < 0)	
1999	72.68%	17.65%	-6.72** (0.00)	217	62.64%	23.53%	-4.39** (0.00)	216
2000	75.77%	37.84%	-4.81** (0.00)	231	61.54%	27.03%	-3.99** (0.00)	230
2001	77.83%	61.76%	-2.04* (0.02)	255	60.73%	40.00%	-2.32* (0.01)	252
2002	87.43%	50.00%	-4.80** (0.00)	199	67.44%	27.27%	-3.79** (0.00)	194
2003	93.05%	69.57%	-3.72** (0.00)	210	81.38%	30.43%	-5.77** (0.00)	211
T-Stat for Diff. From 1999 - 2003	-5.40** (0.00)	-4.55** (0.00)			-4.10** (0.00)	-0.57 (0.28)		
Observations	370	57			370	57		

*Indicates significance at the five percent level

** Indicates significance at the one percent level

Table 7 provides the proportion of firms with and without independent boards that chose to staff the audit and compensation committees solely with independent directors in each year of the sample period. T-Stats and p-values (in parenthesis) are provided for the difference in this proportion when comparing the two types of boards and for differences between the first and last year of the sample period. A board is defined to be independent if either a majority of independent directors or an independent chair is present.

Table 8: Factors Influencing Voluntary Adoption of Monitoring Mechanisms: Non-Cross-Listed Firms and Firms Without Majority Voters

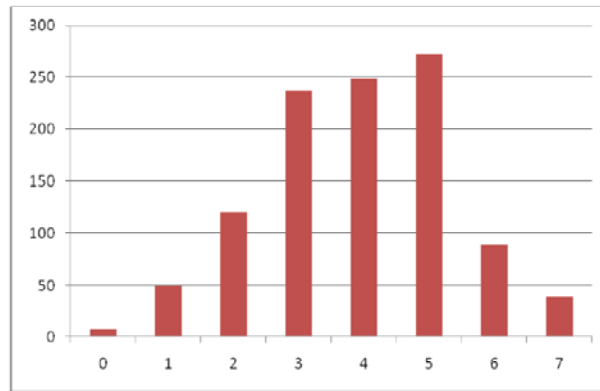
	Expected Sign	Non-Cross-Listed Firms		Firms Without Majority Voters	
		Full Index (0 - 7)	Reduced Index (0 - 5)	Full Index (0 - 7)	Reduced Index (0 - 5)
Independent Board	+	0.66** (0.00)	0.06 (0.75)	1.03** (0.00)	0.62** (0.00)
Cross-Listed	+			0.37** (0.01)	0.36** (0.01)
Family Block	-	-0.33 (0.07)	-0.14 (0.51)	-0.23 (0.18)	-0.10 (0.57)
Executive Block	-/+	-0.09 (0.59)	-0.17 (0.28)	0.26 (0.08)	0.39** (0.01)
Other Block	+	-0.18 (0.18)	-0.14 (0.36)	-0.11 (0.31)	-0.06 (0.55)
Majority Voter	-	-0.32 (0.09)	0.12 (0.48)	--	--
Invest. Opportunity	+	0.01** (0.00)	0.01* (0.02)	0.01* (0.04)	0.01 (0.09)
Need for Finance	+	0.04* (0.05)	0.01 (0.58)	0.04* (0.01)	0.01 (0.43)
R&D	+	-1.23 (0.31)	-2.33 (0.12)	0.78 (0.21)	0.14 (0.85)
PP&E	-	0.03** (0.01)	0.02 (0.05)	0.03** (0.00)	0.02 (0.06)
Size	+	0.07 (0.23)	0.06 (0.33)	0.13** (0.00)	0.11* (0.01)
Year	+	0.41** (0.00)	0.41** (0.00)	0.47** (0.00)	0.45** (0.00)
Cut-off Points					
μ_0		-1.30	-0.65	-0.18	0.53
μ_1		-0.04	0.37	0.91	1.51
μ_2		0.59	1.07	1.64	2.20
μ_3		1.43	2.48	2.51	3.62
μ_4		2.18	3.60	3.23	4.63
μ_5		3.39		4.37	
μ_6		4.17		5.35	
Observations		379	390	482	492
Pseudo R ²		0.09	0.09	0.13	0.12

* Indicates significance at the five percent level
 ** Indicates significance at the one percent level

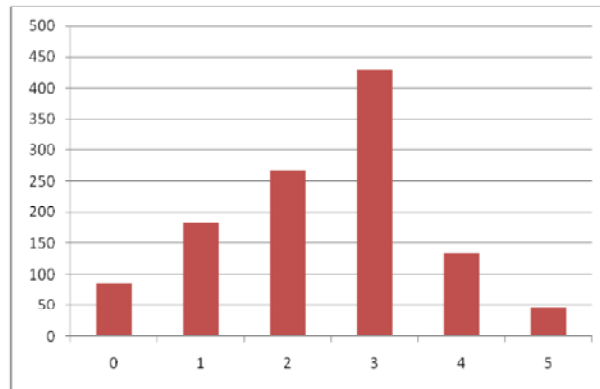
Table 8 estimates ordered probit models where the dependent variable is either the full index of possible monitoring mechanisms (ranging from 0-7) or the reduced index excluding committee membership

Figure 1: Histogram of Index Values

Panel A: Full Index (0-7)



Panel B: Reduced Index Excluding Committee Membership(0-5)



Panel A of the figure provides a histogram of sample values for the full index of monitoring mechanisms ranging from 0-7. Panel B provides a similar histogram for the reduced index excluding mechanisms related to the composition of the audit and compensation committees.

Figure 2: Average Values for Full and Reduced Indices for Independent and Non-Independent Boards

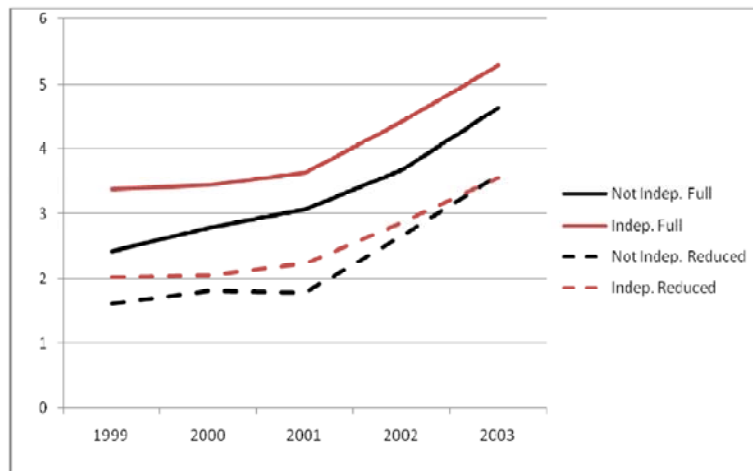


Figure 2 provides average values for indices related to the voluntary adoption of monitoring mechanisms where separate averages are provided for firms with and without independent boards. A board is defined to be independent if either a majority of independent directors or an independent chair is present. Values are provided for both the full index of monitoring mechanisms ranging from 0-7 and the reduced index (ranging from 0-5) excluding mechanisms related to the composition of the audit and compensation committees.