Board Effectiveness and Firm Performance of Canadian Listed Firms

Philip McIlkenny* Brian Conheady* Kwaku K Opong &
Isabelle Pignatel*****

*Telfer School of Management, University of Ottawa,
55 Laurier Avenue East, Ottawa, ON, K1N 6N5, Canada
Tel: (1) 613 562 5800 ext 4463

**Accounting and Finance, Business School, University of Glasgow,
West Quadrangle, Gilbert Scott Building, Glasgow, G12 8QQ, UK
Tel: +44 (0) 141 330 5426; Fax: +44 (0) 141 330 4442

***Comptabilité et de Communication Financière, Euromed Management,
Rue Antoine Bourdel, BP921, 13009, Marseille, France
Tel: + 33 (0) 491 827 796

ARTICLE INFO	ABSTRACT
<i>Article history:</i>	<p data-bbox="625 418 1341 1266">An effective board of directors is central to agency theory's prescription to solving the problems of separation of ownership from control in the modern corporation. The shareholders' confidence in the board's ability to fulfil its duties is an important measure of the success or otherwise of this cornerstone of agency theory. The Board Shareholder Confidence Index, focuses on the board of directors and is the standard by which Canadian governance best practices are measured. This paper investigates the relationship between board effectiveness and company performance.</p> <p data-bbox="625 1299 1341 1372">Using a sample of 888 firm year observations from</p>

2003 to 2009, we find a positive association between the firm's measure of board effectiveness and the firm's contemporaneous and future market measure of performance, Tobin's Q. The results hold across a number of econometric models that control for different types of endogeneities.

Keywords: Agency Theory, Board Effectiveness, Corporate Governance, Firm Performance

INTRODUCTION

Asymmetry of information between managers and shareholders is the result of the separation of ownership from control in large public corporations (Fama and Jensen, 1983). The principal-agent model, espoused by Jensen and Meckling (1976), suggests that because shareholders cannot directly observe managers' efforts, moral hazard thus results greater market pricing agency risk. A possible solution to the problem of agency risk and information asymmetry, according to both the theoretical and empirical evidence, is through the monitoring of firms by financial and information intermediaries, Beasley et al., 2000; Dechow et al., 1996; Titman and Trueman, 1986; Diamond, 1996). Also, by implementing effective corporate governance mechanisms, information asymmetry and agency risk can be reduced (Jensen and Meckling, 1976; Renders et al., 2010). Jensen and Meckling (1976) agency theory suggests that there ought to be a positive impact on firm value for firms employing such governance devices and thus better governance and an effective board can raise firm value.

Canada's principles-based corporate governance regime for listed companies provides firms with the flexibility to tailor their corporate governance practices to their specific circumstances. It assumes that a "one size fits all" approach (a rules-based regime¹) is not best policy, given the material differences between firms with regard to size and complexity. The underlying assumption of this

¹ Broshko, Li, 2006 compare the principles-based and rules-based corporate governance approaches in Canada and the U.S.

governance regime is that the capital market will assess and monitor a firm's compliance with the corporate governance code and, thus, reward or punish the firm via its share price (Easterbrook and Fischel, 1996) or accept the firm's disclosure for non-compliance (Anand, 2005).

The Board Shareholder Confidence Index (BSCI), published by the Clarkson Centre for Business Ethics and Board Effectiveness (CCBE) provides a finely focussed assessment of board effectiveness and “comprises factors used by active investors to assess Boards of Directors for corporate governance best practices..... we capture those factors that influence shareholders' confidence in a Board's ability to fulfil their duties”². This paper has two main objectives. Firstly, we investigate the relationship between a firm's BSCI composite grade, Board Effectiveness (and its component parts) and the firm's performance, where performance is measured by a contemporaneous and future Tobin's Q. Secondly, given that many of Canada's listed firms are either family run or closely held, we explore the firm's voting structure as a possible alternative corporate governance mechanism.

² <http://www.rotman.utoronto.ca/ccbe/>

This paper is organised as follows: the following section reviews the literature and develops our hypotheses. Then, we introduce the data and the methodology, followed by the empirical results. Finally we summarise the paper and provide a concluding discussion.

1. Literature Review and Hypotheses Development

The separation between ownership and control is the result of the modern corporation and its capital requirements which generally requires multiple owners (shareholders), (Berle and Means, 1932). These owners contract executives to manage the corporation on their behalf. Agency theory's "model of man" is that of the rational actor seeking to maximise his or her individual utility, (Jensen and Meckling, 1976). The owners (principals) employ the executives (agents) to maximise their investment in the corporation. The agent, while charged to maximise firm value, perceives opportunities to maximise his/her own utility. To protect owners' interests, minimise agency costs and ensure principal-agent interest alignment, agency theory prescribes compensation schemes and governance mechanisms. One such governance mechanism is the board of directors whose main task is to monitor executives on behalf of the shareholders. Thus, the shareholders' confidence in the board's ability to fulfil its duties is an important measure of the success of this cornerstone of agency theory. The Board Shareholder Confidence Index (BSCI), published by the Clarkson Centre for Business Ethics and Board Effectiveness (CCBE) is one such measure of shareholders' confidence.

Canada realises its corporate governance requirements through the implementation of National Instrument 58-101 Disclosure of Corporate Governance Practices, National Policy 58-201 Corporate Governance Guidelines, and Multilateral Instrument 52-110 Audit Committees. Whilst the latter is mandatory, the Canadian approach to corporate governance is a principles-based approach (comply or

explain), similar to the practices adopted in the UK, other European countries and Australia. Thus, firms that constitute the S&P/TSX are required to disclose their compliance with the above instruments.

A central issue in agency theory is the information asymmetry between absentee owners and managers who are in charge of the day-to-day running of the firm. This requires the Board of Directors to put in place the mechanisms for reducing or eliminating such information asymmetries thereby ensuring shareholder confidence in the Board. From an economic perspective, well-functioning capital markets require resolution of the information, or “lemons”, problem (Akerlof, 1970). Corporate disclosure solves this problem in capital markets and has been categorised into mandatory regulated financial statements and voluntarily disclosed information, with external information intermediaries such as financial analysts also reducing the information gap (Healy et al., 1999). Firms that constitute the S&P/TSX index are required to disclose their compliance with the above instruments and thus their compliance with these instruments is an example of such corporate disclosure. The mandate of the CCBE “is to monitor Canadian corporate governance trends and to provide guidance to firms looking to improve their board effectiveness and disclosure”. Since 2002, the CCBE’s BSCI has become the standard by which Canadian governance best practices are measured. CCBE publishes the BSCI rating annually for each firm that is listed on the S&P/TSX composite index.

A number of prior studies suggest a link between well governed firms and firm value/performance, (for example, Gompers et al., 2003; Bebchuk et al., 2009); others have been unable to indicate firmly that good governance actually impacts positively on firm value/performance, (Core et al., 2006). Therefore, there is no empirical closure on the ongoing debate about the relationship between governance and firm valuation, which suggests the need for more evidence attesting to the link between governance and firm valuation.

Arcot and Bruno (2007) use the quality of explanation as a proxy for a firm's corporate governance choice. They examine the effects of corporate governance on performance for a sample of non-financial UK firms and find that "... a measure which accounts for different choices by companies of corporate governance is *significantly associated* with performance..." They find that firms that do not comply with best practices, for valid reasons, perform exceptionally well and out-perform fully compliant firms and that mere compliance with the Combined Code does not necessarily result in better performance. Selvaggi and Upton (2008) use the Association of British Insurers' Institutional Voting Information Service as a measure of the quality of a firm's corporate governance and report a strong negative correlation between performance and voting for firms that receive a red top (an indicator of major governance concern). They find that a portfolio of well governed firms delivers higher returns when adjusted for risk and has lower volatility of share-price returns. In contrast, no discernible link is found between board structure (director affiliation and ownership, chairman affiliation, and committee composition) and firm performance, where performance is measured using accounting and market

measures of performance (Vafeas and Theodorou, 1998). Using a sample of firms that constitute the FTSE Eurotop 300, Bauer et al. (2004) find a positive relationship between firm valuation and corporate governance variables. However, after adjusting for country differences, the relationship weakens substantially. This contrasts to Gompers et al. (2003), who find a negative relationship between governance measures and earnings based measures of performance. With regard to South Africa, Ntim et al.'s (2011) results indicate improved market value is associated with better compliance and disclosure of recommended corporate governance practices. The positive association between firm value and disclosure is stronger for shareholder than for stakeholder provisions.

Canadian studies provide mixed results with regard to the association between corporate governance grades and measures of performance. Whilst Adjaoud and Zeghal (2004) find a significant link (no link) between the corporate governance grades and value-performance measures (accounting measures of performance), Klein et al. (2005) find that not all of the elements that constitute the aggregate governance grade are important. Most notably, they find that no relationship between board independence and firm performance exists. Also, Gupta et al. (2009), find no association between measures of firm performance, as measured by the market value of the firm, accounting measures of performance, and the composite grade, as well as the sub-category governance grades. No relation between the governance score and Tobin's Q is found by Bozec et al. (2010). All the above Canadian studies use "The Globe and Mail" rankings, a notable exception is Switzer and Cao (2011) who use the BSCI index and report that higher index values are associated with higher Economic Value Added, although, the relationship is not monotonic. They do not, however, assess the

relationship between the component parts of the index and firm performance. Neither do they address the potential interrelations between corporate governance variables and other possible alternative corporate governance mechanisms (Agrawal and Knoeber, 1996; Beiner et al., 2006). We address these major methodological issues in this study.

Given the importance of the board of directors in ensuring that the firm is efficiently managed, it can be argued that an efficient and effective board can lead to improved financial performance of the firm and ensures minimization of information asymmetry between the firm and the market. Such a board will also instil a great deal of shareholder confidence. Therefore, it can be argued that, an effective and efficient board could lead to a higher capital market valuation of a firm as a result of the confidence that market participants have in the board of directors. Thus, the first hypothesis tested in this study is:

H₁ *There will be a positive relationship between Board Effectiveness and firm performance.*

Recent corporate governance reforms have highlighted the need for an enhanced role on the corporate board for non-executive directors. The BSCI component, individual potential, provides a measure of independence. Independence (Cadbury, 1992) and the desire to preserve their reputation in the external labour market (Fama and Jensen, 1983) are important attributes that non-executive directors possess. However, the evidence regarding board independence and firm performance is mixed. Weir et al. (2002) find director independence for UK firms to be positively related to firm performance, albeit at marginally statistically significant levels.

Other studies support this finding, (Rosenstein and Wyatt, 1990; Chung et al., 2003). However Hermalin and Weisbach (1991) find no such relationship, whilst Matolcsky et al. (2002) find that, in general, independent directors do not add to shareholder value but do add value when the firm has relatively valuable growth options. It can be argued that a board that has strong and effective independent members has the potential to reduce board excesses and other agency costs, thereby impacting positively on firm performance.

Therefore, the second hypothesis tested in this study is:

H₂ *There will be a positive relationship between shareholders' confidence in a board with strong independent members and firm performance.*

Director stock ownership is perceived to align manager-shareholder interests according to agency theory and is, therefore, inversely related to agency conflicts between owners and managers. Whilst stock ownership may appear contradictory to the requirement for independence, the definition of independence under Canadian law does not preclude stock ownership, (Part 1.4, Multilateral Instrument 52-110 Audit Committees). Evidence for the alignment of owner-manager interests through directors' stock ownership is also mixed. As stock ownership increases (up to 5%) so does firm performance but then it falls beyond a certain point (25%) and then increases slightly at higher ownership levels, (Morck et al., 1988). A curvilinear relationship between the fraction of shares held by corporate insiders and Tobin's Q exists, (McConnell and Servaes, 1990). A possible explanation is that at higher ownership levels, managers become entrenched. No link is found between ownership structure and performance by Demsetz and Lehn

(1985). A priori, we argue that if directors have significant stock ownership in their firm, it aligns their interests with that of shareholders and provides the motivation to pursue policies that are also in the best interest of stockholders. Therefore, the third hypothesis tested in this study is:

H₃ *There will be a positive relationship between director's stock ownership and firm performance.*

CCBE defines group potential in their BSCI to include CEO/Chair split, committee independence and share structure. Proponents of good corporate governance argue that a firm's leadership structure is critical to success/performance. Thus, splitting the roles of CEO and chairman permit the board to implement its control function more successfully. Firms that adopt this leadership structure outperform firms that retain the dual role, (Rechner and Dalton, 1991) and have lower costs and higher return on assets, (Pi and Timme, 1991). In contrast, Brickley et al. (1997) report that there is insufficient evidence to support the hypothesis that separating the roles of CEO and chairman improves firm performance. We argue that a board with a good structure should, in theory, raise performance, since it signifies a well-run firm. The fourth hypothesis tested in this study is:

H₄ *There will be a positive relationship between confidence in the effectiveness of board structure and firm performance.*

CCBE evaluates the results of board decisions in a final dimension, output. It assesses the practices that investor surveys regard as being opposed to the best interest of shareholders. In effect, they appraise the link between CEO/Directors' incentive scheme (options; dilution, excessive granting, evergreen plans or re-pricing, and directors' loans and pensions) and firm performance. Brown and Caylor (2006) find that option re-pricing, not occurring within the previous three years, and options granted, not exceeding 3% of basic shares outstanding, are both significantly associated with Tobin's Q. We argue that a board with a good output (good past practices), which is in the best interest of shareholders, should experience positive firm performance. Therefore, the fifth hypothesis tested in this study is:

H₅ *There will be a positive relationship between confidence in the effectiveness of board systems (evaluations) and firm performance.*

2. DATA AND METHODOLOGY

2.1 Sample and Data

Governance data for our study is taken from CCBE who publishes the BSCI rating annually for each firm that enters the S&P/TSX composite index. The Centre evaluates each firm's board of directors across three dimensions; individual potential (director

independence and director stock ownership), group potential (CEO/Chair split, committee independence and share structure), and past practices (evaluating the results of board decisions). To arrive at the corporate governance grade, CCBE begins by awarding each company 100 points from which deductions may be made in order to arrive at each firm's Total Score.

In order to arrive at the overall BSCI grade, CCBE evaluates each firm's board of directors across three dimensions: individual potential, group potential and past practices. Individual potential is evaluated based on two factors: director independence and director stock ownership. Group potential is evaluated on board meeting structure, the implementation of board evaluation processes, use of a board skills matrix, director meeting attendance and disclosure of continuing education opportunities. Past practices are assessed by evaluating the results of board decisions; these include: excessive option grants, option re-pricing, CEO pay and performance, director pensions, option gains disclosed, outstanding loans to directors, evergreen option plans, majority voting in director elections and, finally, CEO succession practice and disclosure.

Across each dimension, CCBE can deduct a maximum of 30 points and a minimum of 0 points depending on the dimension being assessed. Thus, across each dimension, a firm's grade can range from AAA [highest], AA, A, B to C [lowest]. For example in assessing the dimension, individual potential and, in particular, the factor director independence, CCBE employs the following methodology: if 66.7% or more of the board is independent then no deduction is made and, thus, the firm would maintain the 100 points awarded. On a sliding scale, the following deductions are made:

%Independence	Deduction
Less than 30%	-15
30%-49.9%	-10
50%-59.9%	-5
60%-66.6%	-3
66.7% or more	0

Similar procedures are adopted for the remaining components of the three dimensions. The overall grade is developed using four linked steps and the result is a transparent, objective, and adaptable rating system, which assigns companies listed on the S&P/TSX Composite Index an overall grade from AAA+ [highest], AAA, AA, A, B to C [lowest]. The detailed criteria and scoring mechanism for each component part of the BSCI can be obtained from the CCBE website³ (or see Switzer & Cao, 2011). It should be noted that between 2003 and 2009 new variables were introduced to each of the dimensions. In order to facilitate analysis we follow Beekes and Brown (2007) by rescaling the grades⁴ from 1-6⁵, where 6 =AAA+, 5 = AAA, 4 = AA, 3 = A, 2 = B and 1 = C.

³ <http://www.rotman.utoronto.ca/ccbe/2007glossary.pdf>

⁴ Our request to CCBE for the firms' actual scores was denied. We also employed the median value of the overall score as a proxy for the actual score; thus, in Table 1, a firm that scored AAA, recorded a score of 97. Similar results to our 6-1 conversion mechanism were obtained using the median value proxy.

Insert Table 1 about here

Thus, the sample in this study comprises those firms that are listed on the S&P/TSX Composite Index. We collect each firm's annual BSCI rating. The total number of firms, for which CCBE published a grade between 2003 and 2009 is contained in Table 2. CCBE publishes a total of 1414 firm year ratings, ranging from a maximum of 224 in 2005 to a minimum 156 in 2009. In 2008, 197 firms are listed on the S&P/TSX index compared to 157 in 2009, the biggest change in the index during the sample period. During this time 57 (17) firms are deleted from (added to) the index, as a result of the application of the S&P/TSX index criteria⁶. It would appear that the impact of these changes results in only one firm scoring AAA+ overall in 2009.

Insert Table 2 about here

⁵ A similar procedure was adopted by Ben Amar W. and McIlkenny, P. 2013. Board effectiveness and the voluntary disclosure of climate change information, *Business Strategy and the Environment* (Forthcoming)

⁶ Additions to and deletions from the S&P/TSX Composite Index are generally only made as part of the Quarterly Review. The Index Committee assesses a firm's market capitalization and liquidity amongst other criteria. <http://www.tmx.com/en/pdf/0000Description.pdf>

Our sample is based on all non-financial firms in the S&P/TSX index. We also apply the following sample selection requirements: all accounting and market value data must be available, and firms with annual revenues of less than \$10 million are excluded; the latter we believe is inconsistent with being a listed firm. In applying our sample criteria, we obtain 699 firm year observations, ranging from a maximum of 114 in 2008 to a minimum of 90 in 2003. For the final sample of 699 firm year observations, the number of firms obtaining the grades, AAA+ [highest] to C [lowest], for each year are summarised in Table 2. Thus, of the 699 firm years, 174 (24%) obtain AA or higher, 415 (59%) obtain either A or B whilst 110 (16%) obtains the lowest grade C. Firms with a dual-class share structure represent 15% of the sample of 699 firm years.

In Table 3, we report the frequency of the 699 firm year observations ranked by frequency across the Sector Description based on the two-digit SIC Code. The sectors in Column 1 cover 18 sectors and represent 89% of the sample. In the sample there are 52 firms that have governance scores for all seven years, 2002-2009; thus 364 of the 699 firm year observations represent 52% of the sample.

Insert Table 3 about here

For each firm in the sample, the accounting and market data for the performance analysis is collected (or computed) from Compustat and the alternative governance variable is collected from Stockguide.

2.2 METHODOLOGY

2.2.1 Firm Performance and Board Effectiveness

We employ a market measure of performance for each firm, Tobin's Q. Our final sample comprises only those firms that have data to permit the computation of Tobin's Q 699 firms. Following Chung and Pruitt (1994), Tobin's Q is computed as the market value of equity plus the book value of total assets minus the book value of equity scaled by the book value of total assets. Haniffa and Hudaib (2006) suggest that Tobin's Q measures the market's valuation of the quality of a firm's corporate governance practices, with a higher Q suggesting greater effectiveness of a firm's practices. In order to minimise potential omitted variables bias in our results, we employ a number of control variables: firm size, annual capital expenditure, leverage, and audit firm size in our study.

Smaller firms have greater opportunities to grow and, thus, may have higher Tobin's Q. (Agrawal and Knoeber, 1996; Klapper and Love, 2004). However, because of greater agency problems, larger firms are more likely to adopt better corporate governance practices and, thus, they may have higher Tobin's Q, (Beiner et al., 2006). High levels of leverage may create financial distress, which can restrict a firm's ability to exploit growth opportunities (Jensen (1986)). However, Jensen also suggests that higher levels of

leverage can increase performance by reducing agency conflicts associated with having excess cash flows by opportunistic managers. Given the contradictory findings in the literature, we predict that firm size (*TA*), capital expenditure (*CAPEX*) and leverage (*LTDTA*), will relate either positively or negatively to Tobin's *Q*. DeAngelo (1981) and Barako et al. (2006) determine that audit quality and auditor independence are positively associated with audit firm size, which suggests that firms may have higher Tobin's *Q* if they are audited by a *BIG4* audit firm. Thus, a positive association between Tobin's *Q* and a *BIG4* audit firm (*AuditCode*) is predicted. Gompers et al., (2003) suggest that investing in firms with greater shareholder rights, better governed firms, earn an annual abnormal return of 8.5% compared to investing in firms with weaker shareholder rights. Thus we include a firm's annual share price return and predict a positive association between Tobin's *Q* and the annual share price return. Table 4 provides a summary of all variables employed.

Insert Table 4 about here

The relationship between the measure of board effectiveness and the market measure of performance is investigated using the regression

$$Perf_{it} = \alpha_0 + \beta_1 BoardEffectiveness_{it} + \sum_{i=1}^n \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (1)$$

where $Perf_{it}$ is represented by the contemporaneous Tobin's Q, *Board Effectiveness* represents, the BSCI composite grade, and *CONTROLS* refers to control variables, including; firm size, which is measured as the value of total assets, (*TA*) for each firm in each year, leverage which is measured as long-term debt to total assets- (*LTDTA*), annual capital expenditure (*CAPEX*), and *BIG4* audit firm, (*AUDITCODE*),. We also investigate the relationship between the market measure of performance and the component parts of the governance grade; thus, Board Effectiveness represents independence, stock ownership, structure, systems (evaluations), and output.

3. EMPIRICAL RESULTS

3.1 Descriptive Statistics and Correlation

The descriptive statistics for all the variables employed in the regression analysis are contained in Table 5. With regard to the market measure of performance, Tobin's Q Panel A, a wide variation in its distribution is found ranging from a minimum of 0.07 to a maximum 6.61 and a mean of 1.59. Similar variations are found in the alternative governance variable, Voting% (Panel B). With the exception of AuditCode, the remaining control variables, Capital Expenditures, Long-Term Debt to Total Assets and firm size (value of total assets, TA) also exhibit wide variation in their distributions. The lack of variation in AuditCode implies the majority of firms (96%) comprising the sample use a BIG 4 auditor.

Insert Table 5 about here

It would appear that no major multicollinearity exists between the variables, given the low correlations contained in Table 6.

Insert Table 6 about here

3.2 Firm Performance and Board Effectiveness

Initially we test the strength of association between Board Effectiveness and firm performance measure, Tobin's Q, using nonparametric chi-square goodness-of-fit tests. We then test our hypotheses with regard to the relationship between firm performance and board effectiveness using the OLS regression model Equation 1:

Insert Table 7 about here

3.3 Discussion of Results

The results of the strength of association between board effectiveness and firm performance measure, Tobin's Q, using nonparametric chi-square goodness-of-fit tests are reported in Table 7. The test results are Pearson's r and Spearman's ρ are 0.03591 and 0.04541 respectively which suggests a weak positive relationship between Board Effectiveness and firm performance for sampled firms. We also report Goodman and Kruskal λ and τ which also measure the strength of association based on the ability to correctly guess or predict the value of one variable, say, BSCI when one knows the value of the other variable ie Tobin's Q. The Goodman and Kruskal λ of 0.00564 suggest that given the Board Effectiveness measure the misclassification proportion in predicting a particular firm's Tobin's Q is only reduced by about 0.56%. The test also suggests that given a Tobin's Q, the misclassification proportion in predicting the Board Effectiveness measure is 100%. This suggests a weak association between the two variables. We also report a table for measures based on forming all possible pairs of observations with different response values to determine whether the pairs are concordant or discordant. Panel C in Table 7 shows that the number of pairs of observations that are discordant is greater than concordant indicating a weak association. Somers's D, Goodman-Kruskal Gamma and Kendall's tau are also reported in Panel C in Table 7. Somers' D shows how many more concordant than discordant pairs exist divided by the total number of pairs and Goodman-Kruskal Gamma also shows how many more concordant than discordant pairs exist divided by the total number of pairs excluding ties. Kendall's Tau shows how many more concordant than discordant pairs exist divided by the total number of pairs of observations including pairs with the same response value. Larger values for these measures indicate a better

predictive ability of the various responses and the predicted probabilities. All the values reported in the Table 7 are low and are about 0.03 which indicate a poor fit of the model.

Insert Table 8 about here

The regression results of corporate governance on the contemporaneous market measure of firm performance Tobin's Q are contained in Table 8. Firstly, we examine if contemporaneous firm value is influenced by board effectiveness. In model 1, the coefficient of Board Effectiveness is positive and statistically significant at the 0.01 level, thus implying that more effective boards are rewarded by the market. This result provides support for H₁. Ceteris paribus, the 0.067 coefficient suggests that a 6.7% increase in firm value would result from a 10% improvement in board effectiveness. This result provides support for the findings of Adjaoud et al (2004). The control variables LTDTD and TA are statistically significant but negative. Jensen (1986)) suggests that high levels of leverage may create financial distress, thus this may explain LTDTA's negative coefficient. CAPEX is negative and not statistically significant whilst the holding period return, HPR, is positive and statistically significant. AuditCode is as predicted: positive and significant. Audit code is positive and significant at the .05 level and thus this result supports the findings of DeAngelo (1981) and Barako et al. (2006) who determine that audit quality and auditor independence are positively associated with audit firm size, which

suggests that firms may have higher Tobin's Q if they are audited by a *BIG4* audit. Secondly, we then explore the component parts of the overall measure of board effectiveness and the contemporaneous market measure of firm performance, Tobin's Q , by substituting the component parts for Board Effectiveness in Equation 2. Thus, the following are substituted for Board Effectiveness in Equation 2; Independence (model II), Stock Ownership (model III), Structure (model IV), Systems (Evaluations) (model V), and Output (model VI). Independence and Structure have statistically significant positive coefficients at the 0.10 level. Thus, the market sees little value in Independence, a finding that supports the results of Hermalin and Welsbach (1991) whilst the latter finding provides weak support for the findings of Pi and Timme (1991). The remaining governance variables' coefficients are positive, with the exception of Systems (Evaluations), but are not statistically significant.

4. ROBUSTNESS ANALYSIS

Following Larker and Rusticus (2010) and Ntim et al. (2011), we address potential endogeneity problems by estimating: a lagged corporate governance score-performance structure and employing two-stage least squares (2SLS). Thus, we re-estimate equation (1) as a lagged structure specified as:

$$Perf_{it} = \alpha_0 + \beta BoardEffectiveness_{it-1} + \sum_{i=1}^n \beta_i CONTROLS_{it-1} + \varepsilon_{it-1} \quad (2)$$

where everything remains the same as defined in equation (2), except that we employ a one year ahead performance measure and the lagged corporate governance measure, Board Effectiveness, in which the next year's performance measure depends on this year's corporate governance grade. This method addresses the simultaneity problem noted by Haniffa and Hudaib (2006) which arises owing to the possible existence of an association between lagged corporate governance and firm performance. We also explore the relationship between the future market measure of performance and the lagged component parts of the governance grade; thus, Board Effectiveness represents Independence, Stock Ownership, Structure, Systems (Evaluations), and Output.

Insert Table 9 about here

The regression results of board effectiveness on the one year ahead market measure of firm performance, represented by Tobin's Q, are contained in Table 9. Firstly, we examine if future firm value is influenced by board effectiveness. In model I, the coefficient of Board Effectiveness is positive and statistically significant at the 0.01 level, thus implying that more effective boards are rewarded by the market. Ceteris paribus, the 0.070 coefficient suggests that a 7% increase in firm value would result from a 10% improvement in board effectiveness. The control variable LTDTA is negative and highly significant whilst HPR is positive and highly significant. The former result may be explained by the suggestion that high levels of leverage may create financial distress, which can restrict a firm's

ability to exploit growth opportunities (Jensen (1986)). Audit code is positive and significant at the .10 level and thus this result supports the findings of DeAngelo (1981) and Barako et al. (2006).. Secondly, we explore the component parts of the overall measure of Board Effectiveness and the future market measure of firm performance, Tobin's Q, by substituting the component parts for Board Effectiveness in Equation 2. Thus, the following are substituted for Grade in Equation 2; Independence (model II), Stock Ownership (model III), Structure (model IV), Systems (Evaluations) (model V), and Output (model VI). Output is the only component of Board Effectiveness that has a statistically significant positive coefficient at the 0.01 level. Ceteris paribus, the 0.088 coefficient suggests that a 8.8% increase in firm value would result from a 10% improvement in the board's output. The remaining variables' coefficients are positive (except Systems) but are only statistically significant. The results for Board Effectiveness reported in Table 9 are generally similar to that reported in Table 8 which suggests that the relationship between performance and board effectiveness in our study is robust to a lagged performance structure.

To address endogeneity problems that may be caused by omitted variable bias, we adopt a 2SLS technique (Agrawal and Knoeber, 1996; Black et al., 2006; Henry, 2008; Renders et al., 2010). Concentrated ownership may reduce agency costs and, thus, could increase firm value, since it is associated with greater managerial monitoring, Jensen (1986). Shleifer and Vishny (1986) suggest that large shareholders monitor managers and look for ways to better the firm. Thus, large shareholders are characterised as a corporate governance mechanism. The existence of an alternative corporate governance mechanism that is complementary to the

BSCI single grading can strengthen the link between Tobin's Q and grading. Canadian firms may have a dual-class share structure, since there is no legal prohibition on such a structure; such firms tend to be smaller in size and are managed or closely-held by the founders, (Jog et al., 2010). Whilst the number of firms with a dual-class share structure that are listed on the TSX has dropped from 14% in 1993 to 6% in 2010, (Amoako-Adu et al., 2011), the structure has been criticised for the risk of value entrenchment and the lack of shareholder rights. However, Jog et al., (2010), using a Canadian sample, find that firms with a dual-class share structure do not have lower firm value, lower operating performance or inferior long-term stock performance compared to non dual-class share structure firms. Klein et al., (2005) use ownership percentage as a potential alternative governance mechanism. Given the dual-class share structure, we employ an alternative corporate governance measure, voting percentage (Voting%), to address the issue of the possible existence of an alternate corporate governance mechanism, which if omitted, could lead to spurious results of any analysis based on OLS. Voting% is the percentage of votes attached to the voting shares held by the directors of the company and by other individuals or companies that own more than 10% of the equity shares of the company. Whilst Ownership% measures the percentage of shares held, Voting% is the real measure of the control of a firm, since it encompasses the voting power of dual and non-dual class shares. With regard to the latter, family/founders have a long-term interest in the firm, an argument that is consistent with family control reducing Type 1 agency problems (conflict between managers and shareholders (Jaggi et al., 2009)).

In the first stage, we assume that the *Board Effectiveness* will be determined by the control variables; *AUDITCODE*, *CAPEX*, *LTDTA*, *TA* and *HPR* and the alternative corporate governance mechanism: *Voting%*. Due to greater agency problems and greater public scrutiny, we expect larger firms to be more likely to voluntarily maintain better corporate governance practices, particularly in a principles-based environment (Beiner et al., 2006; Watts and Zimmerman, 1978). Thus, we expect the size related variables, *TA* and *AuditCode*, to be positively associated with the corporate governance score, *Board Effectiveness*. To be able to obtain cheaper external financing to exploit their greater investment and growth opportunities, we expect firms to voluntarily maintain better corporate governance practices (Beiner et al., 2006; Chen et al., 2010). Thus, we predict that *CAPEX* and *LTDTA* will correlate positively with the *Board Effectiveness*. We hypothesise a negative link between *Voting%* and *Board Effectiveness*, because higher *Voting%* can act as a substitute for good corporate governance, by reducing agency problems through closer managerial monitoring (Jensen and Meckling, 1976; Cheung et al., 2007). Thus, the first stage regression that we run is given by:

$$BoardEffectiveness_{it} = \alpha_0 + \beta_1 Voting\%_{it} + \sum_{i=1}^n \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (3)$$

The results of the first stage regression using equation 3 are contained in Table 10, Panel A. It would appear that *Voting%* is statistically associated with *Board Effectiveness and Structure* at the 0.00 level of significance and *Independence, Stock Ownership* at

the 0.01 level with coefficients of -0.015, -0.021, -0.005, and 0.005 respectively. This suggests that the predicted *Board Effectiveness* (entitled *PBoardEffectiveness*) may be an appropriate instrument for *Board Effectiveness*.

In the second stage, we use the predicted parts as instruments for the corporate governance mechanisms. Finally, we estimate equation (4) along with the control variables using the 2SLS technique given by:

$$Perf_{it} = \alpha_0 + \hat{\beta}_1 PBoardEffectiveness_{it} + \sum_{i=1}^n \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (4)$$

where $\hat{\beta}_1 PBoardEffectiveness_{it}$ is the predicted value for board effectiveness from equation 3 and all other terms are as defined previously.

Equation 4 replicates equation 2 where everything remains the same except that Board Effectiveness is replaced with the predicted measure of Board Effectiveness from equation 4. This procedure considers firm performance as endogenous along with the alternative governance structure represented by Voting%, this allows the alternate mechanism to affect the other structure, in order to detect complementary or substitution effects.

Insert Table 10 about here

The regression results from using the predicted values Grade (equation 5), its component parts and the control variables on the contemporaneous Tobin's Q are reported in Table 10, Panel B. The coefficient of *PBoardEffectiveness* (model I) is positive and statistically significant, at the 0.00 level. This finding suggests that our results of a positive association between board effectiveness and performance is not sensitive to endogeneity problems that may arise due to omitted variables and thus supports the findings of Ntim et al (2011). For the control variables, LTDTA and TA (HPR) are negative (positive) and statistically significant across the overall predicted Grade and the component parts at the 0.001 level. The high F value and adjusted R^2 , 27.9%, might suggest that the predicted *PBoard Effectiveness* may be an appropriate instrument for Board Effectiveness. All the component parts of *PBoardEffectiveness* (models II-VI) are statistically significant at the 0.001 level.

5. CONCLUSION

This paper investigates, firstly whether superior board effectiveness represented by the annual Board Shareholder Confidence Index grade, published by CCBE is associated with superior firm performance. Secondly, we investigate as to whether the component parts

of board effectiveness are associated with superior firm performance. An effective board of directors is central to agency theory's prescription to protecting owners' interests, the minimisation of agency costs and ensuring that principal-agent interests are aligned. The shareholders' confidence in the board's ability to fulfil its duties is an important measure of the success or not of this cornerstone of agency theory. Using a sample of 888 firm year observations from 2003 to 2009, we find a positive association between a firm's board effectiveness and its performance, where performance is either a contemporaneous or a one year ahead Tobin's Q. In assessing the component parts of the overall grade, we find that board structure and stock ownership are consistently positively associated with firm performance. Independence, structure and systems have no association with either the contemporaneous or the one year ahead market measure of performance. Our results are robust across a number of econometric models that control for different types of endogeneities and performance measures.

Similar to prior studies, this paper is subject to limitations. Firstly, the findings are dependent of the underlying construct of the Board Shareholder Confidence Index. An index cannot capture all aspects of good governance nor can it incorporate firm or industry specific influences. Secondly, it may be that the BSCI does not capture the elements of board effectiveness that the market considers important. Thirdly, a firm's actual BSCI score is not available and thus our conversion mechanism is only an approximate measure of the score. The validity of our findings is subject to this constraint.

In Canada's principles based regime, it would appear that certain aspects of board effectiveness, most notably independence, are not associated with firm performance. For the proponents of good governance this may seem paradoxical. The result may be explained by the fact that many of these companies are family run. Thus, regulators may need to take cognisance of how firms are controlled in developing corporate governance policy.

REFERENCES

- Adjaoud, F. & Zéghal D., 2004. The effect of board's quality on performance: a study of Canadian firms. *Corporate Governance*, 15 (4), 632-644.
- Agrawal, A. & Knoeber, C. R., 1996. Firm performance, mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, 31: 377-389.
- Akerlof, G. A., 1970. The market for "lemons": quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, 84, 3, 488-500.
- Amoako-Adu, B, Smith, B.F. & Baulkaran, V., 2011. Unification of dual-class shares in Canada with clinical case on Magna International. Capital Markets Institute Conference on Dual-Class Shares, Rotman School of Management.
- Anand, A., 2005. Corporate governance changes in the wake of the Sarbanes-Oxley act: a morality tale for policymakers too. John M. Olin Centre for Law, Economics and Business Discussion Paper No 525, available on the internet at http://www.law.harvard.edu/profgrams/olin_centter.
- Arcot, S.R. & Bruno, V.G., 2007. One size does not fit all: Evidence from corporate governance., available on the internet at <http://ssrn.com/abstract=887947>.
- Barako, D. G., Hancock, P. & Izan, H. Y., 2006. Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review*, 14: 107-125.
- Bauer, R., Günster, N. & Otten, R., 2004. Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value and performance. *Journal of Asset Management*, 5, 91-105
- Beasley, M.S., Carcello, J.V., Hermanson, D.R. & Lapides, P.D. 2000. Fraudulent financial reporting: consideration of industry traits and corporate governance mechanisms. *Accounting Horizons*, 14, 441-454.

- Bebchuk, L., Cohen, A. & Ferrell, A. 2009. What matters in corporate governance? *Review of Financial Studies*, 22: 783-827.
- Beekes, W., Brown, P. & Chin, G. 2007. Do better-governed firms make more informative disclosures? Canadian evidence. available on the internet at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=881062
- Beiner, S., Drobetz, W., Schmid, M. M. & Zimmermann, H. 2006. An integrated framework of corporate governance and firm valuation. *European Financial Management*, 12: 249-283.
- Ben Amar W., & McIlkenny, P. 2013. Board effectiveness and the voluntary disclosure of climate change information, *Business Strategy and the Environment* (Forthcoming)
- Berle, A.A. & Means G.C., The modern corporation and private property, New York, Harcourt, Brace and World, [1932] 1968.
- Black, B. S., Jang, H. & Kim, W. 2006. Does corporate governance predict firm's market values? evidence from Korea. *Journal of Law, Economics and Organization*, 22: 366-413.
- Bozec, R., Dia, M. & Bozec, Y. 2010. Governance-performance relationship: a re-examination using technical efficiency measures, *British Journal of Management*, 21: 684-700.
- Brickley, J., Coles, L. & Jarrel, G. 1997. Corporate leadership structure : on the separation of the positions of CEO and chairman of the board, *Journal of Corporate Finance*, 3: 189-220.
- Broshko, E.B. & Li, K. 2006. Playing by the rules: comparing principles-based and rules-based corporate governance in Canada and the US. *Canadian Investment Review*, Winter, 18-23.
- Brown, L.D. & Caylor, M.L. 2006. Corporate governance and firm valuation, *Journal of Accounting and Public Policy*, 25: 409-434.
- Cadbury Committee. 1992. Report of the committee on the financial aspects of corporate governance. Gee, London.

- Chen, W.P., Chung, H., Hsu, T.-L. & Wu, S. 2010. External financing needs, corporate governance and firm value. *Corporate Governance: An International Review*, 18: 234-249.
- Cheung, Y. L., Connelly, J. T., Limpaphayom, P. & Zhou, L. 2007. Do investors really value corporate governance? evidence from the Hong Kong market. *Journal of International Financial Management, Accounting*, 18: 86-122.
- Chung, K.H.& Pruitt, S.W., 1994. A simple approximation of Tobin's Q, *Financial Management*, 23(3): 70-74
- Chung, K.H., Wright, P. & Kedia, B. 2003. Corporate governance and market valuation of capital and R&D investments. *Review of Financial Economics*, 12: 161-172.
- Core, J. E., Guay, W. R. & Rusticus, T. O. 2006. Does weak governance cause weak stock returns? an examination of firm operating performance and analysts' expectations. *Journal of Finance*, 61: 655-687.
- DeAngelo, L. E. 1981. Auditor size and auditor quality. *Journal of Accounting and Economics*, 3: 181-199.
- Dechow, P. M., Richard G. Sloan, R.G. & Sweeney, A. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC, *Contemporary Accounting Research*, 13, 1-36.
- Demsetz, H. & Lehn, K. 1985. The structure of ownership: causes and consequences, *Journal of Political Economy*, 93(6): 1155-1177.
- Diamond, D.W. 1996. Financial intermediation as delegated monitoring: a simple example, *Economic Quarterly*, 82(3): 51-66.
- Easterbrook, F. & Fishel, D. 1996. The economic structure of corporate law, Cambridge, MA: Harvard University Press.
- Fama, E.F. & Jensen, M.C. 1983. Separation of ownership and control, *Journal of Law and Economics*, 26: 301-349

- Gompers, P., Ishii, J. & Metrick A. 2003. Corporate governance and equity prices, *Quarterly Journal of Economics*, 118(1), 107-155.
- Gupta, P.P., Kennedy, D.B. & Weaver S.C., 2009, Corporate governance and firm value: evidence from Canadian capital markets, *Corporate Ownership and Control Journal*, Vol. 6, No. 3, Spring, 2009
- Haniffa, R. & Hudaib, M. 2006. Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance and Accounting*, 33: 1034-1062.
- Healy, P. M., Hutton, A. & Palepu, K. G. 1999. Stock performance and intermediation changes surrounding sustained increases in disclosure, *Contemporary Accounting Research*, 16, 3, 485–520.
- Henry, D. 2008. Corporate governance structure and the valuation of Australian firms: is there value in ticking the boxes. *Journal of Business Finance and Accounting*, 35: 912-942.
- Hermalin, B. & Weisbach, M. 1991. The determinants of board composition and direct incentives on firm performance. *Financial Management*, 20, 101-112.
- Jaggi, B., Leung, S., & Gul, F., 2009. Family control, board independence and earnings management: evidence based on Hong Kong firms. *Journal of Accounting and Public Policy*, 28, 281-300.
- Jensen, M. C. 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76: 323-329.
- Jensen, M. C. , & Meckling, W. H. 1976. Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3: 305-360.
- Jog, V. Zhu, P.C., & Dutta, S. 2010. Impact of restricted voting share structure on firm value and performance. *Corporate Governance: An International Review*, 18(5): 415-437.
- Klapper, L. F. & Love, I. 2004. Corporate governance, investor protection,, performance in emerging markets. *Journal of Corporate Finance*, 10: 703-728.

- Klein, P. Shapiro, & Young, J. Corporate governance, family ownership and firm value: canadian evidence, *Corporate Governance: An International Review*, 13, 6, 769-784.
- Larcker, D. F. & Rusticus, T. O. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics*, 49: 186-205
- Matolcsy, Z., Stokes, D. & Wright, A. 2002. Do independent directors add value? *Australian Accounting Review*, 14 (1): 33-40.
- McConnell, J.J. & Servaes, H. 1990. Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 20: 293-315. *Journal of Financial Economics*, 27: 595-612.
- Morck, R., Shleifer, A. & Vishny, R.W. 1988. Management ownership and market valuation, *Journal of Financial Economics*, 20: 293-315.
- Multilateral Instrument 52-110 Audit Committees, available on the internet at <http://www.osc.gov.on.ca/en/6439.htm>
- National Instrument 58-101 Disclosure of Corporate Governance Practices, available on the internet at <http://www.osc.gov.on.ca/en/6439.htm>
- National Policy 58-201 Corporate Governance Guidelines, available on the internet at <http://www.osc.gov.on.ca/en/6439.htm>
- Ntim, C. G., Opong, K. K. & Danbolt, J. 2011. The Relative Value Relevance of Shareholder versus Stakeholder Corporate Governance Disclosure Policy Reforms in South Africa. *Corporate Governance: An International Review*, 20: 84-105.
- Pi, L. & Timme, S. 1991. Corporate control and bank efficiency, *Journal of Banking and Finance*, 20: 293-315.

- Rechner, P. & Dalton, R. 1991. CEO duality and organisational performance: a longitudinal analysis, *Strategic Management Journal*, 12: 155-160.
- Renders, A., Gaeremynck, A. & Sercu, P. 2010. Corporate-governance ratings and company performance: a cross-European study. *Corporate Governance: An International Review*, 18: 87-106.
- Rosenstein, S. & Wyatt, J.W. 1990. Outside directors, board independence and shareholder wealth. *Journal of Financial Economics*, 26: 175-191
- Selvaggi, M. & Upton, J., 2008. Governance and performance in corporate Britain: Evidence from the IVIS colour-coding system. Association of British Insurers Research Paper 7.
- Shleifer, A. & Vishny, M.W. 1986. Large shareholders and corporate control, *Journal of Political Economy*, 94: 461-488.
- Switzer, L.N. & Cao Y. 2011. Shareholders' interests vs board of director members' interests and company performance. *Review of Accounting and Finance*, 10: 228-245.
- Titman, S. & Trueman, B. 1986. Information quality and the valuation of new issues, *Journal of Accounting and Economics*, 8(2): 159-172.
- Vafeas, N. & Theodorou, E. 1998. The relationship between board structure and firm performance in the UK. *British Accounting Review*, 30, 383-407.
- Watts, R. L. & Zimmerman, J. L. 1978. Towards a positive theory of the determination of accounting standards. *Accounting Review*, 53: 112-134.
- Weir, C., Laing, D. & McKnight, P.J. 2002. Internal and external governance mechanisms: their impact on the performance of large UK public companies. *Journal of Business Finance and Accounting*, 29: 579-608.

TABLE 1 CCBE's Board Shareholder Confidence Index (BSCI) Conversion Mechanism		
BSCI Score	BSCI Grade	Board Effectiveness
100	AAA+	6
95-99	AAA	5
90-94	AA	4
75-89	A	3
50-74	B	2
<50	C	1

TABLE 2								
Summary of Original Dataset and Final Sample.								
	2003	2004	2005	2006	2007	2008	2009	Totals
Total published by CCBE	214	216	224	208	198	197	157	1414
Eliminated due to lack of Contemporaneous-HPR	34	32	31	26	22	24	20	189
Eliminated due to lack of share price data	13	10	9	8	1	2	1	44
SIC = 6xxx eliminated	23	25	26	28	30	30	28	190
Sales < \$10m eliminated	46	52	49	42	37	23	11	260
Eliminated due to lack of Tobin's Q data	8	5	6	6	2	4	1	32
Sample Total	90(100%)	92(100%)	103(100%)	98(100%)	106(100%)	114(100%)	96(100%)	699(100%)
AAA+	11(12%)	9(10%)	3(3%)	9(9%)	11(10%)	6(5%)	1(1%)	50(7%)
AAA	8(9%)	5(5%)	9(9%)	7(7%)	18(17%)	17(15%)	2(2%)	66(9%)
AA	20(22%)	4(4%)	6(6%)	9(9%)	3(3%)	11(10%)	5(5%)	58(8%)
A	16(18%)	28(30%)	33(32%)	27(28%)	25(24%)	28(25%)	19(20%)	176(25%)
B	28(31%)	35(38%)	36(35%)	35(36%)	34(32%)	33(29%)	38(40%)	239(34%)
C	7(8%)	11(12%)	16(16%)	11(11%)	15(14%)	19(17%)	31(32%)	110(16%)

TABLE 3

This table reports the frequency of the 699 firm year observations ranked by highest frequency across the Sector Description based on the two-digit SIC Code. The sectors in Column 1 represent 89% of the sample.

Sector Description	Frequency	Sector Description	Frequency
METAL MINING	136	FABRICATED METAL PRODUCTS MFRS	11
OIL & GAS EXTRACTION	126	APPAREL & OTHER FINISHED PRODUCTS-MFRS	7
ELECTRIC GAS & SANITARY SERVICES	43	TRANSPORTATION BY AIR	7
ELECTRONIC & OTHER ELECTRICAL EQUIP MFR	40	GENERAL MERCHANDISE STORES	7
CHEMICALS & ALLIED PRODUCTS MFRS	35	AUTOMOTIVE DEALERS & SERVICE STATIONS	7
COMMUNICATIONS	30	BUILDING MATERIALS & HARDWARE	6
LUMBER & WOOD PRODS EXCEPT FURNTR MFRS	26	MEASURING & ANALYZING INSTRUMENTS-MFRS	5
FOOD & KINDRED PRODUCTS MFRS	22	APPAREL & ACCESSORY STORES	5
WHOLESALE TRADE-DURABLE GOODS	21	PRIMARY METAL INDUSTRIES MFRS	4
FOOD STORES	21	MISCELLANEOUS MANUFACTURING INDS MFRS	4
PETROLEUM REFINING & RELATED INDS MFRS	20	AMUSEMENT & RECREATION SERVICES	4
BUSINESS SERVICES	18	HEAVY CONSTRUCTION EXCEPT BUILDING	3
MISCELLANEOUS RETAIL	15	EATING & DRINKING PLACES	3
PAPER & ALLIED PRODUCTS MFRS	14	PRINTING PUBLISHING & ALLIED INDUSTRIES	2
RAILROAD TRANSPORTATION	14	MOTOR FREIGHT TRANSPORTATION/WAREHOUSE	2
INDUSTRIAL & COMMERCIAL MACHINERY MFRS	13	WHOLESALE TRADE-NONDURABLE GOODS	2
TRANSPORTATION EQUIPMENT MFRS	13	HOME FURNITURE & FURNISHINGS STORES	1
ENGINEERING & ACCOUNTING & MGMT SVCS	12	TOTAL for All Sectors	699

TABLE 4	
Summary of Variables	
Board Shareholder Confidence Index	
Board Effectiveness	A rating system which assigns companies constituting the S&P/TSX Composite Index an overall grade from AAA+ [highest] to C [lowest].
Independence	Director Independence measures the independence of individual Directors from one another, as well as from company management as well as Interlocks and Excessive board membership. The core from AAA [highest] to C [lowest].
Stock Ownership	This is based on the average holdings of the third of Directors with the fewest holdings, relative to the Directors' annual retainer value.
Structure	Structural measurements include: i) The separation of CEO and Chair positions, ii) Independence of Audit, Compensation and Nominating Committee members, iii) The ratio of voting rights to share ownership between share classes.
Systems (Evaluations)	A company must implement regular and formal evaluation processes for the Board as a whole and for each of its individual Directors. Scoring is based on disclosure of the evaluation processes;
Output	Output is measured as; Dilution of shareholder value, Option Re-pricing, CEO Pay Related to Performance, Evergreen Option Plan Outstanding and Loans to Directors or Executives.
Alternative Corporate Governance Measure	
Voting%	The percentage of votes attached to the voting shares held by the directors of the company and by other individuals or companies that own more than 10% of the equity shares of the company.
Market Performance Measure	
Tobin's Q	$\frac{[\text{Market Value of Equity} + \text{Preference Stock} + \text{Long Term Debt} + \text{Current Assets} - \text{Current Liabilities}]}{\text{Total Assets}}$
Control Variables	
<i>AUDITCODE</i>	BIG4 audit firm=1, 0 otherwise
<i>CAPEX</i>	Annual Firm Capital Expenditure
<i>LTDTA</i>	Long-Term Debt to Total Assets
<i>TA</i>	Firm's total assets in year t.
<i>HPR</i>	Annual holding period share price return

Notes: All variables comprising the Board Shareholder Confidence Index are taken from the University of Toronto's Clarkson Centre for Business Ethics. The alternative corporate governance measure is taken from Stockguide. Data for the market measure of performance and the control variables is taken from Compustat.

TABLE 5										
Descriptive Statistics of All Variables										
Variable	N	N*	Mean	SE	StDev	Minimum	Q1	Median	Q3	Maximum
Panel A: Market Performance Measure										
Tobin's Q	699	0	1.59	0.04	0.97	0.07	0.94	1.28	1.96	6.61
Panel B: Corporate Governance Variable										
Board Effectiveness	699	0	2.83	0.05	1.43	1.00	2.00	3.00	3.00	6.00
Panel C: Corporate Governance Variable										
Voting%	653	46	21.11	0.96	24.58	0.00	0.66	12.20	32.09	94.10
Panel D: Control Variables										
AuditCode	699	0	0.97	0.01	0.17	0.000	1.000	1.000	1.000	1.000
CAPEX	699	0	593.10	45.80	1210.20	0.10	64.50	164.00	508.60	10102.90
LTDTA	699	0	0.18	0.01	0.14	0.000	0.06	0.17	0.28	0.63
TA	699	0	5923	335	8865	71	859	2207	6239	57830
HPR	699	0	13.66	2.05	54.08	-97.85	-16.44	9.23	33.42	510.67

Column N represents missing values.*

TABLE 6 Correlation Matrix of the Variables for all (888) Firm Years								
	Board Effectiveness	Tobin's Q	Voting%	AuditCode	CAPEX	LTDTA	TA	HPR
Board Effectiveness		0.02	-0.36***	0.00	0.18***	0.09***	0.20***	-0.04
Tobin's Q	0.02		-0.20***	0.10***	-0.11***	-0.32***	-0.19***	0.35***
Voting%	-0.34***	-0.20***		-0.07*	-0.11***	0.13***	-0.06*	-0.05
AuditCode	0.00	0.10***	-0.08**		0.05	-0.07**	0.08*	0.03
CAPEX	0.17***	-0.11***	-0.11***	0.05		0.17***	0.83***	0.01
LTDTA	0.09***	-0.32***	0.13***	-0.07*	0.17***		0.25***	-0.06*
TA	0.20***	-0.19***	-0.06*	0.8**	0.83***	0.25***		-0.02
HPR	-0.03*	0.35***	-0.05	0.03	0.01	-0.06*	-0.02	

Notes: The bottom left of the table presents the Pearson's parametric correlation coefficients, whilst the upper right reports Spearman's non-parametric correlation coefficients. ***, ** and * denote correlation is significant at the .01, .05 and .10 level, respectively (two-tailed test). Variables are defined as: Board Effectiveness, Tobin's Q, Ownership% , more than 10% of the Equity interest held by a group, AuditCode, BIG4 audit firm=1 zero otherwise, CAPEX Annual Capital Expenditures, LTDTA, long-term debt to total assets, TA is the firm's total assets in year t. Table 4 provides the full definitions of all the variables used.

TABLE 7			
Strength of Association between Tobin's Q and Board Effectiveness			
Panel A			
Pearson's r	0.03591		
Spearman's rho	0.04541		
Panel B			
Goodman – Kruskal			
Dependent variable	Lambda	Tau	
Tobin's Q	0.00564	0.00564	
Total Score	1.00000	1.00000	
Panel C-][			
Measures of Concordance for Ordinal Categories			
Pairs	Number	Summary Measures	
Concordant	155355	Somers' D (Tobin's Q dependent)	0.0300
Discordant	143941	Somers' D (Total Score dependent)	0.0381
Ties	94532	Goodman and Kruskal's Gamma	0.0381
Total	393828	Kendall's Tau-b	0.0332
Test of Concordance:	P-Value =	0.0896808	

TABLE 8 OLS Regression of the Corporate Governance Effects on the Contemporaneous Tobin's Q_t												
Dependent Variable	Model I Tobin's Q _t		Model II Tobin's Q _t		Model III Tobin's Q _t		Model IV Tobin's Q _t		Model V Tobin's Q _t		Model VI Tobin's Q _t	
Independent Variables	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
<i>Governance Variables</i>												
Board Effectiveness _t	0.067	0.005**										
Independence _t			0.044	0.09†								
Stock Ownership _t					0.026	0.257						
Structure _t							0.042	0.072†				
Systems (Evaluations) _t									-0.011	0.694		
Output _t											0.035	0.255
<i>Control Variables</i>												
AuditCode _t	0.445	0.016**	0.416	0.025*	0.423	0.023*	0.425	0.022*	0.411	0.027*	0.423	0.023*
CAPEX _t	-0.000	0.997	0.000	0.964	0.000***	0.885	0.000	0.0997	0.000	0.885	-0.000	0.729
LTDTA _t	-2.097	0.000***	-2.061	0.001***	-2.089	0.000***	-2.101	0.000***	-2.091	0.000***	-2.072	0.000***
TA _t	-0.000	0.018**	-0.000	0.04*	-0.000	0.023*	-0.000	0.032*	-0.000	0.034*	-0.000	0.03*
HPR _t	0.005	0.000***	0.005	0.000***	0.005	0.000***	0.005	0.000***	0.005	0.000***	0.008	0.000***
Constant	0.939	0.005***	2.766	0.001***	1.102	0.001**	0.990	0.004***	1.231	0.000***	3.100	0.001***
Industry	Yes		Yes		Yes		Yes		Yes		Yes	
Years	Yes		Yes		Yes		Yes		Yes		Yes	
F-Value	18.36	0.000	17.96	0.000	17.83	0.000	17.99	0.000	17.74	0.000	20.73	0.000
Adjusted R ²	0.309		0.304		.303		0.305		0.302		0.371	
Number of Observations	699		699		699		699		699		603	
Durbin Watson	0.914		0.892		0.908		0.902		0.896		0.858	

Notes: This table presents the estimated coefficients from six different models examining the effects of Board Effectiveness on firm performance, where performance is measured by a contemporaneous Tobin's Q. Model I examines whether a firm's overall measure of governance (Grade) contributes to firm performance; The remaining Models II-VI investigates whether the component parts of Board Effectiveness contributes to firm performance. Table 4 provides the full definitions of all the variables used. Coefficients are in column 1 of each model. ***, **, * and † denote significance at the .001, .01, .05 and .10 level, respectively (two-tailed tests) in column 2 of each model.

TABLE 9 OLS Regression of the Corporate Governance Effects on the 1 Year Ahead Tobin's Q: Controlling for Endogeneity												
Dependent Variable	Model I Tobin's Q _t		Model II Tobin's Q _t		Model III Tobin's Q _t		Model IV Tobin's Q _t		Model V Tobin's Q _t		Model VI Tobin's Q _t	
Independent Variables	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
<i>Governance Variables</i>												
Board Effectiveness _{t-1}	0.070	0.005**										
Independence _{t-1}			0.027	0.345								
Stock Ownership _{t-1}					0.029	0.252						
Structure _{t-1}							0.009	0.710				
Systems (Evaluations) _{t-1}									0.020	0.448		
Output _{t-1}											0.088	0.006**
<i>Control Variables</i>												
AuditCode _{t-1}	0.374	0.062†	0.334	0.098†	0.350	0.083†	0.339	0.093†	0.336	0.096*	0.344	0.087†
CAPEX _{t-1}	-0.000	0.337	-0.000	0.400	-0.000	0.423	-0.000	0.416	-0.0001	0.433	-0.000	0.406
LTDTA _{t-1}	-2.172	0.000***	-2.141	0.000***	-2.172	0.000***	-2.164	0.000***	-2.163	0.000***	-2.205	0.000***
TA _{t-1}	-0.000	0.280	-0.000	0.369	-0.000	0.301	-0.000	0.327	-0.000	0.284	-0.000	0.228
HPR _{t-1}	0.004	0.000***	0.005	0.000***	0.005	0.000***	0.005	0.000***	0.005	0.000***	0.005	0.000***
Constant	1.275	0.000***	1.498	0.000***	1.485	0.000***	1.591	0.000***	1.557	0.000***	1.225	0.001***
Industry	Yes		Yes		Yes		Yes		Yes		Yes	
Years	Yes		Yes		Yes		Yes		Yes		Yes	
F-Value	13.02	0.000	12.47	0.000	12.50	0.000	12.41	0.000	12.44	0.000	12.99	0.000
Adjusted R ²	0.287		0.277		0.278		0.276		0.272		0.286	
Durbin-Watson	1.094		1.089		1.097		1.091		1.088		1.093	
Number of Observations	539		539		539		539		539		539	

Notes: This table presents the estimated coefficients from six different models examining the effects of Board Effectiveness on firm performance, where performance is measured by a one year ahead Tobin's Q. Model I examines whether a firm's Board Effectiveness contributes to firm performance; The remaining Models II-VI investigates whether the component parts of the governance score contributes to firm performance. Table 4 provides the full definitions of all the variables used. Coefficients are column 1 of each model. ***, ** and * denote significance at the .001, .01 and .05 level, respectively (two-tailed tests) in column 2 of each model.

TABLE 10 OLS Regression of the Substitutes for Corporate Governance Grade, Ownership% and Voting% to Control for Endogeneity 1st Stage Panel A												
Dependent Variable	Board Effectiveness		Independence		Stock Ownership		Structure		Systems (Evaluations)		Output	
Independent Variables	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
<i>Governance Variables</i>												
Voting%	-0.015	0.000***	-0.005	0.007**	-0.005	0.014**	-0.021	0.000***	-0.001	0.775	-0.000	0.796
<i>Control Variables</i>												
AuditCode	-0.264	0.397	0.131	0.646	-0.659	0.044*	0.019	0.950	0.097	0.755	0.029	0.910
CAPEX	-0.000	0.520	0.000	0.444	0.000	0.421	-0.000	0.627	-0.000	0.247	-0.000	0.001***
LTDTA	1.519	0.000***	0.221	0.544	0.271	0.515	1.301	0.001***	0.538	0.174	1.122	0.120
TA	0.000	0.004***	-0.000	0.050**	0.000	0.448	0.000	0.153	0.000	0.000***	0.000	0.028
HPR	-0.000	0.423	0.000	0.921	-0.00	0.081†	-0.000	0.658	-0.003	0.001***	0.003	0.004**
Constant	2.99	0.001***	3.922	0.001***	4.521	0.000***	3.680	0.000***	3.234	0.020**	3.249	0.000***
F-Value	17.17	0.000	42.17	0.0044	4.11	0.000	20.41	0.000	9.14	0.000	6.55	0.000
Adjusted R ²	.13		0.011		.028		.152		.070		.056	
Durbin Watson	1.078		1.141		1.269		.966		1.154		1.179	
Number of Observations	653		653		653		653		653		560	

TABLE 10 (Continued) OLS Regression of the Corporate Governance Effects on the Contemporaneous Tobin's Q_t Controlling for Endogeneity 2nd Stage Panel B												
Dependent Variable	Model I Tobin's Q _t		Model II Tobin's Q _t		Model III Tobin's Q _t		Model IV Tobin's Q _t		Model V Tobin's Q _t		Model VI Tobin's Q _t	
Independent Variables	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
<i>Governance Variables</i>												
PBoard Effectiveness	0.365	0.000***										
PIndependence			1.025	0.000***								
PStock Ownership					0.987	0.000***						
PStructure							0.268	0.000***				
PSystems (Evaluations)									8.888	0.000***		
POutput											11.035	0.000***
<i>Control Variables</i>												
AuditCode	0.518	0.008**	0.287	0.136	1.073	0.000***	0.417	0.03*	-0.4398	0.011	0.093	0.064
CAPEX	0.000	0.119	0.000	0.993	-0.000	0.873	0.000	0.168	0.000	0.000***	0.000	0.000***
LTDTA	-2.699	0.000***	-2.371	0.000***	-2.412	0.000***	-2.494	0.000***	-6.925	0.000***	-14.521	0.000***
TA	-0.000	0.000***	-0.000	0.657	-0.000	0.000***	-0.000	0.000***	-0.000	0.000***	-0.000	0.000***
HPR	0.006	0.000***	0.005	0.000***	0.007	0.000***	0.005	0.000***	0.034	0.000***	-0.027	0.000***
Constant	0.064	0.044*	-2.287	0.02*	-2.730	0.012*	0.745	0.013*	-27.011	0.000***	1.715	0.001***
F-Value	42.96	0.00)	42.96	0.000	42.96	0.000	42.96	0.000	42.96	0.000	42.96	0.000
Adjusted R ²	.279		.279		.279		.279		.279		.279	
Durbin Watson	0.975		0.975		0.975		0.975		0.975		0.975	
Number of Observations	653		653		653		653		653		653	

Notes: This table presents the estimated coefficients from six different models examining the effects of Board Effectiveness on firm performance, where performance is measured by a contemporaneous Tobin's Q, Panel C. Model I examines whether a firm's Board Effectiveness contributes to firm performance; The remaining Models II-VI investigate whether the component parts of Board Effectiveness contribute to firm performance. Table 4 provides the full definitions of all the variables used. Coefficients are in column 1 of each model, ***, ** and * denote significance at the .001, .01 and .05 level, respectively (two-tailed tests) in column 2 of each model.