

# Corporate governance mechanisms and the cost of capital: evidence from Canadian firms

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## **ABSTRACT**

### **Corporate governance mechanisms and the cost of capital: evidence from Canadian firms**

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This paper investigates the effects of corporate governance mechanisms on the cost of capital of Canadian firms listed on the Toronto Stock Exchange after the 2008 financial crisis. Since the end of the crisis, the cost of capital has fallen for Canadian firms. Insider ownership, board size, and CEO duality are found to be negatively related to the cost of capital. In contrast, institutional ownership is shown to be positively related to the cost of capital. Most examined governance mechanisms have differential impacts on firms across industries and regions in Canada. In Canadian mining firms, which have a higher cost of capital than firms in other industries, insider ownership is negatively associated with the cost of capital. In the transportation industry, both institutional ownership and insider ownership are positively related to the cost of capital. Firms domiciled in Quebec have a lower cost of capital that reflects its industrial structure.

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## **1. Introduction**

After the 2008 financial crisis, policy makers in the G-7 agreed to take whatever steps were required to stimulate the global economy. They lowered interest rates sharply in a coordinated manner, in order to stimulate spending of consumers and firm investments. The latter are closely linked to the firms' cost of capital. It is clear how lower interest rates can be directly linked to firms' cost of capital through the cost of debt. How the overall cost of capital is affected in part depends on other factors, including firm governance. While several studies have appeared that look at the impact of governance on equity prices,<sup>1</sup> only a few have examined the links between governance and the overall cost of capital. Suchard et al., (2012) look at the Australian markets. Core et al., (2015) examine the US markets. Most studies examine the interaction of governance index and the firm value which is measured by Tobin'Q in Canadian markets focusing on the post Enron period<sup>2</sup>. As Klein, Shapiro, and Young (2005) note, effective compensation, disclosure, and shareholder rights practices increase firms' performance. Gupta et al., (2009) do not find a consistently strong association between firm value and overall governance score in Canadian markets. There is no overwhelming evidence to suggest that within Canadian capital markets firm value is enhanced by better governance. Bozec and Bozec (2010) find that Canadian firms with higher governance scores from the Globe and Mail's Report on Business (ROB) index have lower weighted average cost of capital (WACC) estimates after the Enron Scandal. We are unaware of any research pertaining to the impact of particular governance mechanisms on the cost of capital in Canadian market after the 2008 financial crisis.

The purpose of this study is to fill this gap. This paper investigates the impacts of firm-level governance mechanisms on the cost of capital in the Canadian market. Similar to Suchard et al., (2012), the study uses the firms' weighted average cost of capital (WACC) as a measure

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<sup>1</sup> See e.g. Gompers et al. (2003), Cremers and Nair (2005), Switzer and Kelly (2006), Switzer (2007), Bebchuk et al. (2009) and Giroud and Mueller (2011).

<sup>2</sup> See e.g. Klein, Shapiro, and Young (2005), Gupta, Kennedy, and Weaver (2009).

of the firm's cost of capital. The WACC separates the total capital into common equity, preferred equity, long-term debt, and short-term debt. The weights of each financing resource are calculated by dividing each amount by total capital. The weighted average cost of capital is meaningful to firms. The cost of capital reflects the minimum required rate of return on a project in order to make it worthwhile. It also provides the necessary return to the providers of capital, which is based on the risk of the firm's current operations. Management must efficiently allocate capital within the company to meet the WACC. If the WACC is set too high, the firm has to reject valuable opportunities leading to demolishing shareholder value. Strong governance practice can lower the WACC by reducing monitoring costs through aligned interests between top management and shareholders. A sample of 121 Canadian firms listed on Toronto Stock Exchange from 2010 to 2014 is used to analyze the relationship between the cost of capital and corporate governance controlling for the differences in industry and region. The results are robust to the effects of heteroscedasticity and truncated estimation effects, as well as for firm fixed-effects to account for any unobserved firm heterogeneity.

Five variables are considered as governance mechanisms: institutional ownership, insider ownership, board independence, board size, and CEO duality. Both insider ownership and board size are found to be significantly and negatively related to the contemporaneous cost of capital. In contrast, institutional ownership and CEO Duality are positively and significantly related to firms' cost of capital. Finally, the degree of independence of the board directors is not significantly related to the cost of capital. These results hold both when the governance mechanisms are measured contemporaneously with the firm's cost of capital as well as when they are measured with a one year lag. The study also looks at differential effects of governance mechanisms across industries and regions in Canadian. The cost of capital is much higher in both mining and manufacturing firms compared to firms in the transport sector. In the mining industry, more insider ownership and CEO duality are inversely related to firms' cost of capital. In the manufacturing sector, firm characteristics and insider ownership have stronger impacts on the cost of capital. In the transportation industry, board

size, insider ownership, and director independence are positively related to the cost of capital. Institutional ownership has a positive impact on the cost of capital only in transportation firms. Finally, Canadian firms headquartered in Quebec have lower costs of capital compared with firms headquartered in other areas. This may be explained by variations in industrial structure across regions. For example, the majority firms in Quebec are from manufacturing, transportation, and retail industries. In contrast, in Western Canada, more than half of the firms in the sample are from mining industry. As firms in the mining industry have high level of the cost of capital, firms in Quebec and Ontario areas have relatively lower cost of capital.

The rest of the paper is organized as follows. Section 2 reviews the relevant literature; Section 3 presents the hypotheses; Section 4 presents information regarding the data and sample selection; Section 5 presents methodology and empirical results and Section 6 concludes the paper.

## **2. Literature Review**

### **2.1 Previous studies on firm performance and corporate governance**

Previous studies have shown significant links between the quality of the firm's corporate governance and the value of the firm. Gompers, Ishii and Metrick (2001) and Bebchuk, Cohen, and Ferrell (2009) focus on how the shareholder rights influence the firm performance. They construct an index measuring the level of shareholder rights at companies, which is "GIM Governance Index". They suggest that firms with better protection on shareholder rights have higher firm value, higher profits, higher sales growth, lower capital expenditures, and involved with fewer corporate acquisitions. Their proxies for shareholder rights include defensive tactics, voting rights and director protections. Bhagat and Bolton (2008) suggest that governance capabilities are significantly positive correlated with contemporaneous and subsequent operating performance as measured by the "GIM" index. Bebchuk, Cohen and Ferrell (2009) study which governance provisions in particular influence the relationship. They put forward an entrenchment index (E index) based on six

provisions (staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments) that are negatively correlated with firm valuation. They find that increases in the index are associated with significant reductions on firm valuation and the entrenching provisions bring about lower firm valuation.

Empirical work distinguishes between these factors, called “external governance” mechanisms, and other factors called “internal governance” mechanisms, such as the percentage of independent directors, the CEO duality, and the ownership. For example, Agrawal et al., (1996) examine seven governance mechanisms (including insider ownership, instructions, blockholders, outside directors, debt policy, managerial labor market, and the market for corporate control) effects on solving agency problem between shareholders and managers. They find great insider ownership is positively related to performance, while more outsiders on the board are negatively related to performance. Cho (1998) also find that insider ownership is quite important among these mechanisms since other governance mechanisms are significant only when insider ownership exists. Suchard et al., (2012) find that greater insider ownership can reduce the perceived risk of a firm, thereby reduce required return of investors. However, Dements and Villalonga (2001) find no statistically significant relation between ownership structure and firm performance. Himmelberg et al., (1999) hold that insider ownership can reduce information asymmetry but also can force the insiders to avoid high idiosyncratic risk and result in underinvestment and higher cost of capital.

Institutional investors play an important role in financial market since their preference and decisions will affect the firm’s governance quality. Institutional investors can mitigate agency problem through outside monitoring and information asymmetry. Firms have greater institutional ownership usually have higher rating because institutional investors would be willing to pay more premium to firms with good governance. (e.g., Chen et al., 2009; McCahery et al., 2011). Institutional investors also alleviate market imperfections, thereby mitigating the underinvestment problem (Lev and Nissim, 2003). This suggests that firms

with more institutional ownership have a lower cost of debt because institutional investors enhance the monitoring on the management. However, the relationship between institutional ownership and the cost of capital is not always negative. Concentrated institutional ownership can adversely affect firm bond's yields and ratings resulting in higher overall cost of capital (Bhojraj and Sengupta 2003).

In U.S. both the NYSE and NASDAQ stock exchanges require that a majority of the board of directors of a listed company be independent. Independent boards are considered as an efficient way to mitigate the agency problem. Bhagat and Black (2000) find a strong correlation between firm's poor performance and a subsequent increase in board independence. The existing literature also addresses a link between board independence and CEO compensation. The rationale is that CEOs at firms with weak governance have less monitoring and constraints thus receive higher compensation. Moreover, these firms have worse subsequent operation performance in the future (Core et al., 1999). Several studies also investigate the relationship between board size and firm performance. A negative correlation is shown for U.S. firms and Finnish firms (Eisenberg and Wells, 1998). An inverse relation between board size and firm value is found in Singapore and Malaysia suggesting that small boards are better (Mak and Kusnadi. 2004). However, for firms that have large boards, taking more compromises to reach consensus will lead to stable performance indicated by stock returns and expenditures (Cheng, 2008).

Only a few studies have looked at the relationship between corporate governance and performance in Canada. Based on the extant studies, there is no overwhelming evidence to suggest that Canadian firm performance is enhanced by better governance using "good governance" indexes. Klein et al., (2005) conclude that corporate governance is relevant to shareholder value in Canada but certain governance mechanisms are more important than others. They find that effective compensation, disclosure, and shareholder rights practices increase firms' performance regardless of their ownership. In particular, they find that the valuation effects of governance elements differ according to firms' ownership structure.

Gupta et al., (2009) does not find a consistently strong association between the firm value and overall governance score which is measured by Report on Business (“ROB”) index in Canadian markets. It is possible that the ROB governance scores do not adequately capture the true state of overall corporate governance. They suggest that the “ROB” governance index is not the best measure of effective governance within Canadian capital markets. Switzer and Kelly (2006) and Switzer (2007) focus on Canadian small cap firms, and find a significantly negative relationship between debt and firm value based on Tobin’s Q.

## **2.2 Previous studies on firm performance in different governance systems**

Some studies examine factors in a firm’s environment that strengthen (or weaken) the link between good governance and firm value. Governance system can differ through multi-industries based on the competitive level. Market competition can function as an external mechanism for disciplining management. Giroud and Mueller (2010) examine how corporate governance is related to firm performance based on the competition level. Corporate governance in competitive industries has relatively weak influence on firms due to mitigating management entrenchment. However, there is no direct link between competition level and corporate governance. Subsequently, they find that firms with weak governance have lower labor productivity, higher input costs, and make more value-destroying acquisitions only in noncompetitive industries. Chou et al., (2011) suggest that corporate governance quality has a significant effect on performance only when product market competition is relatively weak. Ammann et al., (2013) confirm that competition in the product market is a substitute for corporate governance by imposing pressure on managers to maximize firm value.

Average firm level governance is lower in emerging countries with weaker legal systems. Governance is correlated with the extent of the asymmetric information. Firm level corporate governance provisions matter more in countries with weak legal environments. Better corporate governance is highly correlated with better operating performance and market valuation (Klapper and Love 2004).

## **2.3 Previous studies on the effects of governance on the cost of capital**

The cost of equity depends on both firm specific risk and systematic risk. For example, Li et al. (2013) test the relationship between cost of equity and corporate governance during different economic conditions: boom periods, normal periods, and bust periods. They find that well-governed firms have higher expected stock returns during booms but lower stock expected return during busts. They thus predict that there is a pro-cyclical relation between corporate governance and stock returns. Firms with better governance pose a smaller agency risk to shareholders, which reduces their cost of equity (Ashbaugh et al., 2006). Cremers and Nair (2005) suggest that internal and external governance mechanisms are strong complements in being associated with long-term abnormal returns and profitability. They further conclude that corporate governance is stronger when internal governance is also considered.

Similar to the cost of equity, the cost of debt depends on investor protection provisions. In general, antitakeover governance provisions are viewed favorably in the bond market. Antitakeover governance provisions can lower the cost of debt, as shown in Klock et al. (2005). Cremers et al. (2007) investigate the impact of shareholder governance mechanisms on bondholders. They suggest that stronger shareholder control is associated with higher bond yields, lower ratings, and higher returns only if takeover vulnerability is high. Bond covenants help align the interest of shareholders and bondholders. Second, firms with high disclosure ratings can obtain lower effective interest rates on their debt financing. Investors rely more on corporate disclosures in debt markets when stock market uncertainty is high (Sengupta 1998). Furthermore, the relationship between corporate governance capability and the cost of debt is stronger in countries with weak legal protection, low transparency, and poor government quality. The differential relationship can be attributed to asymmetric payoffs received by creditors and shareholders (Zhu 2014).

Himmelber et al. (2000) use an equilibrium model to investigate the marginal cost of capital

measured by a weighted average of terms that reflect both idiosyncratic and systematic risk. Weaker investor protection leads to higher potential abuse of ordinary shareholders by insiders. The discrete relationship between the ownership and control allows managers who control the firm's investment policy to seek private benefits and tend to overinvest. However, Core et al., (2015) show that both insider ownership and more transparent reporting have the potential to align incentives between managers and investors thereby reducing systematic risk. Suchard et al., (2012) find similar results for Australian firms. Greater insider ownership, the presence of institutional blockholders, and independent boards all serve to reduce the perceived risk of a firm, thereby leading investors to demand lower the rates of return on capital provided. Bozec and Bozec (2010) investigate the relationship between the weighted average cost of capital and overall corporate governance which is measured by ROB governance index. They find strong evidence that the cost of capital decreases as the quality of corporate governance practices increases. Canadian firms with higher ROB scores have lower WACC. Differences in the composition of information between public and private information could also affect the cost of capital. Investors expect a higher return on stocks with more private information (Easley et al., 2004).

### **3. Hypothesis**

This section introduces several hypotheses about the relationship between the cost of capital and corporate governance mechanisms in Canadian firms, focusing on five important governance mechanisms: board size, board independence, separation between CEO and Chairman, institutional ownership, insider ownership. The hypotheses to be tested are as follows:

**Hypothesis 1:** Insider ownership is negatively related to the cost of capital.

Greater insider ownership is expected to reduce the perceived risk of a firm, thereby reducing the required return of investors. Core et al. (2015) note that insider ownership can indirectly affect the cost of capital through reducing incentive misalignment between management and

outside shareholders, which represents a fixed cost of firm. The agency cost of capital could be mitigated by increasing managerial ownership which causes managers to bear the wealth consequences of their actions. When insider ownership in the firm serves to align interests of management and stakeholders, managers can only invest subject to constraints based on personal wealth and diversification considerations. As managers' compensation depends on the firm performance, they may tend to adopt strategies that can reduce firm risk. In this case, lower perceived risk leads to lower investors' required return.

Moreover, according to the pecking order theory, managers would prefer internal financing than external financing because external financing may represent a negative signal to investors. After the subprime financial crisis, the cost of debt from bank fell sharply in Canada. This can also induce managers to choose debt financing rather than equity financing, which will also lower the overall cost of capital. Thus, one would expect that the cost of capital should be negatively related to insider holdings.

**Hypothesis 2:** The impact of institutional ownership on the cost of capital is positive.

McConnell and Servaes (1995) find a positive relationship between institutional ownership and firm performance. However, the impact of institutional investment on firm performance remains an open question in the literature.<sup>3</sup> Institutional investors are important among all governance mechanisms since they have voting rights on firm decision making. On the one hand, they provide independent monitoring of management which will promote effective managerial decision making and guard against opportunistic management behaviors that decrease firm value. Better managerial decision making and limited opportunistic management behavior can benefit all stakeholders.

However, as suggested by Lev et al., (2003), firm investment has a positive relationship with

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<sup>3</sup> See e.g. Shleifer and Vishny, 1986, Porter, 1992, Maug, 1998, Gillan and Starks, 2000, Yu, 2005, Chen, Harford, and Li, 2007, Yan and Zhang, 2009, Edmans, 2009, and Michaely and Vincent, 2012, Switzer and Wang, 2014 amongst others.

the level of institutional ownership. The direct effect of institutional ownership on investment is that institutional ownership mitigates firm underinvestment. More investment activities will increase the cost of capital. In this case, a positive relation between institutional ownership and the cost of capital should be observed.

**Hypothesis 3:** Board size is negatively related to the cost of capital.

One important role of corporate boards is to assure the quality and integrity of information. A transparent information environment can effectively reduce the cost of capital. Larger boards facilitate proper allocation of responsibilities through board committees and reduce information asymmetry between insiders and outside investors. Although smaller boards might provide more effective monitoring services, investors perceive larger boards as providing a more transparent information environment, which leads to a lower cost of capital.<sup>4</sup> For this reason, large boards could reduce the cost of capital because it can provide a more transparent information environment. Therefore, we hypothesize a negative relationship between board size and the cost of capital.

**Hypothesis 4:** Board independence is negatively related to the cost of capital.

Independent board structure is considered as an efficient way to mitigate the agency issue which is the separation of firm control and ownership. Independent directors generally perform a better monitoring role and most studies document a negative association between board independence and the cost of capital.<sup>5</sup> A higher percentage of independent directors on board can reduce the agency risk and improve efficiency. Hence, the relation between independence of board and the cost of capital is expected to be negative.

**Hypothesis 5:** CEO duality is positively related to the cost of capital.

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<sup>4</sup> See Upadhyay and Sriram (2011).

<sup>5</sup> See Bradley and Chen (2015).

CEO duality refers to the situation when the CEO also holds the position of the chairman of the board. An extensive of papers suggest that CEO serves simultaneously as the chair of the board of directors resulting in poor firm performance. Board members serve to monitor the management decisions. If the chairman of board is also the CEO, the CEO is more likely to overinvest and carry out empire-building. Overinvesting will harm the firm and increase the cost of capital.

**Hypothesis 6:** Firm size should be positively related to the cost of capital.

Firm size is not a corporate governance variable but rather a firm level control variable and is associated with performance in many studies. Firm size should be positively related to the cost of capital to the extent that large firms have greater demands for capital and more investment opportunities.<sup>6</sup>

**Hypothesis 7:** Interlisted stocks should have a lower cost of capital.

Firms can reduce their cost of capital if they can improve the liquidity of stocks and improve their shareholder base. International stock listing can increase both the investor base and liquidity since firm spends resources to make itself an eligible investment for international investors<sup>7</sup>. In this case, interlisted stocks should have a lower cost of capital since they have great access to capital markets.

**Hypothesis 8:** The relationships between corporate governance mechanisms and the cost of capital differ across industries.

As firms in different industries are subject to different competitive forces/governance systems<sup>8</sup>, we expect that the relationship between each governance mechanism and the cost of capital should be different across industries. Industry effects are captured by using industry

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<sup>6</sup> See Suchart et al., (2012).

<sup>7</sup> See Doukas and Switzer (2000) and Arauner (1996).

<sup>8</sup> See Ammann et al., (2013).

dummy variables that are based on the firms' two digit SIC codes.

## 4. Data

### 4.1 Sample Selection

The data used in the analyses consists of 252 Canadian companies listed on Toronto Stock Exchange for which corporate governance data is available. Following the literature, companies in financial and utility industries are excluded from the analyses. After excluding firms with missing data, the final sample is a sample of 121 firms per year over the period 2010 to 2014.

Following Suchard et al. (2012), the cost of capital data is obtained from Bloomberg, where the weighted average cost of capital (WACC) is the outcome variable of interest. Ownership data, and other governance data (characteristics of the Board and Directors), and the firm level accounting variables are also obtained from Bloomberg. The Stock return data are obtained from CFMRC.

#### 4.2.1 Weighted Average Cost of Capital

The cost of capital is the price of external financing and therefore the investors' required rate of return. Since various claims to firms are priced differently, the weighted average cost of capital serves as an average price at which the firm is financing its investments. The weighted average cost of capital (WACC) allows us to better assess a company's financial health, both for internal use in capital budgeting and external use in valuing companies on investment markets. The WACC also can be used as a hurdle rate for investment decisions and acts as a measure to be minimized to find the best possible capital structure for a company.

Bloomberg provides detailed data on firm capital structure and the component weights for all sources of capital, including equity and debt. The total capital of the company is separated into its common equity, preferred equity, long-term debt, and short-term debt weights. The

weights are calculated by dividing each amount by total capital. The cost of equity capital is calculated using the Capital Asset Pricing Model. WACC can be calculated as:

$$\text{WACC} = (\text{Cost of Equity} * \text{Weight of Equity}) + (\text{After Tax Cost of Debt} * \text{Weight of Debt}) + (\text{Cost of Preferred Equity} * \text{Weight of Preferred Equity})$$

The equity risk premium used in cost of equity is the average additional return required by investors as compensations for investing in equities. It represents the total return that investors demand for investing in the riskier equity markets. The Bloomberg method for calculating risk premium involves comparing the returns from treasuries and equities over a specified time period.

The computation of equity risk premium consists of two parts. First, the expected market return is calculated using forecasted data based on current equity values of S&P/TSX index. The risk free rate is then subtracted to obtain the risk premium. The risk free rate is calculated using the average yield on 10 year Canadian government bonds. The risk free rate decreases from 3.12% in 2010 to 1.79% in 2014. The Beta used is the percentage change in the price of an equity given a 1% change in its benchmark index: the S&P/TSX index. When calculating the cost of debt, pre-tax cost of debt of the firm is determined on fair market curves. They are created using prices from new issue calendars, trading/portfolio systems, dealers, brokers, and evaluation services, which are fed directly into the specified bond sector databases on an overnight basis.

#### **4.2.2 Firm-Level Governance Variable**

This paper uses multiple corporate governance mechanisms as independent variables, including: board size, insider holdings, institutional holdings, board independence, and CEO duality. Insider holdings (%Insider) is denoted as the percentage of insider shares divided by shares outstanding. Insider contains a director or senior officer of a company, as well as any person or entity that beneficially owns more than 10% of a company's voting shares. The

institutional ownership (%Institution) denoted as the percentage of shares outstanding held by institutions. For example, 13Fs, mutual funds, and insurance companies are denoted as institutions. The data is collected by Bloomberg and available from 2010. The board size (Log Board Size) is calculated as the natural logarithm of director number on board as reported by the company. Board independence (%Independent) refers to independent directors as a percentage of total board membership. CEO duality indicates whether the company's Chief Executive Officer is also Chairman of the Board. Interlisting dummy (Exchange dummy) indicates whether the firm is also listed on NYSE or NASDAQ.

#### **4.2.3 Firm-Level Characteristics**

Firm-level control variables that may influence the cost of capital and firm value are obtained from the Bloomberg database from 2010 to 2014. Firm size (size) is measured by natural log of total assets. Leverage ratio (Leverage) refers to debt to assets ratio, which is calculated by short-term liabilities plus long-term liabilities then divided by total assets. It controls for the potential financial leverage effects on the cost of capital. The ratio of capital expenditures to total assets (CAPEX/TA) is used to control for the spending in growth firms. The percentage of tangible assets to total assets (TAN/TA) controls for the asset tangibility. The book-to-market ratio (BM) are denoted as the ratio of book value of equity divided by market value of equity. It is used to control for the effect of a firm's growth prospects on the cost of capital.

### **4.3 Descriptive Statistics and Correlations**

Table 1 provides descriptive statistics for all the variables used in my analysis. As shown, the mean cost of capital (WACC) of the whole sample is 10.45% within a range of 3% to 30%. The mean book-to-market ratio (BM) is 0.63 and the mean total asset (size) is 7.02 billion. These statistics reflect the fact that the sample tends to be consisted of large firms with lower risk profiles because the descriptive statistics are similar to the work of Suchard (2012), which uses the largest 16 firms in Australia. According to the mean statistics in Panel B, the

mean cost of capital varies across industries. First of all, the mean WACC is highest (13.77%) in Mining and lowest (5.43%) in Agriculture. The BM ratio is highest in Construction industry and lowest in Manufacturing. Except for the Agriculture, Construction, and Wholesale industries, all the rest industries in whole sample has similar mean total assets. That means the majority of firms are medium size firms in these three industries. Furthermore, Panel C presents all variable means through time. The average of the WACC decreases year by year since 2010.

[Insert Table 1 here]

Turning to the firm level control variables, the mean ratio of CAPEX to the total asset for our sample is 10.63%. This ratio is to control for the discretionary spending in growth firms. This ratio differs among industries. In the mining industry, for example, the ratio (15.91%) is much higher than the average comparing to the 3.0% from manufacturing industry. The average financial leverage is 47.35% in whole sample. The average ratio of tangible assets to total assets is 85.35%. Due to industry characteristics, mining (96.21%) and manufacturing (93.94%) firms' assets are almost all tangible assets. The panel C indicates that these ratios stay stationary in each year.

Canadian firms have relatively lower insider ownership than Australian firms, which is about 12%<sup>9</sup>. The descriptive statistics indicate that insiders hold a small percentage of firms' shares with an average of 4.29%, and it is similar in U.S. firm which is around 6%<sup>10</sup>. Firms in manufacturing have the highest portion (7.11%), but the difference is not large compared to others. For our sample, the mean percentage of shares held by institutions is 49.51% and the difference among industries is significant. The range is from 77.04% to 31.96%. While these two variables are quite different among industries, they do not show much time difference as shown in panel C. Independent directors on board are expected to provide better monitoring

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<sup>9</sup> Suchard et al. (2012)

<sup>10</sup> Ashbaugh et al. (2005)

of management actions, and mitigate agency problems, which can lower the cost of capital. The average proportion of independent directors on board is 77.44%. This is much higher when compared to U.S. firms<sup>11</sup>. This proportion is upheld across industries. Finally, the average board size is 9.4 members.

Panel C shows that there are 38 companies interlisted both on TSX and NYSE or NASDAQ in the sample. Panel D shows that except for manufacturing firms, Quebec firms have higher cost of capital than other regions within the same industry. Panel E reports that the cost of capital in Canadian firms decrease since the 2010. As shown in Panel F of Table1, the cost of capital is relatively lower in Quebec and Ontario compared to Western Canada. Other firm control variables and governance variables are more comparable across regions.

[Insert Table 2 here]

Table 2 provides correlations among the firm level variables and corporate governance variables. The correlation coefficients between independent variables are relatively low. The largest one is 0.37, which is ratio of CAPEX to TAN/TA. The financial leverage is positively associated with insider ownership, and negatively related with institutional stock holding. The Exchange dummy is negatively related to those board variables. Overall, there is no obvious bias and outliers in the sample.

#### **4.4 Validation of Cost of Capital Measure**

Given that the study relies on external estimates of the cost of capital, the study conducts a validation regression to ensure that the estimates are sufficient proxies. According to Ashbaugh et al. (2004), the criteria for evaluating the validity of alternative cost of equity is based on the correlation between the cost of capital and risk proxies such as firm size, Beta, and Market to Book ratio. Previous studies suggest that the cost of capital should be

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<sup>11</sup> Ashbaugh et al. (2005)

positively related to Beta and negatively related to MB ratio and leverage. Thus, it validates the cost of capital used in the study by regressing WACC on these risk variables. The regression used is as follows:

$$WACC = \beta_0 + \beta_1 \text{BETA} + \beta_2 \text{SIZE} + \beta_3 \text{MB} + \beta_4 \text{LEVERAGE} + \epsilon$$

The beta in the regression is average monthly beta since 2010 in the CFMRC database. The monthly Beta is estimated from the following equation:

$$\text{Log } [R(t) - R_f(t)] = a + \text{Beta} * \text{log } [R_m(t) - R_f(t)]$$

Where the  $R_f(t)$  stands for the T-bill return and  $R_m(t)$  is the return on TSX 300 total return index. A minimum of 24 months of returns over the past 60 months are required before a beta is calculated. To make it more convincing, every firm is set as an observation. All the independent variables and the dependent variable including the beta are mean variables from 2010 to 2014. Thus the study gets 121 observations for the regression.

[Insert Table 3 here]

The first four columns in Table 3 report the results of OLS regressions where WACC is regressed respectively on Beta, Size, MB, and Leverage. The last column shows the results of the model that includes all proxies. As from the table, the results prove that the WACC is strongly related to the proxies. The Beta explains nearly 50% of the variation in the cost of capital and significantly positive related to the cost of capital. In addition, the Size, MB ratio, and leverage are all negatively related to the WACC. The negative effect of leverage on the cost of capital shows that increasing the leverage ratio can reduce the cost of capital. From the column 5, the model explains 71.2% of the variations of WACC and suggests that the Bloomberg WACC can provide a reasonable and powerful estimate of the cost of capital.

## **5. Methodology and Empirical Results**

### **5.1 The effects of governance on the firm contemporaneous cost of capital**

This section introduces the main methods and empirical results. As our study focuses on the relationship between the cost of capital and corporate governance mechanisms, we first test the effects of these governance mechanisms on the contemporaneous cost of capital. We also conduct the analysis using Weighted Least Squares (WLS) to account for heteroscedasticity. As the WACC is truncated above zero, a Tobit model is also used. We test the effect of corporate governance on the contemporaneous cost of capital by using the following regression:

$$WACC_{it} = \beta_0 + \beta_1 \%Institution_{it} + \beta_2 \%Insider_{it} + \beta_3 \%Independent_{it} + \beta_4 \text{Log Board Size}_{it}$$

$$\square = I\text{CONTROLS} + \varepsilon_{it} \quad (1)$$

$\square = I\text{CONTROLS}$  stands for all firm control variables as previously defined. Table 4 presents regression results of the whole sample. The first three column reports the results of regression estimated using OLS regression. The results indicate that firm size, CAPEX/TA, leverage ratio and TAN/TA all have a significant impact on the firms' contemporaneous cost of capital. The results suggest that smaller firms with higher financial leverage can lower their cost of capital. The rationale behind this is that after the financial crisis, the cost of debt in Canadian market decreased. As a result, firms can lower their cost of capital simply by increasing their debt. The combination of lower required return on equity and effective cost of debt can help reduce cost of capital. The firm can absorb more debt before reaching the optimal capital structure, which enables the benefit from debt tax shield and reduces the cost of capital.

The other two control variables: CAPEX/TA and TAN/TA are both positively related to the cost of capital. The CAPEX/TA variable stands for a firm's investment cash flow over total assets. Firms that have high investment inputs are usually in a high growth stage, which may

be associated with greater risk. This characteristic will lead investors to demand a high required rate of return. Firms with more tangible assets are usually in mining and manufacturing industries, which are capital-intensive industries. Large capital demand will increase investors' required rate of return thus increase the firm's cost of capital.

[Insert Table 4 here]

Governance variables, institutional ownership, insider ownership, and board size are all significantly related to firm's cost of capital with expected signs. The results confirm that corporate governance mechanisms play an important role in the firm's cost of capital. It reports that the coefficient of insider ownership is negative, -0.027. The result is more significant in the WLS regression. Furthermore, it is negative and significant across all models, which suggests that higher insider ownership can reduce the cost of capital efficiently in all industries. It is consistent with the hypothesis that insider ownership can align the interest between management and shareholders and improve firm performance through reducing the cost of capital. This finding is also consistent with the findings of Core et al. (2015) that insider ownership acts as a substitute for disclosure quality and can reduce the firm's cost of capital.

The institutional ownership is significant positively related to firm contemporaneous cost of capital suggesting that higher institutional ownership can result in a higher cost of capital. At first glance, it may seem that institutions are detrimental to corporate governance. However, the direct effect of institutional ownership is that it likely influences greater firm investment, and invest in firms with higher betas. More investment activities will increase the firm's cost of capital. The possible reason is that institutions tend to invest in high expected return and high risk firms.

The results show that the coefficients on the number of board size is significant and consistent with the expectation. This suggests that more directors on the board will improve

firm performance and reduce cost of capital efficiently. However, the percentage of independent directors on board and CEO Duality are insignificant. Given that whether CEO also holds the position of the chairman of the board will not change firm's decisions, it is not surprising that this variable is not statistically significant. However, the CEO duality variable is significant in the WLS regression. It indicates that if the CEO and chairman of board is the same person, the cost of capital is higher. The results show that interlisted firm's cost of capital is lower than firms only listed on TSX when board variables are excluded. This can be explained by the negative correlations between exchange dummy and board variables as shown in table 2.

The remaining six columns of Table 4 report that the results of the regression uses Tobit and WLS respectively. The signs of all variables are same across all of the regressions. According to the adjusted R<sup>2</sup>, the WLS model can explain 48.6 percent variations in the changes of cost of capital, which indicates that governance mechanisms provide additional explanatory power beyond the firm control variables.

## **5.2 The effects of governance on the firm next year's cost of capital**

We continue our study by using the methodology of Suchard (2012) to test whether the corporate governance will also affect next year's cost of capital. We can reduce any potential endogeneity problem by using the next year's cost of capital. As discussed above, governance mechanisms have significant effects on reducing firm's contemporaneous cost of capital, the effects might also have a time lag as they are not directly affecting cost of capital. In this part, all the independent variables are lagged by one fiscal period to minimize any potential endogeneity. We test the effect of corporate governance on the firm next year's cost of capital by using the following regression:

$$\text{WACC}_{it} = \beta_0 + \beta_1 \% \text{Institution}_{it-1} + \beta_2 \% \text{Insider}_{it-1} + \beta_3 \% \text{Independent}_{it-1} + \beta_4 \text{Log Board Size}_{it-1}$$

$$= 100000 - 10 + \varepsilon_{it-1} \quad (2)$$

$\Delta = 1 \text{ (all controls)} - 1$  stands for all of the firm control variables lagged by one year as previously defined. Table 5 presents regression results examining whether various governance variables and control variables are associated with the firm next year's cost of capital using the 121 firms for four years. As all the independent variables are one fiscal period lagged, we are left with a sample of 484 observations. The signs of all variables are same with previous model. The results indicate that CAPEX/TA, leverage ratio, BM, firm size, and TAN/TA all have significant impacts on the firm next year's cost of capital. The results suggest that the firm with large investment inputs and size, more tangible assets, and lower financial leverage will have higher cost of capital in the next year.

[Insert Table 5 here]

The results for governance variables become more significant over time. Insider ownership and board size are both significantly related to the firm's cost of capital in the next year with expected signs. The results present that the coefficient of insider holding is negatively and significantly better than a 1% level. Moreover, the economic impact of insider holding on the firm next year's cost of capital is nearly two times than contemporaneous year. These results suggest that better corporate governance can affect firm next year's performance. Although institutional holding is insignificant in this regression, it becomes significant in the WLS regression suggesting that more institutional ownership will also increase next year's cost of capital. This will support the projection that institutional investors tend to invest in high expected return and high risk firms.

The results show that the coefficients on the number of board size is still significant and even get larger compared with previous results. As for the CEO duality, the coefficient become significant in the next year's regression. Because CEO duality is an indirect mechanism and its effect on the cost of capital has a time lag. More insider holdings, larger boards, the separation of CEO and board chair will efficiently reduce contemporaneous and next year's cost of capital. The results of exchange dummy capital are similar to previous regression.

Both the adjusted R<sup>2</sup> and the log likelihood suggest that this regression gains more explanation power than the previous one.

### **5.3 The effects of governance on the firm next year's cost of capital among industries**

The descriptive statistics indicate that the governance mechanisms vary across different industries. Due to limited companies in some industries, two major industrial dummy variables are added into regression at the first step. Then the whole sample is split into eight subsamples by using the first two-digits of SIC codes. We denote Mining-Dummy if the firm is in the mining industry then we set it as 1, and the others are 0. This industry mainly includes metal mining firms, bituminous coal and lignite mining, and oil and gas extraction. These companies are all capital intensive companies that have a huge capital demand. Whether corporate governance can reduce the cost of capital efficiently would be very important to those firms. The other industry dummy included in the regression is manufacturing-dummy. We denote Manufacturing-Dummy equals to 1 if the firm is in the manufacturing industry, and the others are 0. This industry consists of food products, tobacco products, apparel, and wood products. To minimize any potential endogeneity issue, we use firm next year's cost of capital as a dependent variable, and the model used is as follows:

$$\text{WACC}_{it} = \beta_0 + \beta_1 \% \text{Institution}_{it-1} + \beta_2 \% \text{Insider}_{it-1} + \beta_3 \% \text{Independent}_{it-1} + \beta_4 \text{LogBoard Size}_{it-1}$$

$$\square = I\Box\Box\Box\Box\Box - I\square + \varepsilon_{it-1} \quad (3)$$

[Insert Table 6 here]

Table 6 reports that two added industrial dummies are both positively significant which means firms' cost of capital in these two industries are significantly higher than firms in other industries. Firms in the mining industry have the highest cost of capital and the difference can be up to 3.34% while holding the other conditions constant. The results also indicate that the firms in the manufacturing industry will spend 0.62% more on the cost of capital than the firms in the other industries while holding all other variables constant.

After considering difference in industry, the CEO Duality coefficient becomes more significant in the regression. The results show that if the CEO and chairman of the board are the same person, the firm will tend to spend 1.41 percent more on the cost of capital. This implies a CEO with less monitoring might overinvest due to the empire building effect. The results for insider holding remains to be the most important variable among all the governance variables. It is significantly and negatively associated with the cost of capital even after controlling for the industry effect. This indicates that improving insider ownership is a good method to reduce cost of capital that is applicable to all industries.

To further assess the governance mechanisms in different industries, we repeat the analysis by using firms in manufacturing, mining, and transportation industries. The results show both similarities and differences in these three industries. Firstly, the signs of the firm control variables such as size, leverage ratio and TAN/TA are the same with the previous results. However, the coefficient of CAPEX/TA is only significant in the mining industry. Such results surprisingly enhance my expectations regarding the firm characteristic hypotheses. As for governance mechanisms, insider ownership is always significant in all industries. However, the significantly positive coefficient of institutional ownership only exists in the transportation industry. It suggests that the institutional ownership effect is not an overall effect in all industries. In the mining industry, only insider ownership and CEO duality are significant. The coefficients of the CEO Duality dummy and board size are all insignificant in manufacturing companies. In the manufacturing industry, firm's characteristic and insider ownership have more impact on the cost of capital.

[Insert Table 7 here]

In Table 7, the regression results of mining companies are similar with the whole sample results except for the board size variable. The firm control variables in mining companies are significant. However, the corporate governance variables, institutional ownership and

independent director percentage, are both insignificant in this subsample. The coefficient on insider holding is significantly negative and is five times large as the whole sample. The economic impact of insider holding in the mining companies on cost of capital is dramatic. An increase of one standard deviation in insider ownership decreases cost of capital by 0.125%. In this subsample, the coefficient of CEO Duality suggests that, in the mining industry, cost of capital is affected more significantly by insider ownership.

The results of regression in the transportation industry subsample provide similar results with the whole sample. Except for firm size, the firm control variables are very consistent with the expectations. The coefficient of institutional ownership suggests that the economic impacts for institution ownership are much higher for transportation firms than firms in other industries. In addition, the CEO Duality is positively and significantly related to the cost of capital which is consistent with the expectations. Unexpectedly, almost all coefficients of governance mechanisms are significant in transportation firms except for the insider ownership and board size. The signs of these two variables in this subsample are not consistent with the whole sample suggesting that the transportation firms can improve their performance through a smaller board and fewer insider ownership.

#### **5.4 The effects of governance on the firm contemporaneous cost of capital among regions**

In order to test the relation between the cost of capital and governance mechanisms across different regions, we run the following regression after controlling the time and regional difference. The regression is presented as below:

$$\text{WACC}_{it} = \beta_0 + \beta_1 \% \text{Institution}_{it} + \beta_2 \% \text{Insider}_{it} + \beta_3 \% \text{Independent}_{it} + \beta_4 \text{Log Board Size}_{it} \\ \square = 1 \square \square \square \square \square + \varepsilon_{it} \quad (4)$$

Where ON Dummy equals to 1 if the firm's headquarter is located in Ontario and 0 otherwise. QC Dummy equals to 1 if the firm's headquarter is located in Quebec and 0 otherwise. The rest of the firms are all from the western region which includes Alberta, British Columbia,

Manitoba, and Saskatchewan provinces. Finally, the year fixed effects is used to test whether the cost of capital is decreasing.

[Insert Table 8 here]

As shown in Table 8, we insert regional dummy into the regression. The results show that Quebec firm's cost of capital is much lower than other Canadian provinces. This can be explained by the industry structure in Quebec. Most of Quebec firms in the sample are manufacturing, transportation, and retail firms. Those firms have a lower cost of capital than firms in other industries. Thus, firm domiciled in Quebec has a lower cost of capital than firms domiciled outside of Quebec. The ON dummy also shows a negative effect on the cost of capital due to same reason. From the coefficient of the year's fixed effects, the cost of capital is consecutively decreasing from 2010 to 2014. Interestingly, after controlling the time and region, the effect of institutional ownership on the cost of capital becomes more significant.

### **5.5 Endogeneity Issue**

The preceding analyses treat governance attributes as being exogenously determined. According to Himmelberg et al., (1999), fixed effects estimators should be used in examination of the relationship between managerial ownership and firm performance to control for the unobservable features. To further minimize the effects of endogeneity, we choose to use the firm's fixed effects approach to control for the unobservable features that affect cost of capital. The model used is as follows:

$$\text{WACC}_{it} = \beta_0 + \beta_1 \% \text{Institution}_{it-1} + \beta_2 \% \text{Insider}_{it-1} + \beta_3 \% \text{Independent}_{it-1} + \beta_4 \text{LogBoard Size}_{it-1}$$

$$\square = \text{Control Variables} - \text{I}\square + \lambda_i + \varepsilon_{it-1} \quad (5)$$

$\square = \text{Control Variables} - \text{I}\square$  stands for all firm control variables as previously defined. We use the firm next year's cost of capital as the dependent variable to minimize any potential concern. Table 8 presents the results of a fixed effect model.

[Insert Table 9 here]

In Table 9, the institutional ownership variable is significantly and positively related to the firm next year's cost of capital as predicted while it is not statistically significant in the previous regressions. This implies that firms with greater institutional investors usually have high expected return. Regarding the differential, estimates using fixed effects method reveal that the independent variables are all statistically significant with signs as we had predicted. The negatively significant coefficient of insider ownership confirms our expectation that insider holdings can align the interests between the management and shareholders thus reduce the cost of capital. The board size is positive but not significant in the fixed effects model.

The firm control variables, CAPEX/TA, leverage ratio, and BM ratio are all significantly related to the cost of capital. According to previous results, CEO Duality is not significant in many occasions thus are excluded from robustness analysis. Recall that firm size proxy for total assets of a company are expected to be positively related to the cost of capital. In column 4 of Table 8, however, the coefficient for firm size is not significant after controlling it for unobserved effects. The TAN/TA variable is also insignificant with a negative sign. The significant negative coefficient for debt ratio supports previous studies. In summary, the results are consistent with the major hypothesis of this paper stating that the presence of increased insider holding reduces firm's cost of capital. The coefficients for other explanatory variables are also generally consistent with the previous studies.

## **6. Conclusion**

In this study, the empirical results shed light in the effects of corporate governance on the cost of capital in Canadian markets. Following Suchard et al., (2012), the study investigates the relationship between the corporate governance mechanisms such as insider ownership, board size, and institutional ownership and the cost of capital. We find that insider ownership can effectively reduce a firm's cost of capital because of its ability to align the interests between

management and shareholders.

We test these hypotheses by using a sample of 121 Canadian firms that listed on Toronto Stock Exchange from 2010 to 2014. We examine the impact of governance mechanisms on firm contemporaneous cost of capital, and find that insider ownership and board size are both significantly and negatively related to the contemporaneous cost of capital. While both the institutional ownership and CEO duality are positively related to the cost of capital, the effect of independent board directors is not that visible. Also, in order to further minimize any potential endogeneity issues, we examine the role of governance mechanisms on the firm next year's cost of capital. The main conclusions remain unchanged.

When comparing the governance characteristics in different industries, we find that the effects of governance mechanisms on the cost of capital are different among industries. To further investigate the difference, we add industry dummies and split data into industry subsamples. Results from the analysis suggest that more insider ownership can effectively reduce the firm next year's cost of capital in the mining and manufacturing industries, but it will increase the cost of capital of transportation firms. Firms in the transportation industry can reduce their cost of capital through lower institutional ownership, insider ownership, and small board size. Exploring why some mechanisms are not effective in different industries, or have different impacts remains a topic for future research. In addition, after controlling the time and region, the effects become more significant. This study also suggests that firms domiciled in Quebec have lower cost of capital is caused by different industrial structure. The robustness test employs firm fixed effects regression to minimize potential endogeneity and it confirms the results discussed above.

The paper makes several contributions to the literature. First, we provide new evidence on the role of corporate governance during the post financial crisis period. Second, while most work has examined U.S. markets we look at the Canada, and find that unlike most US studies, we find that several corporate governance mechanisms play an important role on the cost of

capital in Canada. The study also highlights differential impacts of governance mechanisms for firms across industries and regions in Canada. Canadian mining firms have a higher cost of capital than firms in other industries. In mining firms, insider ownership is negatively associated with the cost of capital, and it serves to reduce agency costs. In the transportation industry, both institutional ownership and insider ownership are positively related to the cost of capital. In the manufacturing sector, firm characteristics and insider ownership have more impacts on the cost of capital. Exploring in depth potential causes for these differentials is a topic for future research.

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## Appendix I

Variable Definitions	
Variable	Definitions and Data Source
<b>Firm control variables</b>	
<b>CAPEX/ TA (%)</b>	Percentage of capital expenditures to total assets. (source Bloomberg)
<b>Leverage (%)</b>	Short-term liabilities plus long-term liabilities then divided by total assets. (source Bloomberg)
<b>TAN/TA (%)</b>	Percentage of tangible assets to total assets. (source Bloomberg)
<b>BM</b>	Ratio of book value of equity divided by market value of equity (source Bloomberg)
<b>Beta</b>	Monthly Beta using the following model: $\log[R(t) - Rf(t)] = a + Beta * \log [Rm(t) - Rf(t)]$ <p>Estimated over the 60 months prior to a firm-year requiring minimum of 18 months. (source CFMRC)</p>
<b>TA</b>	Total assets of the company at the end of each year (source Bloomberg)
<b>size</b>	Natural log of total assets at the end of each year (source Bloomberg)
<b>Firm governance variables</b>	
<b>%Institution</b>	Percentage of shares held by institutional investors. (source Bloomberg)
<b>%Insider</b>	Percentage of shares held by insiders including officers and directors. (source Bloomberg)
<b>%Independent</b>	Percentage of independent directors on the board. (source Bloomberg)
<b>Log Board Size</b>	Natural log of number of directors on the company's board. (source Bloomberg)
<b>CEO Duality</b>	If company's Chief Executive Officer is also Chairman of the Board, then denotes 1, otherwise 0. (source Bloomberg)
<b>Interlisted Dummy</b>	If the company is also listed on NYSE or NASDAQ, then denotes 1, otherwise 0. (source Compustat)

## Appendix II

**Table 1. Descriptive Statistics**

**Descriptive Statistics**  
**PANEL A: Pooled-Data Descriptive Statistics**

	Mean	Standard Deviation	Min	Median	Max	Skewness	Kurtosis
<b>WACC (%)</b>	10.45	4.11	3.14	9.61	29.93	1.12	1.39
<b>CAPEX/ TA (%)</b>	10.63	9.34	0.02	8.02	59.28	1.62	3.16
<b>Leverage (%)</b>	47.35	17.52	2.58	48.46	90.85	-0.22	-0.38
<b>TAN/TA (%)</b>	85.35	18.72	8.55	93.28	100.00	-1.53	1.66
<b>BM</b>	0.63	0.71	0.04	0.49	5.13	2.82	2.46
<b>%Institution</b>	49.51	23.34	0.00	47.40	95.01	0.23	-0.64
<b>%Insider</b>	4.29	8.67	0.00	1.32	78.22	1.90	3.14
<b>%Independent</b>	77.44	11.58	37.50	80.00	100.00	-0.59	-0.56
<b>Board Size</b>	9.40	3.30	4.00	9.00	20.00	5.49	78.00
<b>CEO Duality</b>	0.16	0.36	0.00	0.00	1.00	1.91	1.65
<b>TA(Billion)</b>	7.02	12.27	0.04	2.14	79.67	3.04	10.36

**PANEL B: Sample Mean of All Variables in Different Industries**

	Agriculture	Construction	Manufacturing	Mining	Retail	Services	Transportation	Wholesale
<b>WACC (%)</b>	5.43	9.96	9.62	13.77	7.28	8.48	7.94	9.56
<b>CAPEX/ TA (%)</b>	3.95	3.44	7.50	15.54	4.33	3.00	8.69	4.30
<b>Leverage (%)</b>	72.07	58.91	50.62	36.08	52.38	54.31	61.43	60.71
<b>TAN/TA (%)</b>	67.85	93.94	86.13	96.21	82.73	57.39	74.56	88.13
<b>BM</b>	0.31	0.86	0.71	0.73	0.58	0.38	0.42	0.38
<b>%Institution</b>	77.04	57.19	54.78	50.70	38.87	60.60	48.38	31.96
<b>%Insider</b>	3.90	2.02	7.11	3.45	6.88	4.15	2.20	1.50
<b>%Independent</b>	84.62	84.09	75.62	77.35	70.58	81.07	80.92	85.71
<b>Board Size</b>	13.00	8.10	9.59	8.65	11.57	9.02	10.43	9.13
<b>CEO Duality</b>	0	1	0.10	0.06	0.21	0.07	0.19	0.09
<b>TA(Billion)</b>	0.71	1.94	7.93	6.21	7.02	2.92	12.45	1.93
<b>N</b>	5	10	125	210	60	55	115	25

**PANEL C: Sample Distribution**

Firms Listed solely on TSX	Firm Interlisted both on TSX and NYSE or NASDAQ
83	38

**Table 1 Continued****PANEL D: Sample Mean WACC in Quebec and Other Regions**

	N	Manufacturing	Mining	Retail	Services	Transportation
<b>Quebec</b>	21	8.26	17.94	7.98	8.92	8.15
<b>Other Regions</b>	100	10.05	13.67	6.83	8.32	7.86

**PANEL E: Sample Mean of All Variables in Different Years**

	2010	2011	2012	2013	2014
<b>WACC (%)</b>	12.92	10.77	10.42	9.31	9.33
<b>CAPEX/ TA (%)</b>	8.35	10.02	10.44	9.86	9.51
<b>Leverage (%)</b>	46.92	48.32	47.81	49.36	49.74
<b>TAN/TA (%)</b>	86.23	85.52	84.95	84.21	83.59
<b>BM</b>	0.56	0.64	0.62	0.57	0.65
<b>%Institution</b>	49.02	49.57	48.04	51.33	53.05
<b>%Insider</b>	4.66	3.93	4.72	4.18	4.02
<b>%Independent</b>	76.15	77.90	77.85	77.79	78.75
<b>Board Size</b>	9.71	9.54	9.34	9.47	9.59
<b>CEO Duality</b>	0.19	0.15	0.11	0.09	0.10
<b>TA(Billion)</b>	6.99	6.42	6.85	7.65	8.44

**PANEL F: Sample Mean of All Variables in Different Provinces**

	AB	BC	MB	ON	QC	SK
<b>WACC (%)</b>	11.33	12.54	6.39	9.42	8.72	12.79
<b>CAPEX/TA (%)</b>	14.29	9.65	9.76	6.21	5.95	9.37
<b>Leverage (%)</b>	48.64	40.36	59.96	50.60	51.43	42.15
<b>TAN/TA (%)</b>	92.46	89.12	89.40	79.34	73.08	98.64
<b>BM</b>	0.60	0.56	0.41	0.70	0.56	0.42
<b>%Institution</b>	44.20	54.75	32.48	51.36	56.37	74.07
<b>%Insider</b>	4.55	4.20	0.81	5.74	2.08	0.40
<b>%Independent</b>	77.93	81.93	89.98	75.45	76.65	83.05
<b>Board Size</b>	8.92	9.20	10.00	9.39	10.67	12.30
<b>CEO Duality</b>	0.11	0.15	0.00	0.14	0.15	0.00
<b>TA(Billion)</b>	9.95	7.15	1.96	4.28	6.66	12.45

Notes: This table presents descriptive statistics for the key governance variables and firm control variables. All variables are explained in Appendix I. Panel A provides descriptive statistics for dependent and independent variables described. The sample period is from 2010 to 2014. The variables are the weighted average cost of capital (WACC), the ratio of capital expenditures to total assets (CAPEX/TA), total liabilities over total assets (Leverage), tangible long term assets (property, plant and equipment) over total assets (TAN/TA), book value to market value ratio (BM), percentage ownership of institutional shareholders (%Institution), percentage ownership of insider shareholders (%Insider), proportion of directors who are independent directors (%Independent), the number of directors (Board Size), the separation of CEO and chair of board (CEO Duality), book value of total assets (TA). Statistics are calculated based on pooled data across all firms and all years. Panel B provides statistics on the average variables by industries. Panel C provides statistics on the sample structure of interlisted proportion. Panel D provides statistics on the average cost of capital in Quebec and other regions. Panel E provides statistics on the average variables by years. Panel F provides statistics on the average variables by province.

**Table 2. Correlation Matrix**

	CAPEX/TA	TAN/TA	BM	%Institution	%Insider	%Independent	Log_Board size	Size	Leverage	CEO Duality	ExchangeDummy
<b>CAPEX/TA</b>	1										
<b>TAN/TA</b>	0.3728 <.0001	1									
<b>BM</b>	-0.0755 0.1418	0.1287 0.0121	1								
<b>%Institution</b>	-0.1258 0.0141	-0.0766 0.1362	-0.06 0.201	1							
<b>%Insider</b>	-0.0220 0.6688	0.0304 0.5548	0.131 0.010	-0.2766 <.0001	1						
<b>%Independent</b>	-0.1135 0.027	0.0093 0.8567	-0.13 0.007	0.2175 <.0001	-0.2833 <.0001	1					
<b>Log_Board Size</b>	-0.2450 <.0001	-0.2531 <.0001	-0.15 0.002	0.1775 0.0005	-0.2091 <.0001	0.1207 0.0186	1				
<b>Size</b>	0.0192 0.7097	-0.0007 0.9885	-0.15 0.003	0.1041 0.0426	-0.2339 <.0001	0.2154 <.0001	0.3582 <.0001	1			
<b>Leverage</b>	-0.2867 <.0001	-0.2578 <.0001	-0.14 0.005	-0.0632 0.2194	0.0454 0.3773	0.1116 0.0297	0.3463 <.0001	0.3278 <.0001	1		
<b>CEO Duality</b>	-0.0131 0.7991	0.0511 0.3204	-0.03 0.492	-0.1950 0.0001	0.0228 0.6583	-0.0842 0.1011	-0.1558 0.0023	-0.1447 0.0047	0.0728 0.157	1	
<b>ExchangeDummy</b>	0.1082 0.0182	0.1294 0.0047	-0.00 0.860	0.1194 0.0091	-0.1099 0.0165	-0.0017 0.9697	0.0511 0.2663	0.0308 0.5023	-0.1198 0.0089	-0.1171 0.0105	1

Notes: This table presents the Pearson correlation coefficients for the key firm characteristics and governance measures. It contains the ratio of capital expenditures to total assets (CAPEX/TA), tangible long term assets over total assets (TAN/TA), book value to market value ratio (BM), percentage ownership of institutional shareholders (%Institution), percentage ownership of insider shareholders (%Insider), proportion of directors who are independent directors (%Independent), the natural logarithm of director number (Log\_Board Size), the natural logarithm of total assets (Size), total liabilities over total assets (Leverage), the separation of CEO and chair of board (CEO duality), Exchange dummy (Exchange) denotes 1 if firm is also listed on NYSE, NASDAQ, else 0. P-values are reported below each of the coefficients.

**Table 3. Cross-Sectional Validation of WACC**

<b>Model</b>	<b>Dependent Variable: Weighted Average Cost of Capital</b>				
	1	2	3	4	5
<b>Intercept</b>	0.060*** <.0001	0.102*** <.0001	0.115*** <.0001	0.169*** <.0001	0.118*** <.0001
<b>BETA</b>	0.034*** <.0001				0.026*** <.0001
<b>Size</b>		-0.004 0.4314			-0.011*** 0.0004
<b>MB</b>			-0.006*** 0.0007		0.002* 0.0919
<b>Leverage</b>				-0.001*** <.0001	-0.001*** <.0001
<b>Adjusted R<sup>2</sup></b>	0.497	0.384	0.403	0.456	0.712
<b>N</b>	121	121	121	121	121

\*.\*\*, \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

Notes: The table provides the cross-sectional OLS regression estimates for cost of capital (WACC) regressed on BETA measured as the beta of individual firm calculated using monthly stock returns, size measured as the natural logarithm of total assets (Size), the market-to-book value ratio (MB) and Leverage measured as total liabilities over total assets (Leverage). All variables are averaged across the sample period such that each firm is represented by a single observation in the regression (121 observations). P-values are reported below each of the coefficients.

**Table 4. Governance Effects on the Firm Contemporaneous Cost of Capital**

Notes: The table provides the results for the OLS, Tobit, and WLS regressions of the contemporaneous cost of capital on governance variables and controls variables described in equation (1). The dependent variable is the contemporaneous weighted average cost of capital (WACC). The independent variables are the natural logarithm of total assets (Size), the ratio of capital expenditures to total assets (CAPEX/TA), total liabilities over total assets (Leverage), tangible long term assets over total assets (TAN/TA), book value to market value ratio (BM), percentage ownership of institutional shareholders (%Institution), percentage ownership of insider shareholders (%Insider), proportion of directors who are independent directors (%Independent), the natural logarithm of director number (Log Board Size), the separation of CEO and chair of board (CEO Duality), the Exchange dummy denotes 1 if firm is also listed on NYSE, NASDAQ, else 0.. T-values are reported below each of the coefficients in OLS and WLS, and Z values are reported below each of the coefficients in Tobit. \* \*\* \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

	OLS Regression			Weighted Least Squares			Tobit Model		
	1	2	3	4	5	6	7	8	9
<b>Intercept</b>	10.609*** (11.95)	13.793*** (7.76)	14.04*** (7.69)	11.586*** (15.47)	14.226*** (9.41)	14.30*** (9.13)	10.609*** (12.04)	13.793*** (7.93)	14.04*** (7.77)
<b>Size</b>	0.478** (2)	1.06*** (3.72)	0.961*** (3.36)	-0.002 (-0.01)	0.685*** (2.71)	0.533** (2.12)	0.478** (2.01)	1.06*** (3.76)	0.961*** (3.39)
<b>CAPEX/TA</b>	0.071*** (4.05)	0.062*** (3.47)	0.064*** (3.57)	0.052*** (3.17)	0.05*** (3.22)	0.054*** (3.51)	0.071*** (4.08)	0.062*** (3.5)	0.064*** (3.61)
<b>Leverage</b>	-0.115*** (-14.14)	-0.117*** (-14.63)	-0.114*** (-13.95)	-0.113*** (-15.24)	-0.114*** (-15.83)	-0.111*** (-15.28)	-0.115*** (-14.25)	-0.117*** (-14.75)	-0.114*** (-14.09)
<b>TAN/TA</b>	0.051*** (6.72)	0.048*** (6.28)	0.050*** (6.54)	0.044*** (7.62)	0.043*** (7.62)	0.043*** (7.91)	0.051*** (6.77)	0.048*** (6.33)	0.050*** (6.61)
<b>BM</b>	-0.033 (-0.11)	-0.138 (-0.45)	-0.112 (-0.47)	-0.256 (-0.89)	-0.211 (-0.72)	-0.131 (-0.46)	-0.033 (-0.11)	-0.138 (-0.45)	-0.112 (-0.37)
<b>%Institution</b>	0.007 (1.19)		0.009 (1.6)	0.01* (1.9)		0.013** (2.49)	0.007 (1.2)		0.009 (1.61)
<b>%Insider</b>	-0.026* (-1.76)		-0.027* (-1.78)	-0.018 (-1.23)		-0.027** (-2.15)	-0.026* (-1.77)		-0.027* (-1.8)
<b>%Independent</b>		0.007 (0.59)	-0.001 (-0.05)		-0.01 (-1.02)	-0.012 (-1.19)		0.007 (0.59)	-0.001 (-0.05)
<b>Log Board Size</b>		-3.448** (-2.45)	-3.8*** (-2.7)		-1.87 (-1.58)	-2.545** (-2.12)		-3.448** (-2.47)	-3.8*** (-2.73)
<b>CEO Duality</b>		0.617 (1.56)	0.638 (1.61)		0.889** (2.13)	0.872** (2.09)		0.617 (1.58)	0.638 (1.63)
<b>Exchange Dummy</b>	-0.076 (-0.27)	0.103 (0.37)	0.001 (0.003)	-0.281 (-1.14)	0.019 (0.08)	-0.082 (-0.34)	-0.076 (-0.27)	0.103 (0.38)	0.001 (0.003)
<b>Adjusted R<sup>2</sup></b>	0.428	0.431	0.435	0.474	0.481	0.485			
<b>Log Likelihood</b>	-1524	-1522	-1518	-1492	-1478	-1475	-1524	-1522	-1518
<b>N</b>	605	605	605	605	605	605	605	605	605

**Table 5. Governance Effects on the Firm Next Year's Cost of Capital**

Notes: The table provides the results for the OLS, Tobit, and WLS regressions of next year's cost of capital on the variables described in equation (2). The dependent variable is the next year's weighted average cost of capital (WACC). The independent variables are the natural logarithm of total assets (Size), the ratio of capital expenditures to total assets (CAPEX/TA), total liabilities over total assets (Leverage), tangible long term assets over total assets (TAN/TA), book value to market value ratio (BM), percentage ownership of institutional shareholders (%Institution), percentage ownership of insider shareholders (%Insider), proportion of directors who are independent directors (%Independent), the natural logarithm of director number (Log Board Size), the separation of CEO and chair of board (CEO Duality), the Exchange dummy denotes 1 if firm is also listed on NYSE, NASDAQ, else 0. T-values are reported below each of the coefficients in OLS and WLS, and Z values are reported below each of the coefficients in Tobit. \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

	OLS Regression			Weighted Least Squares			Tobit Model		
	1	2	3	4	5	6	7	8	9
<b>Intercept</b>	10.392*** (12.46)	12.582*** (7.45)	13.319*** (7.7)	11.165*** (15.04)	13.185*** (9.02)	14.379*** (9.95)	10.392*** (12.58)	12.583*** (7.52)	13.319*** (7.80)
<b>Size</b>	0.337 (1.48)	0.913*** (3.37)	0.827*** (3.06)	-0.197 (-1.09)	0.511** (2.13)	0.562*** (2.79)	0.337 (1.49)	0.913*** (3.41)	0.827*** (3.10)
<b>CAPEX/TA</b>	0.094*** (5.53)	0.088*** (5.11)	0.088*** (5.11)	0.072*** (4.29)	0.067*** (4.15)	0.067*** (4.27)	0.094*** (5.59)	0.088*** (5.16)	0.087*** (5.17)
<b>Leverage</b>	-0.109*** (-13.98)	-0.111*** (-14.54)	-0.108*** (-13.87)	-0.101*** (-14.05)	-0.104*** (-15.05)	-0.1*** (-14.75)	-0.109*** (-14.11)	-0.111*** (-14.69)	-0.108*** (-14.05)
<b>TAN/TA</b>	0.041*** (5.74)	0.037*** (5.19)	0.039*** (5.5)	0.033*** (5.96)	0.033*** (5.99)	0.032*** (6.39)	0.041*** (5.8)	0.037*** (5.25)	0.039*** (5.57)
<b>BM</b>	0.546* (1.76)	0.498 (1.61)	0.525* (1.71)	0.312 (1.03)	0.24 (0.77)	0.325 (1.36)	0.546* (1.78)	0.498 (1.63)	0.525* (1.73)
<b>%Institution</b>	0.003 (0.61)		0.006 (1.01)	0.007 (1.34)		0.01* (1.89)	0.003 (0.62)		0.006 (1.02)
<b>%Insider</b>	-0.04*** (-3.03)		-0.037*** (-2.76)	-0.039*** (-5.5)		-0.042*** (-7.67)	-0.04*** (-3.06)		-0.037*** (-2.8)
<b>%Independent</b>		0.02* (1.76)	0.01 (0.84)		0.001 (0.01)	-0.006 (-0.66)		0.020* (1.78)	0.01 (0.85)
<b>Log Board Size</b>	-3.746*** (-2.82)	-4.132*** (-3.12)		-2.316** (-2.04)	-3.447*** (-3.04)		-3.746*** (-2.85)	-4.132*** (-3.16)	
<b>CEO Duality</b>		0.836** (2.12)	0.763* (1.94)		1.003** (2.3)	0.89** (1.98)		0.836** (2.14)	0.763** (1.96)
<b>Exchange Dummy</b>	-0.093 (-0.35)	0.132 (0.5)	0.024 (0.09)	-0.196 (-0.81)	0.171 (0.74)	0.097 (0.4)	-0.094 (-0.35)	0.132 (0.5)	0.023 (0.09)
<b>Adjusted R<sup>2</sup></b>	0.512	0.516	0.525	0.538	0.528	0.619			
<b>Log Likelihood</b>	-1133	-1130	-1125	-1109	-1099	-1086	-1133	-1130	-1125
<b>N</b>	484	484	484	484	484	484	484	484	484

**Table 6. Governance Effects on the Firm Next Year's Cost of Capital (Industry Dummies)**

Notes: The table provides the results for the OLS, Tobit, and WLS regressions of the cost of capital in next year on governance variables, controls variables, and industry dummy variables described in equation (3). The dependent variable is the weighted average cost of capital in the next year (WACC). The independent variables are same with table 5. The Ming dummy denotes 1 if firm is in mining industry, else 0. The Manufacturing dummy denotes 1 if firm is in manufacturing industry, else 0. T-values are reported below each of the coefficients in OLS and WLS, and Z values are reported below each of the coefficients in Tobit. \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

	OLS Regression			Weighted Least Squares			Tobit Model		
	1	2	3	4	5	6	7	8	9
<b>Intercept</b>	10.141*** (12.77)	10.248*** (6.29)	10.923*** (6.54)	11.061*** (16.5)	10.867*** (8.23)	11.841*** (8.73)	10.141*** (12.91)	10.248*** (6.36)	10.923*** (6.63)
<b>Size</b>	0.181 (0.83)	0.546** (2.1)	0.498* (1.92)	-0.245 (-1.38)	0.235 (1.06)	0.294 (1.37)	0.181 (0.84)	0.546** (2.13)	0.498* (1.95)
<b>CAPEX/TA</b>	0.041** (2.27)	0.035** (1.97)	0.036** (2.04)	0.003 (0.17)	0.005 (0.3)	0.008 (0.49)	0.041** (2.29)	0.035** (1.99)	0.036** (2.07)
<b>Leverage</b>	-0.085*** (-10.46)	-0.086*** (-10.84)	-0.084*** (-10.52)	-0.068*** (-9.43)	-0.074*** (-11.03)	-0.072*** (-10.69)	-0.085*** (-10.57)	-0.086*** (-10.97)	-0.084*** (-10.67)
<b>TAN/TA</b>	0.030*** (4.18)	0.025*** (3.45)	0.026*** (3.67)	0.017*** (3.41)	0.022*** (4.53)	0.022*** (4.68)	0.030*** (4.22)	0.024*** (3.49)	0.026*** (3.72)
<b>BM</b>	0.072 (0.24)	-0.027 (-0.09)	0.018 (0.06)	-0.475 (-1.47)	-0.543* (-1.77)	-0.374 (-1.28)	0.072 (0.24)	-0.027 (-0.09)	0.018 (0.06)
<b>%Institution</b>	0.001 (0.26)		0.003 (0.63)	-0.002 (-1.47)		0.004 (0.89)	0.001 (0.27)		0.003 (0.64)
<b>%Insider</b>	-0.033*** (-2.65)		-0.029** (-2.24)	-0.032*** (-3.84)		-0.034*** (-4.78)	-0.034*** (-2.68)		-0.029** (-2.27)
<b>%Independent</b>		0.024** (2.24)	0.017 (1.5)		0.002 (0.2)	-0.003 (-0.39)		0.024** (2.27)	0.017 (1.52)
<b>Log Board Size</b>	-2.048 (-1.62)		-2.415* (-1.9)		-0.649 (-0.63)	-1.514 (-1.45)		-2.048 (-1.64)	-2.415* (-1.93)
<b>CEO Duality</b>	1.477*** (3.83)		1.409*** (3.65)		1.589*** (3.83)	1.379*** (3.33)		1.477*** (3.87)	1.409*** (3.70)
<b>Mining Dummy</b>	2.572*** (6.7)	2.933*** (7.46)	2.833*** (7.18)	3.335*** (8.79)	3.271*** (9.04)	3.148*** (8.7)	2.572*** (6.77)	2.933*** (7.54)	2.833*** (7.28)
<b>Manufacturing Dummv</b>	0.341 (1.02)	0.606* (1.82)	0.616* (1.82)	0.562** (2.02)	0.469* (1.82)	0.568** (2.2)	0.341 (1.03)	0.606* (1.84)	0.616* (1.85)
<b>Adjusted R2</b>	0.558	0.571	0.575	0.536	0.582	0.594			
<b>Log Likelihood</b>	-1109	-1101	-1098	-1087	-1061	-1052	-1109	-1101	-1098
<b>N</b>	484	484	484	484	484	484	484	484	484

**Table 7. Governance Effects on the Firm Next Year's Cost of Capital in Industry Subsamples**

Notes: The table provides the results for the OLS, Tobit, and WLS regressions the cost of capital in the next year on governance variables, controls variables in different industries described in equation (2). The dependent variable is the weighted average cost of capital in the next year (WACC). The independent variables are same with table 5. T-values are reported below each of the coefficients in OLS and WLS, and Z values are reported below each of the coefficients in Tobit. \* . \*\* . \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

	OLS Regression			Weighted Least Squares			Tobit Model		
	Mining	Manufacturing	Transportation	Mining	Manufacturing	Transportation	Mining	Manufacturing	Transportation
<b>Intercept</b>	18.479*** (3.37)	4.813* (1.72)	0.241 (0.08)	18.612*** (4.07)	5.044* (1.91)	4.32 (1.4)	18.479*** (3.49)	4.813* (1.82)	0.241 (0.08)
<b>Size</b>	0.657 (1.08)	2.204*** (5.98)	-1.827*** (-3.05)	1.047** (2.15)	1.962*** (5.38)	-1.844*** (-3.6)	0.657 (0.26)	2.204*** (6.34)	-1.827*** (-3.25)
<b>CAPEX/TA</b>	0.062** (2.21)	0.008 (0.2)	-0.004 (-0.1)	0.073*** (3.45)	0.028 (0.7)	-0.01 (-0.33)	0.062** (2.28)	0.008 (0.21)	-0.004 (-0.11)
<b>Leverage</b>	-0.147*** (-8.55)	-0.048*** (-2.91)	-0.06*** (-4.23)	-0.135*** (-8.95)	-0.048*** (-2.91)	-0.063*** (-4.79)	-0.147*** (-8.83)	-0.048*** (-3.09)	-0.06*** (-4.51)
<b>TAN/TA</b>	0.002 (0.05)	0.063*** (4.61)	0.036*** (3.88)	-0.001 (-0.02)	0.052*** (3.41)	0.019** (2.63)	0.002 (0.05)	0.063*** (4.41)	0.036*** (4.13)
<b>BM</b>	-0.67 (-1.27)	0.345 (0.92)	0.396 (0.49)	-1.024** (-2.45)	0.332 (0.89)	-2.084** (-1.97)	-0.67 (-1.31)	0.345 (0.98)	0.396 (0.52)
<b>%Institution</b>	0.003 (0.25)	0.003 (0.4)	0.039*** (3.65)	0.013 (1.39)	0.002 (0.29)	0.044*** (4.2)	0.003 (0.26)	0.003 (0.42)	0.039*** (3.89)
<b>%Insider</b>	-0.125** (-2.15)	-0.02 (-1.57)	0.115* (1.72)	-0.103* (-1.8)	-0.023** (-2.04)	0.112** (2.1)	-0.125** (-2.23)	-0.02* (-1.67)	0.115* (1.83)
<b>%Independent</b>	0.03 (1.17)	0.02 (1.22)	0.022 (0.98)	0.012 (0.55)	0.026* (1.71)	0.037** (2.09)	0.03 (1.21)	0.02 (1.3)	0.022 (1.05)
<b>Log Board Size</b>	-3.206 (-1.2)	-1.563 (-0.71)	4.827** (2.08)	-2.771 (-1.22)	-1.201 (-0.63)	1.992 (1)	-3.21 (-1.25)	-1.563 (-0.75)	4.827** (2.21)
<b>CEO Duality</b>	2.008* (1.78)	-0.691 (-0.82)	2.736*** (4.61)	0.672 (0.48)	-0.496 (-0.63)	1.829*** (2.72)	2.008* (1.84)	-0.691 (-0.87)	2.736*** (4.92)
<b>Adjusted R<sup>2</sup></b>	0.368	0.505	0.569	0.364	0.598	0.572			
<b>Log Likelihood</b>	-423	-188	-171	-406	-183	-158	-423	-188	-171
<b>N</b>	168	100	92	168	100	92	168	100	92

**Table 8. Governance Effects on the Firm Contemporaneous Cost of Capital (Regional Dummies)**

Notes: The table provides the results for the OLS, Tobit, and WLS regressions of firm contemporaneous cost of capital on governance variables, controls variables, and regional dummy variables. The dependent variable is the contemporaneous weighted average cost of capital (WACC). The independent variables are same with table 5. The QC dummy denotes 1 if firm domiciled in Quebec, else 0. The ON dummy denotes 1 if firm domiciled in Ontario, else 0. T-values are reported below each of the coefficients in OLS and WLS, and Z values are reported below each of the coefficients in Tobit. \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

	OLS Regression			Weighted Least Squares			Tobit Model		
	1	2	3	4	5	6	7	8	9
<b>Intercept</b>	10.18*** (11.5)	13.596*** (8.16)	13.744*** (8.09)	11.819*** (17)	16.335*** (12.52)	17.483*** (13.31)	10.18*** (11.64)	13.596*** (8.27)	13.744*** (8.21)
<b>Size</b>	0.433** (1.95)	1.105*** (4.15)	0.97*** (3.62)	0.361** (2.07)	0.732*** (3.29)	0.706*** (3.62)	0.433** (1.97)	1.105*** (4.2)	0.97*** (3.67)
<b>CAPEX/TA</b>	0.075*** (4.49)	0.07*** (3.91)	0.07*** (4.05)	0.059*** (3.71)	0.056*** (3.74)	0.054*** (3.66)	0.075*** (4.54)	0.07*** (3.96)	0.07*** (4.11)
<b>Leverage</b>	-0.11*** (-14.53)	-0.11*** (-15.3)	-0.11*** (-14.35)	-0.09*** (-13.33)	-0.098*** (-15.43)	-0.091*** (-14.56)	-0.11*** (-14.71)	-0.11*** (-15.5)	-0.11*** (-14.55)
<b>TAN/TA</b>	0.036*** (5.46)	0.037*** (5.15)	0.039*** (5.39)	0.019*** (3.7)	0.026*** (5.46)	0.025*** (5.45)	0.036*** (5.52)	0.037*** (5.21)	0.039*** (5.46)
<b>BM</b>	0.23 (0.83)	0.094 (0.33)	0.15 (0.53)	-0.154 (-0.51)	-0.059 (-0.2)	-0.064 (-0.23)	0.23 (0.84)	0.094 (0.34)	0.15 (0.54)
<b>%Institution</b>	0.01** (2.3)		0.01*** (2.59)	0.011*** (2.65)		0.013*** (3.29)	0.01** (2.33)		0.01*** (2.62)
<b>%Insider</b>	-0.03** (-2.12)		-0.029** (-2.1)	-0.023*** (-3)		-0.035*** (-6.03)	-0.03** (-2.14)		-0.029** (-2.13)
<b>%Independent</b>		0.013 (1.18)	0.003 (0.27)		-0.01 (-1.22)	-0.017** (-2.1)		0.013 (1.2)	0.003 (0.28)
<b>Log Board Size</b>		-3.924*** (-3.03)	-4.281*** (-3.33)		-4.3*** (-4.21)	-5.702*** (-5.68)		-3.924*** (-3.07)	-4.281*** (-3.38)
<b>CEO Duality</b>		0.27 (0.75)	0.34 (0.93)		0.384 (1)	0.392 (1.03)		0.27 (0.76)	0.34 (0.94)
<b>QC Dummy</b>	-1.307*** (-3.71)	-0.926*** (-2.58)	-1.097*** (-3.06)	-1.342*** (-4.35)	-0.856*** (-2.95)	-1.012*** (-3.56)	-1.307*** (-3.75)	-0.926*** (-2.62)	-1.097*** (-3.10)
<b>ON Dummy</b>	-0.662** (-2.2)	-0.48 (-1.58)	-0.553* (-1.83)	-0.637*** (-2.6)	-0.493** (-2.1)	-0.52** (-2.37)	-0.662** (-2.23)	-0.48 (-1.6)	-0.553* (-1.85)
<b>Year-fixed-effects</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Adjusted R<sup>2</sup></b>	0.53	0.53	0.54	0.528	0.556	0.616			
<b>Log Likelihood</b>	-1482	-1482	-1475	-1459	-1433	-1424	-1482	-1482	-1475
<b>N</b>	600	600	600	600	600	600	600	600	600

**Table 9. Governance Effects on the Firm Next Year's Cost of Capital (Firm Fixed-Effects)**

Firm Fixed-Effects Regression				
	Dependent Variable: WACC			
	1	2	3	4
<b>Intercept</b>	11.823*** (8.64)	11.514*** (8.4)	11.351*** (4.44)	11.551*** (4.55)
<b>Size</b>	0.659 (0.51)	0.528 (0.41)	0.611 (0.46)	0.486 (0.37)
<b>CAPEX/TA</b>	0.059*** (3.07)	0.056*** (2.93)	0.059*** (3.01)	0.056*** (2.9)
<b>Leverage</b>	-0.066*** (-4.4)	-0.068*** (-4.59)	-0.066*** (-4.38)	-0.069*** (-4.59)
<b>TAN/TA</b>	-0.013 (-0.7)	-0.0159 (-0.85)	-0.014 (-0.72)	-0.0162 (-0.86)
<b>BM</b>	-0.702** (-2.01)	-1.031*** (-2.79)	-0.706** (-2.02)	-1.041*** (-2.8)
<b>%Institution</b>		0.026** (2.18)		0.026** (2.17)
<b>%Insider</b>		-0.044* (-1.73)		-0.045* (-1.75)
<b>%Independent</b>			-0.001 (-0.04)	-0.007 (-0.31)
<b>Log Board Size</b>			0.671 (0.3)	0.522 (0.23)
<b>Adjusted R<sup>2</sup></b>	0.646	0.650	0.646	0.651
<b>N</b>	121	121	121	121

\* \*\*, \*\*\* indicates significance at the level of 0.1, 0.05, and 0.01.

Notes: The table provides the results for the firm fixed effects panel regressions of the cost of capital in next year on governance variables and controls described in equation (2). The dependent variable is the weighted average cost of capital in the next year (WACC). The independent variables are the natural logarithm of total assets (Size), the ratio of capital expenditures to total assets (CAPEX/TA), total liabilities over total assets (Leverage), tangible long term assets over total assets (TAN/TA), book value to market value ratio (BM), percentage ownership of institutional shareholders (%Institution), percentage ownership of insider shareholders (%Insider), proportion of directors who are independent directors (%Independent), the natural logarithm of director number (Log Board Size). T-values are reported below each of the coefficients.