A COMPARATIVE ANALYSIS OF THE EFFECT OF BOARD CHARACTERISTICS AND GOVERNANCE INDICES ON COMPANIES' COSTS OF FINANCING: THE CANADIAN EVIDENCE

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Abstract

The objective of this study is to examine the effect of board of directors' characteristics compared to that of governance indices that measure board quality, on the costs of financing Canadian firms. We find that the majority of board characteristics have an important and significant effect on the cost of equity capital, the cost of debt and the average cost of capital. On the other hand, in the case of the financing costs studied, we find that the effect of governance indices that assess the quality of boards of directors is not clearly established. Particularly, our results reveal that individual measures of the characteristics of boards of directors allow for a better explanation of companies' costs of financing than do multi-factor commercial and academic governance indices.

Keywords: Board of Directors' Characteristics, Governance Indices, Costs of financing

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Acknowledgements

We are very grateful for the support of CGA-Canada Accounting and Governance Research Centre.

1. Introduction

In recent years, increasing attention has been paid to corporate governance around the world particularly after the collapse of several international companies and recurring financial crises. Therefore, corporate governance mechanisms have been constantly evaluated and reformed by policymakers and market participants to develop a framework of best governance practices that can improve firm performance and avoid such crises. The governance-performance relationship literature has gradually progressed from studies that used simple or multiple governance mechanisms to those that used multifactor governance indices. However, the increased attention paid to governance indices both commercial and academic and to multifactor consolidated measures has been the subject of much criticism in recent studies (Bhagat et al., 2008; Bebchuck & Hamdani, 2009; Bozec & Bozec, 2012). In fact, it is not clear if the governance indices perform any better than individual measures of corporate governance mechanisms. The governance indices integrate different governance mechanisms that do not necessarily have the same weight and the same level of importance in the corporate governance system. Although various disciplinary mechanisms (internal or external) are designed to protect the interests of stakeholders from possible abuse by managers, the board of directors occupies a privileged place among the whole array of these mechanisms (Fama & Jensen, 1983).Indeed, the board plays a central role in the resolution of conflicts of interest, reduces information asymmetry and promotes the increase of firm value. Accountability, transparency and disclosure constitute a few of the roles fulfilled by accounting in the governance process. The board of directors is the governance mechanism where most of the strategies and decisions related to these aspects are developed and monitored. Nevertheless, the ability of the board of directors to successfully achieve its allotted roles depends largely on its characteristics(Hendry & Kiel, 2004).

The dominant approach for assessing governance quality in general is to build an index with several aspects of corporate governance. This approach is considered, by some researchers (Gompers et al., 2003; Brown & Caylor, 2006;

Bebchuk et al., 2009), to be of great importance based on the belief that company performance depends on the quality of the governance system. However, another stream of research considers the specific characteristics of the board as determinants of the quality and the effectiveness of corporate governance (Bhagat & Bolton, 2008). It is board characteristics that are highlighted and analyzed more than other governance features by both the leading provider of commercial indices and most of the academic measures This raises the question as to whether the individual measures of board characteristics can be as effective as corporate governance indices that integrate a number of different components of the governance system, including board characteristics.

To this end, our study proposes to evaluate the effect of the board of directors' characteristics compared to corporate governance indices on the financing costs of Canadian companies through its two principal components, the cost of debt and the cost of equity capital. We consider this issue to be relevant in several areas. First, the attention paid to the financial role of the board of directors constitutes a relatively new concern compared to previous accounting research which generally studied the effect of board characteristics on various measures of the financial performance or only on a specific financing cost and not on the costs of several financing resources (Lambert et al., 2007; Gupta et al., 2009). Second, the majority of the previous accounting studies were restricted to assessing the board of directors' characteristics, primarily through the independence of its members, its size, the independence of its audit committee or the financial motivations of the directors (Anderson et al., 2004). However, these characteristics, despite being the most studied dimensions of the board of directors, do not constitute the only engine of its effectiveness. Therefore, we considered it useful to take into account other characteristics which seem to support and improve the effectiveness of the board of directors. Third, a large number of earlier studies relating to similar research questions were undertaken in American or European contexts which differ from the Canadian context. The case of Canada is different because Canadian firms use a specific governance system, characterized by a principle-based governance approach (*Complain or Disclose system*), with strong legal and extra-legal institutions aimed at protecting investors. They operate within a socio-economic environment which has many distinguishing features that may influence both the governance practices and the financing costs. Finally, and particularly, this study is the first, to our knowledge, to provide an empirical comparative analysis between individual governance measures, board characteristics, and governance indices assessing board quality through their effect on companies' costs of financing.

The board's characteristics are mainly related to the independence of directors, the duality of functions of the chief executive officer (CEO) and chairman of the board, the size and operation of the board, the financial motivation of directors, their expertise and experience, the size and independence of the audit committee and the representation of women and financial institutions in the firm's board of directors.

To compare the effect of individual measures of boards' characteristics to multifactor governance indices on firms' costs of financing by equity capital and by debt, we conducted our study on a sample of 192 Canadian companies listed on the Toronto Stock Exchange and belonging to the composite market index S&P/TSX. In general, our findings show the importance of a board's characteristics in determining the cost of equity capital, the cost of debt and also the average cost of capital. In particular, the results of our analyses show the superiority of the individual measures of board characteristics relative to synthesized governance indices measuring the quality of the board, in explaining the variations in the cost of financing for Canadian companies. The remainder of this paper is structured as follows. In the second section, we present the literature review and develop the hypotheses of our research. The methodology of investigation is presented in a third section. Finally, in the last section, we analyze and discuss the results obtained.

2. Review of literature and research hypotheses

2.1. Board of directors and costs of financing

Occupying a central and privileged place in the corporate governance system, an efficient board of directors ensures better control of the opportunism of leaders and a better transparency in the revealed information through a better audit of the countable and financial reporting process. Therefore, it allows a reduction in the exposure of the firm to market risk which will, in turn, promote a reduction in its costs of financing. In fact, the governance literature review supports the finding that firms with a good system of governance present less risk of agency to the shareholders, lenders and other stakeholders, resulting in a better financial performance. The effectiveness of the boards of directors in the achievement of these functions depends largely on their characteristics (Hendry & Kiel, 2004;Gouiaa & Zéghal, 2009). This leads to our first general research hypothesis:

> **H1:** Strong board characteristics allow for reducing companies' costs of financing both by equity capital and by debt.

2.1.1. Independence of board members

According to agency theory, board effectiveness increases with the proportion of independent

directors. Accordingly, corporate governance reports recommend companies introduce independent directors to their board. Several previous studies have also argued that the presence of independent outside directors on the board improves its effectiveness (Zéghal et al., 2011). If lenders and shareholders are interested in the governance mechanisms which delimit managerial discretion and opportunism and improve the accounting and financial reporting process, an effective control supported by independent directors will result in lower costs of financing. In our research, we test the following hypothesis:

H1.1: Board independence has a negative effect on the costs of equity capital and debt.

2.1.2. Board size

This is a characteristic that seems to have a significant influence on the board's performance and efficiency. The accounting literature review has showed that board size plays a significant role in the directors' ability to control the managers and to supervise the accounting and financial process (Lambert et al., 2007; Ghosh et al., 2010). Indeed, large boards generally constitute effective supervisors of the reporting process for investors and creditors through the improvement of the transparency and reliability level in the financial statements. Thus, board size will promote reducing costs of financing both by equity capital and by debt through a better assessment of a firm's default risk. This leads to the following research hypothesis:

H1.2: Board size has a negative effect on the costs of equity capital and debt.

2.1.3. Separation of roles of CEO and chairman of the board

For the board to be effective and to perform its critical functions, it is essential that the position of the chairman and CEO be separate. According to Fama & Jensen (1983), separation between management and control in large firms reduces conflicts of interest and consequently agency costs. Several previous studies have shown that the combination of functions has a negative effect on financial statement quality (Peasnell et al., 2005; Ghosh et al., 2010), and on financial firm performance (Chen et al., 2009).Therefore, we expect investors and creditors should benefit through improved financial transparency and reliability and will require a lower risk premium that will result in lower costs of financing. This leads to the following research hypothesis:

H1.3: Separation of the roles of CEO and chairman of the board has a negative effect on the costs of equity capital and debt.

2.1.4. Independence of audit committee

The accounting literature review has shown that the existence of an independent audit committee enhances financial reporting quality and represents a good corporate governance mechanism (Abbott et al., 2004). Greater disclosure transparency assured by independent audit committees promotes reducing the costs of financing by reducing the level of uncertainty about the economic situation, the financial performance and consequently the level of the estimated default risk (Raghunandan & Rama, 2007). When the levels of risk and uncertainty are high, investors and creditors require a large risk premium for compensation (Anderson et al., 2004). This leads to the following hypothesis:

H1.4: The independence of the audit committee has a negative effect on the costs of equity capital and debt.

2.1.5. The size of audit committee

This is a characteristic that seems determinant of the audit committee's effectiveness in monitoring the financial reporting process. Beasley & Salterio (2001) find that, as audit committee size increases beyond the mandated minimum requirement, firms are more likely to include outside independent directors on the audit committee. This in turn enhances audit committee effectiveness. Improving disclosure transparency through better accounting and financial information and a better level of voluntary disclosure allowed by larger audit committees will result in a better assessment of the business and its risks by shareholders and lenders (Lambert et al., 2007). Thus, effective control exercised by a large audit committee should reduce the costs of financing both by equity capital and by debt. This leads to the following research hypothesis:

H1.5: The size of the audit committee has a negative effect on the costs of equity capital and debt.

2.1.6. Representation of financial institutions in the board

The representation of these institutions in firms' boards of directors reduces information asymmetry and improves the quality and the efficiency of control over the financial accounting process (Kroszner & Strahan, 2001). In fact, representatives of banks and other financial institutions can limit managerial opportunism through a better control of management actions that will, consequently reduce risks and

agency costs faced by shareholders and lenders (Easley &O'Hara, 2004). Therefore, investors and creditors will require a lower risk premium when granting funds to the company. This should result in lower costs of financing by equity capital and by debt. This leads to the following research hypothesis:

H1.6: The representation of financial institutions in the board of directors has a negative effect on the costs of equity capital and debt.

2.1.7. Board tenure

A literature review shows that boards of directors are more attentive and more effective in the control of managers to the extent that their directors are qualified and experienced(Anderson et al., 2004). Gompers et al. (2003) have found a positive relation between the directors' tenure, measured through the number of years during which directors occupy these positions, and the efficiency of the board in monitoring managers and particularly the reliability of accounting and financial information. Indeed, boards composed of competent and experienced members allow for more effective control over the financial accounting process and managerial decisions and this promotes, consequently, a more transparent disclosure without manipulations and discretionary adjustments (Raghunandan & Rama, 2007; Francis et al., 2008). Therefore, the higher the board tenure is, the lower are the risks and agency costs for shareholders and creditors (Anderson et al., 2004; Coles et al., 2008). This leads to the following research hypothesis:

H1.7: Board tenure has a negative effect on the costs of equity capital and debt.

2.1.8. Meeting frequency of the board and its audit committee

The frequency of board activity denotes the level of diligence and scrutiny exercised by the directors (Ghosh et al., 2010). In enhancing the quality of control exercised by the board and its audit committee over the managers and the financial accounting process, meeting frequency should allow for reducing costs of financing by reducing risk levels and agency costs faced by both shareholders and lenders. In fact, when the board and the committees meet more often, it is seen as a signal that governance mechanisms are performing their functions effectively and this reduces the risk of manipulation and discretionary adjustments of the information disclosed (Coles et al., 2008). Because audit committees need to be proactive and ask probing questions about financial reporting, committees meeting more frequently are likely to demand a higher quality of reporting from management and external auditors. This leads to the following research hypothesis:

H1.8: Meeting frequency of the board of directors and its audit committee has a negative effect on the costs of equity capital and debt.

2.1.9. Representation of women in the board

Improving disclosure transparency, boards with a strong representation of women should reduce financing costs by reducing the level of risk that shareholders and creditors assess before investing their money. Indeed, when women are represented in the board of directors, they seek to show other directors and stakeholders that they are also competent in the fulfillment of their duties, making the board more effective in terms of guaranteeing reliable information and an efficient control of the accounting and financial reporting process. This results in a lower uncertainty and risk premium that creditors and investors will require. Also, in addition to their experience and different points of view, women bring new knowledge and new contacts to the board of directors for which relationships are the greatest asset (Adams & Ferreira, 2009). This leads to the following research hypothesis:

H1.9: The representation of women in the board of directors has a negative effect on the costs of equity capital and debt.

2.1.10. Directors' ownership

According to agency theory, the percentage of capital held by the directors can constitute a sufficient incentive for exerting effective control over managers and also over the financial accounting process (Jensen & Meckling, 1976). Thus, independent shareholder directors are more responsive and effective in ensuring a more transparent disclosure that meets the requirements of creditors and investors (Cremers & Nair, 2005; Chen et al., 2009). Consequently, they will face reduced risks and limited agency costs, which should result in lower costs of financing both by equity capital and by debt. This leads to the following research hypothesis:

H1.10: The ownership of independent outside directors has a negative effect on the costs of equity capital and debt.

2.2. Board characteristics and governance indices

Recently, the dominant approach to evaluating the quality of a firm's corporate governance is to construct an index comprised of multiple dimensions of a firm's governance structure (Gompers et al., 2003; Brown & Caylor, 2006; Bebchuk et al., 2009). The corporate governance indices that are currently in use have been either developed by commercial

providers or self-constructed by academic researchers. These indices combine different attributes of the governance system so as to detect the overall quality of corporate governance. Although this evaluation approach to overall governance quality is expanding, some governance scholars still consider specific board characteristics to be the critical determinants of corporate governance quality (Bhagat & Bolton, 2008). To this end, our study sought to compare the effect of governance indices, both academic and commercial, with board characteristics in the detection of governance system quality and to compare the effects of each on companies' costs of financing.

2.2.1. Governance indices

In recent years, researchers and providers of governance services have created measures of corporate governance overall quality that collapse the multiple dimensions of a company's governance into one index(Bozec & Bozec, 2012).The governance indices have been either developed by commercial developers or self-constructed by academic researchers. These indices vary considerably with respect to which attributes of firms' corporate governance are considered sufficiently important to be included. The first indices were created and developed by academics and researchers. But the stream of governance research rapidly generated commercial indices that are designed primarily for institutional investors pursuing information about the quality of a firm's corporate governance system as an aid for portfolio decisions, and to firms that want to signal their governance quality to investors (Bebchuketal.,2009).The main difference between academic researchers and commercial providers in developing governance indices is based on the expertise of these providers and on the analytical approach to corporate governance (Bhagat et al., 2008).

First, the weights given to governance features in the commercial indices differ by feature from one to another and from one company to another. Indeed, commercial indices are generally based on a number of governance factors which are not equally weighted. For example, the weight assigned to the components of the ROB index (Report on Business developed by the Globe & Mail) is based on their correlations with the level of risk and past performance of the company. Furthermore, the scores for these indices and the weights of the items that compose them are also modified and updated to better reflect market trends in corporate governance. Thus, the weighting scale of commercial indices items can be significantly affected by the subjective judgment of analysts based on their experience and knowledge of the companies involved.

Moreover, commercial indices can be expressed in relative terms with each firm rated relative to industry or size peers (Bozec & Bozec, 2012). Indeed, the classification adopted by the commercial developers is linked to other firms in the same industry, the same market or the same region while academic indicators give absolute ratings of the quality of governance practices regardless of comparable companies. Thus, if the weight assigned to a particular governance feature is not consistent with those used by financial market participants in assessing corporate governance quality, incorrect inferences and conclusions will be drawn from empirical studies (Bhagat & Bolton, 2008).In addition, commercial indices generally do not give equal importance to the different attributes of the governance system. Indeed, we find that board characteristics are those most studied while other mechanisms are not included or are poorly weighted (Renders et al., 2010).On the other hand, academic indices are based on a smaller number of governance features that are directly targeted to the studied firms. The governance attributes they select are equally weighted, each taking the value one or zero (binary) to note the presence or absence of a governance practice. Academic indices are supposed to be less subjective than commercial indices. Indeed, they are based on a simple count of the value assigned to each governance feature and are usually expressed as absolute measures (Bozec & Bozec, 2012). When the indices are self-built, researchers have the opportunity to select the sample and the governance attributes that they consider relevant.

Thus, it appears that academic indices are less subjective than commercial indices and, therefore, we expected the academic indices developed by researchers to be more efficient than commercial indices in explaining variations in companies' costs of financing. This leads to our second general research hypothesis:

> **H2**: Academic governance indices perform better than commercial indices in the explanation of variations in companies' costs of financing.

2.2.2. Board characteristics versus governance indices

Although the dominant approach to assessing the quality of a firm's governance system recently is to construct an index including multiple dimensions of firms' governance structure, some governance scholars consider specific board characteristics to be the critical determinants of corporate governance(Brown & Caylor, 2006; Bebchuck et al., 2009).In fact, the board of directors occupies a central and privileged place in the corporate governance system through its role in the control and assurance of transparent disclosure to stakeholders (Ghosh et al., 2010). Corporate law provides the board of directors with the authority to make, or at least ratify, all

important firm decisions, including decisions about investment policy, management compensation policy, and board governance itself. Also, board characteristics are emphasized by the providers of commercial and academic indices over other governance features like the takeover-related governance factors, showing through this the importance of board characteristics in the effectiveness of the governance system. This raises the fundamental question of our research which is whether individual measures of board characteristics can be as effective as measures of corporate governance as indices that consider multiple features of the governance system and the board characteristics.

First, providers and developers of governance indices generally ignore any potential interactions between governance attributes in terms of complementary or substitution relationships. In fact, constructing governance indices by assigning positive weights to all the governance attributes might result in an inaccurate measure of the quality of a company's governance system. Good governance attributes are generally treated as complementary to the governance system when, in fact, they might be substitutes (Bozec & Bozec, 2012). Thus, if various governance attributes contained in the same index are substitutes, the quality of one governance attribute can compensate for the need for another governance dimension (compensatory effect).This substitution hypothesis is supported by a number of studies that have shown a negative relation between governance attributes and even between board of directors' characteristics (Gillan et al., 2007).

Second, if the substitution effect implies some governance attributes are captured by the index and others are not, cross-sectional differences in corporate governance practices can occur, but not necessarily differences in performance (Bebchuck et al., 2009). In any case, not taking into account possible interactions between governance dimensions could result in inaccurate measurement of the governance quality. In addition, the effect of possible substitution between the governance index and other provisions that are not included will inevitably exacerbate the problem of endogeneity (Bozec & Bozec, 2012).

Third, evaluating the quality of a firm's governance system from individual measures of board characteristics rather than a multi-factor index might also be justified on econometric grounds. The more numerous the governance attributes that must be identified in order to assess the quality of the governance system of the firm, the greater the possibility of error in recording the value of any component and therefore the greater the opportunity for errors in the assessment of the overall quality of the governance system (Bhagat & Bolton, 2008). In this context, the association analysis between the overall quality of the governance system and firm performance is often mis-specified with the use of the governance indices since they present a higher level of imprecision in the estimation of governance quality (Brown & Caylor, 2006; Bebchuck et al., 2009).

Finally, the construction of an index requires that all variables be weighted. The weights assigned by a commercial provider in particular to the individual board characteristics and other governance dimensions are very important (Core et al., 2006). Indeed, if the weights are not consistent with weights used by market participants in assessing the relationship between corporate governance and business performance, then erroneous conclusions will be drawn about the relationship between governance and performance, even if the governance index components are properly measured.

Thus, the use of multifactor indices, including different dimensions and characteristics of the corporate governance system instead of individual board characteristics, increases empirical problems associated with the measurement, the endogeneity, the optimization across governance choices and features and the eventual substitution relationship between the dimensions included (Bhagat et al., 2008). Therefore, the use of a single governance feature rather than the governance indices in evaluating corporate governance quality, promotes attenuation and mitigation of these problems. In this context, the board of directors, considered as the central mechanism of corporate governance, has recently received considerable attention. Indeed, the board is able to help to reduce the agency costs of the business and can control managers and executives. Board characteristics are considered attributes of its effectiveness and success in fulfilling its roles (Anderson et al., 2004; Brown & Caylor, 2006; Gouiaa & Zéghal, 2009). They represent the factors responsible for ensuring effective monitoring of important business decisions and supervising implemented management measures. Consequently, board characteristics may be excellent governance measures since they can be used instead of governance indices to assess overall corporate governance quality and therefore to analyze the effect on companies' costs of financing. This leads to our third and main research hypothesis:

> **H3**: Individual measures of board characteristics allow a better explanation of companies' costs of financing than corporate governance indices.

3. Research methodology

3.1. Sample description and data

To test our hypotheses, we analyze the 2010 annual reports of the Canadian companies belonging to the /TSX Composite index, representing the main stock index on the Canadian stock market (245 companies).Among the companies constituting the S&P/TSX Composite index, we eliminate the foreign

companies as well as the Canadian companies involved in the financial sector (banks, insurance, etc.). These companies have been excluded from the sample because accounting policies relative to this industry are very specific and quite different from those applicable to non-financial firms. This treatment is also justified by the fact that the restriction to non-financial firms increases the homogeneity of the sample and improves the robustness and comparability of our findings. In addition, the governance system of financial institutions is very specific and differs from that of non-financial firms (Macey & O'Hara, 2003). We also exclude the companies for which one of the variables was missing and the foreign companies belonging to the market index and subject to specific regulations, which reduces our final sample to 192of the companies listed on the Toronto stock exchange (TSX).

Data for this study were collected from different databases. On the one hand, stock information was collected from the TSE-CFMRC database (Toronto Stock Exchange - Canadian Financial Markets Research Centre) and from the financial section of the website http://ca. finance.yahoo.com / for the period of the study. On the other hand, accounting and financial data as well as analysts' forecasts were extracted from the Research Insight database (COMPUSTAT). In addition, we collected information regarding the two governance indices used in this research, GM Index (Globe & Mail) and BSC Index (Board Shareholder Confidence Index), from their respective websites. Finally, board characteristics data, as well as all non-available data at the above databases were collected manually from the companies' annual reports for 2010. These reports have been downloaded from the online database SEDAR (System for Electronic Document Analysis and Retrieval).

3.2. Measurement of variables

3.2.1. Costs of financing

*a. Cost of equity capital **(COST_EQ)**:*we use the ex-ante model of Easton (2004) to estimate the cost of equity capital. The model of Easton is based on the estimation of abnormal earnings defined as current earnings of the period plus profits of reinvested dividends of the previous period less the forecasted normal earnings based on the earnings of last period. This model assumes that abnormal earnings as defined persist in perpetuity. The choice of this model is justified on the one hand by its simplicity as it doesn't require a lot of data and secondly, by the superiority of methods based on the abnormal earnings growth in estimating the cost of equity capital particularly the PEG models (Price-Earnings Growth) compared to other ex-ante models estimating this cost of financing. Thus, the cost of equity capital is estimated through the following formula:

$$r_{PEG} = \sqrt{\frac{eps_2 - eps_1}{P_0}}.$$

In this model, eps_1corresponds to analysts' average forecast of earnings per share for the next year, $eps_2$is analysts' average forecast of earnings per share in two years, and $P_0$the share price at the end of the current year. In the context of estimating the ex-ante cost of equity in 2010, we use forecasts of earnings per share for 2011and2012taken from I/B/E/Sdatabase *(Institutional Brokers' Estimate System)* at the end of 2010.

*b. Cost of debt**(COST_DEB)**:*this dependent variable is estimated by the yield spread which is measured as the difference between the weighted-average yield to maturity on the firm's outstanding (non-provisional) publicly traded debt and the yield to maturity on a Treasury security with a corresponding duration, where the weight of each debt issue is the fraction of the amount outstanding for that issue divided by the total market value of all outstanding traded debt for the firm. The yield on a corporate debt security is defined as the discount rate that equates the present value of the future cash flows to the security price. This value is collected from the Research Insight database for 2010.

*c. Average cost of capital **(AVC_CAP)**:*this cost of capital is calculated by weighting the cost of different sources of financing by their ratios in the capital structure of the firm. The relative weights to each source of financing are evaluated based on book values.

3.2.2. Board characteristics

a. Board independence**(BRD_IND)**:following previous studies (Abbott et al., 2004; Peasnell et al., 2005; Zéghal et al., 2011), we measured the independence of the board of directors by the percentage of independent[8]external directors serving on the board.
b. Board size **(BRD_SIZE)**: in accordance with previous studies (Anderson et al., 2004: Coles et al., 2008), board size was measured by the number of directors serving in the board.
c. Separation of functions of CEO and chairman of the board**(DUAL)**: in accordance with previous studies (Beasley& Salterio, 2001; Peasnell et al., 2005), separation of the roles of CEO and Chairman of the Board was measured by a dummy variable that takes the value one if there is separation of functions and zero otherwise.

[8]A director is independent, according to the Canadian regulation (NI52-110 related to audit committee), if he or she has no direct or indirect material relationship with the issuer. A material relationship is a relationship which could, in the view of the issuer's board of directors, be reasonably expected to interfere with the exercise of a member's independent judgement.

d. Audit committee independence **(AUD_IND)**:this variable is measured by the percentage of the independent directors serving on the audit committee. This measure was used by several previous studies such as Anderson et al. (2004) and Ghosh et al. (2010).
e. Audit committee size **(AUD_SIZE)**: in accordance with previous studies (Peasnell et al., 2005; Leung & Horwitz, 2010), the size of the audit committee is measured by the number of directors serving on this committee.
f. Representation of financial institutions in the board **(REP_FI)**: following the previous study of Kroszner & Strahan (2001), we measured this variable by a dummy variable that equals one when there are representatives of financial institutions (banks, financial establishments or credit organizations) in the board of directors of the company and zero otherwise.
g. Board tenure **(BRD_TEN)**: this variable is measured by the average of the function duration of directors in the company's board of directors. It corresponds to the sum of the number of years that the directors serve on the board divided by the number of directors. This measure was used by Anderson et al. (2004) and Gouiaa & Zéghal (2009).
h. Meeting frequency of the board and its audit committee: in accordance with previous studies (Peasnell et al., 2005; Ghosh et al., 2010), the meeting frequency of the board of directors **(BRD_FRQ)** and the audit committee **(AUD_FRQ)**is measured by the number of board and audit committee meetings per year.
i. Representation of women in the board **(REP_WOM)**:we measured this variable by a dummy variable that equals one when there are women represented in the board of directors and zero otherwise. This measure was used in previous studies such as Adams & Ferreira (2009).
j. Ownership of independent directors **(IND_OWN)**: following previous studies (Cremers & Nair, 2005; Chen et al., 2009), we measured the ownership of independent directors by the percentage of capital owned by external independent directors serving on the board.

3.2.3. Governance indices

*a. G&M governance index **(GM_INDEX)**:* this commercial governance index focuses on different features of the board structure. It constitutes a part of a multifactor index, *Report On Business (ROB)*, and is developed by the Canadian newspaper, the Globe & Mail. GM_INDEX is a proxy to assess a corporate governance system and measure information transparency about governance practices. More precisely, this multifactor index includes four dimensions of corporate governance. The first dimension, board composition, (maximum of 31 marks out of 100), evaluates the independence of the directors serving on the board, the audit committee, the compensation committee and the remuneration committee. The second dimension evaluates compensation policy (maximum of 27 marks out of 100) and detects the ownership of directors and the CEO. The third dimension assesses shareholder rights (maximum of 30 marks out of 100). Finally, the fourth dimension measures the level and the quality of information on corporate governance (maximum of 12 marks out of 100).Since its publication in October 2002, this index has been used in several studies (Foerster & Huen, 2004; Ben Amar & Boujenoui, 2008).We focus initially on the sub-index (GM_INDEX) related to board composition as it evaluates the quality of this governance mechanism. Then, in an additional analysis, we use the overall index (ROB_INDEX) developed by G&M. The score of this index equals the sum of assigned values to each item of the index. A higher value of this index theoretically implies a strong governance system and an effective board complying with the rules and requirements of good governance.

*b. Board Shareholder Confidence Index **(BSC_INDEX)**:*this academic governance index has been developed since 2003 by the Clarkson Centre for Business Ethics and Board Effectiveness of the Joseph L. Rotman School of Management at the University of Toronto. This academic index provides an analysis of the quality of governance practices related to boards of directors of publicly traded Canadian companies listed on the S&P/TSX Composite Index. It has been used by several previous studies (Beekes et al., 2007; Switzer & Cao, 2011).The BSC Index is comprised of the factors often used by active shareholders to assess boards of directors. It captures factors affecting shareholders' confidence in the boards' abilities to fulfill their duties. Factors assessed by this index are related to the independence and ownership of directors, the structure and system of the board, and past board practices in terms of compensation and directors and CEO nomination. Each company is ranked between AAA (the highest value) and C (the lowest value) of each item of the index, with AAA representing the best corporate governance structure and C representing the other extreme. An overall score is given by the aggregation of scores for the eight dimensions evaluated separately. This overall score ranges from AAA+ (best governance quality) to C (lowest governance quality).

Inspired by the construction methodology of the BSC index and transformations wrought by Beekes et al. (2007) and Switzer& Cao (2011), we transformed the overall score ranging from C to AAA+ in a metric variable theoretically ranging between 20 and 100 in order to facilitate the analysis of this index. The final value of the BSC index, as core between C and AAA+ in the Clarkson system, is converted into a digital

value by adding the sum of allocated deductions for each item of the index to the raw score of 100. Thus, a higher value of this index reflects a better quality of the board.

3.2.4. Firms' characteristics

a. Firm size **(FIRM_SIZE)**:is measured by the natural logarithm of the book value of total assets. It was used by several studies (Chen et al., 2009; Zéghal et al., 2011).
b. Profitability **(ROA)**: following previous studies (Beekes et al., 2007; Leung & Horwitz, 2010), we measured firm profitability by the Return on Assets ratio which is equal to the earnings before interest and taxes (EBIT) divided by total assets.
c. Growth opportunities **(MB)**:in accordance with previous studies (Ben Amar & Boujenoui, 2008; Gouiaa &Zéghal, 2009), this variable is measured by the Market-to-Book ratio which is equal to the market capitalisation divided by the book value of equity.
d. Leverage **LEV)**: following the studies of Anderson et al. (2004) and Leung & Horwitz (2010), leverage is measured through the level of debt in the capital structure based on the book values, which correspond to the total financial debts divided by the total assets.
e. Volatility **(VOLAT)**:the level of firm risk is measured by the volatility of securities' return which is equal to the standard deviation of monthly stock returns. This measure was also used by Anderson et al. (2004) and Lambert et al. (2007).
f. Industry **(IND)**:to measure this variable, we used four dummy variables for the four main industries: **IND1** (Energy), **IND2** (Material), **IND3**(Manufacture) and **IND4** (Services). Each variable is measured by a dummy variable that equals one if the firm belongs to the specific industry and zero otherwise. This measure was used by several studies (Beeks & Brown, 2006; Ben Amar & Boujenoui, 2008; Leung & Horwitz, 2010).

3.3. Research models

In order to compare the effect of individual measures of board characteristics to complex indices assessing overall governance and board quality on the main costs of financing of Canadian companies (cost of equity capital, cost of debt and average cost of capital), we use the following model:

$$COST\_CP/COST\_DEB/AVC\_CAP=\beta_0 + \beta_1 BRD\_SIZE + \beta_2 BRD\_IND + \beta_3 SEP\_FCT + \beta_4 AUD\_SIZE + \beta_5 AUD\_IND + \beta_6 IND\_OWN + \beta_7 BRD\_FRQ + \beta_8 AUD\_FRQ + \beta_9 BRD\_TEN + \beta_{10} REP\_FI + \beta_{11} REP\_WOM + \beta_{12} FIRM\_SIZE + \beta_{13} ROA + \beta_{14} MB + \beta_{15} LEV + \beta_{16} VOLAT + \beta_{17} IND + \varepsilon$$

Then, we substitute board characteristics by the governance indices selected in our study to compare the explanatory power of these indices with respect to the individual measures of board characteristics in determining companies' costs of financing by equity capital, by debt, and the average cost of capital. For this we use the following model:

$$COST\_CP/COST\_DEB/AVC\_CAP=\beta_0 + \beta_1 GM\_INDEX / BSC\_INDEX + \beta_2 FIRM\_SIZE + \beta_3 ROA + \beta_4 MB + \beta_5 LEV + \beta_6 VOLAT + \beta_7 IND + \varepsilon$$

Owing to the fact that all the dependent variables are continuous and follow a normal distribution, we use multiple linear regression models to estimate these equations. However, the application of the linear regression model is subjected to several conditions.

3.3.1. Checking for the absence of heteroscedasticity

Given that the problem of autocorrelation of errors does not arise for individual data (cross-section analysis), we test the possible existence of a problem of heteroscedasticity of errors. Within this framework, we used the test of White. The results of this test show that there is no problem of heteroscedasticity in all the regression models used in our study.

3.3.2. Checking for the absence of multicollinearity between independent variables

To test for the absence of multicollinearity problems, we calculated the Pearson correlation coefficients between independent variables and we calculated the Variance Inflation Factor (VIF). An analysis of the correlations between independent variables shows that all the correlation coefficients are smaller than 0.8 which corresponds to the limit from which we would generally start to have serious multicollinearity problems. Moreover, tables2, 4 and 5 show that any VIF that is found does not exceed the limit of 3. This leads us to conclude that problematic multicollinearity is not present.

4. Results analysis

4.1. Descriptive Analysis

Descriptive statistics presented in the first part of table 1 related to continuous variables (Part A)indicate that the average cost of equity capital for Canadian companies is equal to 11%. These statistics reveal that this cost of financing varies between 1.3% and 29.9% showing significant differences between Canadian firms. These results also reveal differences in the cost of debt ranging between 0.1% and 69.5% with an average of 12.1%. We observe that the average cost of capital is equal to 11%.

These statistics also show that the average board size is approximately 9 directors (9.171) and varies between 4 and 16 directors. An examination of board composition reveals that on average 74.1% of board directors are independent in accordance with the Canadian NI 52-110, and own on average 1.50% of the company's stocks. Moreover, the average size of the audit committee is 4 directors (3.829). The average percentage of independent directors serving on the audit committee is 95.40%. Moreover, these results show that Canadian boards of directors meet at least two times and not more than 20 times with an average of 9.5 meetings per year and that audit committees meet 3 to 11 times with an average of five times per year. These results also reveal that the average board tenure is 7.726 years. As indicated in Part B of table 1, the dual structure in which the functions of CEO and chairman are not separated is the one most often adopted by Canadian companies (60.98%). These results also show that 56.10% of the companies studied have one or more representatives of financial institutions in their boards. Finally, these results indicate that women are represented in 54.88% of the boards of Canadian companies. These results indicate that despite efforts into encouraging the presence of women on boards, women are, in fact, not represented in almost half of Canada's largest companies. In addition, the descriptive analysis shows that the Canadian firms studied have an average debt level of 25.4% with an average level of risk, measured by the volatility of stock returns, of 110%.

Table 1. Descriptive statistics

Part A :ContinuousVariables

Variables	N	Mean	Median	S.D.	Min	Max
COST_EQ	192	0.110	0.107	0.054	0.013	0.299
COST_DEB	192	0.121	0.068	0.177	0.001	0.695
AVC_CAP	192	0.110	0.095	0.074	0.014	0.518
BRD_SIZE	192	9.171	9.000	2.372	4.000	16.000
BRD_IND	192	0.741	0.750	0.135	0.250	1.000
AUD_SIZE	192	3.829	4.000	0.940	3.000	6.000
AUD_IND	192	0.954	1.000	0.125	0.333	1.000
IND_OWN	192	0.015	0.003	0.041	0.000	0.266
BRD_FRQ	192	9.500	8.500	3.798	2.000	20.000
AUD_FRQ	192	5.366	5.000	1.568	3.000	11.000
BRD_TEN	192	7.726	7.236	3.606	1.000	17.867
FIRM_SIZE	192	3.463	3.417	0.533	2.469	4.613
ROA	192	2.173	3.161	5.615	-16.144	15.533
LEV	192	0.254	0.234	0.164	0.002	0.740
MB	192	2.156	1.833	2.634	-6.591	21.762
VOLAT	192	1.100	1.050	0.590	0.056	2.625
GM_INDEX	192	19.244	20.000	5.241	8.000	28.000
BSC_INDEX	192	67.573	69.500	12.894	38.000	90.000
ROB_INDEX	192	62.845	62.000	15.570	27.000	95.000

Part B :DummyVariables

SEP_FCT			
	Value	**Frequency**	**Percentage**
Separation of functions of CEO and chairman	1	75	39.02%
Duality of functions of CEO and chairman	0	117	60.98%
REP_FI			
No representation of financial institutions in the board	0	84	43.90%
Representation of financial institutions in the board	1	108	56.10%
REP_WOM			
No representation of women in the board	0	87	45.12%
Representation of women in the board	1	105	54.88%

4.2. Multivariate Analysis

4.2.1. Analysis of the effect of board characteristics on the costs of financing

The results of the regression models (table 2) examining the effect of board characteristics on the costs of financing show satisfactory explanatory powers with statistically significant Fisher coefficients. The values of adjusted R^2 indicate that 37.8% of the variation in the cost of equity, 28.9% of the variation in the cost of debt and 35.3% of the variation in the average cost of capital is explained by board characteristics and control variables. The results of this analysis show that board size, tenure and audit committee size have a negative and statistically significant impact on the cost of equity capital. These results also show that boards in which women and financial institutions are represented reduce this cost of financing. Moreover, our findings reveal that, on the one hand, firm size has a negative and statistically significant effect on the cost of equity capital but, on the other hand, debt level of the firm and the volatility of its stocks returns have a positive and significant impact on this cost of financing. Results analysis of the regression model studying the effect of board characteristics on the cost of debt (table 2) shows that larger boards, with greater ownership of independent directors, larger audit committees, experienced and competent directors and where financial institutions are represented allow for a reduction in companies' costs of debt. This analysis also shows that larger companies with lower leverage significantly benefit from lower costs of debt. Finally, the results of the regression model analyzing the effect of board characteristics on the average cost of capital show that larger boards composed of qualified and experienced directors and in which financial institutions are represented have a negative and significant effect on the average cost of capital. These results highlight the importance of board characteristics in general by showing that the more efficient and the stronger the board, the lower the costs of financing.

Table 2. The effect of board characteristics on costs of financing

Dependant variables : Costs of financing										
Variables	**Predicted sign**	***COST_EQ***			***COST_DEB***			***AVC_CAP***		
		Coef. β	**Sig.**	**VIF**	**Coef. β**	**Sig.**	**VIF**	**Coef. β**	**Sig.**	**VIF**
Intercept		0.016**	0.046	0.000	0.006**	0.020	0.000	0.027**	0.019	0.000
BRD_SIZE	-	**-0.082***	0.061	1.645	**-0.055***	0.075	1.516	**-0.134***	0.072	0.762
BRD_IND	-	-0.224	0.194	2.111	-0.015	0.918	0.743	-0.181	0.182	2.277
SEP_FCT	-	-0.037	0.763	2.100	-0.019	0.889	0.691	-0.064	0.612	0.583
AUD_SIZE	-	**-0.166****	0.027	0.740	**-0.267***	0.098	1.367	-0.213	0.166	1.592
AUD_IND	-	-0.156	0.287	1.445	-0.055	0.726	2.189	-0.132	0.378	1.413
IND_OWN	-	-0.059	0.196	0.891	**-0.199***	0.085	0.678	-0.104	0.386	1.058
BRD_FRQ	-	-0.119	0.330	1.723	-0.079	0.154	1.359	-0.017	0.295	2.250
AUD_FRQ	-	-0.078	0.150	2.219	-0.140	0.258	2.034	-0.076	0.519	1.405
BRD_TEN	-	**-0.088***	0.100	1.556	**-0.198****	0.015	1.839	**-0.239***	0.071	2.124
REP_FI	-	**-0.103****	0.042	2.078	**-0.135****	0.034	1.125	**-0.194***	0.088	0.796
REP_WOM	-	**-0.173***	0.068	0.539	-0.072	0.589	0.740	-0.065	0.161	1.541
FIRM_SIZE	-	**-0.156****	0.029	1.343	**-0.278***	0.083	1.739	**-0.229***	0.083	1.662
ROA	-	-0.027	0.823	1.891	0.028	0.134	2.179	0.023	0.265	1.466
MB	-	-0.149	0.193	1.315	-0.065	0.160	2.006	-0.016	0.894	0.846
LEV	+	**0.199***	0.092	0.679	**0.026***	0.085	1.769	**0.093***	0.086	0.954
VOLAT	+	**0.018***	0.084	0.790	0.066	0.191	2.028	**0.094****	0.042	1.324
IND1	+/-	0.054	0.378	1.127	-0.173	0.216	2.016	-0.074	0.401	1.191
IND2	+/-	0.148	0.308	2.199	0.015	0.922	1.251	0.049	0.174	0.751
IND3	+/-	0.171	0.163	1.710	0.015	0.926	1.220	**0.023***	0.088	1.402
IND4	+/-	-0.090	0.550	2.170	-0.163	0.314	0.499	-0.129	0.403	0.732
N = 192		**AdjustedR^2 = 0.378 F = 2.93*** **			**Adjusted R^2 = 0.289 F = 2.37*** **			**Adjusted R^2 = 0.353 F = 2.85*** **		

***: significant at 1% level **: significant at 5% level *: significant at 10% level

4.2.2. Analysis of the effect of governance indices on the costs of financing

With the aim of taking the results we found that related to the effect of individual measures of board characteristics and comparing them to other measures assessing the quality of this governance mechanism and particularly governance indices assessing the quality of the board in determining companies' costs of financing, we analyze the effect of two governance indices GM_INDEX and BSC_INDEX.

We start this analysis by examining the correlation between these two governance indices and the individual measures of board characteristics. The obtained results (table 3) show positive correlations between BSC_INDEX and all board characteristics. However, separation of functions, ownership of independent directors and board tenure are not positively correlated to the GM_INDEX. Our results (table 3) indicate that these correlations are statistically significant only for the characteristics related to board independence, tenure and audit committee size. All the other correlations between individual characteristics and the two studied indices are not statistically significant. These results show the limitations of these two indices, particularly the commercial index GM_INDEX, in the effective evaluation of the quality and attributes of the board of directors since they are significantly correlated to a reduced number of key features of this governance mechanism. In addition, our findings show the existence of a substitution relationship between board characteristics since they are not all positively and significantly correlated with the studied governance indices.

Table 3. Analysis of the correlations between governance indices and board characteristics

	BRD_SIZE	BRD_IND	SEP_FCT	AUD_SIZE	AUD_IND	IND_OWN	BRD_FRQ	AUD_FRQ	BRD_TEN	REP_FI	REP_WOM
GM_INDEX	0.117	0.209	-0.087	0.221	0.131	-0.028	0.069	0.156	-0.230	0.070	0.104
	(0.296)	(0.060)	(0.435)	(0.046)	(0.242)	(0.804)	(0.539)	(0.162)	(0.038)	(0.534)	(0.354)
BSC_INDEX	0.156	0.435	0.182	0.221	0.104	0.015	0.146	0.156	0.001	0.143	0.134
	(0.162)	(0.000)	(0.102)	(0.046)	(0.354)	(0.896)	(0.190)	(0.163)	(0.995)	(0.200)	(0.229)

In this analysis, we substitute board characteristics by governance indices analyzing the quality of the board in the regression models seeking to examine the effect of this governance mechanism on the costs of financing by equity capital, by debt and on the average cost of capital. The results of these regression models, shown in table 4, reveal the superiority of the individual measures of board characteristics in explaining the differences in Canadian companies' costs of financing.

On the one hand, the results of the regression models presented in table 4 reveal lower explanatory powers than those that incorporate board characteristics. These limited explanatory powers show the superiority of the individual measurements of board characteristics compared to synthesized commercial indices in explaining differences in the costs of financing. In addition, the coefficients associated with the governance index are not statistically significant and do not show signs consistent with the theoretical predictions in all models analyzing the impact of this index on the costs of financing by equity capital, by debt and on the average cost of capital. Therefore, our findings reveal that this commercial governance index does not detect the effect of the quality of the board of directors on the costs of financing of Canadian firms.

On the other hand, the regression models analyzing the effect of the academic governance index (BSC_INDEX) on the costs of financing (table 4) show that the explanatory powers of this index are greater than those provided by the commercial index (GM_INDEX). These results thereby confirm our second research hypothesis. However, these enhanced explanatory powers related to the academic index remain lower than those of the individual measurements of board characteristics showing once again the superiority of the individual measures compared to governance indices in the determination and the explanation of companies' costs of financing. Moreover, these results show that this measure of board efficiency has a negative and significant effect only on the average cost of capital. Indeed, our findings show a negative but insignificant effect of this governance index on the cost of equity capital and the cost of debt. In addition, the obtained results show that the effect of the volatility of firm's stock returns, respectively, on the cost of equity, the cost of debt and the average cost of capital is not significant using indices GM_INDEX and BSC_INDEX instead of the individual measures of board characteristics.

In conclusion, our findings reveal that the two studied governance indices cannot assess the effectiveness and the true quality of the board of directors and consequently do not explain variations in the companies' costs of financing. In addition to the low quality of these indices, these results can be explained by the substitution relationship between the different attributes and characteristics of the board of

directors and therefore limit the powers of governance indices.

Table 4. The effect of governance indices on the costs of financing

Dependant variables : Costs of financing																			
Variables	**Predicted sign**	***COST_EQ***						***COST_DEB***						***AVC_CAP***					
		Coef. B	**Sig.**	**VIF**	**Coef. B**	**Sig.**	**VIF**	**Coef. B**	**Sig.**	**VIF**	**Coef. B**	**Sig.**	**VIF**	**Coef. B**	**Sig.**	**VIF**	**Coef. B**	**Sig.**	**VIF**
Intercept		0.016**	0.029	0.000	0.014*	0.088	0.000	0.013**	0.025	0.000	0.026**	0.034	0.000	0.021*	0.065	0.000	0.019**	0.012	0.000
GM_INDEX	-	-0.026	0.198	1.572				0.059	0.261	0.989				0.007	0.159	1.505			
BSC_INDEX	-				-0.140	0.194	1.999				-0.010	0.134	0.563				**-0.054***	0.097	0.965
FIRM_SIZE	-	**-0.212*** **	0.010	2.006	**-0.258** **	0.031	1.026	**-0.260***	0.061	0.852	**-0.234***	0.067	0.983	**-0.248***	0.060	2.249	**-0.262** **	0.031	1.045
ROA	-	-0.034	0.771	1.505	-0.055	0.961	1.199	0.030	0.158	1.094	0.031	0.135	0.862	0.028	0.183	0.693	0.027	0.225	1.553
MB	-	-0.148	0.183	1.364	-0.175	0.121	1.174	**-0.032***	0.079	0.152	-0.030	0.180	1.547	-0.055	0.622	0.741	-0.065	0.566	0.834
LEV	+	**0.179***	0.090	2.134	**0.170***	0.074	1.948	**0.005****	0.027	0.097	**0.093***	0.099	2.177	**0.065***	0.096	0.705	**0.088***	0.094	1.671
VOLAT	+	0.021	0.141	0.911	0.017	0.202	0.481	0.067	0.175	2.236	0.064	0.653	1.222	**0.219****	0.012	1.956	**0.085***	0.061	1.489
IND1	+/-	0.076	0.279	0.594	0.091	0.182	1.645	-0.207	0.233	1.940	-0.104	0.309	1.098	-0.069	0.387	0.830	-0.056	0.372	0.734
IND2	+/-	0.174	0.179	1.554	0.148	0.255	1.617	0.081	0.556	1.461	0.082	0.557	1.325	0.048	0.178	2.193	0.068	0.209	1.028
IND3	+/-	0.064	0.644	0.742	0.012	0.936	1.833	0.023	0.988	1.861	0.003	0.984	1.817	0.058	0.110	0.772	**0.014***	0.093	2.096
IND4	+/-	-0.098	0.495	1.154	-0.127	0.378	1.349	-0.075	0.620	0.513	-0.076	0.623	1.009	-0.060	0.674	0.753	-0.071	0.624	0.706
N = 192		**Adjusted R^2 = 0.120 F = 2.07*** **			**Adjusted R^2 = 0.148 F = 2.15*** **			**Adjusted R^2 = 0.072 F = 1.37****			**Adjusted R^2 = 0.108 F = 1.69****			**Adjusted R^2 = 0.131 F = 2.01*** **			**Adjusted R^2 = 0.164 F = 2.34*** **		

***: significant at 1% level **: significant at 5% level *: significant at 10% level

4.2.3. Additional analysis: the effect of a multifactor governance index on the costs of financing

In this additional analysis, we substitute board characteristics by a commercial governance index evaluating various dimensions of corporate governance (ROB_INDEX) in three regression models seeking to examine the effect of the governance system on the cost of equity capital, the cost of debt and the average cost of capital. The results of the regression models analyzing the effect of this index on the costs of financing (table 5) show once again the superiority of the individual measures of board characteristics in explaining differences in the costs of financing of Canadian companies. Indeed, the explanatory powers generated by the use of this index are less important than those generated by using board characteristics and governance indices GM_INDEX and BSC_INDEX.

The insignificant effect of this multifactor governance index on the costs of financing of Canadian firms shows the limits of governance indices in the detection of the overall quality of the corporate governance system. These findings confirm the results of Gillan et al. (2007) showing the limitations of multi-dimensional indices in assessing the effectiveness and the quality of the governance system. The insignificant effect of this index can be explained by, among other things, the substitution relationship between the different governance dimensions that makes the index ineffective in detecting the effect of corporate governance on the costs of financing.

Table 5. The effect of multifactor governance index on the costs of financing

Dependant variables : Costs of financing										
Variables	**Predicted sign**	***COST_EQ***			***COST_DEB***			***AVC_CAP***		
		Coef. β	**Sig.**	**VIF**	**Coef. β**	**Sig.**	**VIF**	**Coef. β**	**Sig.**	**VIF**
Intercept		0.026**	0.047	0.000	0.075**	0.039	0.000	0.045**	0.046	0.000
ROB_INDEX	-	-0.019	0.363	2.084	-0.026	0.538	1.107	0.018	0.147	1.298
FIRM_SIZE	-	**-0.192****	0.048	1.929	**-0.193***	0.089	0.903	**-0.201***	0.079	1.763
ROA	-	-0.071	0.675	1.813	0.097	0.191	1.286	0.019	0.206	0.902
MB	-	-0.201	0.153	1.691	**-0.049***	0.081	0.398	**-0.051***	0.087	1.043
LEV	+	**0.156***	0.092	1.903	**0.015***	0.085	0.125	0.048	0.185	0.906
VOLAT	+	0.064	0.198	1.105	0.092	0.178	1.432	**0.183***	0.072	2.071
IND1	+/-	0.046	0.367	0.721	-0.175	0.306	1.409	-0.081	0.456	1.238
IND2	+/-	0.224	0.158	1.209	0.092	0.685	1.897	0.019	0.338	2.072
IND3	+/-	0.057	0.785	0.865	0.010	0.923	1.585	0.106	0.123	0.945
IND4	+/-	-0.090	0.417	1.309	-0.073	0.649	0.642	-0.069	0.795	0.628
N = 192		**Adjusted R^2 = 0.073 F = 1.27****			**Adjusted R^2 = 0.069 F = 1.32****			**Adjusted R^2 = 0.091 F = 1.47****		

***: significant at 1% level **: significant at 5% level *: significant at 10% level

5. Summary and Conclusion

In conclusion, the obtained results showed the importance of the effect of individual measures of board characteristics compared to governance indices on the costs of financing for Canadian companies. Indeed, our findings highlight the importance of board characteristics in general by showing that the more efficient the majority of these characteristics are, the lower the costs of financing by equity capital and by debt. Particularly, our results reveal the superiority of the individual measures of board's characteristics compared to synthesized governance indices measuring the quality of the board, in explaining the variations in the costs of financing for Canadian companies. We find that the studied governance indices cannot evaluate the quality of the board of directors and consequently do not explain effectively the variations in the costs of financing. In fact, the existence of a substitution relationship between the different characteristics of the board of directors limits the power of the governance indices in determining and explaining variations in costs of financing. We conclude that governance indices are highly imperfect and that investors and policymakers should exercise extreme caution in attempting to draw inferences regarding a firm's quality or future stock market performance from its ranking on any particular governance measure.

So, if investors have to make a choice between using a governance index and one governance dimension to predict performance from the quality of a firm's governance, they would do better to analyse the quality and the effectiveness of the board of directors through an evaluation of its characteristics. Our findings also reveal the power of board characteristics to assess governance quality and will encourage institutional investors to reduce or eliminate their need to use commercial services to measure a firm's governance quality.

Nonetheless, our study has a few limitations. First, we could not include all board and governance characteristics because the required data is not publicly available. Second, our results are based on a sample of 192 Canadian companies in 2010. Results from a larger sample using more recent data might provide additional insights. Finally, it would also be interesting to integrate the influence of the institutional environment differences in the explanation of the costs of financing of the companies through an international comparison.

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