

# GOVERNANCE STRUCTURE AND COST OF DEBT

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## Abstract

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The purpose of this paper is to examine if creditors take account of the firm's governance attributes to decide the cost of debt. Using a sample of 486 US firms over the period 1998-2017, we synthesized governance in six factorial axes. We have demonstrated that the quality audit (independence, frequency of meetings, auditor's reputation, there is a charter) and financial expertise (percentage of financial experts and ownership of institutional investors) are informative tools creditors that provide information on the quality and reliability of financial reporting. They affect negatively and significantly the cost of debt. Moreover, creditors appreciate the presence of independent directors on the board and reduce the cost of debt required. Furthermore, the independence of the nomination and compensation committees prove irrelevant attributes of governance perspective because creditors do not reduce their risk of the agency. However, the attributes of the board (the size, the number of meetings, the existence of specialized committees, and meetings) are misunderstood by creditors that will increase the interest rate. In addition, the cost of debt increases with the concentration of managerial ownership and majority shareholders. Similarly, attributes reflecting the managerial entrenchment (duality of CEO tenure) are positively correlated to the cost of debt.

**Keywords:** Cost of Debt, Creditors' Behavior, Governance Mechanisms, American Firms

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## 1. INTRODUCTION

Most research in the field of corporate governance has focused primarily on the role of governance in

influencing managers' decisions to the interest of shareholders and maximizing the value of the firm. This shareholder approach is sometimes incompatible with the interest of the other partners

of the firm, among others, the creditors. While creditors are interested in maximizing the value of the firm, nevertheless, shareholders and creditors often do not have convergent interests. In fact, managers can take advantage of the information advantage they hold at the expense of creditors and manage the results in order to send false signals on the financial situation of the firm and benefit from a lower cost of financing (Djama, 2003; Ahmad, Ahmed, & Badar, 2017; Shahid, Ahmad, & Badar, 2017; Ghouma, Ben-Nasr, & Yan, 2018; Pour & Lasfer, 2019; Lemennicier, Hermet, & Palanigounder, 2019).

Even more, shareholders/managers can take advantage of their freedom to manage the funds entrusted by creditors and increase the risks to creditors by adopting a sub-optimal investment policy in order to distribute dividends (Myers, 1977), engaging in riskier projects than the projects that triggered the credit agreement (asset substitution) and issuing future debt on more favorable terms. The creditors will then seek to protect themselves by adjusting the interest rate according to the risk incurred.

Several researchers have focused on the interests that governance must serve for the other partners of the firm (Hill & Jones, 1992; Charreaux & Desbrières, 1998; Kieschnick & Moussawi, 2018; Masmoudi & Makni, 2020). This involved putting in place governance mechanisms that could resolve conflicts of interest between different stakeholders and lead the manager to make decisions that were consistent with the interests of all partners (Khaldi, 2016). Creditors' confidence can be correlated with the expected effectiveness of effective governance. By controlling information risk, agency risk, and management of critical infrastructure, the latter may have to reduce the cost of debt required.

The subject of the perception of governance by creditors has attracted increasing interest from researchers in recent years. This is not surprising given that the debt market has become the most prominent external source of financing around the world.

Nevertheless, the results obtained are often mixed and inconclusive. Some researchers (Anderson, Mansi, & Reeb, 2004; Klock, Mansi, & Maxwell, 2005; Ertugrul & Hegde, 2008) demonstrate that good governance practices, such as the independence of directors, within the board of directors, improve the reliability of the accounting figures and reduce the various risks to creditors, which leads to a decrease in the cost of the debt. However, Bradley and Chen (2011) and Tanaka (2014) find that creditors attach no importance to the composition of the board of directors by setting the interest rate. As part of this research, we propose to examine the perception of corporate governance from the point of view of creditors by studying the impact of governance mechanisms on the cost of debt.

In the context of management of critical infrastructure, our study is an extension of the existing literature. Unlike previous studies that have been limited to the effect of certain governance aspects on the cost of debt, we will consider a wide range of governance variables. These variables relate to the characteristics of the board of directors, its

committees, the ownership structure, and the characteristics of the officer. To account for the interdependence between governance tools, we will use in our empirical study the categorical principal component analysis.

In addition, we will attempt to explain the differences in the assessment, if they exist, between the creditors and the shareholders on the governance mechanisms implemented by a company. Indeed, while good governance practices protect the interests of shareholders, the role of governance as a critical infrastructure risk-reducing tool for creditors is less clear. To do this, we will rely on a sample of 486 American firms extracted from Fortune 1000 over a period of 20 years (1998-2017).

This article includes 5 sections. The next section presents a literature review of studies relating to the relationship between governance and the cost of debt in the management of critical infrastructure. Section 3 is devoted to methodological aspects. In Section 4, we analyze and discuss the results. Section 5 concludes the paper.

## 2. LITERATURE REVIEW

The contractual relationship between the firm and its financial creditors implies a double critical infrastructure risk for the latter. First, the information risk resulting from a lack of information, or biased information to creditors. Moreover, managers can take advantage of information asymmetry and manage results in order to present a financial situation that is advantageous to creditors and benefit from a lower cost of financing (Djama, 2003; Wang, Zhou, & Xu, 2018).

Secondly, at the time of execution of the contract, the opportunism of the shareholders/leaders can be realized in various ways:

- issue debts or under-invest in order to distribute dividends;
- adopt a sub-optimal investment policy Myers (1977);
- increase the level of critical infrastructure risk borne by creditors by engaging in riskier projects than the projects that triggered the credit agreement (substitution of assets);
- Issue future debts on more favorable terms.

In order to hedge against these risks, creditors increase the interest rate and require collateral and covenants in the debt contract. On the other hand, the management of these risks can go through effective governance mechanisms that guarantee a better quality of the financial information and a constraint to the opportunistic behavior of the managers.

The involvement of governance attributes in the debt market has been addressed by some researchers. Anderson et al. (2004) indicate that creditors place importance on the firm's governance structure when granting credit. The authors focus on the role of the board of directors and suggest that the presence of independent directors is appreciated by creditors since these independents are responsible among other things for protecting the

interests of creditors by ensuring efficiency in the use of resource.

The authors also show that the cost of debt is inversely related to the existence of a large and independent audit committee. They conclude that these attributes, which reflect the quality of the audit and hence the reliability of the financial statements, are valued by the creditors as a source of assurance to the integrity of the accounting data.

Vaz Ferreira (2019) examines the constraints of corporate governance structures, in the case of cooperative banking. He tries to find the main factors that are the foundation of the exercise of corporate governance of cooperative banking, such as organizational performance, relations of trust on the part of customers and the community in overall, the image of the competition and to the regulator and the remuneration of the management team. Their empirical findings indicate the presence of a causative nexus among financial performance and corporate governance practices, particularly at the point of cooperative rights and at the point of link among clients, society, and fiscal council activity. Through the implementation of cooperative governance procedures, the nexus among the return of cooperators, and these procedures have not been established, the similar happened with the nexus among the remuneration of managers and the implementation of these procedures.

Musa, Salman, Amoo, and Subair (2020) examine the effect of enterprise-specific characteristics on audit fees of quoted consumer goods enterprises in Nigeria employing a purposive selection procedure. Resulting data were taken from yearly reports of the firms for the period from 2009 to 2016. The empirical findings from Breusch-Pagan Lagrange Multiplier Test (BP-LM) delivered a *chi-square* value of 13.94 plus a *p*-value of 0.0001 suggesting that pooled ordinary least squares (OLS) will not be suitable for the paper. The Hausman test demonstrated a *chi-square* of 23.55 together with a *p*-value of 0.001 suggesting that the null hypothesis is clearly rejected. Consequently, the single estimate from the fixed effect model was construed to clarify the nexus among company-specific characteristics and audit fees of quoted consumer goods companies in Nigeria. The empirical findings exposed that auditee size, auditee risk, auditee profitability, and IFRS implementation are the company-specific characteristics that influence on audit fees by only auditee size and IFRS implementation being positively connected to audit fees though the other issues are negatively connected to audit fees.

In the same vein, Mansi, Maxwell, and Miller (2004) examine whether the quality of audit influences the cost of bonds issued on the bond market. To do this, they apprehend two measures of audit quality, namely: the size of the audit committee and its seniority. They say that a large audit committee is appreciated by bondholders because it combines experiences and skills to detect more easily accounting manipulations. On the other hand, the authors find a positive association between the cost of bonds issued and the rotation of auditors.

For their part, Amir, Guan, and Livne (2010) examine the role of independent auditors in the debt

market before and after the promulgation of Sarbanes-Oxley law (SOX). Their results reveal that the cost of the debt is inversely related to the independence of the auditors over the two periods of the study. Above, this negative association is much more pronounced for the period following the promulgation of the SOX law. They conclude that the move to SOX has strengthened the independence of auditors as it has led them to become more involved in auditing and controlling managerial activities by preventing them from providing certain services that are not related to the audit.

Bradley and Chen (2011) find that the presence of independent directors negatively affects the cost of debt only when credit conditions are firm or at a low level of debt or when shareholder/creditor conflicts are not increased. However, the authors believe that these independent directors harm creditors when the interests of creditors and shareholders diverge. The independents act in the interest of the shareholders and put in place policies that increase the risk of asset substitution. This leads creditors to incur very high monitoring costs to control these administrators. Thus, the cost of debt increases with the independence of the directors.

In addition, Fields, Fraser, and Subrahmanyam (2012) draw an inverse relationship between the size of the board and the cost of debt, suggesting that it is difficult for managers to dominate a board made up of many directors. This finding is endorsed by Liu, Wang, Zhao, and Ahlstrom, (2013) in Taiwan.

Conversely, a non-significant relationship between the percentage of independent directors and the cost of debt is approved by Lorca, Sánchez-Ballesta, and García-Meca (2011) and Tanaka (2014) respectively in the Spanish and Japanese markets.

Some studies have verified whether the cost of debt depends on the ownership structure. In this context, Shuto and Kitagawa (2011) show that managerial property is positively associated with the interest rate of bonds issued. Indeed, leaders, who have opportunistic ends to expropriate minority shareholders and creditors, tend to increase debt in order to invest in specific projects that suit their personal interests and extract private profits from control. Having anticipated this behavior, creditors impose a higher cost of debt.

Tee (2019) investigates whether the nexus among politically connected firms and the cost of debt is moderated by board attributes such as audit committee freedom, ethnic board variety, gender board diversity, and family managing ownership. Tee (2019) finds that politically connected firms are associated with a lower cost of debt, consistent with the crony capitalism theory. Additionally, board characteristics are demonstrated to have a significant moderating impact on the association among politically connected firms and the cost of debt. Specifically, the cost of debt in politically connected firms can be further decreased, provided the boards have greater audit committee autonomy, are ethnically diverse, have a higher proportion of female directors in the board, and audit commission and are regulated by family shareholders.

Wahyuni (2019) develops a study to discover out how much impact excellent corporate governance has in proxy and firm size of the cost of debt. Wahyuni (2019) uses a sample composed of manufacturing sector company for the period of study from 2016 to 2017. He employs a data analysis technique with multiple linear regression. His empirical results find that managerial ownership and the number of audit committees had a significant impact on the cost of debt. However, institutional ownership, the proportion of independent commissioners, and company size did not significantly affect the cost of debt

For Bhojraj and Sengupta (2003), Ashbaugh, Collins, and LaFond (2006), Bradley and Chen (2011), Gupta, Krishnamurti, and Tourani-Rad (2018) and Kinyuira (2019), the concentration of ownership in the hands of shareholders does not protect the interests of creditors but rather those of the majority shareholders. In this sense, the holders of blocks of shares will follow opportunistic objectives to the detriment of the other stakeholders, in addition, the payment of special dividends and the perception of benefits deprived of control.

The effect of institutional investor ownership on the cost of debt has been widely discussed in the financial literature (Klock et al., 2005; Shuto & Kitagawa, 2011; Aman & Nguyen, 2013; Diallo, 2017; Rahman & Yufei, 2019). These studies agree on the importance of these partners to ensure careful monitoring and control of the managerial activities. They conclude that creditors appreciate the increase in institutional ownership and lower the cost of debt.

On the other hand, Sanchez-Ballesta and García-Meca (2011) find that ownership of majority shareholders, institutional ownership, and managerial ownership do not have a significant influence on the cost of debt.

In view of the above discussions, we can consider that the creditors, not very involved in the supervisory bodies, attach importance to certain attributes of governance. They appreciate some aspects of governance and penalize others. By projecting ourselves on the corollary of these

observations, we foresee that corporate governance can be useful for creditors if it aims to maximize the partnership value of the firm, provide reliable and credible financial statements and provide information on the true financial situation of the firm. Alternatively, the creditors penalize the attributes of governance that favor managerial rooting or that privileges the interests of the shareholders to the detriment of their interest.

The assumption we retain is the following:

*H1: Governance mechanisms have a significant impact on the cost of debt.*

### 3. RESEARCH METHODOLOGY

We present in the following our sample as well as the methodological aspects adopted to test our hypothesis.

#### 3.1. Data

The sample is made up of 486 U.S.-listed companies from Fortune 1000 operating in different sectors. We excluded financial sector firms (SIC 6000-6999) with specific accounting and presentation techniques. The study period runs from 1998 to 2017. The choice of this period is based on two issues: 1) the availability of data on this period of study and 2) this period contains some special events such as the internet crisis in 2000, a subprime crisis in 2007, and financial and economic crisis on 2012. The EdgarScan site is our fundamental source of accounting data collection. These data are extracted directly from the quarterly reports of firms and their annual reports. Governance data is manually collected from the proxy reports available on the Securities and Exchange Commission (SEC) files. The sectoral distribution of our sample is shown in Table 1.

We note that the activities of the companies in our sample are quite diversified. Indeed, 28.19% of companies operate in the technology sector, nearly 20% in the industry sector, and almost 21% in the commercial sector.

**Table 1.** Distribution of the sample by sector

<i>Sector</i>	<i>SIC Code</i>	<i>Firm number</i>	<i>%</i>
Sector of mine and construction	1000-1999	32	6.58%
Industrial goods sectors	2000-2799	94	19.34%
Technology sector	2800-3999	137	28.19%
Transport and communication sector	4000-4899	66	13.58%
Wholesale and retail sales sector	5000-5999	102	20.98%
Service sector	7000-8999	55	11.31%
Total		486	100%

Table 2. List of governance variables

<i>Variables</i>	<i>Definitions</i>	<i>Measures</i>
<i>The variables relating to the characteristics of the board of directors</i>		
TAILCA	The size of the board	The natural logarithm of the total number of administrators
ADMINEXTERNE	The composition of the board of directors	The percentage of external directors on the board
REUCA	The activity of the council	The natural logarithm of the number of council meetings per year
DUALI	Duality	Binary variable: = 1 if CEO is also chairman of the board and 0 if no
NOMI	The existence of a nomination committee	Binary variable: = 1 if there is a nominating committee and 0 if no
REMUNER	The existence of a remuneration committee	Binary variable: = 1 if there is a compensation committee and 0 if no
CEONOMI	The presence of the CEO on the nomination committee	Binary variable: = 1 SI CEO present and 0 if no
CEOREMUN	The presence of the CEO on the remuneration committee	Binary variable: = 1 SI CEO present and 0 if no
REUNOM	The number of nominating committee meetings	The natural logarithm of the number of nominating committee meetings per year
REUCOMP	The number of meetings of the remuneration committee	The natural logarithm of the number of meetings of the remuneration committee per year
<i>The variables relating to the characteristics of audit structures</i>		
TAILAUD	The size of the audit committee	The natural logarithm of the total number of auditors on the audit committee
INDPAUD	The independence of the audit committee	The percentage of independents on the audit committee
EXPFIN	The competence of the audit committee	The percentage of financial experts in the audit committee
REUAUD	The activity of the audit committee	The natural logarithm of the number of meetings of the audit committee per year
CHART	The charter of the audit committee	Binary variable: = 1 if the firm has a formal charter at the committee level and 0 if no
BIG4	The reputation of the audit committee	Binary variable: = 1 if the firm is audited by one of the Big 4 and 0 if not
CHANGAUD	The change of the listener	Binary variable: = 1 if the outgoing listener is one of the Big 4 and 0 if not
PMANG	Managerial property	The percentage of shares held by the managers and directors of the firm
PACTIMAJ	Ownership of majority shareholders	Ownership of shareholders holding more than 5% of the capital of the firm
PINSTITU	Ownership of institutional investors	The percentage of shares held by institutional investors
BONUS	Incentive compensation in the form of a bonus	The natural logarithm of the annual bonus granted to executives
STOCKOPTION	Incentive compensation in the form of stock options	The natural logarithm of the value of options held by the CEO
AGECEO	The age of the CEO	The natural logarithm of the CEO's age
TENURE	Seniority in the function of the CEO	The natural logarithm of the number of years spent by the CEO in this position

Notes: COE – Chief Executive Officer; SOX – Sarbanes & Oxley; SIC – Standard Industrial Classification; PCA – Principal components analysis; CD – Cost of debt.

### 3.2. Econometric approach

To validate our hypothesis, we will estimate the following multiple linear models:

$$CE_{i,t} = \alpha_0 + \sum_i \beta_i * governance\_axes_{i,t} + \sum_j \gamma_j * control\_variables_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$i = (1, \dots, 486); t = (1, \dots, 20)$$

#### *The dependent variable*

CE refers to the dependent variable of this model namely the cost of the debt. It is measured by the amount of interest expense relative to the total amount of the financial liability.

#### *The variable interest*

Interest variables are the governance attributes that reflect the quality of the firm's governance system. Table 2 lists the governance variables used, their definitions, their ratings, and their measures.

We record the existence of 24 variables that determine the effectiveness of the governance system. It seems to us that it is not appropriate to bring this battery of variables into a single equation. Since we are conducting our study on quantitative

and qualitative variables, we will use categorical principal component analysis. After identifying specific governance mechanisms, the axes will be introduced as explanatory variables of the model.

#### *Control variables*

The control variables selected are those that are considered by the financial literature to be factors likely to influence the judgment of lenders as to the interest rate of loan agreements (Ashbaugh et al., 2006; Lehrbass, 2017). These factors relate to the credit risk determinants and the characteristics of the firm.

- *The size of the firm:* Sengupta (1998) predicts that large firms incur relatively low debt costs relative to small firms as large firms tend to

be the most diversified and therefore least exposed to the risk of bankruptcy. Klock et al. (2004) share this finding and argue that large firms are characterized by high stability and opted for economies of scale. We anticipate an inverse relationship between the cost of debt and the size of the company. The size of the firm is measured by the natural logarithm of total assets.

- *Debt:* Several researchers show that excessively high debt leads to increased financial risk (Kim, 1978, Leland, 1998). Once the debt is no longer in control, the firm may go bankrupt. The creditors require a high-risk premium when the firm is heavily indebted and this to guard against the risk of non-repayment of their debt. We expect a positive relationship between the debt ratio and the cost of debt. The debt ratio (END) is apprehended by the amount of the total debt relative to the total assets.

- *Operational risk:* DeAngelo and Masulis (1980) argue that profit volatility increases the company's critical infrastructure risk of bankruptcy. They add that investors find it difficult to predict the future earnings of a firm with high variability in earnings. In this case, the market will impose severe restrictions on the firm and require a higher premium to agree to provide funds. We adopt Burgman's (1996) measure, namely the change in earnings before interest and taxes, reported by the average earnings before interest and taxes.

The average earnings before interest and taxes is calculated over a long period (RISK).

- *The dividends:* Loan agreement clauses generally limit the payment of dividends to shareholders to the extent that the payment of dividends can be financed by a reduction in investments or by a debt issue. As a result, paying dividends reduces the value of the debt by reducing the expected future value of the firm's assets. We anticipate a positive relationship between the level of dividends and the cost of debt. Dividends (DIVID) are defined in our study by the ratio: Dividends/Net Profit.

#### 4. RESEARCH RESULTS

We present in a first subsection descriptive statistics of the cost of debt and attributes of governance. We expose in a second subsection the results of the multi-varied analysis and we comment on our results.

##### 4.1. Descriptive statistics

Table 3 and Table 4 summarize the descriptive statistics of the cost of debt and the governance mechanisms of our sample.

**Table 3.** Descriptive statistics of the cost of debt and digital governance variables

<i>Variables</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
Cost of debt	0.078	0.048	0.011	0.270
Managerial property	0.143	0.171	0.000	0.980
Ownership of majority shareholders	0.158	0.145	0.000	0.950
Institutional property	0.252	0.148	0.000	1.000
Size of the board	9.470	2.932	2.000	22.000
Percentage of independents in the board of directors	0.728	0.229	0.000	1.000
Meetings of the board of directors	6.760	2.730	1.000	26.000
Percentage of self-employed in the audit committee	0.961	0.124	0.000	1.000
Percentage of financial experts on the audit committee	0.276	0.2675	0.000	0.7892
Audit committee meetings	4.440	2.850	1.000	28.000
Compensation committee meetings	1.290	1.970	1.000	24.000
Nominating committee meetings	3.840	2.550	1.000	36.000
The age of the CEO	52.660	7.930	26.000	79.000
Seniority in the position of CEO	8.670	8.070	0.000	45.000
Bonus	685 822	1 301 228	0.000	43 511 534
Stock options	13 303 317	52 239 256	0.000	1 206 083 750
Percentage of self-employed in the audit committee	0.961	0.124	0.000	1.000

**Table 4.** Frequencies relating to nominal governance variables

<i>Variables</i>	<i>Modality</i>	<i>Frequency in %</i>
Duality	0 1	29.4
	0 1	70.6
Charter of ethics	0 1	49.5
	0 1	50.5
Big 4	0 1	10.9
	0 1	89.1
Nominating committee	0 1	49.5
	0 1	50.5
CEO in the nomination committee	0 1	91.9
	0 1	8.1
Compensation committee	0 1	3.8
	0 1	96.2
CEO in the Compensation committee	0 1	96.0
	0 1	4.0
Change of auditor	0 1	98
	0 1	2

Descriptive statistics reveal that the cost of debt ranges from 1.11% to 27% with a relatively high average cost of debt of 7.77%. The firms in our

sample have large boards of directors with an average of about 10 directors. This average is relatively high compared to the size considered

optimal by previous research and varies between 5 and 9 members. These directors appear to be well independent and motivated with a presence of 72.84% of independent directors. The board of directors meets on average 7 times a year. This goes hand in hand with codes of good governance practices that recommend that a board of directors must have at least four meetings to allow for better communication between directors and officers.

However, the effectiveness of the control exercised by the board of directors appears to be offset by the concentration of power of the CEO. In fact, the latter chairs the board of directors in 71% of the firms in our sample. All companies in our sample have audit committees that meet on average 4 times a year. A very active audit committee is likely to enhance the effectiveness of the control exercised by the board of directors. These committees have an average of 4 members and are dominated by independents (96.13%). This goes hand in hand with the recommendations of the Blue-Ribbon Committee (1999) and the Sarbanes-Oxley Act (2002) which advocates at least 3 members on the committee and the independence of all auditors to ensure the effectiveness of the development process of financial statements. On average, 27.63% of the auditors have financial expertise and almost 90% of these committees use the Big 4 audit firms. Virtually all businesses in our sample (98%) give up a change from their "Big 4" auditor to one that does not belong to these large audit firms. Using a reputable firm to certify financial statements, managers are willing to disclose reliable information. Regarding the compensation committee, almost all the companies in our sample (96%) have compensation committees. The CEO is a member of only 4% of these committees. This finding reflects strict regulation adopted by the Securities and Exchange Commission (SEC) which opts for the independence of this committee in the development of its missions. Half of the boards' delegate appointment responsibilities to a

committee. The CEO is present in 8% of the nominating committees that exist.

We note that the presence of the CEO in nominating and clearing committees is virtually nil during the years 2004, 2005, 2006, 2007, and 2008. This is due to the restrictions imposed by the SOX law which aims at the independence of the board of director's administration and its committees. However, nomination and remuneration committees meet between two and three times a year. This lack of meetings can lead to inefficient control. We note that the companies in our sample provide relatively high cash compensation in the form of bonuses and options to their executives to encourage them to maximize the performance of the firm. Regarding the ownership structure, managers and administrators hold an average of 14.27%. Ownership of institutional investors is concentrated (25.47%) while non-institutional majority shareholders hold an average of 15.84% of the company's shares. This explains why institutional investors are becoming more important in the capital of U.S. companies given the quality of their control compared to other types of shareholders. Finally, we note that the average firm leader in our sample is 52 years old and has been the CEO for 8 years.

**4.2. The results varied multi-model**

*4.2.1. Identification of the factor axes*

It is a bonus onboard to identify axes representing harmonious criteria of governance. The determination of the axes is based on the correlations between the variables and the selected axes. In general, we retain the axes if the total eigenvalue is greater than 1. Furthermore, we only consider correlations that are greater than 0.4 for the variable to be retained at an axis. Table 5 shows the eigenvalues and the explained variance of the axes constructed by adopting the categorical principal components analysis (PCA).

**Table 5.** Eigenvalues and explained variance of selected axes

<i>Dimension</i>	<i>Eigenvalue</i>	<i>% of the explained variance</i>
1	2.826	18.837
2	1.679	11.193
3	1.481	9.872
4	1.350	9.001
5	1.133	7.555
6	1.028	6.852
Total	9.497	63.310

We select six factorial axes that explain 63.31% of the variance. The first axis explains the majority of variance with 18.84%, the second and the third axis are respectively 11.19% and 9.87% of the variance while the fourth axis and the fifth axis

reproduce 9% and 7.56% of the variance. The last axis shows 6.85% of the variance. Table 6 shows the correlations between the factorial axes and initial governance variables.

**Table 6.** Correlations between the attributes of governance and the selected axis

	<i>Dimension</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Duality	0.139	0.502	-0.055	-0.180	-0.229	0.113
Existence of a charter	0.196	-0.075	0.414	0.362	0.316	-0.071
The listener is a Big 4	0.149	0.297	0.435	0.169	0.139	0.350
Existence of a nominating committee	0.474	0.284	-0.331	0.313	-0.193	-0.171
Presence of the CEO on the nomination committee	-0.011	-0.208	-0.362	0.313	-0.417	-0.029
Existence of a remuneration committee	0.476	0.003	-0.124	0.083	0.214	0.163
Presence of the CEO on the remuneration committee	-0.224	-0.179	-0.177	-0.010	-0.409	0.171
The number of years of seniority of the CEO	-0.242	0.515	0.084	-0.114	-0.319	0.372
Bonus	0.215	0.390	-0.084	-0.124	0.165	0.113
The value of the options	0.111	0.186	-0.008	-0.114	-0.172	0.428
Ownership of majority shareholders	-0.371	-0.194	0.061	0.329	0.130	0.542
Institutional property	-0.128	-0.497	-0.100	0.459	0.285	-0.172
Managerial property	-0.148	0.482	0.049	-0.026	-0.114	0.427
Board size	0.517	-0.223	-0.467	-0.400	0.190	0.098
Composition of the council	0.258	0.162	0.463	0.046	-0.214	0.083
Council meetings	0.753	-0.294	-0.115	0.117	-0.255	0.129
Nominating committee meetings	0.548	0.107	0.096	-0.339	0.354	0.092
Compensation committee meetings	0.593	-0.080	0.040	0.049	0.093	-0.048
Size of the audit committee	0.517	-0.193	0.092	-0.377	0.169	0.167
Proportion of independents in the audit committee	-0.028	-0.001	0.487	0.010	-0.136	-0.085
Proportion of experts in the audit committee	0.235	0.217	-0.008	0.438	0.109	-0.127
Audit committee meetings	-0.015	-0.294	0.463	0.117	-0.255	0.129

*Axis 1: Effectiveness of committees within the board of directors*

This theme highlights 7 variables that are positively correlated and strengthen the effectiveness of the board in the exercise of its functions. These variables are the existence of both nomination and compensation committees, the frequency of their meeting, the size of the board, the number of meeting in the board, and the size of the audit committee. Indeed, the existence of a nomination committee that meets frequently, prevents any agreement between the directors and officers against the interests of shareholders as an indirect way evaluates the performance of the board and monitors the performance of directors. Similarly, the existence of a compensation committee and the frequency of its meetings reinforce the objectivity of the compensation structure attributed to the leader. A wide board is difficult to influence by the executive. Similarly, a large audit committee comes to violate the exercise of managerial discretion as it combines the skills and experiences. More frequent meetings of the board reflect the diligence and responsibility of these members.

*Axis 2: Rooting and managerial power*

The variables collected in this axis are the duality, the number of years of the CEO, and the managerial ownership, highlight rooting and managerial power. Even by increasing their share capital, the leaders still have significantly different financial incentives to those creditors. They can act in their interest or in the interest of shareholders by investing in risky projects, invest in, or extract private benefits of control over the interests of the creditors. The CEO may, by seniority, influence the decisions of the board and/or expropriate wealth from creditors by investing in specific projects and draw pensions. The dual structure strengthens the managerial discretion. The manager will escape all control and alter the effectiveness and impartiality of the board. This axis is negatively correlated with the ownership of institutional investors who provide

meticulous and strict control over the activities of the leader.

*Axis 3: Efficiency and quality control*

This axis meets three essential characteristics for an audit committee, effectively fulfills its role, namely the presence of independent members of the audit committee, the number of meetings, and the existence of a charter. It is also positively correlated with the presence of Big 4 and with the presence of independent directors on the board. It thus reflects a high level of control and audit of financial statements.

The independent auditors are more willing to provide reliable information and to reveal any abnormalities as they are concerned about their reputation. This corroborates the requirements of SOX, which advocates full independence of the audit committee. The careful control of the audit committee is strengthened by the frequency of meetings. Certainly, an audit committee that meets continuously transmits more reliable information as it can instantly discover fraud attempts. On the other hand, the charter provides guidelines to the auditors, which significantly reduces accounting manipulation attempts.

In addition, the quality of financial reporting improves when financial statements are certified by international firms. Overall, they have the reputation and technical skills to provide audit services for differentiated quality; signature should have a stimulating effect on the reliability and relevance of the accounting figures the presence of independent directors on the board is a guarantee of efficiency for creditors. These directors, to preserve their non-diversifiable human capital play a role of arbitrator and mediator between shareholders, managers, and creditors to maximize stakeholder value, share organizational rent and limit the transfer of wealth from creditors to shareholders

In the opposite direction of the axis include the size of the board. Indeed, the multitude of opinions is not always a good signal but creates difficulties in the coordination which does not exercise effective control.



*Axis 4: Financial expertise*

The fourth axis contains two variables that reflect the competence of financial institutions to know the percentage of financial experts on the audit committee and ownership of institutional investors. Indeed, the sophistication in finance and accounting is a source of assurance to the reliability and integrity of the financial statements since it allows detection of anomalies in the accounts of the company the same institutional investors generally have a significant capacity of expertise and analysis of information in relation to other individual investors. They are more involved in the control of managerial activities and are more willing to bear control costs to protect their heritage. Indeed, their expertise, their resources, and their access to information at a lower cost than individual shareholders will enable them to effectively control management.

*Axis 5: Objectivity committees within the board*

In the opposite direction of this axis, we find two variables that enhance managerial power namely the presence of the CEO in the nomination committee and the presence of the CEO in the remuneration committee. A leader who is directly involved in the selection of new directors to impair the objectivity of this committee. It promotes understanding between the directors and officers may be to the detriment of the interests of the other partners

The standby remuneration committee meanwhile the ongoing development of leaders and shall on behalf of the board for the establishment of the executive compensation structure. However, the probability that the leader of the remuneration is excessive increases if it is a member of this committee since it can manage its own reward as he wishes.

*Axis 6: Ownership concentration and expropriation*

This axis is positively correlated with the managerial ownership and ownership of the majority shareholders According to the agency theory (Jensen & Meckling, 1976), significant managerial ownership aligns the interests of executives with those of shareholders. However, the convergence of interests of both partners could harm other stakeholders since the leaders may have business relationships with the majority shareholders against the interests of minority shareholders and creditors. In this sense, managers and controlling shareholders may monopolize the bulk of discretionary spending, to expropriate minority shareholders and creditors and to extract private benefits of control.

Moreover, this axis is positively associated with the value of options. Indeed, a CEO holds a significant share of the company's capital will have incentives to manage earnings upward to increase yields of its shares or to exercise options.

*4.2.2. Results analysis*

The estimation results model testing the effect of governance mechanisms on the cost of debt are presented in Table 7. The value of *Adjusted R-square* is 82.99% and the *R-square* of the model is 85.64.91%. This means that 85.64% of the variations in the dependent variable (*PF*) are explained by the regression model. The Fisher statistic has a *p*-value equal to 0.0000; the model is therefore statistically significant. Based on the results shown in Table 7 we note that although the probability of a Hausman test is equal to (0.0002). This probability is less than 10%, so we chose the fixed effects model.

**Table 7.** Results of testing the model estimate the impact of governance axes on the cost of debt

<i>Dependent variable: CD</i>			
<i>Explicative variables</i>	<i>Coefficient</i>	<i>Z</i>	<i>Prob. &gt; Z</i>
Efficiency of the council	0.00094	2.59	0.0051*
Rooting	0.00167	3.51	0.000*
Quality of control	-0.0021	-4.29	0.000*
Financial expertise	-0.00331	-2.82	0.005*
Objectivity	-0.001	-0.25	0.799
Expropriation	0.01780	2.85	0.004*
Risk	0.00191	4.22	0.000*
Divid.	0.00876	0.76	0.446
End	0.03508	10.74	0.000*
Size	-0.00343	-8.46	0.000*
Constant	0.15300	17.41	0.000*
R-square		0.8564	
Adjusted R-square		0.8299	
F-statistics		9.256	
Prob. (F-statistics)		0.0000	
Hausman test: P > chi <sup>2</sup>		0.0002	
Obs.		9720	

Notes: Value significant in a threshold of: (\*) 1%, (\*\*) 5% and (\*\*\*) 10%. The statistic Z indicates the student value. Prob. > Z indicates the probability of significance.

The released results show that the effectiveness of the board expressed its size, the number of its committees, and the frequency of meetings positively and significantly affects the cost of debt. Apparently, these attributes do not present an effective monitoring tool to guide management decisions towards meeting the interests of creditors.

Creditors, therefore, consider a wide board is not a sufficient condition to maintain their interest. The latter may approve too risky investment projects to satisfy shareholders. As a result, creditors incur high costs in order to control many administrators. To offset these costs, they will override the interest rate charged.

In addition, the presence of the nomination and compensation is not enough to guarantee the creditors' solvency of the firm. Indeed, if the leader is involved in these committees. Creditors fear being expropriated and are not encouraged to give more credence.

The frequency of meetings is irrelevant to the creditors if it is not designed to effectively oversee the managerial actions which challenge the content of these meetings for creditors.

The estimates also reveal that the association between the axis which refers to managerial entrenchment and the cost of debt is positive. Indeed, the concentration of power in the hands of the CEO due to the increase of his property and his seniority gives him broad authority over the affairs of the company. Anticipating this opportunistic behavior, creditors penalize these companies significantly increasing their risk premium.

In addition, the dual structure of leadership is badly perceived by creditors. Indeed, it exacerbates the risk of asset substitution and underinvestment suffered by creditors as the impartiality of the board and its independence are not guaranteed.

Our results reveal the existence of an inverse relationship between the third axis and the cost of debt. We conclude that the quality of supervision provided by the audit committee through the independence of its members, the existence of a charter, and the frequency of its meetings are enjoyed by creditors. These findings strongly support the recommendations of the SOX and the SEC proposals and the markets on NYSE and NASDAQ on auditor independence. Indeed, the independent auditors are more conservative and rigorous with respect to financial statements and voluntarily reveal anomalies in case of discovery. They consider that the company has a big responsibility not only towards shareholders but also for other stakeholders. This goes with the interests of creditors who opt more toward conformism rather than carrying flexibility. Unlike investors, creditors are fixed income. In this sense, they will receive no additional compensation if the value of the asset exceeds the nominal value of the loan; however, creditors may lose their investment if not.

Decidedly, creditors reward firms audited by a Big 4 through a lower debt cost. Indeed, a Big 4, reputation requires, tends to be more conservative and precise and rigid rigorous accounting policy and slows the carrying flexibility even informational reason. This behavior is appreciated by creditors who are more interested in the survival of the company and its future growth prospects. This concern for absolute compliance with accounting standards is a guarantee that the company's resources are maintained to meet commitments to creditors.

Moreover, the participation of independent members on the board is appreciated by creditors. This confirms the hypothesis that the board's effectiveness is enhanced in the presence of independent directors of the management. Unlike internal that have financial interests closely linked to the firm, independent freely oppose the decisions taken by managers and which could threaten the

interests of other partners. Indeed, these selves are still interested in their well-known that affect their ability to receive other appointment opportunities on other boards.

The fourth axis, reflecting the financial expertise is negatively and significantly associated with the cost of debt. Donors pay special attention to the presence of institutional investors who often have the opportunity, resources, and the ability to control, discipline, and influence leaders. They have high demands on the quality of advice and may promote the establishment of special committees in accordance with accepted governance principles. Therefore, the significant presence of one or more institutional investors in the capital of the firm should be accompanied by pressure for the implementation of recommendations on good governance.

Especially, we conclude that the use of a financial expert is rewarded by creditors through a lower cost of debt. We approve and assume that the expertise of directors decreases the likelihood of financial fraud and increases the ability of these to discover and constrain earnings management. This echoes the recommendations of SOX, which requires at least the presence of a financial expert of the audit committee. An unmanaged result secured creditors with reliable information on the economic and financial situation of the firm.

However, the results indicated in Table 6 show that creditors are insensitive to the presence of nomination committees and independent remuneration. Additionally, these governance attributes do not present the point of view of creditors of effective monitoring tools to protect their interests against expropriation, underinvestment, and the substitution of assets. Rather they are shareholder governance levers to align the interests of executives with those of shareholders that other stakeholders do not profit.

Finally, we highlight a significant and positive association between cost of debt and the axis reflecting expropriation. While owner executives and majority shareholders have identical interests namely the expropriation of minority shareholders. They tend to increase debt in order to keep control of the firm and extract private benefits larger control. Having anticipated this behavior, creditors condition the debt policy and lead the most vulnerable firms to borrow less by imposing a high cost of debt.

Moreover, the signs of the coefficients for the control variables are consistent with our expectations. In the most indebted companies, creditors override the interest rate. Similarly, strong earnings volatility is negatively perceived by creditors and led to an increase in the cost of debt. In contrast, large firms support the lowest cost of debt.

## 5. CONCLUSION

In this study, we examine the concept of governance from the perspective of creditors by studying the impact of governance attributes on the cost of debt. Indeed, some creditors involved in the monitoring bodies can give importance to certain aspects of

governance that protect their interest against any risk informational, non-repayment, or transfer of their wealth for shareholders and executives.

To approach the concept of governance, we used a categorical principal component analysis in order to identify governance axes. From our analysis, six factorial axes show the effectiveness of the control exercised by the council, the managerial power, quality control of the audit committee, financial expertise, objectivity committees, and expropriation.

Our results reveal that the confidence of creditors is strongly related to the quality of governance of the firm. Nevertheless, we detected differences of opinion between the creditors and shareholders on the effectiveness of governance mechanisms implemented by a company. This is not surprising. Certainly, creditors are interested in improving the value of the firm; however, shareholders and executives often have different interests.

Primarily, we identified the importance attached by the creditors to the independence of directors and audit quality. Indeed, the independent directors, reputation requires, are partnership governance levers. They are responsible among others to protect the interests of creditors by ensuring efficiency in resource utilization. Independent advice is appreciated by creditors and positively affects the cost of debt.

Also, creditors appreciate quality audit apprehended by the existence of a charter at the committee level, the independence of the committee, and the frequency of its meetings. These attributed comforts the creditors on the reliability and relevance of the information published. Managerial opportunism is reduced, creditors will have clearer expectations of default risk, and they will be less demanding and lower the cost of debt.

In addition, we found that companies audited by a Big 4 are paid by creditors through a lower cost of debt. By certifying the published information, the reputed auditors undertake their responsibility and, thus, help to strengthen the reliability and relevance of information and therefore creditors trust.

Similarly, we found that the creditors pay special attention to the presence of institutional investors and financial expert. A financial expert

with knowledge of financial reporting, guarantee the quality of voluntary information as it is able to understand the financial statements, to critical thinking, and discover anomalies. Moreover, institutional investors, with the necessary means, get involved in a very active control over the leaders. This reinforces the credibility of the published results and provides a better estimate of the default risk. Alternatively, we found that the managerial entrenchment and the concentration of not property are badly perceived by creditors and generate a higher cost of debt. Indeed, these factors are interpreted by creditors as an excess of managerial power over the interests of creditors. However, creditors holding back the expropriation via debt directing the most vulnerable companies with expropriation unless borrowing through a cost of higher debt.

Although they create value for the firm, the appointing committee of independent existence and remuneration do not protect creditors against information risk and the risk of theft by officers. We conclude that these attributes are shareholder governance levers that other stakeholders do not take into profit and have no influence on the decisions of creditors.

Moreover, creditors penalize firms that have a wide board of directors even if he meets frequently and which include specialized committees. These partners question the importance of the work of the board, if it is not formed in full by independents. Moreover, they increase the interest rate as they will incur high costs in order to control many administrators. Acting in the interests of shareholders, a great council can proliferate underinvestment problems and alternative assets. Similarly, the frequency of meetings is irrelevant to the creditors if it is not designed to effectively oversee the managerial actions against creditors calling into question the content of these meetings for creditors.

In conclusion, we argue that creditors like governance attributes that lead to an excess of accounting conservatism and absolute compliance in the application of accounting rules. This behavior is different from that of investors who tolerate some accounting flexibility that aims to convey signals on the prospects of the firm.

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