



**Faculdade de Economia da Universidade do Porto**

**The impact of Corporate Governance on the Cost  
of Debt: Evidence from Portuguese Listed  
Companies**

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**Dissertation of the Master in Finance**

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**September, 2014**

### **About the Author**

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His professional career started in September of 2011 at KPMG, a multinational consulting company as an Assistant Financial Auditor. In 2013, he remains in the same industry but in the multinational PricewaterhouseCoopers, where currently he develops his career as a Tax Consultant.

## **Acknowledgments**

I would like to express my appreciation and gratitude to everyone who, directly or indirectly, helped me to achieve this goal, particularly to my family, friends and colleagues.

The most special thanks goes to my Supervisor, Prof. Jorge Bento Ribeiro Barbosa Farinha, PhD. This Master's Dissertation would not have been possible without his support and share of knowledge.

To all of you, thank you so much!

## **Abstract**

Corporate governance has become a major subject of academic research during the last years, following a number of financial scandals, such as the cases of Enron, Worldcom, Swissair, Parmalat and more recently the financial crisis of 2007-08. Several prior works study the impact of corporate governance on the performance of the companies and confirm the importance of this discipline. A recent study by Claessens and Yurtoglu (2013) concludes that “better corporate governance benefit firms through greater access to financing, lower cost of capital, better performance and more favorable treatment of all stakeholders”.

In this empirical dissertation we study, using a sample of 42 Portuguese listed companies, if the quality of corporate governance could lead to a lower cost of debt.

The practical relevance of this research is trying to confirm whether firms, by improving their corporate governance could obtain significant financial benefits by lowering their cost of debt financing. Therefore, this work contributes to the literature by providing a study of the impact of overall corporate governance policies on the cost of debt instead of just some characteristics of governance. This research is based on a corporate governance index built upon the recommendations on corporate governance applicable in Portugal.

Besides the statistical relevance of corporate governance we also quantify its economic impact on the cost of debt in order to justify if the companies should, or not, invest in better corporate governance practices to lower their cost of debt.

Our results suggest that compliance with corporate governance recommendations has a very relevant statistical and economic impact on the cost of debt and therefore, we are able to argue that corporate governance characteristics can potentially contribute to a lower cost of capital by influencing the risk perceptions of lenders and other debtholders.

**Key-words:** Corporate Governance, Cost of Debt

**JEL Classification:** G30, G34

## Table of Contents

1. Introduction.....	1
2. Literature Review .....	5
2.1. The agency problem .....	5
2.2. Corporate Governance.....	6
2.3. Cost of Debt.....	15
2.4. Relation between Corporate Governance and Cost of Debt.....	16
3. Data and Methodology.....	21
4. Econometric Analysis – Empirical study.....	37
4.1. The impact of corporate governance on the cost of debt.....	37
4.2. The impact of corporate governance on the cost of debt – groups of recommendations.....	40
4.3. Economic Relevance .....	44
4.4. Robustness Analysis .....	48
5. Conclusions, Limitations and Suggestions for future research.....	50
References.....	52
Annexes .....	56

## List of tables

Table 1 List of control variables used in the research .....	28
Table 2 Variables included in the study, definition and expected sign .....	32
Table 3 List of dummy variables included in the study.....	32
Table 4 Number of companies in each industry .....	33
Table 5 Descriptive statistics – Continuous variables .....	34
Table 6 Descriptive statistics – Discrete variables .....	35
Table 7 Correlations.....	36
Table 8 Econometric results .....	39
Table 9 Corporate governance variables .....	41
Table 10 Results of Econometric results for CGI variables .....	42
Table 11 Classification of CGI ranges.....	44
Table 12 Results of Economic Relevance analysis .....	47
Table 13 Results of Economic relevance analysis - variations.....	47
Table 14 Results of Robustness analysis .....	49

## **1. Introduction**

Corporate governance has become an important subject of academic research in the last decades. Indeed, as referred by Denis (2001) although “the term “corporate governance” had not yet been coined 25 years ago, it has since become common in the modern business lexicon, used by academics, practitioners, and the popular press.”

The praxis of corporate governance had a strong moment following the crisis of 1929-33, USA. It then again assumed prominence in 1992 with the publication of two major reports on corporate governance, one in the U.S. (sponsored by the American Law Institute) and another in the UK (Cadbury Report). More recently, following a number of recent management and auditing scandals in major U.S. companies, and the financial crisis of 2007-2008, the issue of agency risks and corporate governance jumped back to the first line of concerns among both regulators and governments.

In an attempt to avoid the repetition of similar events or restrict its effects, we have seen since the 90's the publication of a large set of regulations and codes of corporate governance in several countries, e.g., Vienot I (in 1995), Vienot II (in 1999), Bouton (in 2002) in France; Cromme (in 2002 and 2003) in Germany; Cardon (in 1998), Lippens (in 2004) in Belgium; Preda (in 1999 and 2002) in Italy; Pemers (in 1997), Tabaksblat (in 2003) in Netherlands; or Olivencia (in 1998), Aldama (in 2003) in Spain.

However, it was in UK that was published one of the most well-known reports aiming at improving corporate governance. This was the Cadbury Report, produced in 1992, which was followed by others such as the Greenbury Report in 1995, Hampel Report in 1998 and the Turnbull Report in 1999.

In a broader international setting, the issue of Corporate Governance has also received substantial attention, particularly by institutions such as the OECD, which in 1999 published its Principles of Corporate Governance, subsequently revised in 2004.

Following the scandals that have rocked the capital markets in the United States (e.g. Enron or WorldCom, as referred above), the Sarbanes-Oxley Act was approved in July 30, 2002. Contrary to the reports published in other European countries, where the measures took the form of recommendations, this was a piece of legislation which had a strong impact on US listed corporations and markets.

Portugal is no exception to this trend, where the supervision of governance practices is the role of *Comissão de Mercado dos Valores Mobiliários* – hereinafter also referred as CMVM.

Developments on corporate governance field in Portugal were conducted in a phased manner, starting with the introduction, by CMVM, in October 1999, of a set of recommendations concerning the system of conduct rules to be observed in the exercise of direction and control of companies admitted to trading and capital markets. These recommendations experienced a number of changes over time in order to adjust these to the most recent developments of corporate governance practices at national and international levels.

In 2001, the principle of "comply or explain" was introduced. This aimed at requiring listed companies to disclose whether, and to what extent, these were able to comply with the recommendations of CMVM and if not, explain why this did not happen.

In 2006 the Portuguese Institute of Corporate Governance published its "*Livro Branco sobre o Corporate Governance em Portugal*" which aims to producing a set of guidelines on the practice of corporate governance in Portugal, as well as its future development.

It thus becomes important to understand the concept of corporate governance and its impact on the sphere of the companies and its stakeholders. In a few words, corporate governance refers to a set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control. (Larcker et al. (2004)).

Prior researches studied the relation between corporate governance and financial performance of the firms, and most of the studies showed evidence of a positive relation between good corporate governance policies and performance or value. The positive impact on performance or value creation influenced by good corporate governance practices can be caused by several factors. For example, a recent study by Claessens and Yurtoglu (2013) finds that "better corporate governance benefit firms through greater access to financing, lower cost of capital, better performance and more favorable treatment of all stakeholders".

However, we find a gap in the literature related to the impact of corporate governance on the performance of the companies. Indeed, either at national and international level, there are several studies that research the impact of corporate governance on the



performance of the companies, concentrating the analysis on the cost of equity, but there are few studies that concentrate the analysis on the cost of debt. The gap becomes even more evident if we observe that the studies already developed use just some characteristics of governance (e.g., the quality of the external auditor, the independence of the board of directors, etc.), instead of using a broader concept of corporate governance as a whole.

In this dissertation we study whether the quality of corporate governance (measured through a corporate governance index) could lead to a lower cost of debt based on an empirical research using a sample of 42 Portuguese Listed companies in 2012.

A similar research studying the relation between corporate governance and the cost of debt was done by Schauten and Blom (2006), where the authors concluded that there was a statistically significant negative relation between the cost of debt and the quality of corporate governance, in other words, “the debt holders’ perception of a firm’s default risk is lower for firms scoring high on corporate governance, resulting in lower cost of debt financing”.

Our purpose is to carry out a cross-section research studying the relation between the firm’s quality of corporate governance and their cost of debt. In this study we perform an empirical research for Portuguese listed companies, correlating characteristics of governance (through an index of governance, which reflects the degree of compliance of each company with the CMVM’s recommendations) with the cost of debt, controlling other factors such as level of profitability, debt structure, firms’ risk, industry’s risk, firm size, etc..

Based on the above, at the end of the study, we will conclude if corporate governance has a positive or negative impact on the cost of debt. This research has a very important practical relevance, since based on our conclusions we will be able to show evidence if firms, by improving their corporate governance characteristics could obtain financial benefits in the form of a lower cost of debt financing.

In summary, we are trying to find answers to the following questions:

- Is there evidence, for Portuguese listed companies, that better corporate governance leads to a lower cost of debt?
- If yes, is the impact on the cost of debt economically significant?

The remainder of this dissertation is structured as follows: in section 2, we develop a literature review of this topic, taking also into consideration some concepts necessary to understand the relation between corporate governance and the companies' management. In the third section we describe the data and the methodology to adopt in the empirical phase. The fourth section provides the empirical specification and the results of our analysis. Finally, in section 5, we discuss the findings, limitations and future developments.

## **2. Literature Review**

In this chapter we analyze the main concepts related to corporate governance, as well as its relation with the cost of debt. We focus our exposure on similar prior studies highlighting its main conclusions and methodologies used.

### **2.1. The agency problem**

The agency problem was first formulated by Berle and Means (1932), being further developed by Jensen and Meckling (1976) and, basically, results from the separation between ownership and management. An agency relationship exists when one or more persons (the principal) delegate decision-making power in another person (the agent). The principal hires the agent to perform an action that he himself does not have time or ability to perform. However, it turns out that the factors which maximize the utility of the parts are not necessarily the same, which gives origin to conflicts, costs or losses of value.

The Agency theory studies the conflicting interests of agents and the contractual relationships established in order to minimize the costs that are associated with a situation of delegated decisions. This theory studies the effects of separation between ownership and management of the company, identifying the costs and loss of value associated with this separation and proposing new ways to solve the key financial decisions and new contractual relationships (e.g., incentive systems) to minimize those costs and losses of value.

The separation between ownership and management causes the possibility of mismatch between the utility functions of shareholders and managers, which could lead to decisions that do not maximize the utility of both agents. When this happens, they may have to support the effects of decisions (investing or financing) not inspired by the paradigm of maximizing the wealth of shareholders. As a result the company may still be faced with the effective loss of value.

The agency risk lies, essentially, on the possibility of unfavorable decisions to the interests of shareholders. Agency costs arise in the value not created or loss of value as a result of decisions made by managers in absentia of the interests of shareholders and also the costs incurred to reduce the agency risk.

The agency theory studies this conflict of interests since its genesis, the risk associated with it and the agency costs, and proposes solutions and measures that could help to reduce the problem.

Some of these proposed solutions are from an internal nature, in the form of management monitoring mechanisms, information systems management or incentive systems. Others have an external nature such as the influence of shares price and the pressure from capital markets, the usage of debt and the regulation of industries and markets. Then, the specific mix of such solution with internal and external elements makes up the particular corporate governance structure of a firm.

## **2.2. Corporate Governance**

“Corporate Governance deals with the ways in which suppliers of finance to corporations assume themselves of getting a return on their investment” (Shleifer and Vishny, (1997)).

The field of corporate governance emanates since there are potential problems associated with the separation between the ownership and the control of the firm. Thus, “Corporate governance encompasses the set of institutional and market mechanisms that induce self-interested managers (the controllers) to maximize the value of the residual cash flows of the firm on behalf of its shareholders (the owners)” (Denis (2001))

Nevertheless, corporate governance has been with us since the use of the corporate firm created the possibility of conflict between investors and managers. Indeed, during 1776, Adam Smith, writing about professional managers in “Wealth of Nations” identified divergent interest between managers and investors stating that:

“Being the managers of other people’s money (rather than their own)...it cannot be expected that they should watch over it with the same anxious vigilance...” Adam Smith, “The Wealth of Nation”, 1776

Corporate governance also refers to the set of institutional and organizational mechanisms, destined to solve or mitigate potential conflicts of interest among several groups involved in a company (also called stakeholders, i.e., shareholders, creditors, managers, employees, customers, suppliers and the State).

Corporate governance is, therefore, the branch of economics that studies how companies can become more efficient through the use of institutional solutions, such as

contracts, organizational models and legislative and regulatory solutions. This problem often reduces to the question of value and return for shareholders, that is, how company owners can encourage managers to produce a competitive rate of return to them.

The issue of corporate governance is more relevant when there is separation between ownership and management, i.e., the context in which agency problems arise. Indeed, the problem lies on the reality generated by the fact that the company is not necessarily managed by its owners (the principal) but rather the management powers are delegated to third parties (agents). When this happens, it is created a contractual relation between companies' owners and managers, under which they provide them a set of management services, paid through remuneration. This contractual relation may contain imperfections (incomplete contracts) that generate potential costs. Corporate governance solutions are designed to minimize this kind of costs.

Imperfections in the contractual relation between companies' owners and managers can refer to inefficient operations and decisions (e.g., poor investments selection, dispersing cash flows, and excessive risk-taking), imperfect institutional solutions (e.g., lack of management control systems) and general imperfect or unfavorable conditions (e.g., asymmetric information, uncertainty, and risk behaviors).

As we referred above, corporate governance seeks to find institutional solutions to problems that have their origin in the agency relation between company owners and managers. Among the answers offered by corporate governance it is included the following: decision support systems; performance evaluation systems; incentive schemes; ownership structure of the companies; capital structure; market for corporate control, inclusion of companies in the capital market, etc.

Corporate governance should be seen as a chapter of Agency Theory, which proposes the internal and external disciplinary mechanisms of the agency risk of a company. Some of the main internal mechanisms are the board of directors (Jensen (1993)), executive compensation (Lewellen et al. (1987)), and ownership structure (Denis and McConnell (2003)), while some of the main external governance mechanisms are the market for corporate control (Jensen (1993)) and the legal system (Jensen (1993)).

Several definitions have been proposed for corporate governance, some of them more restrictive, others more extensive. However, the common element to almost all

definitions is the liaison from the concept of corporate governance to the solution for the agency risks.

Jensen and Meckling (1976) define corporate governance as a set of internal and external mechanisms, from incentive and control, aimed at minimizing the agency costs. Other possible definition was elaborated by Organization for Economic Co-operation and Development (OECD) in 1999:

"Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance." OECD April 1999

As a result of its close relation to the problem of agency risks, the issue of corporate governance is also related with the wider issue of financial markets efficiency. Therefore, it is not surprising the relevance given to corporate governance in recent times by the regulatory entities that reach the point of proposing rules and principles of good corporate governance.

Portugal did not remain on the sidelines of this movement and it was a concern of the country to be integrated progressively in the emergence of good corporate governance practices. In Portugal, there are currently a number of rules and regulations, as well as proposals from professional bodies to develop corporate governance solutions as a response to agency risks. The main manifestations of corporate governance development in our country are the following:

- Recommendations from *Comissão do Mercado de Valores Mobiliários* (CMVM). Much of this work involved the transposition into the national reality of the rules proposed by the European Commission for adoption by member countries.
- Amendments to the Corporate Code (*Código das Sociedades Comerciais*), which aimed to follow the trends observed in other European countries, in the field of corporate law and to promote freedom to choose the governance model.

Actually there are three models of governance under Article 278 of the Corporate Code.

- Creation of Portuguese Institute of Corporate Governance and its pioneering initiative of “*Livro Branco sobre o Corporate Governance em Portugal*”.

In summary, the relevance of corporate governance has been increasingly emphasized both in practice and academic research. The increase is due, in part, to some financial reporting frauds such as those experienced by Enron, Vivendi Universal, Worldcom, Ahold or Parmalat. These cases showed deficiencies in corporate governance models arising from weak management control, inefficient external audits and poor transparency of information disclosed by companies.

Furthermore, some academic studies found an association between weaknesses in governance and problems in financial management, poor financial reporting quality, earnings manipulation, financial statement fraud, and weaker internal controls (Dechow et al. (1996); Beasley (1996)). After these developments the need to improve corporate governance gained momentum, leading to an increase on the number of reports on corporate governance recommendations to the Statutory Law in each country. In Portugal the recommendations on governance are issued by *Comissão de Mercado dos Valores Mobiliários* (CMVM).

### **How is the quality of corporate governance measured?**

In order to carry out this study we need to define how to measure the quality of corporate governance. Thus, a measure for the quality of corporate governance has been obtained from the construction of a corporate governance index. We adopted a collection of Corporate Governance provisions provided by *Comissão de Mercado dos Valores Mobiliários* (CMVM) and inspired on Gompers et al. (2003) and other studies which use their governance index as a basis, we assigned a binary value equal to one if a firm meets the minimum acceptable governance standards and zero if not. We then created a summary governance index by calculating the percentage of governance recommendations a firm actually satisfied.

## **Models of Corporate Governance**

It is common to identify two main systems of corporate governance: the continental system and the Anglo-Saxon system<sup>1</sup>. The first system is connoted with corporate governance in continental Europe and Japan, while the second system is identified with the United States of America, United Kingdom and other countries of Anglo-Saxon expression and influence.

### **Anglo-Saxon Model**

A key element of the Anglo-Saxon model is the belief that there is an efficient market for corporate control, which provides a disciplinary effect on the professional managers. The underlying idea is that if the management teams are incompetent or pursue their own interests in detriment of their shareholders, the respective companies will not have maximized its value and therefore will be subject to a tender offer (takeover), following which it will be replaced by other managers perceived as more competent and committed to creating value for their shareholders.

The managerial remuneration system is also a core element of the Anglo-Saxon system. The variable remuneration is the main component of the remuneration of managers, and its magnitude is generally linked to measures of performance like profits or the share price of the company. The aim is thus the alignment of interests between shareholders and managers.

Another pillar of the American system is the wide dissemination of information to capital markets, and external audit of this information. The Board is typically comprised of two types of directors – the executive directors and the non-executive directors. It is supposed that the latter are independent of the first and their main functions are to make strategic decisions, advice, monitor and evaluate the activities of executive directors.

Among the typical committees of boards of directors are the Audit Committee, the Remuneration Committee and the Board Nominations Committee. The first one is responsible for ensuring that the information disclosed to the public is properly audited and so it is worthy of confidence. For this it is essential that the Committee is independent of the management team. The second is responsible for setting the remuneration of executive directors, as well as formulating judgment on their

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<sup>1</sup> These two models are often referred in the relevant literature review, as such, Cernat (2004); and Hopt and Leyens (2004)



performance. The last committee has the objective of appointing new managers, proposing these to the general meeting, either in a natural succession process or one of replacement of the executive directors due to poor performance. This committee should also be independent from the executive directors.

### **Continental Model**

In this Corporate Governance Model the major shareholders control (internally) the management and make the key management and strategic decisions. Frequently the shareholders themselves have the main seat on the board of directors or else elect people of their trust. The problem lies in the protection of small shareholders in relation to major shareholders.

The market for corporate control does not assume a relevant role in this model. Also the role of variable remuneration does not represent a huge importance as it happens in the Anglo-Saxon Model. Traditionally, the fixed remuneration represents a very significant share of total compensation. This factor reflects the reduced need to align the interests of managers and shareholders, due to the presence of controlling shareholders.

Regarding the management structure in multiple countries of continental Europe the so-called two-tier model is the dominant one, characterized by the existence of two bodies with responsibility for the administration of the company. In other countries, such as Portugal, the one-tier model predominates, designated as such because of the existence of a single board of directors in each company.

The dual model aims to create an intermediate structure (the General Council) between the general meeting and executive managers (Executive Board), which among other functions should play a role of supervision and control of executive directors.

That intermediate structure has some of the powers that in the one-tier model are exercised by the general assembly. This is the case, at least in some of the schemes, of the approval of the annual accounts and the election of board members. The General Council also has some authority on key management decisions, which require their approval.

Among the tasks of the General Council it is also included the evaluation of the performance of senior management. Under the two-tier system, shareholders usually

meet once a year mainly to evaluate the work of the General Council and Board of directors.

The effective ability of the General Council to monitor and control the actions of the executive managers obviously depends on the level independence of its members vis-à-vis the managers and shareholders.

The idea behind its establishment is also the ability to confer certain stakeholders to oversee the daily management and interfere in the formulation of the strategic policy of the company.

In the case of European companies that adopt the one-tier structure, it is also very frequent that a separation be made between daily management activities and strategic management decisions, by creating within the Board an executive committee. This committee is responsible for managing the company's day to day operations, under the powers delegated to it by the Board.

The executive directors are appointed by the Board of Directors, following the General Meeting's election of all board members. In addition, approval of accounts for submission to the shareholders meeting is a task of the Board of directors, which also reserves to itself the approval of the strategic policy and some of the most important decisions regarding to their implementation. Thus, the so-called monist model in which there is an Executive Committee recreates a double instance of decision-making and creates conditions for the higher-level entity (the Board) monitor and control the lower entity (the Executive Committee).

One consequence of the duality of decision makers is the possibility of separating the figures of the respective presidents. In a dualist structure the Chairman of board of directors and the president of Executive Committee are two different people, the first being usually designated in Anglo-Saxon terminology, Chairman and the second Chief Executive Officer (CEO). In the case of a one-tier model, the figures of the President of the Board of Directors (Chairman) and the president of Executive Committee (CEO) may or may not coincide.

Obviously, the separation of the role is important in order to avoid concentration of powers, but it only produces effective results in protecting the interests of small shareholders if the Chairman is independent of the CEO and shareholders and possesses significant influence in the choice of executive managers.

Finally, we should mention that in Continental Europe it is increasingly frequent to observe the existence of committees with specific responsibilities, an inspiration probably coming from the Anglo-Saxon model.

### **Corporate Governance models in Portugal**

According to “*Livro Branco sobre o Corporate Governance em Portugal*” the mechanisms of decision-making and oversight vary from country to country, and within a legal and institutional framework may also vary from company to company. Accordingly, the Portuguese Corporate Code (*Código das Sociedades Comerciais*) considers in its article 278 the existence of three optional models of corporate governance:

- Anglo-Saxon Model: Board of directors, Audit committee and Single auditor (*Fiscal Único*);
- Dual Model: General and supervisory board, Board of directors and Statutory auditor (*Revisor Oficial de Contas*);
- Latin Model: Board of directors and Fiscal Council.

### **Limitations of the Corporate Governance models**

According to “*Livro Branco sobre o Corporate Governance em Portugal*”, published in 2006, financial scandals, as the ones described above, raised some criticisms to corporate governance systems, which we reproduce below:

Market for corporate control – Multiple academic research (e.g., Jong et al. (2005); Moeller et al. (2005)) suggests that the market for corporate control (takeovers) has a weak relation with performance and that it is hardly influenced by bad governance of companies, but instead was more reactive to size factor. In other words, a large unprofitable company is more likely to survive to independence than a smaller but very profitable company. Furthermore, it has been verifying that takeover had not the punitive effect that was assumed under the Anglo-Saxon system.

Remuneration System – Compensatory mechanisms that have been used throughout the nineties to align the interests of managers and shareholders, at least in large part, failed

its objectives, according to the authors of the “*Livro Branco sobre o Corporate Governance em Portugal*”. This arguably occurred with the mechanisms that established a link between the income statement and the variable remuneration, and also happened to the mechanisms of stock options and others which evaluated the performance based in stock price behavior.

Audit, Information Disclosure and External Control by Capital Market - Incentive mechanisms based on financial results or share prices, not only have failed to align the interests of managers and shareholders, but also have contributed to the failure of other mechanisms such as the quality of information reported and the control exercised by financial analysts. Financial scandals have confirmed the suspicions of bad management practices and earnings manipulation. Additionally, the external auditors' independence was contested, either because the choice and remuneration of the auditors was decided by managers (and not by stockholders), or by an accumulation of audit services with consulting services offered by the same entity.

Independence of external directors – Board structure, of which independence is just one of the relevant dimensions, is also subject to skepticism since according to “*Livro Branco sobre Corporate Governance em Portugal*” some voices claim the argument that executive managers play an important role in the selection of non-executive directors, which limit their power and ability to control executives. In the same sense, there is a high probability of external directors lose their seats following the dismissal of the CEO. Also in Continental Europe there are multiple voices that question the independence of non-executive directors in one-tier systems, and of members of the General Council, in two-tier systems. Moreover, there is a repeated criticism of the inability of non-executive directors to absorb all the information necessary to understand the operations of the company, either by lack of time or knowledge.

Influence of major shareholders – Major shareholders have an interest in influencing the decisions of managers in order to achieve better performance, and they have more power to do this than small shareholders. Thus, the ownership concentration raises the issue of possible exploitation of small shareholders by large shareholders.

Regulation and Supervision - Financial scandals in the late nineties (which have already been mentioned) are, in itself, a reminder that cases of bad governance can happen, even in countries (like the United States) that are usually recognized as having regulation and supervision systems of high standards that are designed to ensure protection of small shareholders. The regulation and supervision, *per se*, do not ensure that firms are systematically managed in the interests of its shareholders and that they are treated equally. We should also note that the supervisory authorities, as well as small shareholders and the general public, are victims of information asymmetry, comparable to that which can be observed between management teams and controlling shareholders.

Given these limitations on corporate governance models, it is imperative to study the real impact of governance in some firm variables. In particular, we highlight the sixth point aforementioned, which raises the question: what is the real strength of regulation and supervision on companies' performance?

In this respect, we should remember that this work aims at studying the impact of corporate governance on the cost of debt, measured by a governance index, which is computed, based on the recommendations issued by the entity responsible for the regulation and supervision of the Securities market in Portugal (*Comissão de Mercado dos Valores Mobiliários – CMVM*).

Thus, at the end of the study we should be able to quantify the impact of corporate governance on the cost of debt and, in particular, understand the importance of regulation and supervision.

### **2.3. Cost of Debt**

Cost of debt can be defined as the cost that companies incur when obtaining external financing from lenders or other debt providers. The most common proxy for the cost of debt used in prior studies is the yield spread (e.g. Ertugul and Hedge (2008); Duffie (1998); Anderson et al. (2003); Anderson et al. (2004); Klock et al. (2005)). The yield spread is basically the weighted average debt yield to maturity in excess of the duration equivalent to treasury yield.

Prior studies had also utilized yield to maturity on the first debt issue of year  $t+1$  to proxy for cost of debt (Sengupta (1998); Schauten and Blom (2006)). This yield to maturity represents the effective rate of interest that equates the present value of the principal and interest payments with the amount paid by the lender.

Other measures of cost of debt include the average interest on a firm's debt and the total interest cost to the firm on its first debt issue of year  $t+1$  (Sengupta (1998); Piot & Missonier-Piera (2007)).

#### **2.4. Relation between Corporate Governance and Cost of Debt**

Several researchers (identified throughout this chapter) have tried to clarify the relation between the cost of debt and the quality of corporate governance, establishing models which have shown evidence of a negative relationship between these variables, i.e., that the better the quality of corporate governance observed in a company, the lower will be the costs of issuing debt. In this chapter we describe some of the works developed to study this relation.

Until now, few empirical studies have investigated the impact of corporate governance, as a whole, on the cost of debt. Most of the studies reviewed concentrate the analysis in one single characteristic related to corporate governance.

Indeed, although some prior studies show evidence consistent with an influence of corporate governance on the financing decisions and the use of debt, these however don't study the impact of governance on the cost of debt financing. This is the case of Harford et al. (2008) that investigates the relation between the board and firms' leverage decisions. They construct a board governance quality index based on ten board characteristics and find that employing a dataset of board characteristics and controlling for other aspects of a firm's corporate governance, stronger boards lead the firm to hold more debt.

Nevertheless, several prior studies examine the relation between the cost of debt and corporate governance practices. In 1998, Sengupta (1998) developed a study that provided evidence that firms with high disclosure quality ratings from financial analysts enjoy a lower effective interest cost of issuing debt.

The studies of Anderson et al. (2004) and Ashbaugh-Skaife (2006) are relevant to this research as they find that firms with strong corporate governance benefit from a lower

cost of debt. Specifically, in their study Anderson et al. (2004), provide an empirical analysis using firm level data from 1993 through 1998 on a sample of S&P 500 firms. They conclude that “board and audit committee monitoring substantially impact the cost of debt financing. The results indicate that firms with large independent boards and audit committees are associated with a lower cost of debt financing”.

From another point of view Asbaugh-Skaife et al. (2006) studied the effects of corporate governance on firms’ credit ratings, using data from the Board Analyst Database compiled by The Corporate Library, Standard & Poor’s Compustat, and Center for Research in Security Prices. In their study the authors constructed an index of corporate governance based on Gompers et al. (2003)<sup>2</sup> documenting that firms’ corporate governance affects their credit rating and concluding that weak governance can result in firms incurring higher debt financing costs.

Takeover events serve as a good setting to test how corporate governance reduces agency risks. The upside benefits to bondholders are limited in the event of a takeover, however, bondholders are subject to significant downside risk because higher leverage, spin-offs and other asset substitutions become more likely with takeover events. This suggests bondholders value anti-takeover provisions as an effective tool to protect their interests.

The study of Klock et al. (2005) examines the relation between the cost of debt financing and a governance index that contains various antitakeover and shareholder protection provisions. The authors used a sample of 1877 firm-year observations on 678 industrial firms from the Investor Research Responsibility Center corporate governance database, Compustat database, Thomson Financial Institution database and the Lehman Brothers Fixed Income database. Their measure of corporate governance was a governance index computed using Gompers et al. (2003), and the cost of debt was measured by the yield spread. To study the relation they added also control variables related with firms’ characteristics. They find that “strong antitakeover provisions are associated with a lower cost of debt financing while weak antitakeover provisions are associated with a higher cost of debt financing”.

In 2004, Pittman and Fortin (2004) developed a study where they showed evidence that choosing a Big-Six (Now Big Four) Audit Firm, the firms can reduce debt financing

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<sup>2</sup> Gompers et al. (2003) construct an index based on 24 governance provisions, referred to as the G\_SCORE, to measure the power-sharing relation between investors and management.

costs by enhancing the credibility of financial statements. They used a sample of US companies that went public between 1977 and 1988. The methodology of their study emphasizes the specification of the three variables of primary interest: firms' interest rates, ages, and auditor choices. They also specify control variables that represent other potential determinants of debt pricing as the underlying cost of capital and firm-specific characteristics.

A similar study was developed by Mansi et al. (2004) that examines the relation between auditor characteristics (quality and tenure) and the cost of debt financing.

Using a sample of 8525 firm-year observations from 1974 to 1998 they find that auditor characteristics are negatively and significantly related to the cost of debt financing.

Cremers et al. (2007) investigate the effects of shareholder governance mechanisms on bondholders. They document that the impact of shareholder control on credit risk depends on takeover vulnerability and event risk covenants reduce the credit risk associated with strong shareholder governance.

In a study of 2006 Ortiz-Molina (2006) examines managerial ownership structure and at-issue yield spreads on corporate bonds. He finds that "There is a positive relation between managerial ownership and borrowing costs, and this relation is weaker at higher levels of ownership."

Most of the prior studies document that the strength of corporate governance has a positive impact on the cost of debt, i.e., the better the corporate governance practices, the lower the cost of debt. However, there are other studies that demonstrate that the impact of governance on the cost of debt is not so linear. This is the case of Bhojraj and Sengupta (2003), Baganini et al. (1994) and Aslan and Kumar (2012).

In 2003, Bhojraj and Sengupta (2003) conducted a study to provide evidence of a relation between corporate governance mechanisms and bond ratings and yields. The data used in this research were collected from the Warga Fixed Income Database including all industrial bond issues during 1991-96. To determine the relation between bond yields and ratings and corporate governance, the authors adopted two widely used measures: institutional ownership and the proportion of outsiders in the board. To test the effect of governance variables on bond ratings they used a model defining bond ratings as a function of governance variables and a set of control variables. They concluded that governance mechanisms, through their impact on firm default risk, can



reduce bond yields and contribute to higher ratings on the new bond issues. They identified two dimensions where governance mechanisms can help creditors assess firms' default likelihood.

The first is "agency risk", which represents the risk that managers act in their own interest and can diverge from the value maximization and risk minimization. If governance mechanisms could effectively reduce such risk, firms with strong governance should be associated with superior bond rating and lower yields. The second is "information risk", which refers to the risk that managers hide the private information that could adversely affect the default risk of the loan. Governance mechanisms could in this regard discipline firms by forcing these to disclose information in a timely manner and reduce the information risks. However, concentrated institutional ownership has an adverse effect on yields and ratings.

Baganini et al. (1994) find that increasing managerial ownership increases the cost of debt at low levels but decreases the cost of debt for higher levels. A similar study was developed by Aslan and Kumar (2012) as they find that ownership concentration may increase or decrease the cost of debt.

Francis et al. (2005) provide a direct examination of disclosure incentives and consequences on the cost of capital for firms. They argue that firms in industries with greater external financing needs have higher voluntary disclosure levels to distinguish themselves in order to obtain a lower cost of external financing. The authors find that an expanded disclosure policy for these firms leads to a lower cost of both debt and equity capital.

In a recent research, Frantz and Instefjord (2013) studied the theoretical links between governance and the cost of borrowing in order to understand if a strengthening in the quality of governance of a firm increases or decreases its cost of debt. In their work the authors build a dynamic model where governance is a determinant of default, and the general finding was that "improvements in governance reduce uniformly the likelihood of default, but may reduce or increase the cost of debt. The sign of the relation between corporate governance and cost of debt depends on the firm's restructuring cost in default." This study is the basis for our work since the theoretical conclusion of Frantz and Instefjord (2013) is that corporate governance can have positive or negative impact on the cost of debt.

In summary, it seems that there is a limited empirical research conducted on the effect of corporate governance on firms' cost of debt. From the analysis of this literature our research questions are deemed pertinent. As we saw, there are some studies that show a positive impact of corporate governance on the cost of debt, while other studies find that corporate governance may or not decrease the cost of debt. We want to know what is the impact of corporate governance on the cost of debt of Portuguese listed companies and if that impact is really economically significant.

### **3. Data and Methodology**

The purpose of this dissertation is to study the relation between the firm's quality of corporate governance and its cost of debt, i.e., we want to study if the corporate governance recommendations followed by the company have an impact on the cost of debt.

To carry out this study we investigate non-financial listed Portuguese companies, for which the financial and governance data is available for the financial year 2012. We also analyzed the possibility of using panel data, but since the CMVM's governance recommendations were changed in 2010 and 2013, at best we could only develop this analysis for 2 years (2011 and 2012). As the corporate governance practices do not change significantly across 2 years we opted to conduct this analysis only for 2012 (the last year to which we have information available).

We compiled the data for this study from two sources:

- Corporate governance reports<sup>3</sup> of the selected companies to obtain the relevant corporate governance measures;
- Database SABI – Bureau Van Dijk, where we obtained the financial data to calculate the cost of debt and the control variables for the selected firms.

### **Research Questions**

The purpose of our study is to find evidence on the statistical and economic relevance of the impact of corporate governance on the cost of debt. In practice we want to know if there is an impact and how significant this is. So, our research is designed to respond to two questions:

1. Is there evidence, for Portuguese listed companies, that better corporate governance leads to a lower cost of debt?
2. If yes, what is the real economic impact on the cost of debt?

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<sup>3</sup> The governance reports were collected from the website of Comissão de Mercado dos Valores Mobiliários (CMVM), the Supervising Entity of the Portuguese Stock Market.

## **Data Description**

As aforesaid we investigate large listed Portuguese companies for which corporate governance characteristics are extensively disclosed in their annual reports. To that end we focus on non-financial companies listed on PSI-Geral.

The companies chosen for the study are those under the Portuguese Law which are listed in the Portuguese regulated market defined as Euronext Lisbon, run by Euronext Lisbon – Sociedade Gestora de Mercados Regulamentados, S.A., and, therefore subject to CMVM's recommendations.

At the relevant moment for this study (31<sup>st</sup> December 2012) PSI-Geral was composed by 46 companies, however we excluded the following firms from our study:

Banco BPI, SA; Banco Comercial Português, SA; Banco Espírito Santo, SA; and Banif – SGPS, SA: Following the approach of Fama and French (1992) we excluded financial firms because “the high leverage that is normal for these firms probably does not have the same meaning as for non-financial firms, where high leverage more likely indicates distress” and also due to the specific supervision and legislation these firms face.

The possibility of exclusion of the following four companies was also considered:

Futebol Clube do Porto, Sport Lisboa e Benfica, Sporting Clube de Portugal: These are Sports companies (*Sociedades Anónimas Desportivas (SAD)*), whose financial year is different from the calendar year (Their financial year begins in July and ends in June). In order to ensure the harmony for the time period considered we could have excluded these companies since their financial year is different from the other companies.

EDP Renováveis: From the corporate governance perspective this company would be included in the analysis since it is obliged to comply with the corporate governance rules (and Recommendations issued by CMVM), despite not being a national law company. However, EDP Renováveis follows the accounting and financial reporting rules adopted in Spain, and so their results might not be fully comparable to those of other companies.

However we assumed that the utilization of the financial report of June 2013 for sports companies would not affect significantly the comparability with other companies. The same way, it is our understanding that the accounting and financial reporting rules adopted in Spain are not significantly different to the point of jeopardizes the comparability of our results.

Thus, from the initial list of 46 companies listed in PSI-Geral we only excluded 4 banks (Banco BPI, SA; Banco Comercial Português, SA; Banco Espírito Santo, SA; and Banif – SGPS, SA). A robustness check was however made to analyze whether the exclusion of these firms would significantly alter the empirical results.

The complete list of companies in our sample (42 companies) is in Annex I.

We should mention that the data for this analysis was checked manually from management and governance reports, i.e., in order to guarantee the quality of the collected data we double-checked the data of SABI database with the respective management reports.

Across the development of this study we pondered to expand the sample to Spanish companies in order to enhance the strength of our results. However, the enlargement to Spanish companies would imply the use of different corporate governance recommendations according to the Supervising Entity in each country (CMVM in Portugal, *Comisión Nacional del Mercado de Valores* - CNMV in Spain), which would harm the application of the methodology and the consistency of our conclusions.

### **Dependent Variable – Cost of Debt**

According to our literature review (previously exposed) the main studies in United States often calculate cost of debt as yield from outstanding bonds.

However, in our analysis we follow a similar approach to the one followed by Piot and Missonier-Piera (2009), which defines the cost of debt as the average interest rate on the firm's debt, calculated as interest expenses for the financial year divided by the average financial debt during the same year, multiplied by 100.

Another study developed by Francis et al. (2005) defines the cost of debt as equal to interest expense net of capitalized interest for the year divided by average short and

long-term debt during the year. Francis et al. (2005) pointed that different accounting rules across the world may result in measurement errors on the cost of debt estimates. In our study this problem would arise with financial statements of EDP Renováveis which follows the Spanish accounting rules, despite being listed in Portuguese stock market. However, as explained above, we believe that the accounting rules are not significantly different in Spain, and so that company was not excluded from our study.

Thus, in our study the variable cost of debt (COD) was computed as Interests and similar expenses charged during the year divided by the average short and long term debt during the same year, multiplied by 100.

### **Independent Variable – Corporate Governance Index**

The starting point for the construction of our corporate governance index is the study of Gompers et al. (2003) where the author used an incidence of 24 governance rules to construct the index. Indeed, Gompers et al. (2003) constructed a governance index as a proxy for the level of shareholder rights based on twenty-four antitakeover provisions and examined the relation between this index and firm value.

The methodology applied by these authors was the following: for every firm, they added one point for every provision that restricts shareholder rights (increases managerial power) and so, the Governance Index (“G”) is just the sum of one point for the existence (or absence) of each provision.

Another study (Kowalewski (2012)) defined Corporate Governance Index (CGI) in the following way: “The CGI comprises 7 categories that include a total of 50 binary items, for each of them, the company is given a value of 1 if the company complies with a given item, and a value of 0 otherwise. Each company is then rated from 1 (poor) to 10 (excellent) in each of the categories based on the number of items complied based on its position to its peers.”

A very similar approach is used in a Brazilian study (Carvalho-da-Silva and Leal (2005)) where the CGI is a firm-level corporate governance index, composed of 15 questions. All questions are answered from public information disclosed by listed companies and not by means of potentially subjective interviews. Sources of information are company filings, charters, and annual reports. Each question corresponds to a “yes” or “no” answer. If the answer is “yes”, then the value of 1 is

attributed to the question, otherwise the value is 0. The 131 firms were classified into three groups, according to their CGI: “good” corporate governance (CGI from 10 to 15), “medium” corporate governance (CGI from 5 to 9), and “poor” corporate governance (CGI from 0 to 4).

Our study follows a similar approach, i.e.:

- 1) Our Corporate Governance Index comprises the 4 categories of CMVM Recommendations on Governance, in a total of 54 recommendations;
- 2) For each recommendation, we give a value of 1 if the company meets the recommendation and a value of 0 otherwise;
- 3) The value of corporate governance index is the percentage of recommendations followed by each company.
- 4) Then, the companies are grouped in “Poor CGI”; “Standard CGI”; “Good CGI”; and “Strong CGI”. This classification is based on the descriptive statistics of the variable CGI, as we explain in fourth chapter. This classification enables us to draw stronger conclusions on the economic relevance of our study.

Some observations arose from the elaboration of our corporate governance index:

- Partially adopted recommendations were considered “Not Adopted Recommendations”: Indeed, some CMVM’s recommendations have several points to comply. Some firms adopt a particular point within a recommendation, but on the whole the recommendation is not fully adopted.
- Not Applicable recommendations had the same treatment of “Adopted recommendations”, since companies cannot be prejudiced by the fact that the recommendation does not apply to the governance model adopted.
- Corporate Governance Index was elaborated based on the Compliance Statement, which is prepared by the company, and so, we do not have control if the companies really follow the recommendations.

Thus, our Corporate Governance Index, constructed on the basis of the recommendations issued by CMVM can be expressed as the number of Adopted

Recommendations and Not-Applicable Recommendations divided by the total number of Recommendations, multiplied by 100.

After defining the methodology to adopt in the construction of our Corporate Governance Index, we should now describe the CMVM's recommendations.

In October 1999, CMVM issued a set of non-compulsory recommendations on different subjects regarding corporate governance. These were classified into four groups: disclosure of information, voting and shareholder representation, adoption of certain corporate internal rules of best practice and structure and functioning of the board of directors. Since July 2013, CMVM's recommendations are grouped in six areas of governance: Voting and Corporate Control; Supervision, Management and Oversight; Remuneration; Auditing; Conflicts of interest and Related Party Transactions; Information. For each of these areas, CMVM issued a set of good practices in a total of 40 recommendations.

Notwithstanding, in our work we use the recommendations issued in 2010, since in 2012 the applicable recommendations were these and not the ones issued in July 2013. So, the sets of governance recommendations that we are assessing are the following: General Meeting; Board of Directors and Supervisory Board; Information and Auditing; Conflicts of Interest.

These four groups totalize 54 recommendations on corporate governance. As we said before, if the company complies with the recommendation we give a value of 1, otherwise we give a value of 0. In Annex II we present the recommendations of CMVM on Corporate Governance issued in 2010 (recommendation into force in 2012).

Having obtained, for each listed company, a specific Index value as to the degree of compliance with corporate governance recommendations, we then need to estimate its impact on the cost of debt. But, as the corporate governance is not the unique variable that can influence the cost of debt we need to formulate an econometric model where we define the cost of debt as a function of the corporate governance index and also a set of control variables, which may also affect the cost of debt. The model we want to test is defined as follows:

$$\mathbf{Cost\ of\ Debt}_t = f(\mathbf{Corporate\ Governance}_t; \mathbf{Control\ Variables}_t) \quad (3.1)$$

where t defines the year of the observation(s).



Thus, we want to create an econometric model defining the cost of debt as a function of corporate governance (measured through our corporate governance index) and firms' control variables, which also could have impact on the cost of debt. This analysis could be also alternatively carried out considering the following relation:

$$\mathbf{Cost\ of\ Debt}_{t+1} = f(\mathbf{Corporate\ Governance}_t; \mathbf{Control\ Variables}_t) \quad (3.2)$$

where t defines the year of the observation(s) and t+1 defines the following year.

However, we chose to use the model (3.1) instead of (3.2) given that in our view the proximity between banks and other credit institutions with companies enables the former to impact the changes on governance in the financing charges almost immediately, i.e., the impact of corporate governance, if any, can be reflected very quickly in the interest rate and other financing charges.

#### **Control Variables – Firm characteristics**

This research examines the possible relation between the quality of a firm's corporate governance and its cost of debt. However, besides the quality of corporate governance, other determinants of the cost of debt also exist. The “disturbing” effect of these factors is eliminated by introducing control variables in the model. The selection of the control variables is based on prior research about the determinants of the cost of debt, namely the studies described on the literature review section.

So, as the cost of debt is not determined only by corporate governance, to draw correct conclusions we have to include control variables in our analysis. These control variables could be from two types:

- Firm-level control variables
- Country level control variables (Macroeconomic)

In our work we use firm-level control variables, which could influence the cost of debt, to the extent that some of the variables used are quite important in a company's financial analysis process.

Regarding the use of macroeconomic control variables (e.g., inflation rate, interest rates, GDP growth, etc.) we should note that in this study their inclusion does not make sense

since this is a cross-sectional study for the year 2012, in which every companies included in the sample were subject to the same macroeconomic conditions.

The accounting based-ratios of general liquidity ratio (LIQ), Return on Assets (ROA), financial autonomy (AUT), debt-to-equity ratio (DTE), interest coverage ratio (ICV), operational leverage ratio (OPE) and financial leverage ratio (LEV) are used to proxy for firms' default risk. The long-term debt ratio (LTD) is also a potentially relevant influence on the cost of debt due to the interest rate term structure and possibly also because of risk considerations.

Firm size (SIZ) is included as a control variable because larger firms face lower risk, and thus are expected to have a lower cost of debt.

Ownership structure (OWN) is also included as a control variable since that when a company is concentrated in the hands of few large shareholders, these shareholders have the incentive and the interest to monitor the management or efficiently manage the company. There are some costs associated with this management: minority shareholders are able to free-ride on the monitoring efforts of the majority shareholders. The interests of the majority shareholders may not be aligned with the interests of minority shareholders, leading to agency cost between majority and minority shareholders.

The control variables used in our research are presented in the following table:

<b>Financial Area</b>	<b>Variable</b>	
Liquidity	General liquidity ratio	LIQ
Profitability	Return on Assets	ROA
Debt Structure	Financial Autonomy	AUT
	Debt to equity ratio	DTE
	Interest coverage ratio	ICV
	Financial leverage ratio	LEV
Debt's temporal structure	Long term debt ratio	LTD
Dimension	Size	SIZ
Firm's risk	Operational leverage ratio	OPE
Ownership structure	Ownership concentration index	OWN

**Table 1 List of control variables used in the research**

**General liquidity ratio:** The general liquidity ratio aims to analyze the companies' capacity to honor its financial liabilities in the short term, i.e., the extent to which the company is able to meet its financial obligations.

This ratio is calculated dividing current assets by current liabilities. Thus, it is possible to estimate if a company is in financial disruption in the short term or whether it is in a position to honor its commitments without difficulty. When the value of this ratio is greater than 1, it is often assumed that the company has a good financial situation in the short term. This ratio is calculated as Current Assets divided by Current Liabilities.

**Return on Assets:** This ratio is computed as the fraction between Earnings before Interests and Taxes (EBIT) and Capital Employed where Capital employed is equal to the sum of Equity and Financial Debt. It shows the return of the resources applied in both fixed and current assets. The company's management is concerned that with having a minimum amount of assets generating the highest possible return.

The ratio Return on Equity (ROE), calculated as Net Income divided by Total Equity could be included in our analysis as an alternative measure to profitability variables. Indeed, this ratio expresses the profitability of the company's equity and it is from a huge utility since one of the biggest worries of investors is the profitability of their investments. However, ROE is not used in our analysis, since this ratio is to a great extent jointly determined by the combination of ROA and debt variables, both of which are already included in the analysis.

**Financial Autonomy:** This indicator is related to the companies' financial structure and expresses the relation between debt and equity. This ratio shows the extent to which the asset is being financed by equity and debt capital, i.e., the financial effort of shareholders and creditors. This ratio is calculated as Total Equity divided by Total Assets.

**Debt to Equity ratio:** This is another ratio used to study the capital structure of a company, i.e., to analyze the relation between debt and equity. Firms with a lower debt to equity ratio should possess less financial risk and therefore enjoy lower cost of debt. This ratio is calculated as Financial Debt divided by Equity.

**Interest Coverage ratio:** This is another measure of financial structure calculated dividing the Earnings before interests and taxes (EBIT) by Interest expenses. This indicator measures the company's ability to pay the interests on existing debt. The lower the ratio, the higher the debt burden of the company and the higher the probability of bankruptcy. If this indicator is less than 1, it means that the company is struggling to generate the necessary cash flow to pay the interests of their liabilities.

The level of debt is determined by the company's investment and financing policies and may also influence the choice of Corporate Governance model, due to agency issues between shareholders and managers. According to Jensen (1986), debt is a mechanism to reduce the agency problems between managers and shareholders. The agency risk exists because the company has free cash flow (cash flow higher than the required to fund projects with  $NPV > 0$ ). With the company's debt, managers will have to release the free cash flow necessary to meet debt service and thus will not invest the free cash flow into investments with  $NPV < 0$ . A company with a higher interest coverage ratio may be more likely to have greater agency problems between managers and shareholders, as it releases a higher amount of cash flow.

**Financial Leverage ratio:** Companies still face the risk of financial nature (volatility risk of variable yield securities, exchange rate risk, interest rate risk), which can be measured through the financial leverage degree. This variable measures the impact of a percentage change in operating results on a variation in net income. The greater the level of debt, the greater will be the amount of interests to be paid and the greater will be the financial leverage ratio. This results into a higher level of financial risk. This ratio is calculated dividing the Earnings Before Interests and Taxes (EBIT) by Earnings Before Taxes (EBT).

**Long-term debt ratio:** This ratio is calculated by taking the company's long-term debt and dividing it by the total amount of debt (Long-term plus short-term debt). The greater the average maturity of the firm's debt, the higher the ratio. All else constant, greater debt maturity is accompanied by a higher cost of debt, but the specific term structure of general interest rates in the economy may sometimes determine otherwise.

**Size:** Ashbaugh-Skaife et al. (2006) included firm size in their research as a control variable because larger firms face lower risk, and thus are expected to have higher credit ratings. Due to this relation, it is expected that companies with higher credit ratings will benefit from a lower cost of debt. Based on previous research we define Size as the natural logarithm of total assets.

**Operational Leverage ratio:** The operational leverage ratio (used as a measure of operational risk) measures the impact of a percentage change in the quantity produced and sold on the percentage change in operating income. In other words the operating leverage degree expresses the extent to which a variation in operating results is motivated by a percentage change in the quantity produced and sold. Thus, this variable measures the impact of fixed costs. The greater the amount of fixed costs, the higher is the operational risk. Therefore, the greater the sensitivity of the company's operating results to a variation of the quantities produced and sold. This ratio is calculated dividing the Gross Margin by Earnings Before Interests and Taxes (EBIT), where Gross Margin is defined as the total amount of “sales and services provided” less the amount of “Cost of goods sold and materials consumed”.

**Ownership Concentration:** As measure of ownership concentration we use the Herfindahl Index. This index is widely used as a method to assess the concentration degree in a market. In our study we calculate the Herfindahl Index of the three largest shareholders with qualified participation. The index is computed as follows:

$$OWN_i = \sum_{t=1}^n (S_{i,t})^2 \quad (3.3)$$

Where  $OWN_i$  is the Ownership Concentration index of company  $i$ ;

And  $S_{i,t}$  is the qualified participation of shareholder  $t$  on company  $i$

In this case the index value will vary between 0 and 1. The higher the index, the larger will be the shareholder concentration. For each of the companies the top three qualified participations were considered.

Given the above, we present in the following table all the variables included in the study, as well as their definition and expected signs.

<b>Variable</b>	<b>Definition</b>	<b>Expected sign</b>
COD	Interests and similar expenses charged during the year divided by the average short and long term debt during the same year, multiplied by 100.	N/A
CGI	Adopted Recommendations and Not-Applicable Recommendations divided by the total Recommendations, multiplied by 100.	Negative
LIQ	Current Assets divided by Current Liabilities.	Negative
ROA	Earnings Before Interests and Taxes (EBIT) divided by Capital Employed.	Negative
AUT	Total Equity divided by Total Assets.	Negative
DTE	Financial Debt divided by Equity.	Positive
ICV	Earnings before interests and taxes (EBIT) divided by Interest expenses.	Negative
LEV	Earnings Before Interests and Taxes (EBIT) divided by Earnings Before Taxes (EBT).	Positive
LTD	Long-term debt divided it by the total amount of debt.	Positive/Negative
SIZ	Natural logarithm of total assets.	Negative
OPE	Gross Margin divided by Earnings Before Interests and Taxes (EBIT).	Positive
OWN	Herfindahl Index of the three largest shareholders with qualified participation.	Negative

**Table 2 Variables included in the study, definition and expected sign**

### Dummy Variables – Industry Risk

In order to control for industry effects we opted to use 9 dummy variables. These dummies are defined as follows:

$$Dummy_i = \begin{cases} 1 & \text{if the company belongs to industry } i \\ 0 & \text{otherwise} \end{cases} \quad (3.4)$$

Where “i” defines the industry code according to Industry Classification Benchmark. The list of all dummy variables included in our study is presented in the following table:

<b>Variable</b>	<b>Industry</b>
Dummy0001	0001 - Oil&Gas
Dummy1000	1000 - Basic Materials
Dummy2000	2000 - Industrials
Dummy3000	3000 - Consumer Goods
Dummy5000	5000 - Consumer Services
Dummy6000	6000 - Telecommunications
Dummy7000	7000 - Utilities
Dummy8000	8000 - Financials
Dummy9000	9000 - Technology

**Table 3 List of dummy variables included in the study**

## Descriptive Statistics

We construct a cross-section study using 42 Portuguese listed companies (considering the criteria defined in this chapter) for the year 2012. The year chosen for this study was 2012 because it was the most recent year for which we had available financial and governance data. The final list of companies is presented in annex II.

Next, we present the main characteristics and descriptive statistics of our sample. Starting for its industry composition we can see in the table below that the most representative sectors in our sample are 2000 - Industrials<sup>4</sup>, with 12 out of 42 companies (28,6%) and 5000 – Consumer Services (28,6%). We can also conclude that using the disaggregation by Industry according to the ICB - Industry Classification Benchmark, (instead of disaggregate by supersector, sector or subsector) our sample includes 9 of the 10 industries (the industry is lacking is 4000 – Health Care). For this reason we believe this disaggregation is the optimal to do our econometric tests and to draw conclusions.

<b>Industry</b>	<b>N</b>	<b>%</b>
0001 - Oil&Gas	1	2,4%
1000 - Basic Materials	4	9,5%
2000 - Industrials	12	28,6%
3000 - Consumer Goods	3	7,1%
5000 - Consumer Services	12	28,6%
6000 - Telecommunications	2	4,8%
7000 - Utilities	3	7,1%
8000 - Financials	1	2,4%
9000 - Technology	4	9,5%
Total	42	100,0%

**Table 4 Number of companies in each industry**

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<sup>4</sup> The industry classification was elaborated according with Industry Classification Benchmark. The Industry Classification Benchmark (ICB) is an industry classification taxonomy launched by Dow Jones and FTSE in 2005 and now owned solely by FTSE International. It is used to segregate markets into sectors within the macroeconomy. The ICB uses a system of 10 industries, partitioned into 19 supersectors, which are further divided into 41 sectors, which then contain 114 subsectors. The ICB is used globally (though not universally) to divide the market into increasingly specific categories, allowing investors to compare industry trends between well-defined subsectors. The ICB replaced the legacy FTSE and Dow Jones classification systems on 3 January 2006, and is used today by NASDAQ, NYSE and several other markets around the globe.

## Continuous Variables

The following table presents descriptive statistics for the several variables included in our study.

Variable	Mean	Std. Dev.	25%	50%	75%	Max	Min
COD	0,053	0,021	0,039	0,049	0,063	0,115	0,023
CGI	0,869	0,107	0,815	0,898	0,958	1,000	0,556
LIQ	0,973	0,578	0,574	0,870	1,347	2,630	0,130
ROA	0,150	0,172	0,056	0,103	0,174	0,808	0,001
AUT	0,300	0,197	0,147	0,275	0,476	0,908	0,008
DTE	4,581	2,100	3,121	4,232	6,141	9,389	1,656
ICV	4,322	3,646	1,550	3,547	5,986	15,337	0,233
LEV	1,666	2,754	0,539	1,216	1,816	18,278	0,003
LTD	0,608	0,243	0,454	0,679	0,759	1,000	0,000
SIZ	8,842	0,785	8,308	8,784	9,440	10,630	7,108
OPE	4,472	2,493	2,812	4,041	5,632	9,391	1,029
OWN	0,280	0,184	0,128	0,254	0,414	0,730	0,023

**Table 5 Descriptive statistics – Continuous variables**

Regarding the Cost of Debt (COD), this is characterized by an average value of 5,3%, ranging between 2,3% and 11,5%, that seems to be a pronounced variation which can be explained by the different risk characteristics associated to the several industries represented in our sample.

Our Corporate Governance Index (CGI) varies between a minimum of 55,6% and a maximum of 100%, with an average of 86,9%, which indicates that on average Portuguese listed companies considered in this study fulfill approximately 86,9% of the recommendation issued by CMVM, which can be considered an high value.

We should also note that the minimum value corresponds to slightly more than half of the recommendations issued by CMVM, and there is at least one company that fully complies with the recommendations of corporate governance.



## Discrete Variables

	Sector								
	0001	1000	2000	3000	5000	6000	7000	8000	9000
i=0									
N	41	38	30	39	30	40	39	41	38
%	97,6%	90,5%	71,4%	92,9%	71,4%	95,2%	92,9%	97,6%	90,5%
i=1									
N	1	4	12	3	12	2	3	1	4
%	2,4%	9,5%	28,6%	7,1%	28,6%	4,8%	7,1%	2,4%	9,5%

**Table 6 Descriptive statistics – Discrete variables**

The nine dummy variables are control variables of the risk associated to each industry. In this case we should note the fact that 57,2% of the companies are concentrated in just two industries: 2000-Industrials and 5000-Consumer Services. On the other hand there are sectors that are represented by only one company: 0001-Oil&Gas and 8000-Financials and, as already mentioned, there is one industry (4000 – Healthcare) which is not represented in our sample.

Table 7 presents the correlations among the variables included in our analysis. The correlations between each of the variables and the cost of debt are statistically significant at the 0,1 level or below except for AUT and LTD, which are insignificant. Specifically, we find that DTE, LEV, OPE, and OWN are significantly positively correlated with COD, whereas CGI, ICV, LIQ, ROA and SIZ are significantly negatively correlated with COD.

Table 7 - Correlation Matrix

	AUT	CGI	DTE	COD	ICV	LEV	LIQ	LTD	OPE	OWN	ROA	SIZ
AUT	1,000											
CGI	<b>0,170</b>	1,000										
DTE	-0,503	<b>-0,013</b>	1,000									
COD	-0,348	<b>-0,473</b>	<b>0,334</b>	1,000								
ICV	0,349	<b>0,215</b>	<b>-0,196</b>	<b>-0,431</b>	1,000							
LEV	<b>-0,096</b>	<b>0,011</b>	<b>0,268</b>	<b>0,080</b>	<b>-0,050</b>	1,000						
LIQ	<b>0,084</b>	<b>0,206</b>	<b>-0,159</b>	<b>-0,207</b>	<b>0,102</b>	<b>-0,161</b>	1,000					
LTD	<b>0,112</b>	0,579	<b>-0,019</b>	-0,397	<b>0,060</b>	<b>0,055</b>	0,330	1,000				
OPE	<b>-0,204</b>	<b>0,033</b>	<b>0,155</b>	<b>0,192</b>	<b>-0,092</b>	<b>0,188</b>	<b>-0,008</b>	<b>0,170</b>	1,000			
OWN	<b>0,053</b>	<b>-0,208</b>	-0,269	<b>0,007</b>	<b>-0,123</b>	<b>0,114</b>	<b>-0,010</b>	<b>0,036</b>	<b>0,180</b>	1,000		
ROA	0,466	<b>-0,011</b>	<b>0,061</b>	<b>-0,077</b>	<b>0,033</b>	<b>-0,169</b>	<b>-0,298</b>	<b>0,085</b>	-0,396	<b>0,159</b>	1,000	
SIZ	<b>-0,203</b>	<b>0,226</b>	0,254	<b>-0,092</b>	<b>0,225</b>	<b>0,050</b>	<b>0,026</b>	0,268	<b>0,134</b>	-0,284	-0,212	1,000

Table 7 Correlations

Notes: Bold text indicates significance at the 10% level or better.

#### 4. Econometric Analysis – Empirical study

##### 4.1. The impact of corporate governance on the cost of debt

The purpose of this study is to analyze the relation between corporate governance practices adopted by Portuguese companies and the cost of debt. To analyze this relation we constructed a corporate governance index as previously explained, and we specified an econometric model as follows:

$$\text{Cost of Debt}_t = f(\text{Corporate Governance}_t; \text{Control Variables}_t) \quad (4.1)$$

In order to draw conclusions about the impact of corporate governance on the cost of debt, we control several companies' characteristics on the following areas:

- Liquidity: General Liquidity Ratio (LIQ);
- Profitability: Return on Assets (ROA);
- Debt structure: We used the following alternative variables - Financial Autonomy (AUT); Debt to Equity ratio (DTE); Interest Coverage ratio (ICV); Financial leverage ratio (LEV);
- Debt's temporal structure: Long term debt ratio (LTD);
- Companies' dimension: Size (SIZ);
- Companies' risk: Operational leverage ratio (OPE);
- Ownership Structure: Ownership concentration ratio (OWN)

We estimated four alternative models using one explanatory variable for each of the areas that we identified potential explanatory variables for the cost of debt. To measure the debt structure we present 4 alternative variables, using one variable in each model, in order to identify the best control variable that explains the behavior of COD.

We should note that the variable LTD is not an alternative measure to Debt structure since a company may have a big or low proportion of long-term debt and a low level of debt, not affecting the cost of debt. On the other hand, long-term debt may have larger or smaller interest rates than the short-term debt, depending on the term structure of interest rates. Therefore, the expected sign of this variable is undefined.

Furthermore, all econometric tests carried out in our study were developed considering the dummy variables defined in the previous chapter, which control the industry's risk. Thus, we estimate the following econometric models:

Model 1:

$$COD_i = \beta_1 + \beta_2CGI_i + \beta_3LIQ_i + \beta_4ROA_i + \beta_5AUT_i + \beta_5LTD_i + \beta_6SIZ_i + \beta_7OPE_i + \beta_8OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.2)$$

Model 2:

$$COD_i = \beta_1 + \beta_2CGI_i + \beta_3LIQ_i + \beta_4ROA_i + \beta_5DTE_i + \beta_5LTD_i + \beta_6SIZ_i + \beta_7OPE_i + \beta_8OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.3)$$

Model 3:

$$COD_i = \beta_1 + \beta_2CGI_i + \beta_3LIQ_i + \beta_4ROA_i + \beta_5ICV_i + \beta_5LTD_i + \beta_6SIZ_i + \beta_7OPE_i + \beta_8OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.4)$$

Model 4:

$$COD_i = \beta_1 + \beta_2CGI_i + \beta_3LIQ_i + \beta_4ROA_i + \beta_5LEV_i + \beta_5LTD_i + \beta_6SIZ_i + \beta_7OPE_i + \beta_8OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.5)$$

Where each variable has the description previously described and

$Dummy_{i,j}$ : Dummy to the industry j, which assumes the value 1, if the company belongs to industry j and 0, otherwise, with  $j=1 \dots 9$  and  $i=1 \dots 42$

The linear regression model was estimated for the 42 sample observations by the Ordinary Least Squares Method and we obtained the results shown in table 8.

Table 8 – Econometric results of the four models estimated to study the impact of corporate governance on the cost of debt:

	Model 1		Model 2		Model 3		Model 4	
C	0,14027	***	0,11639	***	0,13693	***	0,14087	***
CGI	-0,08486	***	-0,09273	***	-0,08262	***	-0,09108	***
LIQ	0,00671		0,00333		0,00176		0,00815	
ROA	-0,02266	**	-0,02849	**	-0,01969	**	-0,01169	**
AUT	-0,03089	**	-		-		-	
DTE	-		0,00795	***	-		-	
ICV	-		-		-0,00263	**	-	
LEV	-		-		-		0,00260	*
LTD	-0,01653		-0,02371		-0,02337		-0,01877	
SIZ	-0,00439		-0,00178		-0,00128		-0,00214	
OPE	0,00361	**	0,00362	**	0,00353	**	0,00364	**
OWN	-0,00845	**	-0,00821	**	-0,01582	**	-0,01533	**
R <sup>2</sup>	0,46132		0,57581		0,54005		0,47416	
Adj. R <sup>2</sup>	0,21657		0,40433		0,26578		0,18762	
F-Stat	1,33813	**	2,12105	***	1,83459	***	1,41892	**
Obs.	42		42		42		42	

**Table 8 Econometric results**

\*\*\* Statistical significance at the 1% level

\*\* Statistical significance at the 5% level

\* Statistical significance at the 10% level

We developed 4 alternative models in order to reach the best model that enables us to draw conclusions about the impact of corporate governance on the cost of debt. Our analysis includes all the variables described in the previous chapter, excluding the variables to study the debt policy, which are analyzed one by one in the four alternative models. Model 1, which analyzes the variable AUT as the alternative measure to debt structure is statistically significant at 5% level of significance, while all the other models analyzed are significant at the 1% level of significance.

All the models estimated show that LIQ, LTD and SIZ are not significant, and we conclude that LTD, which we did not know the expected sign, has negative impact on the cost of debt. The variable CGI is statistically significant at the 1% level of significance in the four models. The variables ROA, OPE and OWN are statistically significant at 5% level of significance. Comparing the four models analyzed, we conclude that the four alternative measures of debt policy are statistically significant (LEV is statistically significant at 10% level of significance; AUT and ICV are

significant at 5% level of significance and DTE is significant at 1% level of significance).

Regarding the significance of the estimated models we can conclude that models 1 and 4 are statistically significant at 5% level of significance, while models 2 and 3 are significant at 1% level of significance.

We conclude that DTE is the best measure, since it is the variable that shows the highest statistical significance (significant at 1% level of significance), as well as the best R-Squared (57,58%) and Adjusted-R-Squared (40,43%). The alternative specifications to measure debt policy continue to show the statistical significance of CGI on the cost of debt and its impact remains fairly high.

In our model 2, which we believe that is our best model to study the impact of corporate governance on the cost of debt, since it is the model where we estimate the best variable to describe the impact of debt usage (DTE) we obtained a  $R^2$  of 57,58% and an adjusted  $R^2$  of 40,43%, which is an acceptable value for this kind of studies, where the sample is relatively small. Furthermore, our regression is significant at 1% level of significance.

Our variable in study (Corporate Governance, measured by CGI), is statistically significant at 1% level and it has a significant impact on the cost of debt. Indeed, the coefficient of CGI is -0,09273, meaning that when the CGI increases in 1%, the Cost of Debt reduces in 0,09273%, which seems to us an interesting and significant result. Indeed, regarding the sign, this result is in accordance with our expectation; however, the impact is extremely high, probably higher than what we would expect.

Generally, we conclude that there are no significant differences when we test alternative variables to measure the debt policy. The impact of Corporate Governance Index on the Cost of Debt remains very high in all equations estimated, and we obtained high values to R-Squared and Adjusted R-Squared, which signifies that COD is explained in a large amount by the variables introduced in our model.

#### **4.2. The impact of corporate governance on the cost of debt – groups of recommendations**

After we have analyzed the impact of corporate governance on the cost of debt, now we want to study which group of CMVM's recommendations has the highest impact in our explained variable (COD).

We recall that our corporate governance index is constructed based on the CMVM's recommendations on corporate governance, which are grouped in four areas of governance: General Meeting; Board of Directors and Supervisory Board; Information and Auditing; Conflicts of Interest.

To gain further insights on which categories of recommendations have a stronger impact on the cost of debt, we disaggregated our CGI in order to assess the impact of each of these groups on the cost of debt. The new variables CGIA, CGIB, CGIC and CGID were thus computed as the number of Adopted Recommendations and Non-Applicable Recommendations of each group divided by the total number of Recommendations of each group, multiplied by 100. The following table shows the calculation method of each variable:

<b>Group of CMVM's Recommendations</b>	<b>Variable</b>	<b>Total of Recommendations</b>	<b>Definition</b>
General Meeting	CGIA	11	Adopted Recommendations and Not-Applicable Recommendations from General Meeting recommendations divided by the total Recommendations from General Meeting, multiplied by 100.
Board of Directors and Supervisory Board	CGIB	36	Adopted Recommendations and Not-Applicable Recommendations from Board of Directors and Supervisory Board recommendations divided by the total Recommendations from Board of Directors and Supervisory Board, multiplied by 100.
Information and Auditing	CGIC	5	Adopted Recommendations and Not-Applicable Recommendations from Information and Auditing recommendations divided by the total Recommendations from Information and Auditing, multiplied by 100.
Conflicts of Interest	CGID	2	Adopted Recommendations and Not-Applicable Recommendations from Conflicts of Interest recommendations divided by the total Recommendations from Conflicts of Interest, multiplied by 100.

**Table 9 Corporate governance variables**

This analysis includes all the variables which were considered in the final model (equation 4.3). In equation 4.3 we replace CGI in four alternative models by CGIA, CGIB, CGIC and CGID.

Model 1:

$$COD_i = \beta_1 + \beta_2 CGIA_i + \beta_3 LIQ_i + \beta_4 ROA_i + \beta_5 DTE_i + \beta_5 LTD_i + \beta_6 SIZ_i + \beta_7 OPE_i + \beta_8 OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.6)$$

Model 2:

$$COD_i = \beta_1 + \beta_2 CGIB_i + \beta_3 LIQ_i + \beta_4 ROA_i + \beta_5 DTE_i + \beta_5 LTD_i + \beta_6 SIZ_i + \beta_7 OPE_i + \beta_8 OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.7)$$

Model 3:

$$COD_i = \beta_1 + \beta_2 CGIC_i + \beta_3 LIQ_i + \beta_4 ROA_i + \beta_5 DTE_i + \beta_5 LTD_i + \beta_6 SIZ_i + \beta_7 OPE_i + \beta_8 OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.8)$$

Model 4:

$$COD_i = \beta_1 + \beta_2 CGID_i + \beta_3 LIQ_i + \beta_4 ROA_i + \beta_5 DTE_i + \beta_5 LTD_i + \beta_6 SIZ_i + \beta_7 OPE_i + \beta_8 OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.9)$$

Table 10 – Econometric results of the four models estimated to study the impact of each group of corporate governance recommendations on the cost of debt:

	Model 1		Model 2		Model 3		Model 4	
C	0,08910	**	0,12004	**	0,09891	**	0,07001	**
CGIA	-0,01630	**	-		-		-	
CGIB	-		-0,06766	**	-		-	
CGIC	-		-		-0,06418	***	-	
CGID	-		-		-		-0,03021	**
LIQ	0,00311		0,00384		0,01081		0,00525	
ROA	-0,01297	**	-0,017433	**	-0,01996	**	-0,00207	**
DTE	0,00518	***	0,00498	***	0,00752	***	0,00520	***
LTD	-0,04223		-0,02421		-0,03765		-0,03722	
SIZ	-0,00252		-0,00253		-0,00282		-0,00066	
OPE	0,00128	*	0,00122	*	0,00167	*	0,00130	*
OWN	-0,02335	**	-0,01575	**	-0,03947	**	-0,02959	**
R <sup>2</sup>	0,37350		0,53459		0,54716		0,50988	
Adj. R <sup>2</sup>	0,17457		0,23673		0,25734		0,19618	
F-Stat	1,93152	**	1,79477	**	1,88798	**	1,62541	**
Obs.	42		42		42		42	

Table 10 Results of Econometric results for CGI variables



**\*\*\* Statistical significance at the 1% level**  
**\*\* Statistical significance at the 5% level**  
**\* Statistical significance at the 10% level**

The results show that the recommendations of Board of Directors and Supervisory Board and Information and Auditing have the highest impact on the cost of debt, but it is interesting to note that compliance with all sets of recommendations have a significant impact. In model 2, our variable in study (Corporate Governance recommendation on Board of Directors and Supervisory Board, measured by CGIB), is statistically significant at 5% level and it has a sizeable impact on the cost of debt. Indeed, the coefficient of CGI is -0,06766, meaning that when the CGIB increases 1%, the Cost of Debt is reduced by 0,06766%. Regarding the measure of CMVM's recommendations on Information and Auditing we observe an impact of -0,06418, which signifies that when the CGIC increases in 1%, the COD decreases by 0,06418%. This variable is statistically significant at the 1% level. Both econometric specifications (Model 2 and Model 3) are significant at 5% level of significance. We also obtained relatively high values for R-Squared and Adjusted R-Squared (53,46% and 23,67% respectively in model 2; 54,72% and 25,73% respectively in model 3).

The impacts of CGI observed in models 1 and 4 (General Meeting and Conflicts of Interest respectively) are however not as strong as in models 2 and 3. Indeed, our results suggest that CGIA (measure of General Meeting recommendations) has an impact of -0,01630, which means that when CGIA increases in 1%, the COD decreases in 0,01630%. Regarding the variable CGID (measure of Conflicts of Interest), the results show that when CGID increases in 1%, the COD decreases in 0,03021%. These econometric specifications are also significant at 5% level.

All the other variables considered in this analysis maintain the signs observed in the results reported in table 8.

Thereby, our empirical evidence suggests that the groups of CMVM's recommendations that have the highest impact on the cost of debt are Board of Directors and Supervisory Board and Information and Auditing, even though all sets of recommendations bear a significant statistical influence on the cost of debt.

### 4.3. Economic Relevance

In the previous sections we concluded that there was a relevant statistical impact of corporate governance on the cost of debt. Now, we study the economic relevance of the impact of corporate governance on the cost of debt, i.e., we want to know the variation in debt spreads when we compare the worst companies in terms of governance with the best companies. In order to do it, we estimate the cost of debt incurred by each company when it faces the coefficients obtained in the econometric test.

This analysis includes all the variables included in our final model (the model that we consider that is the best equation to study the impact of corporate governance on the cost of debt, i.e., the model which measures debt structure with the variable DTE), including the ones statistically non-significant. Thus we use the equation (4.3) to determine the economic relevance of our results.

$$COD_i = \beta_1 + \beta_2 CGI_i + \beta_3 LIQ_i + \beta_4 ROA_i + \beta_5 DTE_i + \beta_5 LTD_i + \beta_6 SIZ_i + \beta_7 OPE_i + \beta_8 OWN_i + \sum_{j=1}^9 Dummy_{i,j} + \varepsilon_i \quad (4.3)$$

Therefore we will use a simulation analysis with the following equation:

$$COD_i = 0,111639 + (-0,09273)CGI_i + 0,00333LIQ_i + (-0,02849)ROA_i + 0,00795DTE_i + (-0,2371)LTD_i + (-0,00178)SIZ_i + 0,00362OPE_i + (-0,00821)OWN \quad (4.10)$$

According to the results provided in table 12 we can group the companies in accordance with their corporate governance index (CGI). Grouping the companies into sub-groups enables us to draw stronger conclusions about the economic relevance of the impact of corporate governance on the cost of debt. Thus, we group the companies according to quartiles of corporate governance index (CGI), i.e.:

Corporate Governance Index (CGI)		
Quartile	CGI range	Classification
[Min -1st Quartile]	]0,556 - 0,815]	Poor CGI
]1st Quartile - 2nd Quartile]	]0,815 - 0,898]	Standard CGI
]2nd Quartile - 3rd Quartile]	]0,898 - 0,958]	Good CGI
]3rd Quartile - Max]	]0,958 - 1,000]	Strong CGI

**Table 11 Classification of CGI ranges**

The companies with CGI between the minimum value and the first quartile are classified as companies with poor corporate governance index;

The companies with CGI between the first quartile and the second quartile are classified as companies with standard corporate governance index. This classification is considered “standard” because the average value of CGI is comprised within this range (0,869). The companies with CGI between the second quartile and the third quartile are classified as companies with good CGI, as its index is above the average. The companies with CGI higher than the third quartile (0,958) are companies with strong corporate governance policies, since these companies comply with almost 96% of the CMVM’s recommendations. Now we are able to conclude if the companies with better corporate governance benefit from a lower cost of debt. According to the results provided in table 12 we can conclude the following:

- Companies with “Poor CGI” have on average a cost of debt of 7,24%
- Companies with “Standard CGI” have on average a cost of debt of 5,60%
- Companies with “Good CGI” have on average a cost of debt of 4,77%
- Companies with “Strong CGI” have on average a cost of debt of 4,16%

This means that the statistical impact of corporate governance on the cost of debt shown above is reflected in effective reduction on the cost of debt for companies with the best corporate governance practices (measured through corporate governance index). A company with a standard CGI has, on average, a cost of debt 22,7% lower than a company with poor CGI, while a company with strong CGI has, on average, a cost of debt 12,8% lower than a company with good CGI. There is also a huge variation on the cost of debt for a company with poor CGI and a company with strong CGI. Indeed, the companies with better CGI have a cost of debt lower in 42,5% comparing to companies with poor CGI.

Average COD	COD	β1	β2	CGI	β3	LIQ	β4	ROA	β5	DTE	β6	LTD	β7	SIZ	β8	OPE	β9	OWN
7,24%	0,097	0,116	-0,093	0,556	0,003	0,853	-0,028	0,119	0,008	7,135	-0,024	0,747	-0,002	9,052	0,004	2,787	-0,008	0,032
	0,074	0,116	-0,093	0,630	0,003	1,357	-0,028	0,068	0,008	4,657	-0,024	0,791	-0,002	9,692	0,004	4,041	-0,008	0,254
	0,072	0,116	-0,093	0,685	0,003	1,411	-0,028	0,033	0,008	5,625	-0,024	0,950	-0,002	9,851	0,004	4,158	-0,008	0,483
	0,126	0,116	-0,093	0,704	0,003	0,384	-0,028	0,151	0,008	7,625	-0,024	0,000	-0,002	8,241	0,004	9,033	-0,008	0,051
	0,077	0,116	-0,093	0,722	0,003	0,864	-0,028	0,000	0,008	3,180	-0,024	0,527	-0,002	7,466	0,004	8,184	-0,008	0,508
	0,066	0,116	-0,093	0,741	0,003	1,686	-0,028	0,312	0,008	4,180	-0,024	0,373	-0,002	8,809	0,004	4,158	-0,008	0,318
	0,044	0,116	-0,093	0,759	0,003	0,933	-0,028	0,104	0,008	3,729	-0,024	0,814	-0,002	10,630	0,004	1,997	-0,008	0,052
	0,078	0,116	-0,093	0,759	0,003	0,130	-0,028	0,017	0,008	4,370	-0,024	0,085	-0,002	8,364	0,004	4,908	-0,008	0,491
	0,087	0,116	-0,093	0,796	0,003	1,055	-0,028	0,169	0,008	5,184	-0,024	0,584	-0,002	8,224	0,004	9,369	-0,008	0,056
	0,042	0,116	-0,093	0,796	0,003	1,662	-0,028	0,192	0,008	2,074	-0,024	0,691	-0,002	10,143	0,004	5,230	-0,008	0,211
	0,064	0,116	-0,093	0,815	0,003	0,875	-0,028	0,106	0,008	2,831	-0,024	0,514	-0,002	8,336	0,004	8,336	-0,008	0,248
0,040	0,116	-0,093	0,815	0,003	0,649	-0,028	0,141	0,008	3,100	-0,024	0,701	-0,002	8,577	0,004	4,041	-0,008	0,730	
5,60%	0,051	0,116	-0,093	0,833	0,003	1,069	-0,028	0,017	0,008	1,921	-0,024	0,790	-0,002	9,253	0,004	9,391	-0,008	0,649
	0,041	0,116	-0,093	0,833	0,003	0,697	-0,028	0,102	0,008	1,921	-0,024	0,674	-0,002	8,350	0,004	5,695	-0,008	0,254
	0,068	0,116	-0,093	0,833	0,003	2,566	-0,028	0,055	0,008	3,446	-0,024	0,579	-0,002	7,949	0,004	6,575	-0,008	0,206
	0,051	0,116	-0,093	0,852	0,003	0,275	-0,028	0,045	0,008	3,527	-0,024	0,712	-0,002	8,623	0,004	5,787	-0,008	0,292
	0,050	0,116	-0,093	0,852	0,003	0,340	-0,028	0,007	0,008	1,812	-0,024	0,167	-0,002	8,544	0,004	4,726	-0,008	0,124
	0,024	0,116	-0,093	0,852	0,003	0,465	-0,028	0,726	0,008	3,258	-0,024	0,796	-0,002	9,690	0,004	5,230	-0,008	0,326
	0,050	0,116	-0,093	0,870	0,003	0,339	-0,028	0,309	0,008	3,102	-0,024	0,726	-0,002	7,633	0,004	8,809	-0,008	0,415
	0,075	0,116	-0,093	0,870	0,003	0,856	-0,028	0,067	0,008	4,296	-0,024	0,427	-0,002	8,990	0,004	9,184	-0,008	0,323
0,093	0,116	-0,093	0,889	0,003	0,935	-0,028	0,176	0,008	8,254	-0,024	0,437	-0,002	9,556	0,004	7,102	-0,008	0,357	
4,77%	0,040	0,116	-0,093	0,907	0,003	1,756	-0,028	0,808	0,008	4,975	-0,024	0,683	-0,002	8,340	0,004	4,541	-0,008	0,023
	0,037	0,116	-0,093	0,907	0,003	1,434	-0,028	0,419	0,008	3,840	-0,024	0,683	-0,002	9,435	0,004	4,662	-0,008	0,296
	0,072	0,116	-0,093	0,907	0,003	1,318	-0,028	0,106	0,008	8,041	-0,024	0,846	-0,002	10,303	0,004	3,663	-0,008	0,030
	0,060	0,116	-0,093	0,926	0,003	1,074	-0,028	0,131	0,008	6,403	-0,024	0,740	-0,002	8,268	0,004	3,076	-0,008	0,078

	0,042	0,116	-0,093	0,926	0,003	0,563	-0,028	0,098	0,008	5,313	-0,024	0,978	-0,002	9,651	0,004	2,998	-0,008	0,092
	0,073	0,116	-0,093	0,944	0,003	0,702	-0,028	0,059	0,008	6,313	-0,024	0,299	-0,002	8,837	0,004	5,444	-0,008	0,488
	0,059	0,116	-0,093	0,944	0,003	1,229	-0,028	0,160	0,008	6,738	-0,024	0,835	-0,002	9,626	0,004	3,935	-0,008	0,069
	0,041	0,116	-0,093	0,944	0,003	1,492	-0,028	0,221	0,008	4,621	-0,024	0,616	-0,002	7,981	0,004	2,322	-0,008	0,315
	0,026	0,116	-0,093	0,944	0,003	0,607	-0,028	0,082	0,008	3,617	-0,024	0,762	-0,002	9,781	0,004	1,530	-0,008	0,195
	0,029	0,116	-0,093	0,944	0,003	1,559	-0,028	0,001	0,008	2,029	-0,024	0,612	-0,002	8,818	0,004	2,885	-0,008	0,197
	0,079	0,116	-0,093	0,963	0,003	0,685	-0,028	0,059	0,008	9,389	-0,024	0,715	-0,002	9,103	0,004	2,913	-0,008	0,140
	0,020	0,116	-0,093	0,963	0,003	0,609	-0,028	0,222	0,008	1,755	-0,024	0,505	-0,002	9,279	0,004	3,993	-0,008	0,322
	0,034	0,116	-0,093	0,963	0,003	0,471	-0,028	0,061	0,008	4,672	-0,024	0,595	-0,002	8,760	0,004	1,053	-0,008	0,508
	0,073	0,116	-0,093	0,963	0,003	0,938	-0,028	0,143	0,008	8,493	-0,024	0,412	-0,002	9,442	0,004	2,235	-0,008	0,241
	0,030	0,116	-0,093	0,963	0,003	1,622	-0,028	0,026	0,008	1,656	-0,024	0,382	-0,002	8,330	0,004	3,461	-0,008	0,444
4,16%	0,037	0,116	-0,093	0,963	0,003	2,630	-0,028	0,027	0,008	4,283	-0,024	1,000	-0,002	8,115	0,004	3,086	-0,008	0,603
	0,059	0,116	-0,093	0,981	0,003	0,832	-0,028	0,092	0,008	7,348	-0,024	0,665	-0,002	9,207	0,004	2,228	-0,008	0,051
	0,062	0,116	-0,093	0,981	0,003	0,484	-0,028	0,255	0,008	7,348	-0,024	0,252	-0,002	8,301	0,004	1,650	-0,008	0,182
	0,040	0,116	-0,093	1,000	0,003	0,296	-0,028	0,003	0,008	3,966	-0,024	0,165	-0,002	8,543	0,004	1,336	-0,008	0,217
	0,013	0,116	-0,093	1,000	0,003	0,201	-0,028	0,358	0,008	3,966	-0,024	0,748	-0,002	8,172	0,004	1,053	-0,008	0,476
	0,010	0,116	-0,093	1,000	0,003	0,976	-0,028	0,066	0,008	2,413	-0,024	0,941	-0,002	7,108	0,004	1,029	-0,008	0,408

**Table 12 Results of Economic Relevance analysis**

Classification	Average COD	Variation
Poor CGI	7,24%	
Standard CGI	5,60%	-22,7%
Good CGI	4,77%	-14,8%
Strong CGI	4,16%	-12,8%

**Table 13 Results of Economic relevance analysis - variations**

#### 4.4. Robustness Analysis

To verify the evidence presented above we perform a robustness test that examines a subsample of the data.

The subsample consists in the exclusion of the 4 companies, i.e., Futebol Clube do Porto, Sport Lisboa e Benfica, Sporting Clube de Portugal and EDP Renováveis.

As discussed in the previous chapter, the inclusion of these companies in our analysis can be questioned due to the following reasons:

- Futebol Clube do Porto, Sport Lisboa e Benfica, Sporting Clube de Portugal: These are Sports companies (*Sociedades Anónimas Desportivas (SAD)*), whose financial year is different from the calendar year (Their financial year begins in July and ends in June). In order to ensure the harmony for the time period considered we excluded these companies since their financial year is different from the other companies.
- EDP Renováveis: From the corporate governance perspective this company would be included in the analysis since it is obliged to comply with the corporate governance rules (and Recommendations issued by CMVM), despite not being a national law company. However, EDP Renováveis follows the accounting and financial reporting rules adopted in Spain, and so their results could not be comparable to the other companies.

Hence we repeated the procedure performed on the sample of 42 observations, considering the effect of sectorial dummies. However, in this analysis we excluded the data of the four companies described below, performing the tests for 38 observations, obtaining the results presented in table 14.

We conclude that removing four observations from our sample, the regression remains statistically significant at 1% level of significance (in models 2 and 3) and CGI continues to have a significant negative impact on the cost of debt (in the four models analyzed).

Our best model is the model 2 (as the observed in table), which uses DTE to measure the debt policy, since DTE is the most statistically significant variable among the debt structure variables and the model 2 has the highest explanatory power.

We conclude that the impact of CGI in COD is lower than the results observed in table 8. Indeed, now the impact of CGI in COD is 0,07152 which signifies that when the CGI increases in 1%, the Cost of Debt reduces in 0,07152%.

This variable remains statistically significant at 1% level of significance, which ensures the robustness of our model.

The remaining variables maintain the signs and the statistical significance verified in the extended sample. The explanatory power of our model is not affected by the decrease of the sample size, since we obtained a R-Squared of 52,7% and the adjusted R-Squared of 41,9%.

Table 14 – Robustness analysis:

	Model 1		Model 2		Model 3		Model 4	
C	0,05771	***	0,06110	***	0,05989	***	0,06230	***
CGI	-0,07321	***	-0,07152	***	-0,06814	***	-0,07550	***
LIQ	0,00396		0,00042		0,00441		0,00217	
ROA	-0,00141	**	-0,00411		-0,00159	**	-0,00766	**
AUT	-0,00889	**	-		-		-	
DTE	-		0,00576	***	-		-	
ICV	-		-		-0,00154	**	-	
LEV	-		-		-		0,00204	*
LTD	-0,01218		-0,01228		-0,01301		-0,01299	
SIZ	-0,00439		-0,00178		-0,00128		-0,00214	
OPE	0,00146	**	0,00188	**	0,00153	**	0,00119	**
OWN	-0,00115	**	-0,00891	**	-0,01412	**	-0,01233	**
R <sup>2</sup>	0,47819		0,55819		0,53172		0,46433	
Adj. R <sup>2</sup>	0,24657		0,40112		0,27532		0,21822	
F-Stat	1,48617	**	1,51817	***	1,26230	***	1,5663	**
Obs.	38		38		38		38	

**Table 14 Results of Robustness analysis**

\*\*\* Statistical significance at the 1% level

\*\* Statistical significance at the 5% level

\* Statistical significance at the 10% level

## **5. Conclusions, Limitations and Suggestions for future research**

This dissertation investigated the impact of corporate governance on the cost of debt for Portuguese listed companies during the year 2012.

Our empirical evidence showed results in accordance with the expected, in what concerns the sign of the impact of corporate governance (measured through a corporate governance index) on the cost of debt.

Besides the statistical significance (at the 1% level) of these results we also show evidence on the economic relevance of corporate governance on the cost of debt. Indeed, the statistical impact of corporate governance on the cost of debt is reflected in effective reduction on the cost of debt for companies with the best corporate governance practices (measured through corporate governance index). A company with a standard CGI has, on average, a cost of debt 22,7% lower than a company with poor CGI, while a company with strong CGI has, on average, a cost of debt of 4,16% (12,8% lower than a company with good CGI). There is also a huge variation on the cost of debt for a company with poor CGI and a company with strong CGI. Indeed, the companies with better CGI have a cost of debt of 4,16% (42,5% lower than the average 7,24% reported for companies with poor CGI).

Our empirical evidence suggests also that the groups of CMVM's recommendations that have the highest impact on the cost of debt are Board of Directors and Supervisory Board and Information and Auditing, even though all individual sets of recommendations have statistical significance.

To summarize we may respond affirmatively to the two research questions explored in our research. On one hand we show evidence that Corporate Governance quality has a huge negative impact on the cost of debt. On the other hand we verified a large difference between the cost of debt incurred by companies with poor and strong corporate governance practices. These results support our idea that companies should try to improve their corporate governance policies and practices, namely by complying with the recommendations issued by *Comissão de Mercado dos Valores Mobiliários*, since it is a way to obtain economically significant financial benefits by lowering their cost of debt financing.

Limitations of our study or perspectives for future research could include: the limited size of our sample weakens the robustness of our results. The conclusions when we test



a sample with 38 observations are the same that we observed with 42 observations but the impact is not so high. For example the impact of CGI on the cost of debt decreases to a coefficient of 0,07152.

Notwithstanding, it is not easy to develop this kind of study for Portugal, where we have a limited number of listed companies. Furthermore, our study was conducted only for 1 year, and it would be interesting to carry out this study on a panel data basis. However, for Portugal, once again we have a serious problem: as the recommendations in governance were changed in 2010 and 2013, at best we could only develop this analysis for 2 years (2011 and 2012).

Another interesting research would be an international study, in order to draw stronger conclusions about the impact of corporate governance on the cost of debt. To do it, it would be necessary to develop a corporate governance index based on common recommendations, which would not be easy. Finally, we also leave for future research future refinements (only possible with a greater sample basis) aiming at analyzing the impact of potential endogeneity problems.

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## Annexes

### Annex I – List of the companies included in the study

Company	Sector
Altri, S.G.P.S., S.A.	2000 - Industrials
Brisa - Auto-Estradas de Portugal, S.A.	2000 - Industrials
Cimpor - Cimentos de Portugal, S.G.P.S., S.A.	2000 - Industrials
Cofina, S.G.P.S., S.A.	5000 - Consumer Services
Compta - Equipamentos e Serviços de Informática, S.A.	9000 - Technology
Corticeira Amorim, S.G.P.S., S.A.	3000 - Consumer Goods
EDP - Energias de Portugal, S.A.	7000 - Utilities
Estoril Sol – S.G.P.S., S.A.	5000 - Consumer Services
F.Ramada - Investimentos, S.G.P.S., S.A.	1000 - Basic Materials
Galp Energia, S.G.P.S., S.A.	0001 - Oil & Gas
GLINTT – Global Intelligent Technologies, S.G.P.S., S.A.	9000 - Technology
Grupo Média Capital, S.G.P.S., S.A.	5000 - Consumer Services
Grupo Soares da Costa, S.G.P.S., S.A.	2000 - Industrials
Ibersol, S.G.P.S., S.A.	5000 - Consumer Services
Imobiliária Construtora Grão Pará, S.A.	2000 - Industrials
Impresa, S.G.P.S., S.A.	5000 - Consumer Services
Inapa - Investimentos, Participações e Gestão, S.A.	1000 - Basic Materials
Jerónimo Martins – S.G.P.S., S.A.	5000 - Consumer Services
Lisgráfica - Impressão e Artes Gráficas, S.A.	2000 - Industrials
Martifer – S.G.P.S., S.A.	2000 - Industrials
Mota-Engil, S.G.P.S., S.A.	2000 - Industrials
Novabase – S.G.P.S., S.A.	9000 - Technology
Portucel - Empresa Produtora de Pasta de Papel, S.A.	1000 - Basic Materials
Portugal Telecom, S.G.P.S., S.A.	6000 - Telecommunications
Reditus – S.G.P.S., S.A.	9000 - Technology
REN - Redes Energéticas Nacionais, S.G.P.S., S.A.	7000 - Utilities
SAG GEST – Soluções Automóvel Globais, S.G.P.S., S.A.	5000 - Consumer Services
Semapa - Sociedade Investimento e Gestão, S.G.P.S., S.A.	1000 - Basic Materials
Sociedade Comercial Orey Antunes, S.A.	2000 - Industrials
Sonae – S.G.P.S., S.A.	5000 - Consumer Services
Sonae Capital, S.G.P.S., S.A.	8000 - Financials
Sonae Indústria, S.G.P.S., S.A.	2000 - Industrials
SONAECOM – S.G.P.S., S.A.	6000 - Telecommunications
Sumol + Compal, S.A.	3000 - Consumer Goods
Teixeira Duarte - Engenharia e Construções, S.A.	2000 - Industrials
Toyota Caetano Portugal, S.A.	2000 - Industrials
VAA - Vista Alegre Atlantis, S.G.P.S., S.A.	3000 - Consumer Goods

Zon Multimédia – Serviços de Telecomunicações e Multimédia, S.G.P.S., S.A.	5000 - Consumer Services
Futebol Clube do Porto - Futebol, S.A.D.	5000 - Consumer Services
Sport Lisboa e Benfica	5000 - Consumer Services
Sporting Clube de Portugal	5000 - Consumer Services
EDP Renováveis, S.A.	7000 - Utilities

## **Annex II – CMVM’s Recommendations issued in 2010 (into force in 2012)**

### **I. GENERAL MEETING**

#### **I.1 General Meeting Board**

I.1.1 The Presiding Board of the General Meeting shall be equipped with the necessary and adequate human resources and logistic support, taking the financial position of the company into consideration.

I.1.2 The remuneration of the Presiding Board of the General Meeting shall be disclosed in the Annual Report on Corporate Governance.

#### **I.2 Participation at the Meeting**

I.2.1 The requirement for the Board to receive statements for share deposit or blocking for participation at the general meeting shall not exceed 5 working days.

I.2.2 Should the general meeting be suspended, the company shall not compel share blocking during the interim period until the meeting is resumed and shall then prepare itself in advance as required for the first session.

#### **I.3 Voting and Exercising Voting Rights**

I.3.1 Companies shall not impose any statutory restriction on postal voting and whenever adopted or admissible, on electronic voting.

I.3.2 The statutory deadline for receiving early voting ballots by mail may not exceed three working days.

I.3.3 Companies shall ensure the level of voting rights and the shareholder’s participation is proportional, ideally through the statutory provision that obliges the one share-one vote principal. The companies that: i) hold shares that do not confer voting right; ii) establish non-casting of voting rights above a certain number, when issued solely by a shareholder or by shareholders related to former, do not comply with the proportionality principle.



#### **I.4 Resolution-Fixing Quorum**

I.4.1 Companies shall not set a resolution-fixing quorum that outnumbers that which is prescribed by law.

#### **I.5 Minutes and Information on Resolutions Passed**

I.5.1 Extracts from the minutes of the general meetings or documents with corresponding content must be made available to shareholders on the company's website within a five day period after the General Meeting has been held, irrespective of the fact that such information may not be classified as material information. The information disclosed shall cover the resolutions passed, the represented capital and the voting results. Said information shall be kept on file on the company's website for no less than a 3 year period.

#### **I.6 Measures on Corporate Control**

I.6.1 Measures aimed at preventing successful takeover bids, shall respect both the company's and the shareholders' interests. The company's articles of association that by complying with said principal, provide for the restriction of the number of votes that may be held or exercised by a sole shareholder, either individually or in concert with other shareholders, shall also foresee for a resolution by the General Assembly (5 year intervals), on whether that statutory provision is to be amended or prevails – without super quorum requirements as to the one legally in force – and that in said resolution, all votes issued be counted, without applying said restriction.

I.6.2. In cases such as change of control or changes to the composition of the Board of Directors, defensive measures shall not be adopted that instigate an immediate and serious asset erosion in the company, and further disturb the free transmission of shares and voluntary performance assessment by the shareholders of the members of the Board of Directors.

## **II. BOARD OF DIRECTORS AND SUPERVISORY BOARD**

### **II.1. General Points**

### **II.1.1. Structure and Duties**

II.1.1.1 The Board of Directors shall assess the adopted model in its Annual Report on Corporate Governance and pin-point possible hold-ups to its functioning and shall propose measures that it deems fit for surpassing such obstacles.

II.1.1.2 Companies shall set up internal control and risk management systems in order to safeguard the company's worth and which will identify and manage the risk. Said systems shall include at least the following components: i) setting of the company's strategic objectives as regards risk assumption; ii) identifying the main risks associated to the company's activity and any events that might generate risks; iii) analyse and determine the extent of the impact and the likelihood that each of said potential risks will occur; iv) risk management aimed at aligning those actual incurred risks with the company's strategic options for risk assumption; v) control mechanisms for executing measures for adopted risk management and its effectiveness; vi) adoption of internal mechanisms for information and communication on several components of the system and of risk-warning ; vii) periodic assessment of the implemented system and the adoption of the amendments that are deemed necessary.

II.1.1.3 The Board of Directors shall ensure the establishment and functioning of the internal control and risk management systems. The Supervisory Board shall be responsible for assessing the functioning of said systems and proposing the relevant adjustment to the company's needs.

II.1.1.4 The companies shall: i) identify the main economic, financial and legal risk that the company is exposed to during the exercise of its activity; ii) describe the performance and efficiency of the risk management system, in its Annual Report on Corporate Governance.

II.1.1.5 The Board of Directors and the Supervisory Board shall establish internal regulations and shall have these disclosed on the company's website.

### **II.1.2 Governance Incompatibility and Independence**

II.1.2.1 The Board of Directors shall include a number of non-executive members that ensure the efficient supervision, auditing and assessment of the executive members' activity.

II.1.2.2 Non-executive members must include an adequate number of independent members. The size of the company and its shareholder structure must be taken into account when devising this number and may never be less than a fourth of the total number of Board Directors.

II.1.2.3 The independency assessment of its non-executive members carried out by the Board of Directors shall take into account the legal and regulatory rules in force concerning the independency requirements and the incompatibility framework applicable to members of other corporate boards, which ensure orderly and sequential coherence in applying independency criteria to all the company. An independent executive member shall not be considered as such, if in another corporate board and by force of applicable rules, may not be an independent executive member.

### **II.1.3 Eligibility and Appointment Criteria**

II.1.3.1 Depending on the applicable model, the Chair of the Supervisory Board and of the Auditing and Financial Matters Committees, shall be independent and adequately competent to carry out his/her duties.

II.1.3.2 The selection process of candidates for non-executive members shall be conjured so as prevent interference by executive members.

### **II.1.4 Policy on the Reporting of Irregularities**

II.1.4.1 The company shall adopt a policy whereby irregularities occurring within the company are reported. Such reports shall contain the following information: i) the means by which such irregularities may be reported internally, including the persons that are entitled to receive the reports; ii) how the report is to be handled, including confidential treatment, should it be required by the reporter.

II.1.4.2 The general guidelines on this policy shall be disclosed in the Annual Report of Corporate Governance.

### **II.1.5 Remuneration**

II.1.5.1 The remuneration of the Members of the Board of Directors shall be structured so that the formers' interests are capable of being aligned with the long-term interests of the company. Furthermore, the remuneration shall be based on performance assessment and shall discourage taking on extreme risk. Thus, remunerations shall be structured as follows: i) The remuneration of the Board of Directors carrying out executive duties shall include a variable element which is determined by a performance assessment carried out by the company's competent bodies according to pre-established quantifiable criteria. Said criteria shall take into consideration the company's real growth and the actual growth generated for the shareholders, its long-term sustainability and the risks taken on, as well as compliance with the rules applicable to the company's activity. ii) The variable component of the remuneration shall be reasonable overall as regard the fixed component of the remuneration and maximum limits shall be set for all components. iii) A significant part of the variable remuneration shall be deferred for a period not less than three years and its payment shall depend of the company's steady positive performance during said period. (iv) Members of the Board of Directors shall not enter into contracts with the company or third parties that will have the effect of mitigating the risk inherent in the variability of the remuneration established by the company. (v) The Executive Directors shall hold, up to twice the value of the total annual remuneration, the company shares that were allotted by virtue of the variable remuneration schemes, with the exception of those shares that are required to be sold for the payment of taxes on the gains of said shares. (vi) When the variable remuneration includes stock options, the period for exercising same shall be deferred for a period of not less than three years; (vii) The appropriate legal instruments shall be established so that in the event of a Director's dismissal without due cause, the envisaged compensation shall not be paid out if the dismissal or termination by agreement is due to the Director's inadequate performance. (viii) The remuneration of Non-Executive Board Members shall not include any component the value of which is subject to the performance or the value of the company.

II.1.5.2 A statement on the remuneration policy of the Board of Directors and Supervisory Board referred to in Article 2 of Law No. 28/2009 of 19 June, shall contain, in addition to the content therein stated, adequate information on: i) which groups of companies the remuneration policy and practices of which were taken as a baseline for setting the remuneration ii) the payments for the dismissal or termination by agreement of the Directors' duties.

II.1.5.3 The remuneration policy statement referred to in Article 2 of Law No. 28/2009 shall also include the directors' remunerations which contain an important variable component, within the meaning of Article 248-B/3 of the Securities Code. The statement shall be detailed and the policy presented shall particularly take the long-term performance of the company, compliance with the rules applicable to its business and restraint in taking risks into account.

II.1.5.4 A proposal shall be submitted at the General Meeting on the approval of plans for the allotment of shares and/or options for share purchase or further yet on the variations in share prices, to members of the Board of Directors and Supervisory Board and other managers within the context of Article 248/3/B of the Securities Code. The proposal shall mention all the necessary information for its correct assessment. The proposal shall contain the regulation plan or in its absence, the plan's conditions. The main characteristics of the retirement benefit plans established for members of the Board of Directors and Supervisory Board and other managers within the context of Article 248/3/B of the Securities Code, shall also be approved at the General Meeting.

II.1.5.6 At least one of the Remuneration Committee's representatives shall be present at the Annual General Meeting for Shareholders.

II.1.5.7. The amount of remuneration received, as a whole and individually, in other companies of the group and the pension rights acquired during the financial year in question shall be disclosed in the Annual Report on Corporate Governance.

## **II.2. Board of Directors**

II.2.1 Within the limits established by law for each management and supervisory structure, and unless the company is of a reduced size, the Board of Directors shall delegate the day-to-day running and the delegated duties shall be identified in the Annual Corporate Governance Report.

II.2.2 The Board of Directors must ensure that the company acts in accordance with its goals, and shall not delegate its duties, namely in what concerns: i) definition of the company's strategy and general policies; ii) definition of the corporate structure of the group; iii) decisions taken that are considered to be strategic due to the amounts, risk and particular characteristics involved.

II.2.3 Should the Chair of the Board of Directors carry out executive duties, the Board of Directors shall set up efficient mechanisms for coordinating non-executive members that can ensure that these may decide upon, in an independent and informed manner, and furthermore shall explain these mechanisms to the shareholders in the corporate governance report.

II.2.4 The annual management report shall include a description of the activity carried out by the Non-Executive Board Members and shall mention any restraints encountered.

II.2.5. The company shall expound its policy of portfolio rotation on the Board of Directors, including the person responsible for the financial portfolio, and report on same in the Annual Corporate Governance Report.

## **II.3 Chief Executive Officer (CEO), Executive Committee and Executive Board of Directors**

II.3.1 When Managing Directors that carry out executive duties are requested by other Board Members to supply information, the former must do so in a timely manner and the information supplied must adequately suffice the request made.

II.3.2 The Chair of the Executive Committee shall send the convening notices and minutes of the meetings to the Chair of the Board of the Directors and, as applicable, to the Chair of the Supervisory Board or the Auditing Committee, respectively.

II.3.3 The Chair of the Board of Directors shall send the convening notices and minutes of the meetings to the Chair of the General and Supervisory Board and the Chair of the Financial Matters Committee.

#### **II.4. General and Supervisory Board, Financial Matters Committee, Audit Committee and Supervisory Board**

II.4.1 Besides carrying out its supervisory duties, the General and Supervisory Board shall advise, follow-up and carry out an on-going assessment on the management of the company by the Executive Board of Directors. Besides other subject matters, the General and Supervisory Board shall decide on: i) the definition of the strategy and general policies of the company; ii) the corporate structure of the group; and iii) decisions taken that are considered to be strategic due to the amounts, risk and particular characteristics involved.

II.4.2 The annual reports and financial information on the activity carried out by the General and Supervisory Committee, the Financial Matters Committee, the Auditing and Supervisory Committee must be disclosed on the company's website.

II.4.3 The annual reports on the activity carried out by the General and Supervisory Board, the Financial Matters Committee, the Audit Committee and the Supervisory Board must include a description on the supervisory activity and shall mention any restraints that they may have come up against.

II.4.4 The General and Supervisory Board, the Auditing Committee and the Supervisory Board (depending on the applicable model) shall represent the company for all purposes at the external auditor, and shall propose the services supplier, the respective remuneration, ensure that adequate conditions for the supply of these services are in

place within the company, as well as being the liaison officer between the company and the first recipient of the reports.

II.4.5 According to the applicable model, the General and Supervisory Board, Auditing Committee and Supervision Board shall assess the external auditor on an annual basis and advise the General Meeting that he/she be discharged whenever justifiable grounds are present.

II.4.6. The internal audit services and those that ensure compliance with the rules applicable to the company (compliance services) shall functionally report to the Audit Committee, the General and Supervisory Board or in the case of companies adopting the Latin model, an independent director or Supervisory Board, regardless of the hierarchical relationship that these services have with the executive management of the company.

## **II.5. Special Committees**

II.5.1 Unless the company is of a reduced size and depending on the adopted model, the Board of Directors and the General and Supervisory Committees, shall set up the necessary Committees in order to: i) ensure that a competent and independent assessment of the Executive Directors' performance is carried out, as well as its own overall performance and further yet, the performance of all existing committees; ii) study the adopted governance system and verify its efficiency and propose to the competent bodies, measures to be carried out with a view to its improvements; iii) in due time identify potential candidates with the high profile required for the performance of director's duties.

II.5.2 Members of the Remuneration Committee or alike shall be independent from the Members of the Board of Directors and include at least one member with knowledge and experience in matters of remuneration policy.

II.5.3 Any natural or legal person which provides or has provided, over the past three years, services to any structure subject to the Board of Directors, to the Board of



Directors of the company or that has to do with the current consultant to the company shall not be recruited to assist the Remuneration committee. This recommendation also applies to any natural or legal person who has an employment contract or provides services.

II.5.4 All the Committees shall draw up minutes of the meetings held.

### **III. INFORMATION AND AUDITING**

#### **III.1 General Disclosure Duties**

III.1.1 Companies shall maintain permanent contact with the market thus upholding the principle of equality for shareholders and ensure that investors are able to access information in a uniform fashion. To this end, the company shall create an Investor Assistance Unit.

III.1.2 The following information that is made available on the company's Internet website shall be disclosed in the English language:

- a) The company, public company status, headquarters and remaining data provided for in Article 171 of the Commercial Companies Code;
- b) Articles of Association;
- c) Credentials of the Members of the Board of Directors and the Market Liaison Officer;
- d) Investor Assistance Unit – its functions and access means;
- e) Accounts Reporting documents;
- f) Half-Yearly Calendar on Company Events;
- g) Proposals sent through for discussion and voting during the General Meeting;
- h) Notices convening meetings.

III.1.3. Companies shall advocate the rotation of auditors after two or three terms in accordance with four or three years respectively. Their continuance beyond this period must be based on a specific opinion for the Supervisory Board to formally consider the conditions of auditor independence and the benefits and costs of replacement.

III.1.4. The external auditor must, within its powers, verify the implementation of remuneration policies and systems, the efficiency and functioning of internal control mechanisms and report any shortcomings to the company's Supervisory Board.

III.1.5. The company shall not recruit the external auditor for services other than audit services, nor any entities with which same takes part or incorporates the same network. Where recruiting such services is called for, said services should not be greater than 30% of the total value of services rendered to the company. The hiring of these services must be approved by the Supervisory Board and must be expounded in the Annual Corporate Governance Report.

## **IV. CONFLICTS OF INTEREST**

### **IV.1 Shareholder Relationship**

IV.1 Where deals are concluded between the company and shareholders with qualifying holdings, or entities with which same are linked in accordance with Article 20 of the Securities Code, such deals shall be carried out in normal market conditions.

IV.1.2 Where deals of significant importance are undertaken with holders of qualifying holdings, or entities with which same are linked in accordance with Article 20 of the Securities Code, such deals shall be subject to a preliminary opinion from the Supervisory Board. The procedures and criteria required to define the relevant level of significance of these deals and other conditions shall be established by the Supervisory Board.