



UNIVERSIDADE CATÓLICA PORTUGUESA

Determinants of CEO Compensation

The Portuguese Case Study

Ana Jorge de Almeida Silvestre

Católica Porto Business School
June 2019



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by

Ana Jorge de Almeida Silvestre

under orientation of
Prof. Dr^a Luísa Anacoreta Correia
Prof. Dr^o Pedro Duarte Silva

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“A thousand miles begin with a step...”

To my parents...

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Resumo

A compensação dos CEOs é um tema de interesse global. Os escândalos empresariais, para além de terem trazido um interesse acrescido a este tema, trouxeram também uma série de requerimentos com os quais as empresas devem cooperar, e divulgações que as empresas devem fazer.

Esta tese tem como objectivo verificar quais são as variáveis que definem, e determinam, o nível de compensação dos CEOs das empresas portuguesas cotadas para o período entre 2011 e 2017. Realizámos duas análises complementares, uma análise *cross-section*, e uma análise em painel. As variáveis testadas como determinantes incluem *performance*, dimensão, anos como CEO, propriedade, conselho de administração, consultores da comissão de remunerações, dualidade e *TSR*.

Os resultados deste estudo revelaram que a compensação dos CEOs é determinada pela performance e pelos anos em que desempenham a função de CEO na empresa. Também foi detetada a existência de impacto, da dimensão e do número de consultores da comissão de remuneração, na determinação do nível de compensação.

Palavras-chave: Compensação do CEO; Determinants, Portugal; Euronext Lisboa; PSI 20

Abstract

CEO compensation is a topic of interest throughout the world. Corporate scandals brought an increased interest in the topic, but also compliance requirements that companies must disclose, such as CEO compensation.

This thesis aims to assess what defines and determines the level of CEO compensation in Portuguese listed companies, for the period between 2011 and 2017. We have performed two complementary analysis, a cross section analysis and a panel analysis. The determinants tested included company performance and size, tenure, ownership, Board of Directors, compensation consultants, duality and TSR.

Our results show that CEO compensation is determined by company performance, as well as by CEO tenure. It was also found an impact of company size, and number of compensation consultants, on CEO compensation.

Keywords: CEO Compensation, Determinants, Portugal, Euronext Lisbon, PSI
20

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Abbreviations

CEO – Chief

CFO – Chief Financial Officer

CMVM – Comissão do Mercado de Valores Mobiliários

DIV - Dividend

EMSV – Ending Market Share Value

Fortune 500 – Annual compilation of the 500 largest United States companies, published by Fortune magazine

FTSE 100 – Financial Times Stock Exchange 100 Index (share index with the 100 London Stock Exchange listed companies with highest market capitalisation)

IMSV – Initial Market Share Value

IPCG – Instituto Português de Corporate Governance

OLS – Ordinary Least Squares

ROA – Return on Asset

RET – Stock Return

SEC – Securities and Exchange Commission

SGPS – Sociedade Gestora de Participações Sociais

SOX Act – Sarbanes Oxley Act

S&P 500 – S&P Down Jones Index (500 American companies with the highest market capitalisation listed in NYSE, NASDAQ, Cboe BZX Exchange)

UK – United Kingdom

USA – United States of America

WLS – Weighted Least Squares

Introduction

Nowadays society is overwhelmed with Chief Executive Officer¹ related news that media releases. Titles referring how much CEOs have earned, who are the ones that received higher compensation levels, how much he earns more than the average of his co-workers, how the compensation is or is not affected by company performance, how compensation evolves through time, and lastly how compensation have reacted to crisis.

The impact of crisis on CEO compensation is a very close topic to the Portuguese since it represented a tough period to families and companies. It is then expected that headlines addressing how CEO compensation was not affected by contraction period, even contributing to compensation rises, cause at least some curioseness amongst our society. Real (2018) found that compensation was actually not affected by the crisis period.

Executive compensation, and specially CEO, is also a wide spread topic when it comes to scientific literature. Being understood as an agency problem, it derives from agency theory (Gomez-Mejia, Hinkin, & Tosi (1987) and Nyberg, Fulmer, Gerhart, and Carpenter (2010)). This means that the principal and the agent, shareholders and manager respectively incur in a moral hazard problem. To solve this problem is crucial to have both, the shareholders and CEO, interests aligned. As the principle is not sure what will be the agent performance, the way to ensure his interests, maximizing shareholders value, is through compensation.

¹ From here forward CEO

Literature (Bebchuk & Fried (2003)) states that well structure compensation packages are the key to solve such problems. Empirical research have widely focused in what are the components of compensation, what are the best ways to compensate s as to align interests and what and how is determined the optimal level of compensation (Chalmers, Koh, & Stapledon, 2006).

The purpose of this study is to address what, and how, it determines CEO compensation. The aim is to understand, amongst company and environment features, as well as individual characteristics and also time frame, what does have an impact when it comes to the compensation settlement process.

It is of our knowledge that there are studies addressing the relationship between variables such as performance (Brick, Palmon, and Wald (2006) and Firth, Fung, and Rui (2006)) or company size (Baker and Hall (2004) and (Wright, Kroll, and Elenkov (2002)) and compensation. Most of these studies also include some other variables that can influence compensation, but mostly as control variables. Some studies attempt to explain how performance affectes compensation, and others try the reverse, how compensation influences performance.

However, it is of our understanding that this thesis provide a new insight in this topic. Aiming to understand what defines the level of compensation that CEOs earn, we have compiled several compensation determinants that are endogenous and exogenous to the CEO, and the company. The other insight provided by this thesis is the application to Portuguese listed companies, as a way to understand how compensation is determined or settled in the Portuguese case.

In addition to the fact that in this studie we are using the latest annual financial information, for the year of 2017, we are also addressing the years of 2014 and 2011. The reason behind the last year of the sample hides another purpose of this

study. 2011 was the year in which compensation disclosure became an obligation to listed companies. Furthermore, 2011 was the year in which the Corporate Governance report requirements enabled the needed information for this study. For this reason, it is our intention also, to assess how compensation reacted to the test of time after the disclosure obligation.

The determinants analysed throughout this study will be performance and size, as well as, ownership, top management structure, human capital variables, duality, compensation consultants, economic sector, total shareholders return.

This study will be organized as it follows: the first chapter presents the literature review, followed by chapter 2 that explains the regulatory framework of disclosure obligation. Chapter 3 develops the hypotheses taken in this thesis and chapter 4 describes the data and methodology used in the study. Chapter 5 presents the results of the model and lastly, the final chapter presents the conclusions and future research suggestions.

Chapter 1: Literature Review

1.1. Corporate Governance and Agency Theory

“Corporate governance refers to the systems by which companies are directed and controlled, including the institutional arrangements for boardroom pay setting.”(Conyon, Gregg, & Machin, 1995, p. 710). In this context CEO issues are within corporate governance domain.

As corporate governance includes all the controlling systems, including management, Board of Directors, Fiscal Council, Remuneration Committee, amongst other statutory bodies take part in this play. As mentioned above, pay setting is one of the tasks that corporate governance has to address. This is where CEO compensation enters.²

The process of setting CEO compensation starts with early market research as to what CEO the company should hire. This is where agency theory takes place (Grossman and Hart (1983) and Holmstrom (1979)):

“ (...) contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal. The principal can limit divergences from his interest by

² For sure that every statutory body have compensation and for every one of them pay setting is a matter of corporate governance. This thesis will only address CEO compensation.

establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent.” (Jensen & Meckling, 1976, p. 398).

It might be logical to state that the relationship between Board of Directors and CEO fits within the agency theory, and so it suffers from agency problems. The problems will upsurge for reasons such as asymmetric information³ that management have that can be crucial to compensation settlement and that managers monopolize, as to play in their own advantage (Murphy, 1985).

Agency problems might also arise from weak governance structures, which will present aggravated agency problems. Despite that, CEOs will receive higher compensation, even though those companies tend to have poorer levels of performance (Core, Holthausen, & Larcker, 1999). This might be explained through CEO empowerment. Over empowered management can also be suitable in the agency problem framework. In situations that ownership and management are different entities, management can use power and discretion in order to chase down self-interests, such as the expansion of pay packages (Grabke-Rundell & Gomez-Mejia, 2002).⁴

These problems might be mitigated through alignment of incentives, ensuring that CEO will act in the best interest of the shareholders maximizing their utility. With differed interests, the latter ones will have to come up with solutions that guarantee great results and higher returns. These practices tendentially lie within compensation and comprehend the indexation of remuneration to performance indicators. Jensen and Murphy (1990) propose that CEOs have to encouraged to maximise company value through salary, bonuses, stake in the company and stock options structured to provide great rewards in cases of superior performance, as well as penalties for cases of poor performance.

³ Asymmetric information, as it is in CEO possession, and shareholders are not aware of it.

⁴ Which would be easier to happen in weaker structure cases.

Jensen and Meckling (1976) argue that separation of ownership and control is intimately connected with agency problems. These problems come up because of the differentiated interests between shareholders and managers, meaning conflicts of interest. The first ones want to maximize their equity value, the latter ones want to have higher compensation with the least effort possible, "To realign these interests, organizations aim to employ optimal pay for performance mechanisms." (Detzen & Zülch, 2012, p. 106).⁵

Not only pay for performance is necessary in companies, as interests alignment mechanism between ownership and management, but pay is also a great deal once it allows companies to retain expert CEOs. As the CEO is the ultimate responsible for investment and financing decisions, operations and company performance, as Core and Guay (2010) stated, CEO expertise is crucial to companies.

Executive compensation have always been an attractive topic for both media and academics. Having the background of agency theory, several studies have considered the relationship between firm performance and executive compensation, only to find insignificant or minor positive results (Jensen and Murphy (1990)). Newer tests or applications of agency theory allowed interdisciplinary researches to disclose relationships between compensation and governance factors, capital structure, regulation, industrial structure and investment decisions (Murphy (1999)). "However, the variation in CEO compensation still cannot be adequately explained by agency theory." (Young & Tsai, 2008, p. 364).

There are two other theories that can help explaining executive compensation: human capital theory and managerialism. Both of them support agency theory by introducing manager specific features⁶. The first theory states that greater

⁵ See also Bebchuk & Fried (2003).

⁶ Such as skill power or age.

managerial skills and expertise act as the source of competitive advantage that companies want to achieve (Harris and Helfat (1997)). The second one states that compensation is tied up with company features such as performance or size (Gomez-Mejia et al. (2000)).

Dow and Raposo (2005) referred that even though the process of engaging with a CEO and setting his remuneration takes part in the agency model, it differs since compensation can be adjusted over time in order to reflect company performance.⁷ This does not mean that the CEO have no influence in compensation settlement. Business decisions that lay within CEO responsibility, such as mergers, acquisitions and restructuring can lead to higher levels of pay. Nevertheless, it can be concluded that, not only the relationship between board structure and management, but also, between stakeholders and management fit into the agency theory panorama described above.

1.2. Rent Extraction or Labour Demand

Labour demand and rent extraction theory attempt to justify the level of compensation that CEOs are offered. Labour demand theory states that the optimal level of CEO compensation is tied to the company labour demand and the alignment of interests between CEO and shareholders. Rent extraction theory however, states that CEO compensation tends to be excessive, reflecting the CEO capability of extracting benefits (Chalmers et al., 2006).

It is important to keep in mind that rent extraction theory defends the Board inoperativeness given its passivity, reliability on the CEO to obtain information and lack of exposure to share returns. This enables CEO to extract rents⁸, and

⁷ Retification is typically done through the variable component of compensation, mainly through options and incentive plans.

⁸ Higher compensation when comparing to the optimal level

ultimately means that weak, or less effective, governance structures have larger agency problems (Bebchuk, Fried & Walker, 2002). Eventually these problems can have a negative impact in company value.

Frydman and Jenter (2010), recurring to S&P 500, show that managerial power and competitive market forces are important determinants of CEO pay. The same is argued by Bugeja, Matolcsy and Spiropoulos (2017), however, the authors found inconsistent managerial power evidence, as compensation of the newly and outgoing CEOs did not differ. Nonetheless, neither theories are sufficient to explain available evidence. That is the reason why there is no consensus if rent extraction or optimal contracting is relatively important to determine the pay of the CEO.

1.3. CEO Compensation components

Over time, the level and the composition of CEO pay have changed radically. Before the 1970s the pay levels were lower, combined with little dispersion across top managers and moderate levels of equity compensation. Since de mid-1970s to the end of 1990s compensation components grew drastically and differences in pay across executives and firms were amplified (Frydman & Jenter, 2010). Nowadays, a variety of news claim that CEOs are earning more every year, as well as many times more as the average company worker.

As mentioned in agency theory section, compensation is a crucial tool to align CEO and shareholders interests in order to maximize company value. This means that a well designed compensation package can be a great instrument to eradicate conflicts of interest. Compensation comes tendentially in a package, composed by several parts. Sigler (2011) argues that compensation includes base fixed wage, incentive plans and other benefits. These other benefits can be such as life and health insurance, retirement plans, car allowances, health-club

memberships, travel reimbursements, paid holidays and golden parachutes⁹. This compensation packages rely on a fixed and a variable component. Comonly, the fixed part consists in cash and, the variable component tends to be linked to performance indicators.

Figure 1 presents a summary of the compensation package components. The following sections take a further explanation about several compensation components.

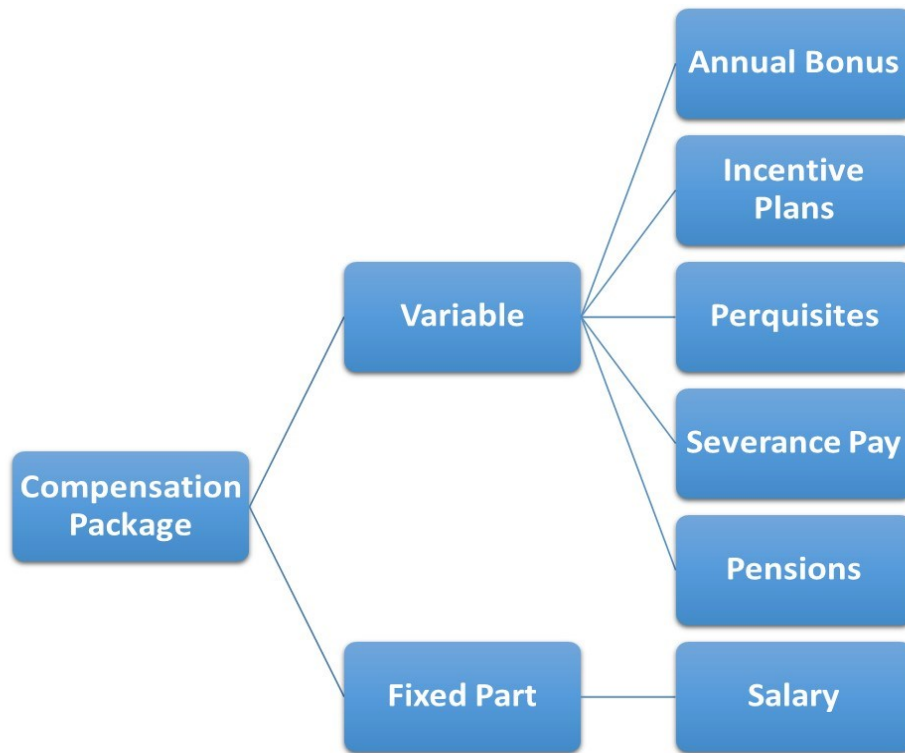


Figure 1: Components of CEO Compensation Package (based on Sigler (2011) and Frydman and Jenter (2010))

⁹ Benefit given to top management if the company is acquired making them lose their job. It can consist in bonuses, severance apy and stock options.

1.3.1 Main components of CEO Compensation Package

Frydman and Jenter (2010) identified five basic components that integrate most CEO compensation packages. These are: salary, annual bonus, payouts from long-term incentive plans, restricted option grants and restricted stock grants. In the early times of their analysis (1936-1950's) the composition of the CEO compensation was mostly salaries and annual bonuses. Bonus were, and are, mainly non-discretionary, tied to measures of annual performance, paid in cash or stock. For this reason, the 1960s saw an increase in the impact of long-term incentive plans. These plans often rely on bonus based in multi-year performance. In the early 1980's the authors verify the surge of stock option compensation. This kind of compensation tie remuneration to performance, encouraging management to maximize shareholder value, and ultimately aligning interests (Frydman & Jenter, 2010) and therefore aligns the shareholders' interests to the CEOs interests.

The authors argue that stock option became, in the 1990's, the largest component of the CEO compensation, probably driven by tax policies that enabled much lower rate for capital gains rather than labor income tax. Also with equity compensation becoming widespread, compensation came to be composed by risk instruments such as shares and options, exposing CEOs to risk.

Even though "a significant portion of overall rise in CEO pay is driven by the increase in option compensation "(...) the growth in stock option use did not occur at the expense of other components of pay" (Frydman & Jenter, 2010, p. 6). This means that despite the visible increase in the use of stock options, other components did not saw their part diminished, leading to an overall raise in CEO compensation.

1.3.2 Other Components of CEO Compensation Package

Frydman and Jenter (2010) outline three additional components of compensation: perquisites, pensions, and severance pay. These elements face insufficient disclosure conducting leading to the so-called “stealth” compensation once it may allow executives to incur in rent extraction. However, these forms of pay can also arise in optimal contracting environments. The authors end up concluding that the relative importance of these components have changed considerably over time.

1.3.2.1 Perquisites

Perquisites comprise a wide variety of goods and services provided to the executive. Perquisites tend to be seen as a general signal of weak corporate governance once when it is revealed it induces a reduction in firm value that is substantially larger than the actual cost of the perquisite itself (Yermack, 2006). Frydman and Jenter (2010) also present evidence suggesting that some perquisites are, indeed, reflection of managerial excess and reduces shareholder value.

1.3.2.4 Pensions

Prior to December 2006 American companies were not required to report values of executive pensions and so evidence was sparse. Because the lack of empirical evidence, Frydman and Jenter (2010), following Sundaram and Yermack (2007), estimated annual increases for pension values, for S&P 500 companies. The authors came to the conclusion that pensions correspond to about 35% of the CEO’s total compensation throughout his CEO years. This means that “ignoring pensions can result in a significant underestimation of total CEO pay”(Frydman & Jenter, 2010, p. 8).

1.3.2.3 Severance Pay

In this case, empirical evidence is also scarce. Yermack (2006) found that “golden handshakes”¹⁰ are usual but tend to be modest in value. Apart from this, CEOs usually receive a special severance pay, “golden parachute”, which accounts for the cases in which CEOs lose their jobs through company acquisition.

1.4. Determinants of CEO Compensation

It is expected that CEOs work for the best interest of company shareholders. However, there is the possibility that things do not go as predicted if instead CEOs work for their own interests. Considering this, companies try to align CEOs interests with shareholders’ interests by tying CEO compensation to company performance. Most studies regarding CEO compensation establish that executive pay will depend on the power CEO have over the board as well as firm size. In larger firms with powerful CEOs, compensation will be tied to sales, and not to performance, ensuring a secure level of compensations against any downfall in performance, as an example.

Not only performance and firm size will determine executive pay. Furthermore, company management, duality, board structure, compensation consultants and the shareholders gains will also have an impact in compensation decision. Even more, it is expected that key human capital variables will impact compensation setting process. These variables can be such as investment on education, labour experience, but also tenure or even age, as referred by Gomes, Ramaswamy and Veliyath (2000)

¹⁰ Compensation that is awarded to retiring or fired CEOs.

Figure 2 demonstrates several possible determinants of CEO compensation, each one on its framework. In the next sections, we will describe several determinants that may influence CEO compensation.

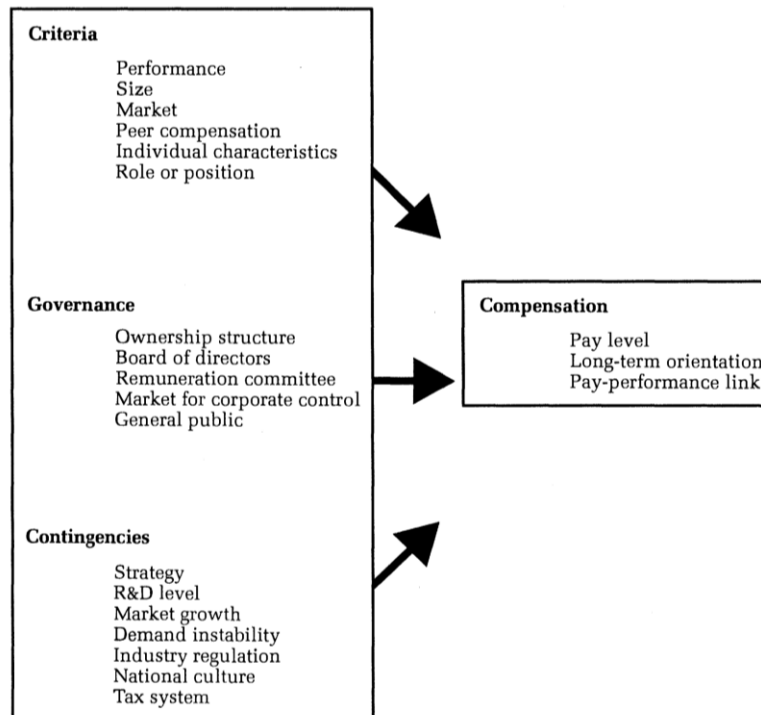


Figure 2: Determinants of CEO Compensation (reproduced from Barkema & Gomez-Mejia (1998)).

1.4.1. Company Size

“The operational complexity of larger firms and managing firms with growth opportunities and riskier operations, demands higher quality executives with a corresponding higher compensation demand.” (Chalmers et al., 2006). The authors, studying Australian companies found that firm size is the only determinant¹¹ for all the considered compensation components¹². These results

¹¹ Amongst other economic determinants such as investment opportunity set, stock return, return on assets and firm risk. Authors used LN(Assets) as a proxy for size.

¹² Fixed component, annual bonus, value of options granted, value of shares granted and total compensation.

are supported by the theory that larger companies need excellence CEOs and have to be willing to pay for such needs.

There is a wide range of literature connecting CEO compensation and firm size (Gomez-Mejia et al. (1987)) that points towards the explanation that in large companies the job tend to be more complex and comes with greater responsibilities. O'Reiley III, Main and Crystal (1988) found that, for a sample of 150 companies of Fortune 500¹³, size is positively related to cash compensation. These authors used sales, assets and number of employees as proxies, which are highly correlated between them. Khanna (2016) also came to the conclusion that size has a positive impact in compensation, when analysing an Indian sample, using sales as proxy for size.

It is expected that under perfectly competitive labour markets CEO compensation resemble the marginal revenue product, the incremental profit CEO earns for the firm due to inherent management skills.¹⁴ This means that larger firms, even with a small increase in profit per unit sold, would have higher impact in the overall profit since the total number of units sold is larger. Consequently, Agarwall (1981) and Roberts (1956) concluded that larger companies are in better position to offer higher levels of compensation to their CEOs.

Furthermore, bigger companies usually present much complex structures, which leads to the same situation as described before, higher levels of CEO compensation. For sure, it can be stated that the size of the company have to be strictly attached to the performance, since the greater the performance the larger we expect the company to be. For that reason, performance is also a determinant of compensation.

¹³ Annual compiled list of the major 500 companies by revenue of USA.

¹⁴ Ultimately, if there is no incremental profit CEO should earn what would be earning in the next best job opportunity.

1.4.2. Company Performance

The expectation behind the relationship established between performance and compensation is easily stated and supported by a rather logic economic plea: "(...) because the CEO is the individual responsible for the overall performance of the organization, rewards should be contingent (...)" (O'Reilly III et al., 1988). Despite of what seems a logic argument, literature supply mixed results. It is interesting that: "(...) after controlling for size, researchers have not found the relation-ship between CEOs' pay and performance to be as strong or consistent as the classic economic theories would imply." (Gomez-Mejia et al., 1987, p. 53).

As mentioned earlier in this thesis, agency theory states that problems of trust arises in companies where shareholders have no control over corporate day-to-day decisions, since in most companies ownership and control are distinct powers. To ensure that their interests prevail when decisions are made they tie CEO compensation to firm performance. Jensen and Murphy (1990) addressed this topic and discovered that there is a positive statistical significant relationship between CEO compensation and shareholders wealth. This means that when interests are aligned, CEOs will ensure shareholders interests by ensuring their wealth. When shareholders are satisfied with CEO performance they will reaward him with increased compensation.

Regarding performance it is important to point out the case in which the compensation is tied to past performance. In this situation the literature suggest mixed results. Firstly Jensen and Murphy (1990) found a weak relationship between variables. With time this relationship grew and Boschen, Duru, Gordon and Smith (2003) found a strong positive connection amongst share-based performance and compensation.

Chalmers, Koh and Stapledon (2006) found a positive connection between pay-for-performance and the fixed component of the compensation. Using

Return on Asset¹⁵ and Stock Return¹⁶ as proxies for performance, they found a positive significant association between all compensation components and ROA, except for shares. This allowed the conclusion that pay-for-performance is a preferred mechanism of compensation. Additionally they established a link between RET and the bonus component of the pay package. They also discovered that contracts are packed with performance goals, which helps lining up incentives as Bebchuk and Fried (2004) argued. Within the same line, but reaching opposite conclusions, for USA reality, Core et al. (1999) found positive connection between RET and compensation and pay-for-performance but not when using ROA.

Studying Indian companies Ramaswamy et al. (2000), demonstrated that compensation is positively related with performance, when using ROA as a proxy. In another Indian study and using ROA, Khanna (2016) showed a positive relationship with CEO compensation. These various findings support the theory that CEO compensation tends to be aligned with shareholders interests¹⁷.

Still related to performance, there is some literature showing the association amongst “(...) compensation structure and firm performance once executive compensation, ownership structure and board composition are ultimately part of a simultaneous system that determines the corporation’s value (...)” (Mehran, 1995, p. 164). The author realised that firm performance was positively related to equity-based executive compensation, which, again, supports the tie pay-for-performance practice¹⁸. The explanation for this might be related with the fact that, when compensation is tied to performance, CEOs have more motivation to make value-maximizing decisions (Grossman & Hart, 1983).

¹⁵ From here forward, ROA. This variable states the accounting performance of the company.

¹⁶ From here forward, RET, as defined by the authors. This variable states the market performance of the company.

¹⁷ Once CEO compensation is tied to performance indicators CEO and shareholders interests became common.

¹⁸ This also relates to agency theory as a solution for agency problems.

“The results of standard agency models suggests that the level of pay is an increasing function of firm performance.” (Core et al., 1999)

Summing up, literature points towards a positive relationship between performance and executive compensation. In this context, the better a company performs, as the CEO is responsible for decisions that affect performance, the higher his compensation will be.

1.4.3. Board of Directors: Operation and Structure

Several studies (Yermack (1996); Core et al. (1999); Angbazo and Narayanan (1997)) address the effect of Board structure in executive compensation.¹⁹ Most of them indicate that “controlling for the economic determinants of executive compensation, Board structure does help to explain cross-sectional variation in CEO compensation.”(Chhaochharia & Grinstein, 2009, p. 233). Nevertheless, there is some criticism around this evidence as it is seen as inconclusive. This happens because board structure is considered an endogenous variable once it is determined by firm and CEO features that can not be observed, but that determine the CEO pay level. Nonetheless, it is expected that as the Board is empowered to take several crucial decisions, the structure of the Board have indeed impact in the CEO compensation.

Rent extraction theory questions board efficiency. As argued by Chalmers et al. (2006), Boards are tendentially passive and dependent on CEO for information. Board characteristics such as the above mentioned empowers CEO with the capability of extract excessive compensation when comparing to the optimal compensation level (Bebchuk et al., 2002). It is then reasonable to conclude that poor governance practices²⁰ regarding Board operations or structure amplifies agency problems.

¹⁹ Please note that by Board we mean Board of Directors.

²⁰ Poor governance practices are not only related to board structure or operations. Duality, excessive CEO influence or power, conflicts of interest are examples of features that are also understand as poor governance practices.

As Boyd (1994) stated, Board structure is the most proficient way of influencing and controlling top management decisions, ensuring that shareholder interests prevail. Then it is expected that Boards watch over CEO performance in order to establish the appropriate level of compensation. The author also referred that lack of Board surveillance is related to managerial devious behaviour, which, in turn, has been connected with board composition.

Sometimes is the Board²¹ it self that settles the components and the level of CEO compensation. In other cases compensation is established by a compensation committee. Since the Compensation Committee is nominated by the Board, this means that, in any case, directly or indirectly, Board has influence in the compensation settlement process. For that reason, it is important to verify how CEO compensation is affected by the delegation mechanism²². To address this question some authors, as Ganbaix and Landier (2008), defended that design and the level of compensation contracts were set mostly due to the demand for talent in the labour market. Many other authors, such as Jensen (1993), point out that the delegation mechanism has a significant impact on CEO compensation and therefore Board decisions can have nothing to do with labour market values.

Having theories in mind Chhaochharia and Grinstein (2009) studied the relationship between CEO compensation and Board structure, examining the influence of director regulation upon executive compensation. They aimed at answering the following questions: "How important is the board of directors in setting CEO compensation? How do procedural requirements adopted by boards affect CEO Compensation decisions?" (Chhaochharia & Grinstein, 2009, p. 231). The authors used the effect of the new USA laws on corporate boards to address these questions.

²¹ Which represents shareholders.

²² When shareholders delegate responsibilities to the Board of Directors.

Regarding these new laws, it is important to understand the reason behind their implementation. In response to corporate scandals in 2001 and 2002 (e.g. Enron) USA stock exchanges came out with new board requirements in order to establish further restrictions on structure and operations of boards and to enhance board oversight. The Sarbanes-Oxley Act²³ and these new rules aimed at “(...) strengthen corporate governance practices of listed companies.” (Securities and Exchange Commission, 2003). The core requirements of these rules were:

- a) The majority of board members on a board have to be independent;
- b) Members of the compensation, audit and nominating committees must be independent;
- c) Compensation and nomination committees must have an agreement that specifies their obligations. Also they should have self assessment measures;
- d) Non-management board directors should meet regularly in executive meetings, without management so that they can act in a more effective and independent way, supervising management;
- e) Specific written procedures must be adopted to evaluate CEOs and to elect new board members.

Taking this into account Chhaochharia and Grinstein (2009) tested whether these new requirements had impact on compensation decisions.

The authors found that there is a requirement that is strongly correlated with decreases in compensation²⁴: the independence of board members. They found that interesting as the independence requirement do not necessarily means that there will be any substantial effect. CEOs tend to nominate their directors and so, even though there is a legal requirement for director independence, they may not be truly independent, since most of the time they might feel indebted to the CEO (Jensen, 1993). However, the new nomination procedures diminished CEO

²³ From here forward, Sox Act.

²⁴ This significant compensation drops arise from declines in bonus and stock-based compensation.

presence in the election of new directors, making them more likely to be actually independent.

Still about Board independency, Bebchuk and Fried (2004) defined those directors as the ones that are not, and have never been, employed and also hold no other relationship with the company. As argued by Zahra and Pearce (1989) boards should be composed by independent directors due to influence issues and conflicts of interest. Fama and Jensen (1983) claimed that the status of independent directors acts as an incentive to defend their reputation as sources of expertise as they focus on leverage firm performance. Nonetheless, Essen, Otten and Carberry (2015) argued that there are several ways for directors to lose their independence and becoming more exposed to executive power. As examples, CEOs involved in the election of directors, intensified collaboration over time between directors and CEO, shared interests between executives. Despite this, the authors expected that independent directors were better positioned to limit executive power than dependent ones.

Coming back to, Chhaochharia and Grinstein (2009), the authors focused on the argument of Fama and Jensen (1983) that, outside directors, who do not have any type of affiliation with the company or company officers, should be the ones to make compensation decisions. That is because these directors are better positioned to make fair judgements about CEO performance, efficient compensation, hiring and dismissing decisions. However, once more the problem of directors not being truly independent arises. Furthermore, a monitoring problem upsurge from the limited time that board members have. As Bebchuk and Fried (2003) argued, these problems do have an impact when it come to compensation disposals and, once there is a shortage of board oversight that can lead to suboptimal compensation practices.

Hallock (1997), using Forbes 500 firms, discovered that board structure could explain cross-sectional variation in compensation. He found that when

companies have directors that sit in each other boards²⁵ the level of compensation of both CEOs tend to be higher. Core et al. (1999), studying the level of CEO compensation in large USA firms, found that CEO compensation is positively correlated with the CEO involvement in the nomination of Board directors, as Chhaochharia and Grinstein (2009) also found. However, Core et al. (1999) went even further: CEO compensation tends to increase as the percentage of affiliated directors grow; it also tends to increase when there isn't a single director that holds considerable stake in the company; when CEO also comprises Board chair role²⁶ (also found by Cyerte (2002)), and lastly, when there is a large number of Board directors.

Chhaochharia and Grinstein (2009) pointed out several explanations for the compensation reaction to the independent compensation committee, imposed by SOX Act. First, the fact that Board is in charge of the nomination of the compensation committee and therefore, the Board ultimately decides how well informed and in possession of proper negotiation skills the committee is. Second, the Board approves the recommendations made by the compensation committee and, because of that, Board composition and nomination process will ultimately affect the compensation decisions.

It is important to emphasize that these independence requirements not only produce the above-mentioned effects on CEO compensation, but can also produce some side effects. Firms that are not as much compliant with the requirements, as other companies, will be, in theory, more affected by other requirements coming from the Board itself. These requirements can be such as "written charter to explain the compensation policy of the firm, the requirement for a performance evaluation of the committees, and the requirement for Board sessions without management" (Chhaochharia & Grinstein, 2009). These Board

²⁵ Interlocking relations.

²⁶ Chairman.

requests will affect the compensation through the need of compliance with good practices.

Chhaochharia and Grinstein (2009) finally came to the conclusion that the companies that were least compliant with the new regulation that the SOX imposed decreased their CEO compensation on the order of 17%. This reinforces that board structure and board procedures have a significant impact on the structure and level of CEO compensation. Board features have a major impact in the settlement of compensation practices, before and after the SOX requirements. However, the question if these Board changes lead to optimal situation to shareholders²⁷, can still be raised. Some authors such as Bebchuck and Fried (2003) suggested that changing Board structure tends to diminish the influence that managerial power have over boards, and as a result should enlarge shareholder value. Nevertheless, the same changes could also have a negative impact on shareholder value. If boards become so strict that CEO compensation is not enough, nor fair, according to CEO's true value²⁸, may cause that qualified and talented CEOs will not be willing to work in those firms.

Other authors also referred that characteristics such as Board size matters to compensation level, by facilitating and strengthening managerial power (van Essen et al., 2015). The authors argued that, the larger the board, the harder is to achieve internal consensus, and for that reason more likely to entrench in higher levels of executive power. Bebchuk and Fried (2004) added that the inoperativeness of larger boards can be related to poor inner coordination and communication difficulties. Along the same lines, Zahra and Pearce (1989) outlined the tendency to consistency amongst smaller boards clashing with the effort and time that has to be taken to build up cohesive larger boards.

²⁷ If they increase shareholder value; what should be the ultimate purpose.

²⁸ Value of their managerial talent.

Additionally Grinstein and Hribar (2004), analysed the impact of CEO power over Boards on the size of bonus that they are awarded for acquiring another company. As mentioned earlier, in this singular situation, the bonus is higher when CEO plays a role in the nomination of board directors, and when CEO is also Board chair. Chhaochharia and Grinstein (2009) recognised that despite the vast literature that relates board structure and compensation practices, it is harder to establish from there that “board structure has a causal effect on compensation practices”, since both variables are endogenous and determined by unobservable firm and CEO features.

Regarding Board characteristics, it is possible to conclude that independence of Board members might have a negative impact when determining compensation. The more independent the Board, the more impartial is the Board judgement and evaluation of CEO's work.

1.4.4. Compensation Consultants: Existence and Structure

Adoption of compensation consultants has become a widespread practice in the corporate world as pointed out by Kabir and Minhat (2014). “The consultants do not only offer advices on whether to pay with bonus, options, shares, etc., but also on how much each compensation component should be.” (Kabir & Minhat, 2014, p. 172). There are two distinct insights that literature takes on the role of compensation consultants. On one hand, Conyon, Peck and Sadler (2009), saw them as providers of valuable services that helps companies in accomplishing optimal compensation. On the other hand, Bebchuck and Fried (2003) saw them as a mechanism for firms to justify higher pay grants. Ogden and Watson (2012) claimed that consultants make it easier to firms to attract and retain executives of the appropriate quality, experience and skills that are necessary in order to attain success.

Several studies (Murphy and Sandino (2010) and Conyon et al. (2009)) state that most of the UK and USA companies have compensation consultants working for them. These studies also address the fact that CEOs in those companies receive higher compensation when comparing to CEOs in firms that do not employ any consultant.

The role of compensation consultants on executive compensation can be studied through three perceptions: efficient or optimal contracting theory, rent extraction or managerial power theory, and resource dependency theory. Regarding the first one, consultants provide expert advice and valuable information that help Board of Directors in designing and structure executive pay²⁹ so that manager-shareholder interest alignment can take place (Conyon et al., 2009). Conyon et al. (2019) argued that this specifically happens when consultants work within an independent committee, as this lead to efficient interest alignment and reduces moral hazard, as stated by Fama and Jensen (1983), which is present in principal agent relationships.

Along with the SOX Act requirements for independent Compensation Committee there are studies addressing this topic. These consultants appear as an important variable since large companies tend to rely on executive compensation consultants to give advice on suitable pay levels and packages, to design and implement incentive plans, for the short or long-term. These consultants will not only help making decisions compensation wise but also deliver "(...) competitive-benchmarking information on industry and market pay practices." (Murphy & Sandino, 2010, p. 247). It is important to outline that there are consultants that are only executive compensation focused and others offering a range of compensation, benefits and other human resources services. It is logical, in the latter case, that compensation consultants must face potential

²⁹ In the cases that companies do not have a compensation committee. If they do, the compensation committee is composed by compensation consultants that decide on compensation package.

conflicts of interest, which can lead to higher levels of CEO pay. In this matter, critics of apparent abuses allege consultants as being compliant with apparent excesses in compensation. This accusation is focused on two sources of conflicts which Murphy and Sandino (2010) call “repeat business” and “other services”.

“Repeat business” establishes that compensation consultants, who have been engaged not by the compensation committee but by the management, work for and with the head of human resources, Chief Financial Officer³⁰ and CEO. This creates conflicts of interest because consultants recommend on the pay of the people who hire them, and might hire for “repeat business”. The second one, “other services” comes because the fees that are paid to consultants for other services³¹ tend to be much larger than the fees paid for the development of executive pay recommendations. These other services also create conflicts of interest by themselves since “the decisions to engage the consulting firm in these more-lucrative corporate-wide consulting areas are often made or influenced by the same top executives who are benefited or harmed by the consultant’s executive pay recommendations.” (Murphy & Sandino, 2010, p. 248).

The authors studied both, USA and Canada, cases because Securities Exchange Commission³² required companies to identify and define the role played by consultants on providing advice on executive compensation, and to unveil if the consultants are engaged directly by Compensation Committee or by management. The authors found evidence that CEO pay is higher in companies in which the consultant, not only advise about executive compensation, but also provides other services. USA CEOs receive about 18% more, and Canadian CEOs 33% more, when consultants provide not only executive services but also other

³⁰ From here forward, CFO.

³¹ By other services, we mean all services provided by consultants that are not compensation related. As an example: “(...) actuarial services, benefits administration services, insurance services, employee-pay services, tax services, pension fund asset management, employee training non-pension actuarial work, HR outsourcing (...)” (Hsu et al., 2014)

³² From here forward, SEC.

services to the company. Likewise, executive pay is higher in Canadian firms when consultants receive higher fees for other services than for executive compensation services, and when consultants provide actuarial services. CEO compensation in USA, will be greater in firms where consultants work solely for the compensation committee or the board.

Along with this study but with opposite results Conyon et al. (2009), while examining UK companies found no evidence of higher CEO compensation in firms where compensation consultants provided other services. Moreover, for a USA sample, Cadman, Carter and Hillegeist (2010), did not found evidence to proof that conflicts of interest lead to higher levels of payment. Moreover Hsu et al. (2014) found evidence that compensation and non-compensation-related services³³ are positively connected. Additionally the authors set that NCS tend to diminish pay-performance sensitivity.

Kabir and Minhat (2014) stated that although there is literature regarding consultants and their impact in CEO compensation the phenomenon that can come from employing not just one but numerous consultants remains unexplored. Since consultants do not come cheap for companies the authors found it interesting to verify how CEOs benefit from having multiple consultants as well as how CEOs benefit from employing compensation consultants holding large market shares (Kabir & Minhat, 2014). Using a sample of UK listed firms³⁴, the authors also studied how CEO compensation reacted to increases or decreases in the number of compensation consultants along consecutive years.

The authors verified that CEOs have much higher equity-based pay when firms employ more than one compensation consultant, this even “(...) after

³³ From here forward NCS (non-compensation-related services). By non-compensation-related services, we mean the same as other services.

³⁴ In contrast to USA companies, UK companies started to provide information regarding consultants prior to December 2006.

controlling for firm, corporate governance and CEO characteristics.”(Kabir & Minhat, 2014, p. 173).³⁵ In addition, they found that when there is an increase in the number of consultants this is accompanied with rises in equity-based compensation. The authors stand by the fact that firms tendentially hire two or more consultants so that they are able to justify higher level of compensation. Although the tendency is larger compensation when there are more consultants, the opposite is not verified. This means that there is no decline on CEO pay when the number of consultants is reduced. Finally, the authors found that market share of compensation consultants and CEO pay are positively related. The larger the CEO compensation, the higher will be the consultant market share.

This may raise some questions as to whether consultants purposely advise higher compensation so that they can grant their business interests. The topic can also be addressed as higher CEO compensation reflecting the competition that takes place amongst consultants. Nonetheless, it is important to understand that higher CEO pay can also be driven by strategy. It is also significant to address that the increasing equity-based compensation when companies have multiple compensation consultants suggest that pay consultants compete “in facilitating firms to attract executives with the right talents by advising toward higher equity-based pay” (Kabir & Minhat, 2014, p. 173). This because as Arya and Mittendorf (2005) stated, equity-based pay is seen as an efficient way to match managerial pay and managerial capacity.

It might be interesting, regarding consultant independence and potential conflicts of interest, to make the inevitable comparison with auditor independence. Literature (DeAngelo (1981) and Kinney et al. (2004)) explain why independence is crucial to audit quality and how conflicts arise when there are other services, beyond auditing, carried out by auditors. These conflicts led to

³⁵ It is important to outline that these authors do not take the independency factor into account. They only account for the number of consultants despite the fact that they might be independent or not.

SOX Act, detailed disclosures of fees charged for auditing and non-auditing business, requirements. These ultimately led to firms avoiding using their auditors for other necessary services, despite the fact they might be the proficient providers of such services.

Concluding, literature points towards two possible impacts in compensation, led by consultants. The first one is the number of compensation consultants, which tendentially have a positive impact in CEO compensation level. The second one, however, shows a positive relationship between the compensation consultants' independence and CEO compensation.

1.4.5. Ownership: Company Management structure

The relationship between stakeholders and management fit easily in the definition of agency relation. Agency theory goes even further suggesting that once control and ownership are separated powers, this causes agency problems, as interests between shareholders and managers may not be aligned.

If companies are family or professionally owned, could have a significant impact in CEO compensation since the CEO itself can be a family member or not. In family managed companies the tendency is to have fewer conflicts of interest once ownership and control are centralized powers.³⁶ Generally it could be expected higher CEO compensation when companies are family managed than when they are professionally managed, given the fact that the first ones have ownership and control in the same hands. However, this is not the case.

Family managed firms are associated with secure employment for CEOs, many times sacrificing huge earnings over security as Schulze, Lubatkin and Dino (2001) showed. Moreover, it is unlikely that family CEOs compete in labour market and seek the next best job offer (Gomez-Mejia, Gutierrez, & Nunez-

³⁶ In the opposite side, professionally managed companies have segregated authorities.

Nickel 2001). This “family handcuff” (Gomez-Mejia et al., 2003, p. 227) will diminish the need to appropriately compensate the family CEO to match the market, and will keep their pay package below the average and the professional CEO. This situation happens when the CEO is the actual owner, but also when the CEO is family related to the owner (Gomez-Mejia, Larraza-Kintana, & Makri, 2003). The authors also point out that it is expectable that, the greater the level of family ownership, the more security is granted to the family CEO, and the lower the CEO is exposed to risk. By sheltering family members for the negative consequences that they could be exposed once in the labour market the CEO will be offered less earnings.

“Family CEOs possess spontaneous and superior incentives, and monetary compensation is only one source of their utility function, family CEOs have less need to receive additional compensation from the firm for their equity capital.” (Young & Tsai, 2008, p. 373). Firms that seek to attract and retain expert CEOs, will have, by the means of compensation to align interests. Aligning “(...)CEOs' compensation with their social networking efforts motivates them to build, develop, and use equity capital to create value for stakeholders.” (Young & Tsai, 2008, p. 373), which is the ultimate purpose of the shareholders.

It is important to feature what defines a family owned company. Anderson and Reeb (2003) state that family owned companies are the ones in which the founder, or a member of his family is the blockholder. Amit and Villalong (2006) add the need for control mechanisms, as voting rights. The authors, for a Fortune 500 sample, found out that family ownership only creates value for a company in situations in which the CEO is also Chairman. Despite not being a direct impact in compensation this could potentially influence compensation indirectly via duality or company performance. Khanna (2016), with a sample of 300 Indian companies reached the conclusion that family management presents

a positive relation with CEO compensation. This was a surprising result for the author since literature and himself predicted the opposite.

In the case of non-family owned companies, there are two possible situations: large concentrated owners or free-float. This latter situation is where investors hold a small portion of shares making them not significant to decision-making process. In the first case, investors tend to look after their interests by both electing directors and straight communication with management as argued by Smith (1996). This happens because, as large investors, they are more reliant to firm performance and so the incentive to monitor management is higher. In free-float reality, the cost of monitoring management can be too high to dispersed owners once the possible gains are not that great. Also, Thomsen and Pedersen (2000), as well as Becker (2006), argued that, the more dispersed the shareholders are, the more likely it is that strategies to increase firm value are different, leaving management more empowered. This is consistent with the theory that empowered management can extract higher level of compensation.

It is also interesting to address what Core, Holthausen and Larcker (1999) and Khan, Dharwadkar and Brandes (2005) found out. The authors discovered that having blockholders that hold 5% or more, have a negative impact in the level of CEO compensation. This comes along with the conclusion reached by Bebchuk and Fried (2004) and Sleifer and Vishny (1997) that relationship between company performance and executive pay is stronger when the concentration level of ownership is higher. This may be justified by the early mentioned fact that concentrated shareholders tend to constrain managerial power by supervising and ensuring that decisions are in line with shareholders understand of value-added decisions.

Another interesting feature regarding ownership that can impact CEO compensation is the owner identity. In this case it is addressed whether the owners

are institutional investors or non-institutional investors ³⁷. The status of institutional investor does not come with additional formal power. These investors frequently have holdings and fiduciary responsibilities to increase the earnings of their clients. For this reason Carberry, Essen and Otten (2015) state that they monitor management more actively and also have more influence in restraining executive power. Also, Chourou, Abaoub and Saadi (2008) found that with highly dispersed ownership structure the individuals tend to pursue their own goals instead of the shareholders interests which could lead to excessive compensation and absence of pay-for-performance sensitivity.

Gomez-Mejia et al. (2003) studied the determinants of CEO compensation in family-controlled public corporations. For a sample of USA companies, they found a negative correlation between CEO compensation and family ties. Gomez-Mejia et al. (2001) supported the explanation for such negative correlation: family ties induce the feel of higher job assurance. It is also expectable that performance evaluations are positively biased when there is emotional attachments between employees. This is interesting because as it can lead to statements of misfortune when company performance is not satisfying. In these cases, it is likely that the Board give the benefit of the doubt rather than replacing the CEO based on incompetence statement.

Concluding, ownership can affect compensation in many ways. If the companies are family owned, CEO compensation is expected to be lower, when comparing to professionally owned ones. The dimension of the blockholder is another ownership feature that might influence compensation, since larger blockholders show higher levels of power and control.

³⁷ It is important to notice the difference between institutional and non-institutional investors. The first ones trade great numbers of shares, with great expertise, act with a perspective of long-run and tend to assume greater risk when the return is higher. Commonly this investors are financial institutions such as banks, investment funds or pension funds. The second one represents the individual by itself, with much less know-how and trading few shares with a short-run intent and risk aversion profile.

1.4.6. Duality: The role of CEO and Chairman

Considering duality,³⁸ means to look after the cases in which Chairman and CEO role in a firm are within the same person. Agency theory states that CEO and Board Chairman are different entities with distinct roles in a company. This means that these powers cannot cope with duality. In cases that Chairman and CEO are the same individual, Board capability and power to make decisions is biased and so compensation tend to be higher than in situations of separate power. This power centralization brings a wider capacity and control over pay setting decisions to the individual. Therefore, it is expected that when duality does exist within a company, greater levels of compensation will arise.

For this matter, several empirical studies showed that the relationship between variables is indeed positive. Agrawal, Makhija and Mandelker (1991), with a sample of 118 electric and gas companies,³⁹ claimed that when duality is present,⁴⁰ the individual get the highest total compensation. Dorata and Petra (2008) also found evidence that CEO duality has a significant positive impact when it come to setting CEO compensation. The authors go even further in arguing that when duality is present, performance based factors turn out to be not that significant, when it comes to establishing the level of compensation.

Similarly, Boyd (1994) found a positive relationship between duality and executive pay, as also addressed the fact that duality blures the impartial CEO performance assessment. This biased evaluation contributes also to a biased

³⁸ Please note that CEO duality is a particular aspect of board composition. As there are many studies addressing this variable and the impact in compensation it seemed rather important to deepen the discussion of this variable by its self.

³⁹ From the New York Stock Exchange or the American Stock Exchange, for a 10 year period (1975-1984).

⁴⁰ Note that the authors stratified duality in various ways. In which concerns to our study, we focused on the CEO-T and CHM-T variables.

CEO-T: CEOs who also hold the position of chairman.

CHM-T: Chairman who also hold the position of CEO.

As mentioned by the authors these are overlapping groups and for that reason, for our study purposes we are revweing them as one.

Board⁴¹, meaning that CEO duality has a negative impact in Board control and independency. In a different angle, Khanna (2016), showed no significant relationship between Duality and CEO compensation. The same conclusions were reached by Conyon and Peck (1998), for a sample of UK FTSE 100⁴² listed companies, as they found no evidence that duality somehow leads to increased compensation.

Literature shows a positive relationship between duality and CEO compensation. This might happen as when the CEO also takes place as head of the Board, Chairman, the power to influence and to make decisions, compensation or non-compensation related, at CEO disposal is enormous.

1.4.7. Age and Tenure

The rationale behind the theory that age and tenure have a positive contribution to the level of compensation is simple. Tendentially age translates in the experience factor: an older manager has more accumulated experience and specific relevant knowledge,⁴³ than a younger one. In the same way tenure arises as a determinant once the longer a manager remains in his role or position within a company, the more knowledge and accumulated experience, the better he is known, and therefore the easier it will be to get higher compensation. Additionally, it can be argued that tenure gives the CEO the time to create the basis to power practice, what requires some time to achieve. "(...) with a longer (...)tenure with the firm, has had a longer period of time to achieve "track record"

⁴¹ The Board Topic will be addressed in the next section, section 3.7.

⁴² Financial Times Stock Exchange 100 Index. Share index of the 100 companies with higher market capitalisation on the London Stock Exchange.

⁴³ Several authors used age as a proxy for human capital, see Finkelstein and Hambrick (1989) and Mayers and Jr. (1992) as an example.

The authors assume that as more years of work experience come with more capacities, CEOs must be rewarded for this feature. The reward is intended as their compensation.

and to forge relationships with the corporate level (...). to increase political power, tenure may also increase human capital through increased experience.” (Fisher & Govindarajan, 1992, p. 208).

Despite the intuitive outcome of this relation between age and compensation, empirical results were not conclusive. Ingham and Thompson (2009) found that within the UK building society sector the age had an important role in the CEO compensation level raises. In the same line, the conclusions reached by Deckop (1988, p. 220) point out that “(...) age does not seem to be positively related to CEO Compensation and it may actually be a liability.” The liability explanation can lay in firms attempt to address potencial long term problems by hiring younger CEOs: “The younger the individual, the longer his prospective employment tenure with the firm, and less likely it should be that his investement decisions on behalf of the firm will be myopic. In addition, the discipline of the external labor market should be stronger to younger executives (...)” (Lewellen, Loderer, & Martin, 1987, p. 290).

Even though Monti-Belkaoui and Riahi-Belkaoui (1993), with a sample of Fortune 500 companies, came to a positive conclusion regarding age and to the opposite of the expected conclusion regarding tenure. The authors detected that not only there were direct effects of the mentioned variables in compensation but also there were interaction effects. These effects are featured as age-tenure and age-years interactions⁴⁴. In the first kind of interaction they found a positive relationship with CEO compensation due to the fact that older CEOs with a longer term of office have higher compensation levels. Regardless of the fact that tenure by itself does not contribute for higher pay, when related to age, it leads to higher levels of remuneration. This might be explained by the loyalty with firm

⁴⁴ It is important to outline the difference between tenure and years as CEO. When we refer to tenure, we mean the number of years of the term of office of a designated CEO in a specific company. When we refer to number of years as CEO, we mean the number of years that the individual has played the role of CEO amongst various companies.

factor. On the other hand, the age-years as CEO interaction, that has a negative impact in the settlement of compensation. The reason behind this, lays in the fact that younger CEOs tend to be better paid once labour market favours them. Younger CEOs can pursue market established levels of compensation that tend to be higher than when it is internally determined.

Lastly, it is interesting to mention the conclusion reached by Finkelstein and Hambrick (1989). Analysing the effect of age on CEO pay they discovered that it has an inverted U-shaped relationship. This means that compensation tends to vary in the same way as age but just until hitting a certain point, which the author pointed out to be at the age of 59.⁴⁵ After this inflection point compensation starts to decrease, varying in the opposite way to age. The authors point out a possible explanation for this phenomenon: "This pattern of earnings over time is in line with a CEO's need for cash, which tends to drop off as he or she gets older and no longer has major house and children-rearing expenses." (1989).

The results found are not conclusive to either variables. However, it seems reasonable that, to the extent, the longer an individual has been CEO the more likely it is that compensation is biased by his role. This may happen, not only due to human capital factors, but also due to power to influence the compensation setting process as explained by O'Reilly III et al. (1988).

1.4.8. Economic Sector

One variable that can also contribute to level of CEO compensation is the economic sector⁴⁶ in which the company is included. It is known that for different industries there will be diverse levels of top management compensation. Another

⁴⁵ The inflection point is the maximum of the compensation function meaning that is where the earnings are the highest.

⁴⁶ By addressing company economic sector we are taking into account the various sectors within industry or services sector.

note that has been taken into account is that there might be some treaties that allow companies to pay higher, or lower, levels of compensations regardless of the different company features, taken into account just the economic sector (O'Reilly III et al., 1988).

Despite this, Ramaswamy et al. (2000) found that industry effects were not as common once only one of his three industry dummies were statistically significant.⁴⁷ The authors still referred that the findings are consistent with the investments that were taking place in India. This may lead to conclude that compensation might be tied to industry sector, not only because of the economic sector itself, but also to keep up with investment trends.

Chalmers et al., (2006) discovered that CEOs in smaller, or with financial performance above the industry average, companies had more ability to extract rents, as bonus or options, for a one year period.⁴⁸ Despite the fact that it is not a direct relationship between compensation and industry, it is an indirect tie that indeed might have impact in compensation.

Chourou et al., (2008) also tested industry effects. They found that CEOs in financial sector are offered fewer stock options as compensation, when comparing to other sectors. This is consistent with the statements of Smith and Watts (1992) and Demsetz and Lehn (1985) that this may be due to the sector being regulated. Once management discretion is less likely in regulated sectors than in unregulated ones, executives have reduced need for stock-based compensation.

Given the examined literature, the effect of the economic sector in CEO compensation is undetermined. The expected impact might vary with the sector itself, with investment trends, with time frame, and with market competitors. In

⁴⁷ The dummy that is statistically significant is the "industrial machinery and equipment" sector. In this situation the CEO of this sector is compensated in a higher level than their peers amongst other sectors.

⁴⁸ This relates to the theory of rent extraction explained in section 1.

this context, it is not possible to determine a precise effect that economic sector might have in compensation.

1.4.9. Key Human Capital Variables: Personal Features

Key Human capital variables may have an effect on the settlement of compensation. These variables might be crucial when deciding to hire a CEO. Companies, in a competitive labour market, wanting to hire a top quality CEO, might take into account features such as tenure, age, work experience, length of time working in the company and investment on education⁴⁹ (O'Reilly III et al., 1988). Some authors (Gerhart and Milkovich (1990) and Finkelstein and Hambrick (1989)) pointed out that this key human capital variables are such as: training, experience, tenure and carrer path.

As Mincer and Ofek (1982) stated, individuals that devote effort in learning and developing skills and experience that matter for labour market should be awarded. Despite the simple thinking behind this statements, Gomez-Mejia et al. (1987) did not found strong empirical evidence to ensure links between these variables. Becker (1993) studied the relationship between key human capital variables and compensation. The author suggested that personal attributes as investement in training, education and labour market experience show value to the employers once they indicate managerial talent, and for that reason may be important when settling compensation premiuns.

It is also interesting to assess characteristics such as being a company insider or outsider CEO, and being generalist versus a specialist CEO, and its impacts in compensation levels. Outsiders are the CEOs that are appointed from outside the company, meaning that insiders are the ones who are appointed from inside (Brockman, Lee, & Salas, 2016). The authors also referenced that when addressing

⁴⁹ The first two variables, age and tenure were addressed seperatly in section 3.7.

generalist and specialist they address the skills that the CEO have and is hired for.

The findings were consistent with Murphy (2002) and Murphy and Zabochnik (2004) that found that outsider CEOs receive higher compensation. Regarding skills, the findings were also consistent with Murphy and Zabochnik (2004) and Frydman and Saks (2010) stating that generalist skilled CEOs tend to receive higher levels of compensation. However, Brockman, Lee and Salas (2016) went further and discovered that the generalist-outsider combination is the one to get higher pay, followed by generalist-insiders, specialist-outsiders, and lastly specialist-insiders.

As discussed before, the expectancy regarding tenure, lays in a positive relationship with compensation. When accounting for investment in education and work experience, the positive impact of these variables on compensation, is also expected.

1.4.10. Total Shareholders Return

Total Shareholders Return⁵⁰ became a significant measure when accounting for pay-for-performance measurement. TSR arised as a measure for shareholders value which is directly related to CEOs performance. Nicola, Giuseppe, Martina and Giuseppe (2016) attempted to asses the relationship between CEO compensation and TSR, to Italian listed companies. The authors used TSR as a proxy for firm performance⁵¹ but, nonetheless, they found no significant relationship between those variables. In the same line, Bank and Georgiev (2015) argued that TSR was not a trustworthy measure for performance because of the possible distortions by unique events, meaning it would be influenced by

⁵⁰ From here forward TSR. Financial index that represents the rate of returns that shareholders receive.

⁵¹ As suggested by Institutional Shareholder Services agency.

external economic factors. Canarella and Nourayi (2008) suggested that the relationship between compensation and firm performance is asymmetric, characterized by pay and market returns⁵² correlation, meaning that TSR does have an effect on compensation.

In the opposite side, when it comes to findings, Gregory-Smith, Thompson and Wright (2014) found that CEO pay and TSR were positively correlated, which suggested correlation between performance CEO compensation. Also, Buck, Liu and Skovoroda (2008), regarding Chinese companies, also found a positive, and highly sensible, relationship between TSR and compensation.

Regarding compensation it is known that the variable component of the compensation, as option shares, tend to be indexed on growth in earnings per share. However, when it comes to the long-term incentive plans companies tend to use TSR over a period of time. Ozkan (2007) argued that the most common measure used to rate compensation is TSR. In this sense, "CEOs are rewarded for their relative total shareholder return compared to an index or a group of peers." (Ozkan, 2007, p. 354). The author also referred that TSR tends to be a better performance measure once it keeps the alignment with shareholder return, and it is harder to manipulate by managers when comparing to earnings.

Despite the use of TSR as proxy for performance, Burgman and Van Clieaf (2012) argued that, in fact, TSR measures shifts in shareholders prospects about upcoming cashflows. This means that, not only measures economic profit but also, changes to economic performance. There is the need to clarify that TSR is a measure of company performance by itself.

Nonetheless, in this thesis it is explored on its own once TSR is understood as the performance that shareholders see in the company. Firm performance defined by ROA, as an example, translates the actual performance of the core

⁵² Market returns measured by TSR.

business, but do not translate in earnings for the investment that shareholders took. TSR will be used as a measure of shareholders return, as it is understandable that it may have an impact in the CEO level of compensation.

In this context it is expected that TSR might have a positive impact in CEO compensation. If shareholders are pleased with CEO and company performance, which translates in higher earnings for the, the prospect of higher compensations is more likely.

Chapter 2: Regulatory Framework

The implementation of SOX Act⁵³, as mentioned before, aimed to build up corporate governance practices. The ultimate purpose was the protection of shareholders and the public from accounting mistakes and fraudulent practices, as the regulation came as an answer to the corporate scandals witnessed in 2000/2001 like Enron or WorldCom. Also, it aimed to diminish poor governance practices. Approved in the USA congress in 2002, SOX required an independent Board, independent compensation, audit and nominating committee and specific procedures that evaluate the CEO and the election of new board members.

Addressing the real impact that SOX had in US companies, Cianci, Fernando and Werner (2011) discovered that regulation limited the impact of duality in CEO compensation. However, and despite the independence pursued in all parts of governance structure, the authors found that SOX did not contributed to the loss of CEO power in influencing his own compensation. Chhaochharia and Grinstein (2009) also reached some conclusions concerning compensation: CEO pay tended to decrease considerably in firms that did not comply with SOX requirements, comparing with the firms that indeed complied with those rules.

It can be concluded that most of the requirements have to do with independence issues. In this context, it can be claimed that when CEOs are not independent from the board this will have some effect in the compensation

⁵³ From here forward SOX

settlement, once in these situations CEOs are endowed with a reasonable amount of power within the Board.

Also addressing Corporate Governance rules, it is important to outline that Portuguese Securities Market Commission⁵⁴ set out the Regulation n^o1/2007 (CMVM, 2007). The mentioned regulation changed the structure of the Corporate Governance report. Additionally, it also allowed the disclosure of the report to be done in accordance to the Corporate Governance Code provided by CMVM.

Regulation n^o1/2010 (CMVM, 2010) was the one to revoke n^o1/2007 (CMVM, 2007). This 2010 regulation was the first to introduce, in the Corporate Governance report, the disclosing of the remuneration policy⁵⁵ and the amounts that come as a result of that policy, not only on an aggregated level, but also at an individual level.⁵⁶ In addition, this regulation required the disclosure of the variable and fixed components of compensation, pension rights, as well as, the compensation received from other group companies.

Furthermore, as the previous regulation, it allowed companies to choose the most suitable Corporate Governance Code. The conditions for this were compliance with the widely accepted principles and practices, and ensurance protection of shareholders interests, have at least the same matters, as well as, transparency level similar to the one provided by the CMVM one.

The regulation was approved in 2010 but started producing effects only by 2011. This regulation was then replaced by Regulation n^o4/2013 (“CMVM - Regulamento da CMVM n.º 4/2013,” 2013) that reviewed the content of the code, and also, reinforced the recommendation for companies to follow the CMVM code or a widely and well accepted code. These regulations allowed a

⁵⁴ From here forward, CMVM

⁵⁵ Law n^o 28/2009 (AR, 2009) established that public interest entities had to submit and approve on general meeting, on an annual basis, a compensation policy statement.

⁵⁶ Article 3rd

development of the quality and transparency of the information presented in the reports as well as the increase of the available and provided information.

With the same purpose, and the intent of perceiving possible fraud, error or lack of independency the Portuguese Institute of Corporate Governance⁵⁷ created the Corporate Governance Report, a public statement that companies must do, at least, on an annual basis⁵⁸. The first code was published in 2012 and several suggestions for amendments lead to the 2014 version of the code. This was the moment when it became obvious that there was no reason for the Portuguese market to have two different codes – one by IPCG and one by CMVM. Attempting to solve this matter CMVM cooperated closely with IPCG on the groundwork of a new document, published in 2018, that would fulfil the needs of both organizations but more importantly clarify the information users.

It is important to outline that despite of legal bond that listed companies have to adopt a Corporate Governance Code, this is not mandatory. The code is based on company compliance and explanation ground. The code aims to induce companies for practices that are in accordance with the national and worldwide adopted and accepted guidelines. The code is not part of the Portuguese legislation but it is on a systematic articulation with the capital market and company law seeking, this way, the “(...) harmonious complementariness of the law.” (“IPCG - Instituto Português de Corporate Governance” 2018, p. 6).

The code⁵⁹ set up the ground recommendations for various matters such as risk management, financial statements and accounting and, more importantly, for our study, remuneration. The principle regarding CEO compensation states that remuneration policy, for managing board, should be such that allows it the

⁵⁷ From here forward, IPCG

⁵⁸ Based on the Corporate Governance report model provided by the IPCG disclosures regarding compensation are done in section IV.

⁵⁹ Note that the code has two main stages: principles and recommendations. The principles aim to “(...) establish a foundation for interpretation and application of the recommendations, but also to offer a qualitatively relevant foundation for explaining (...)” (“IPCG - Instituto Português de Corporate Governance” 2018, p. 7).

company to hire qualified experts and that aligns the manager interests with the company shareholders interests. Recommendations suggest a compensation committee that, at the start of each term, should settle compensation. It also refers the Law n°28/2009 from June 19th, forcing companies to disclose their remuneration policy.

This regulatory framework will be used in this thesis. Despite the fact that in the period of analysis there are three regulation documents, they do not differ in a material way. For this reason, the same compliance requirements will be applied. The requirement of disclosure regarding compensation can be verified in section D, point IV Remuneration Disclosure of the Corporate Governance Code.

Chapter 3: Hypotheses Development

When addressing the level, and what does determine CEO compensation the first thing that comes up is company performance. It is a widely studied topic with a rather logic outcome: the variable component of CEO compensation is usually tied up to performance indicators. Also, as CEO is the ultimate responsible for decisions such as financing, investment and operations (Core & Guay, 2010), he will be accountable for how well, or not so well, the company is doing. Then it is expected that compensation is positively related to performance. Following Chalmers et al. (2006) as well as Core et al. (1999), Ramaswamy et al. (2000) and Khanna (2016), the proxy that will be used as to value company performance is ROA, that, as stated by Mehran (1995), is a good way to measure performance.

Company size is another one of the most wide spread compensation determinant⁶⁰ in academic research. The size might have an influence in the level of compensation as managing a larger company is not the same as a minor one. The complexity behind grand operational and human structures comes with a much harder CEO role. This way it is expected that the larger the company, the higher the CEO level of compensation will be. Taking into account O'Reilly III et al. (1988) and Khanna (2016) sales is the proxy that will be used as to taking the company dimension in the model. This measure is also consistent with the European Commission recommendation (2003) as how to measure and qualify firm size.

⁶⁰ Along with company performance

CEO specific features, such as tenure, also influence compensation. This hypotheses is addressed as number of years as CEO in the same company. One would expect that the longer the executive is CEO in a company the higher would be the level of compensation. This would happen because of relationship development between CEO and co-workers, because of CEO empowerment and because of inside information, knowledge and expertise that the CEO had built over his time in that company. As done by Monti-Belkaoui and Riahi-Belkaoui (1993), as well as O'Reilly III et al. (1988) and Fisher and Govindarajan (1992), this measure will be stated as the number of years that the CEO have been in the company.

Family ownership is another variable that is addressed as an executive compensation determinant. In family companies the tendency is that CEO compensation is lower due to reinvestment issues and job security reasons. Additionally, family owned business tendentially presents a family member as CEO. This family "handcuff", comes along with some benefits but also with some disadvantages. As being part of the family, CEO may be given the chance to play that part in the company, chance he could not have if in the labour market. By not being a part in labour market, family CEOs will also accept lower income as a trade for job security. It is then expected that family in owned companies, compensation will be lower. To assess this determinant it will be evaluated if the blockholder controls the company⁶¹, and if the blockholder is a family company or a family, or group of family members, following Amit and Villalonga (2006) and Anderson and Reeb (2003). It was established a family ownership dummy, being one when companies comply with the requirements of being a family company, and zero otherwise.

⁶¹ If the blockholder holds more than 50% of the company and its vote rights.

Blockholder is a variable defined within the ownership structure and management of the company. The assumption is that a large blockholder have more power within the Board and so, is more capable of influencing Board decisions. Literature refered that companies in which the blockholder holds more than 5% typically presented lower levels of CEO compensation. Therefore, the expectation is that the higher the blockholder holds, the lower the compensation will be, since larger blockholders tend to supervise and control more, as well as tie compensation with performance. Following Core et al. (1999), Khan et al. (2005), Bebchuk and Fried (2004) and Shleifer and Vishny (1997) this variable will be addressed as the percentage holded by the blockholder.

The variable addressed in this thesis as to account for board structure, and its impact in CEO compensation, is the weight of the independent members in the total of members. Literature stated that independent Boards would have unbiased judgement and so would be more capable of fairly evaluate CEO performance. As mentioned before, variable compensation is, most of the times, indexed to performance indicators and Boards could even, undirectly, impact compensation as the decidion of who composes compensation committees is theirs. If Board members were not independent, compensation could arise even if the CEO did not show any results. The expectation is that the more independent the Board is, the lower the compensation would be. Supported by Chhaochharia and Grinstein (2009), but also Bebchuk and Fried (2004) and Zahra and Pearce (1989), that used the number of independent members, the variable will be defined as the percentage of the independent members in the whole Board. This way it will not only be accounting for the independent dimension of the Board, but also for the size dimension. It is important to outline that literature also stated that the larger the boards, the lower the compensation tends to be since it is difficult to reach concensus, which tends to strengthen managerial power (van Essen et al., 2015).

Along side with compensation settlement process, compensation consultants arise. Regarding compensation consultants, it must be clarified that, in Portugal, compensation is usually settled by a compensation committee. This committee is composed by several members who can be, or not, affiliated with the company. These members are hired to advise, propose and settle statutory bodies compensation. In this context, these members play the same roles as the compensation consultants, described in literature. With a simplified purpose, it is assumed that compensation consultants are equivalent to compensation committee members. For this reason, the assumption made for the compensation consultants apply, in the same way, to compensation committee members.

Literature states that companies that employ compensation consultants tend to present higher levels of executive compensation. Additionally, literature suggests that companies that employ more than two consultants present higher levels of executive compensation. Following Kabir and Minhat (2014) this thesis will take an approach on the dimension of the compensation committee defining the variable as number of compensation consultants. It must not be forgotten the independence of compensation consultants as it takes part in corporate governance good practices. Independent consultants do not provide other services or do not have any type of affiliation with Board members and CEO. In this context, companies that employ these consultants are expected to present lower levels of biased compensation judgement, as they do not incur in "other services" or "repeated business". As to address this, and similarly to the board structure, it has been taken the Conyon et al. (2019), as well as Murphy and Sandino (2010), Conyon et al. (2009) and Cadman et al.(2010), independent consultants approach. However, it was taken in a different angle, accounting for the percentage of the independent consultants in the total number of consultants

of the compensation committee. The expectation is that the larger the number of independent consultants, the lower the compensation tends to be.

It is expected that when the CEO and the Chairman are within the same individual compensation would be higher. Chairman role is one of great importance within the Board, which ultimately represents CEO empowerment by the Board side. Also, it means that the Board works with a diminished evaluation capability and control over the CEO. Even if compensation is settled by a Compensation Committee, as is the Board that appoint the committee, CEO would have a direct influence over his compensation. As defined by Dorata and Petra (2008), Boyd (1994), Agrawal et al. (1991) and also Khanna (2016), CEO duality is measured by a dummy variable that is one when duality is present, and zero otherwise.

TSR, mostly used in literature as a performance measure, takes part in this thesis as a variable. As TSR accounts, not only for company performance, but also for economic profit, it is faced as the return that shareholders take from the company. It is then logical to assume that the greater the TSR, the higher the CEO compensation tends to be. This might happen as the shareholders want the CEO to pursue their company purposes, and when they do so, they might be reawarded with higher levels of compensation. As done by Gregory-Smith et al. (2014), Canarella and Nourayi (2008), and Buck et al. (2008), the impact of TSR financial measure in executive compensation will be addressed in this thesis .

Lastly, the latter hypotheses defined in this thesis accounts for the economic sector in which the companies are. Literature states that economic sector might have an impact in compensation regarding, for example, collusion between firms that establish certain levels of compensation, within a sector. Also, the effect of sector in compensation can be due to investment trends. This variable is defined as a dummy for each selected sector. Following Ramaswamy et al. (2000), Chourou et al. (2008), Smith and Watts (1992), and Demsetz and Lehn (1985), that

defined dummy variables for various sectors, in each case, if the company takes part in that sector dummy will be 1, if not, it will be zero.

Table 1 represents the hypotheses taken in this thesis. Please note that this thesis will not account for all the potential determinants of CEO compensation that were referred in the literature review. Variables that define age or key human capital variables, for example were not taken into account. The reason behind this was not only lack of time to deepen the understanding behind this variables, but also the absence of trustworthy information in some cases.

Table 1: Hypotheses Development

Variable	Hypotheses	Measure	Expected Signal	References
Performance	High company performance shows great CEO decisions and management. So high performances tend to be rewarded with higher levels of compensation	ROA	(+)	Chalmers et al. (2006) Ramaswamy et al. (2000)
Size	Company dimension influence the level of commitment and effort that CEOs have to put into their job, as larger companies tend to come with more complex structures	Sales	(+)	O'Reilly III et al.(1988)
Tenure	Time in a position within a company comes with better information, better understanding and greater knowledge of the bodies and company operations	Years as CEO in the company	(+)	Fisher and Govindarajan (1992) Monti-Belkaoui and Riahi-Belkaoui (1993)
Ownership	If companies are family owned, due to family handcuff phenomenon, CEOs tendentially have lower earnings as they are not part of they labour market and the ownership prefers to reinvest profits	Ownership Dummy	(-)	Amit and Villalonga (2006) Anderson and Reeb (2003)
Blockholder	The larger the percentage hold by the blockholder, the larger his control towards the CEO, and influence within the board, leading to a more accurate pay-for-performance case, with lower compensation	Percentage that the blockholder holds	(-)	Core et al. (1999) Bebchuk and Fried (2004)
Independent Board Ratio	Independent Board members tendentially have na unbiased judgement about performance and CEO compenation. The higher the ratio between independent members and total members, the lower the compensation tends to be	N ^o of independent members / N ^o of total members	(-)	Chhaochharia and Grinstein (2009) Zahra and Pearce (1989)
Consultants	Companies that hire compensation consultants have a way to justify compensation levels, and so will present higher levels of CEO compensation.	Number of compensation consultants	(+)	Kabir and Minhat (2014)

Table 1 (cont): Hypotheses Development

Variable	Hypotheses	Measure	Expected Signal	References
Independent Consultants Ratio	Independent consultants, not providing other services, or associated with members in the company, do not, tendentially, advise higher levels of compensation since there is no conflicts of interest. The higher the ratio between independent and total consultants, the lower the compensation tends to be	N ^o of independent members / N ^o of total members	(-)	Murphy & Sandino (2010) Conyon et al. (2009)
Duality	When the role of Chairman and CEO lays within the same individual, Board becomes biased and the individual empowered. When there is duality, companies will present higher levels of compensation	Duality Dummy	(+)	Dorata and Petra (2008) Khanna (2016)
TSR	TSR is as a measure of the shareholders earnings through company performance. Tendentially, the higher the shareholders returns of their investment in the company, the higher the positive impact in compensation will be	TSR	(+)	Gregory-Smith et al. (2014) Buck et al. (2008)
Economic Sector	Economic sectors can help determine compensation in cases of sector investment trends, sector treaties and collusion. The impact of economic sector in the determination of CEO compensation is unforeseen	Sector Dummy	n.a.	Chourou et al. (2008) Ramaswamy et al. (2000)

Chapter 4: Data and Method

4.1. Data

The data collection was done considering the regulatory framework presented earlier: companies should comply, adopt and disclose a corporate governance report, and according to the European Transparency Directive (European Parliament, 2013), the disclosure obligation of periodic information for investors. For this reason data collection was mainly done through the Corporate Governance Reports.

Corporate Governance Reports were a crucial tool to understand several matters, such as the level of compensation of each CEO, Board structure and composition, Remuneration Committee structure and composition, duality, tenure and ownership. For other informations such as sales or ROA, proxies for size and performance respectively, data was retrieved from the audited consolidated Annual Financial Reports.

It is important to outline that, despite the compensation disclosure obligation had effects from 2011 onwards, several companies were already disclosing compensation amounts in previous fiscal years. This thesis however does not use previous information, since, as mentioned, most of the information is retrieved from the Corporate Governance reports. This means that the reports must present several information, which only took part of the requirements with the development of the CMVM regulations. In this context, the reason behind the year of 2011 lays in the regulatory framework, as the reports became more

complete, allowing the availability of necessary information to perform proposed analysis.

Information used to calculate TSR was got using Euronext Lisbon historical data of shares behaviour for each company. Lastly, it was used the data base SABI as a way to understand if the companies were family owned or professionally owned. This way, the accuracy of the information was able to be maintained.

The sample of this thesis consists in Portuguese Stocked companies – Euronext Lisbon. The initial sample was composed by 54 companies. However, due to lack of information issues, several companies were dropped out leaving the final sample with 37 companies. These companies were excluded from the sample as they did not present Corporate Governance Reports for the years in analysis, and so, did not had reliable information that was crucial to develop this study, such as CEO compensation. This means that only the companies that provided Corporate Governance Reports were included in this study.

This is where the study takes different but complementary paths. It were taken two approaches: a cross-section analysis considering all the listed stock companies, and a panel analysis considering the PSI 20 listed companies. In the first one, the fiscal year of 2017 was studied as it was the most recent fiscal year with available information for all the companies. For the second case the period of study were the fiscal years of 2011, 2014 and 2017.

The main aim of this study is to evaluate what are the features that may influence and determine the level of compensation that CEOs receive. This means that the study looks for the determines that could bring up or bring down, that can increase or decrease the compensation of a certain CEO giving the conditions he faces in the company and his own personal features.

It is known that compensation is mainly composed by a fixed and a variable part. Agency theory suggests that this latter one is the one that match up the

company performance and the shareholders interests, maximizing the company value. This means that if companies are successful at shareholders eyes they will award the CEO through the variable part of compensation. In this study, the compensation is faced as whole, meaning that the distinction between variable and fixed component is not accounted for.

Compensation was obtained through the annual Corporate Governance Reports disclosed by the companies. For each company, a rigorous and detailed search was performed in order to find the real value of the compensation, in a given year. Apart from the fixed compensation, it was added all the variable amounts of compensation that the CEO gained the right of, in that same year. It has also come across the fact that most of the listed companies were equity management companies.⁶² This means that CEOs not only receive compensation from the designated company, but also from the other group companies. For this reason, data was collected focusing not only in the CEO total compensation (including all the group compensation), but also in an individual way, so that it is possible to assess the differences. This compensation data was collected for the fiscal years of 2011, 2014 and 2017.

Tenure was also collected from the Corporate Governance Reports. So as duality, blockholder, Board structure, the number of consultants of the Remuneration Committee, and committee structure. All this variables were collected for the same years mentioned above. As for tenure, after identifying the CEO, the fiscal year of the first nomination as CEO was looked for, and then, how many years had gone by. At the same time, duality was understandable through the composition of the various social entities: if the president of the Executive Commission would be the same person as the president of the Board of Directors, CEO and Chairman respectively. It is important to notice that some companies

⁶² From here Forward SGPS – Sociedade Gestora de Participações Sociais.

do not have an Executive Commission, meaning that executive power is concentrated in the Board of Directors hands.

The percentage hold by the largest shareholder, indirectly or directly was also contained in the report, as the company discloses the largest shareholders and the direct or indirect imputation of the equity capital and voting rights. It is important to outline that when addressing the blockholder the purpose is to assess the level of power and control. This way, the percentage that was collected for this study was the voting rights percentage, opposing to the equity capital one.

As to the structure of both the Board and the Remuneration Committee, the data was collected taking into account the number of members, and the number of independent members of both entities. In both cases, the independence criteria was the one proposed by CMVM, that companies may use to define whether their social body members are independent or not.

The amounts of sales, assets, net income, or dividends were collected through the Annual Financial Reports, audited consolidated accounts. These amounts were important to define company size, performance and TSR. These data was collected for the fiscal years of 2011, 2014 and 2017.

To obtain TSR value for each company, it was also necessary to resort to the Euronext Lisbon historical data, as it was needed the initial market stock value of the shares for the year, and the ending market stock value for the year. Since historical data did not comprised all the companies for all the years of the proposed panel analysis, it was decided that TSR would only be included in the cross-sectional analysis, meaning that data was collected for the fiscal year of 2017.

Lastly, Sabi data base was crucial to obtain ownership information. For each company, it was evaluated the property data: if the blockholder would have less than the majority of voting rights, directly or indirectly, it was considered not

family owned. If the blockholder percentage was superior to fifty percent, meaning that there was clear control in that company, it would be assess who the blockholder was or who controls the company that acts like the blockholder. For all the companies behind that first blockholder we looked for control⁶³ until we reached to the bottom person (or company) of that line to verify if it was part of the family that developed and holds the company.

Please note that to address the company sector it has been taken into account the description of the company and business that figures in the first part of the Annual Financial Report. Summing up, the collected items, for the years of 2017, 2014 and 2011, for this thesis were: (1) name of the CEO, (2) name of the Chairman; (3) total CEO compensation, (4) individual CEO compensation, (5) existence of Duality, (6) Ownership, (7) number of Board members, (8) number of independent Board members, (9) number of Remuneration Committee members, (10) number of independent Remuneration Committee members, (11) percentage hold from the blockholder, (12) years as CEO, (13) total assets, (14) net income, (15) sales, (16) initial stock market share value, (17) ending stock market share value and (18) dividend per share, (19) economic sector.⁶⁴

4.2. Dependent and Independent Variables

As mentioned before, this thesis aim to explain what determines the level of compensation that CEOs receive. In an attempt to explain what and how it influences executive compensation two models were defined. These two models account for different time frames and companies. Apart from that, both models have the same purpose, one accounting for the temporal effect, and the other holding a larger sample of companies, with the latest financial information available.

⁶³ Voting rights, directly or indirectly, superior to 50%.

⁶⁴ Number (16), (17) and (18) were only collected for the cross-sectional model, meaning for the year of 2017, as historical data was not available for all the companies in all the years so that it could make it into panel model.

For both models compensation was defined as the dependent variable, the one that is trying to be explained, through other variables, the independent ones. Therefore, the attempt is to verify which of the independent variables help explaining the compensation of CEOs

One of the independent variables defined in both models is performance, and the proxy suggested by literature to address performance is ROA Measured by the ratio between net income and total assets of the company, ROA is calculated as illustrated in **Equation 1**.

$$ROA = \frac{Net\ Income}{Total\ Assets} \quad \text{Equation 1}$$

ROA is presumed to be a good proxy for performance as it is understood that accounting returns are important when determining executive compensation, as these earnings provide information to the board regarding the value added to the firm by the CEO. With performance influencing compensation decisions, CEOs have the incentive to make decisions, or report income, in ways that it will affect ROA and consequently, compensation. (Mehran, 1995)

Another explainable variable is size, proxied by sales. The value of sales was obtained through the consolidated financial statement of each company. Tenure, number of years as a CEO in a given company, is also an independent variable that might explain different levels of compensation. As to obtain tenure, it was taken into account the fiscal year in which the individual started functions as CEO, and the fiscal year that it is being analysed. To compute the number of years that a person has been CEO we followed **Equation 2**.

$$Tenure = Analysed\ Fiscal\ Year - Fiscal\ year\ when\ becamas\ CEO + 1 \quad \text{Equation 2}$$

As mentioned before, the independent variable blockholder was retrieved from the Corporate Governance Report as the person or company who holds the

highest stake in the company, directly or indirectly. The same thing has been done to Board structure, and Remuneration Committee composition and structure, explainable variables. For all of them the number of members and their specificity⁶⁵ were retrieved from the report. Please note that when it comes to Board members they are divided into three categories:

- a) Executive members - the ones who have management functions;
- b) Non-executive Non-independent members - the ones that do not have management functions;
- c) Non-executive Independent members - the ones that do not have management functions, do not have links to the company and do not receive compensation conditioned upon company performance.

The ones that are taken into account for this study are the latter ones, Non-executive Independent members.

In the same line, compensation consultants are divided in dependent and independent ones. That division is made in the report and according to CMVM definition of independency. For both structure variables, shows how the ratio was calculated.

$$\text{Independence Structure} = \frac{n^{\circ} \text{Independent Members}}{n^{\circ} \text{Total Members}} \quad \text{Equation 3}$$

TSR might also explain compensation. To compute TSR it was used the historical Euronext Lisbon data to obtain the initial and ending stock market share value. The dividend per share was taken out of the Annual Financial Report. TSR was computed as shown in **Equation 4**.

$$TSR = \frac{(EMSV - IMSV + Div)}{IMSV} \quad \text{Equation 4}$$

Where:

EMSV - Ending Market Share Value; *IMSV* - Initial Market Share Value; *Div* - Dividend.

⁶⁵ Independent or not independente.

The rest of the explainable variables are dummy variables. Ownership, duality, and sector were all defined as dummies. Ownership was defined as 1 if the company is family owned, and 0 otherwise. Duality was defined as 1 if the CEO and Chariman are the same person, 0 otherwise. Similarly, there were defined several sector dummies, such as industry or seVICES, and each one of them was 1 if the company is comprehended in that sector, 0 otherwise.

4.3. Methodology

The hypotheses established in **Table 1** of this chapter were used to define two complementary analysis. In the first one, the hypotheses were tested, throught multiple individuals, for the fiscal year of 2017, making a cross-sectional analysis. In the cross-section analysis compensation is a function of: company performance, company size, tenure, ownership, blockholder, Board structure, compensation consultants, Remuneration Committee structure, duality, TSR and company sector.

In the second one, panel analysis, the hypotheses established earlier, in **Table 1Table 2**, were tested. This time accounting for several individuals over a multiple period of time. For the fiscal years of 2011, 2014 and 2017, the relationship established, for the panel analysis, between the dependent and independent variables, was the following: compensation is a function of company performance, company size, tenure, ownership, Board structure, compensation consultants, Remuneration Committee structure, duality and economic sector.

As discussed earlier, the panel analysis will not account for the explanatory variable TSR. The data base used to retrieve the initial market share value and the ending market share value, did not have information for all the companies,

in all the accounted years. For this reason, the variable was excluded from panel analysis. The company sector dummies have also been adapted to fit in this model. As the sample for panel analysis only contains 17 individuals, companies had to be reallocated into other groups to avoid dummies with a single observation.

Chapter 5: Results

5.1. Sample Characteristics

In the first stage of this study, both samples, cross-sectional and panel, were analysed in a descriptive way. The descriptive statistic gives an interesting data and variables overview, as well as a perception of the behaviour of the different variables.

5.1.1. Cross-Sectional Data

As mentioned before, the cross-section analysis accounted with 37 Portuguese stocked companies for the fiscal year of 2017.

Table 2 shows the distribution of those 37 companies regarding their economic sector. We can conclude that the sample is mainly composed by companies within the services sector. Around 32% of sample play in the services sector, followed by industry (24%) and technology (14%). The sectors that show least presence in this sample are sports and telecommunications (5%).

Table 2: Distribution of the Companies by Sector – Cross-sectional Variables

	Nº Observations	Percentage
Construction	3	8%
Energy	4	11%
Industry	9	24%
Services	12	32%
Technology	5	14%
Telecommunications	2	5%
Sports	2	5%
Total	37	100%

Accounting for ownership, **Table 3** informs that around 35% of the sample companies are family owned, making 65% of them non-family owned. This allows the conclusion that non-family companies compose the majority of the sample.

Table 3: Distribution of the Companies by Ownership – Cross-sectional Variables

	Nº Observations	Percentage
Family Owned	13	35%
Non-family Owned	24	65%
Total	37	100%

Similarly, **Table 4** allows the understanding that most companies of this sample face a duality situation (68% of the sample), since only 32% of them have the power of CEO and Chairman in separated hands. This means that, for the most, Portuguese companies face a centralized power condition.

Table 4: Distribution of the Companies by Existence of Duality – Cross-sectional Variables

	Nº Observations	Percentage
Duality	25	68%
Non-duality	12	32%
Total	37	100%

Another analysis done was the comparison between the total number of Board members and the number of independent Board members. **Figure 3** shows both of these variables. It is notable that several companies do not have any independent Board member (such as Altri, Corticeira Amorim, Glintt or VAA, as an example). The fact that 19 companies do not present any independent member can lead to situations where CEO compensation is higher due to a biased Board. The combination of this with the Portuguese duality situation, shown in **Table 4**, can lead to excessive levels of compensation, as several companies present duality and have all Board members are not independent. Examples of this are Altri, Benfica SAD, Corticeira Amorim, EDP and Ibersol, amongst others.

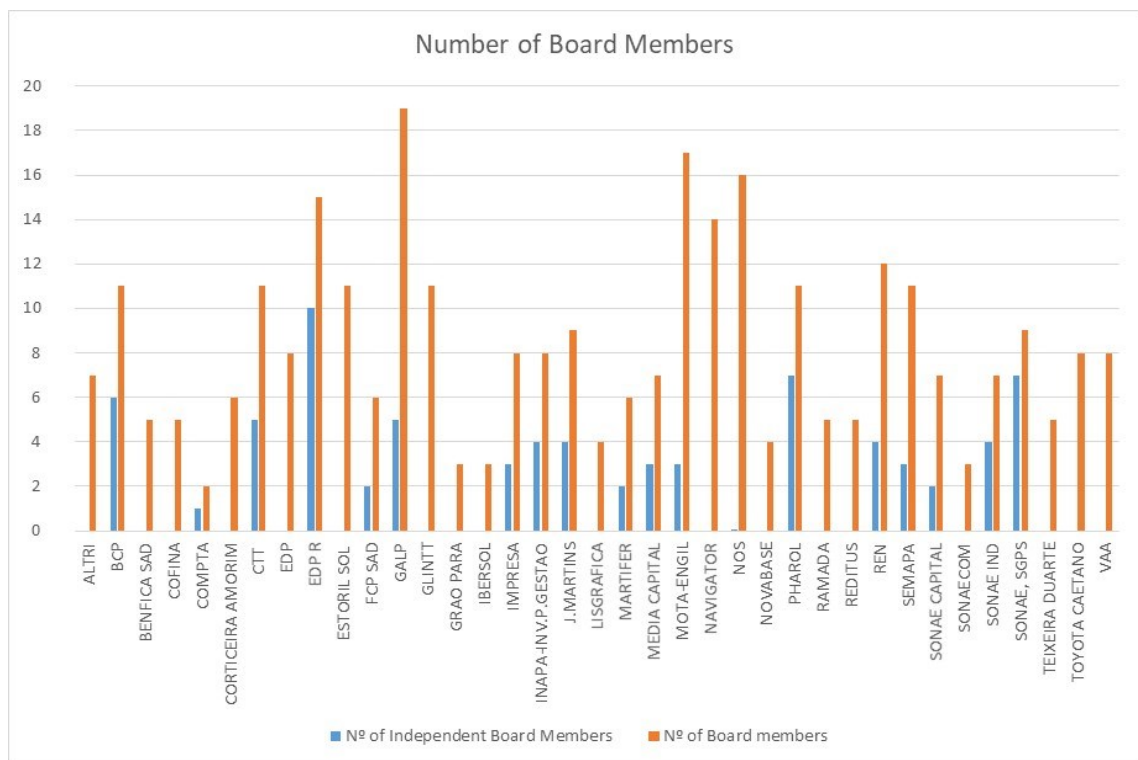


Figure 3: Board Members – Cross-sectional Variables

In the same line, compensation consultants were analysed, regarding the total number of compensation consultants when comparing to the independent consultants. **Figure 4** illustrates that most companies present three compensation consultants, and in most of them the three elements are independent. However,

we might point out cases like Corticeira Amorim, NOS or Toyota Caetano, as examples, which do not present any independent members. The most peculiar case is Grão Pára, that do not present any consultant at all. The fact is that this company did not pay compensation in the fiscal year of 2017 because of the complicated financial situation in which the company is in. For this reason it was not necessary to have a Compensation Committee. Considering the 37 companies, most of them present a reasonable independent to total member ratio, meaning that these companies account for the independency recommendations, when it comes to compensation consultants

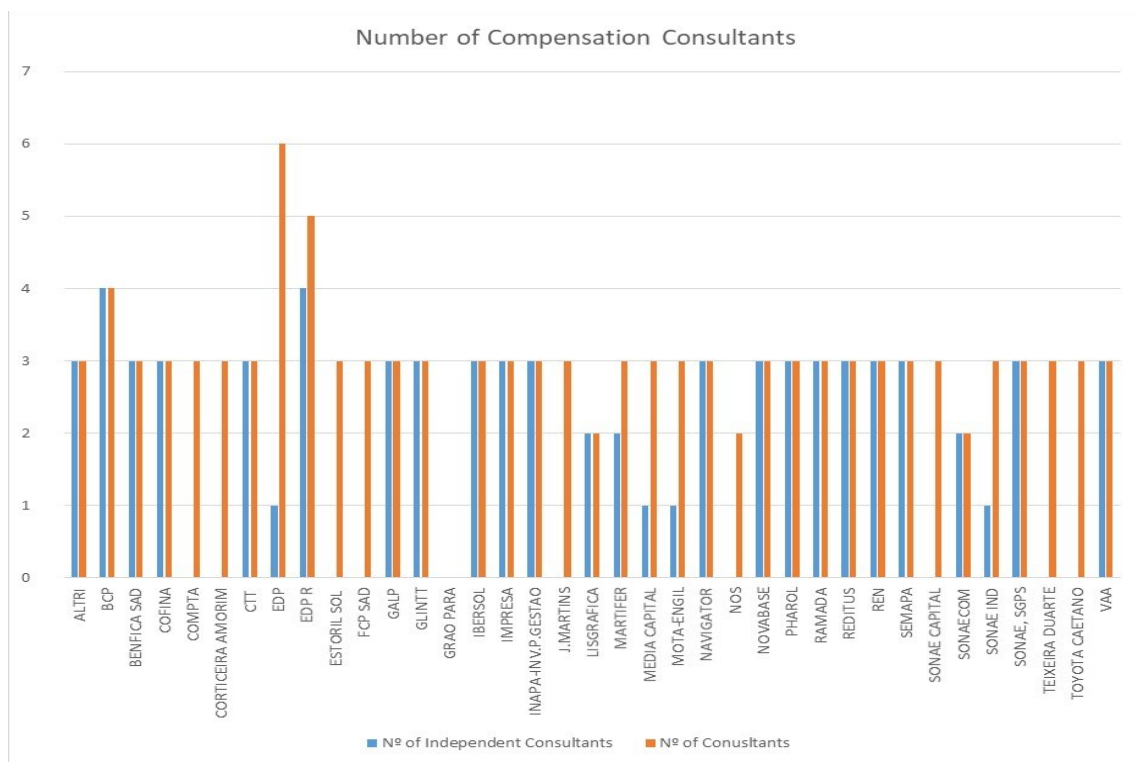


Figure 4: Number of Compensation Consultants – Cross-sectional Variables

When analysing the Corporate Governance Report it was perceptible, the compensation stratification according to the companies that pay that compensation to the CEO. As group compensation, it is meant compensation as whole, paid for all the companies composing the groups. As individual

compensation it is meant compensation paid by the holding company⁶⁶ on its own. **Figure 5** shows those differences. It is interesting that some CEOs receive their whole compensation from subsidiary companies (as individual compensation is non-existing), such as EDP R, Ramada or Reditus.

Several companies present group compensation equal to individual compensation meaning that the total compensation is received from the SGPS. However, five companies present other situation⁶⁷: group compensation is higher than the individual compensation, meaning that part of the compensation is received from subsidiaries. The most outrageous example is Semapa, followed by Jerónimo Martins, in which the CEOs receive more than 2 and 1 million euros, respectively, only from subsidiaries. This means that when reading news, attention must be paid to the type of compensation newspaper are accounting for.

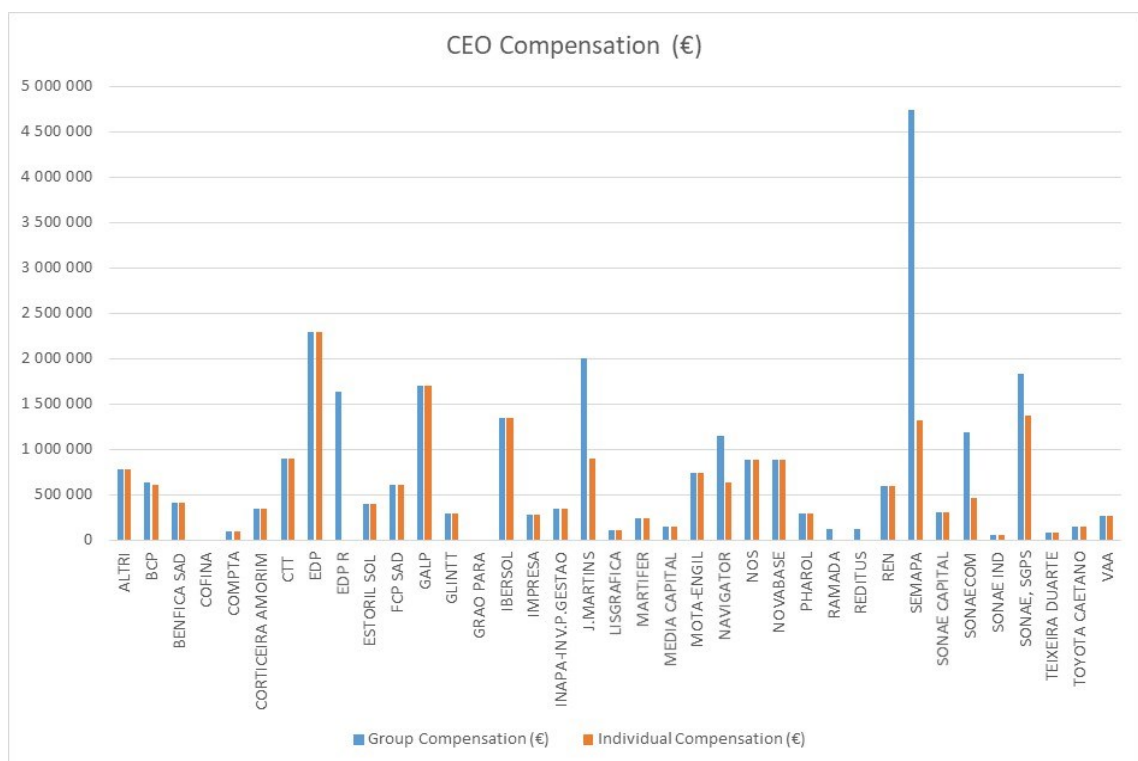


Figure 5: Group and Individual Compensation – Cross-sectional Variables

⁶⁶ From here forward, SGPS.

⁶⁷ J. Martins, Navigator, Semapa, Sonae Com, Sonae SGPS.

Table 5 presents the maximum and minimum values of the cross-section variables. We can verify that between maximum values and minimum values, variables present a pronounced gap. The maximum compensation values are both from Semapa and the minimum values are both from Sonae Indústria. The maximum value for tenure states for the CEO of Grão Pára, 50 years, explained by the family ownership of the company. The same company shows a TSR maximum value that is far from any other company. This happened because of the gap between the initial and the ending market share value, and the non-existent dividends. A comparison between independent Board members and compensation consultants can also be made. There are situations in which the compensation committees are fully independent, hence why the maximum being 1. However, in the Board this does not happen, being the maximum value 78% of independent members.

Table 5: Maximum and Minimum – Cross-sectional Variables

	Maximum	Minimum
Group Compensation (€)	4746579,36	51800,00
Ind. Compensation (€)	2288274,00	51800,00
ROA (%)	18,05%	-299,69%
Sales (€)	16276150000,00	30000,00
Tenure (Years)	50,00	2,00
Blockholder (%)	94,64%	10,00%
Independent Board Ratio	0,78	0,00
Consultants (n°)	6,00	0,00
Independent Consultants Ratio	1,00	0,00
TSR (%)	2400,00%	-50,00%

Table 6 refers to the mean and the median of the cross-sectional variables. It can be verified that the group compensation median lays in the 411.000 euros mark, and sales in the 133.235.277 mark. When accounting for the individual compensation the median is higher, in the 439.550 euros mark. This happens

because individual compensation is usually lower, and differs less across companies, when comparing to group compensation. The median ROA is 3%, meaning that for each euro invested in assets the company will generate 3 cents in earnings. The TSR represents in the median an earning of 29 cents per share.

Table 6: Mean and Median – Cross-sectional Variables

	Mean	Median
Group Compensation (€)	799976,34	411000,00
Ind. Compensation (€)	620933,34	439550,00
ROA (%)	-5,39%	2,81%
Sales (€)	875369254,00	133235277,00
Tenure (Years)	11,65	9,00
Blockholder (%)	50,97%	52,15%
Independent Board Ratio	0,21	0,06
Consultants (n°)	3,00	3,00
Independent Consultants Ratio	0,61	1,00
TSR (%)	98,81%	28,89%

5.1.2. Panel Data

The panel analysis incorporated 17 companies that take part in the PSI 20 Index through the fiscal years of 2011, 2014 and 2017.

In panel data there are some variables that remain still across time. Economic sector is one of them. As shown in **Table 7**, the majority of the sample lays in the service sector (35%), followed by energy and industry that represent 24% of the sample each. The sector that is the least represented in this sample is technology and telecommunication (18%).

Table 7: Distribution of Companies by Sector – Panel Variables

	Nº Observations	Percentage
Energy	4	24%
Industry	4	24%
Services	6	35%
Technology and Telecommunication	3	18%
Total	17	100%

Ownership is another variable that do not diverge across time. **Table 8** allows the conclusion that ownership remains still. The majority of the companies are non-family owned (65%), meaning that their shares remain in free float, or with small blockholders that do not own control and that do not represent a family.

Table 8: Distribution of Companies by Ownership – Panel Variables

	2017		2014		2011	
	Number	%	Number	%	Number	%
Family owned	6	35%	6	35%	6	35%
Non-family owned	11	65%	11	65%	11	65%
Total	17	100%	17	100%	17	100%

When it comes to the separation of powers between CEO and Chairman, **Table 9** allows an overview of the Portuguese PSI 20 companies. Between 2011 and 2014 the number of companies incurring in duality did no change. However, from 2014 to 2017 the number of companies that incurred in duality situations increased 12 percentual points. This means that in 2017, PSI 20 had more companies in which the CEO and Chairman role are within the same individual. this may have a positive influence in the level of compensation to 2014 to 2017.

Table 9: Distribution of Companies by Existence of Duality – Panel Variables

	2017		2014		2011	
	Number	%	Number	%	Number	%
Duality	10	59%	8	47%	8	47%
No Duality	7	41%	9	53%	9	53%
Total	17	100%	17	100%	17	100%

Figure 6 addresses the evolution of CEO compensation throughout the years at an individual and group level. It is verifiable that, when comparing 2011 to 2017, compensation level has increased. However, there is a decrease after 2011 shown in 2014 values. Despite the conclusion reached by Real (2018), that overall the crisis period is not significant and does not have an impact in compensation, the author pointed out an impact, when considering the compensation as the natural logarithm of compensation. As so, the decrease in compensation shown in 2014 can be explained as consequence of the crisis period (2008-2013) lived in Portugal.

As mentioned before, in 2011, companies had to start disclosing compensation paid to their statutory boards. **Figure 6**, once again, shows that compensation dropped from 2011 to 2014, which may suggest that companies that did not comply with Corporate Governance Code requirements, presented lower compensation values (Chhaochharia & Grinstein, 2009). This lack of compliance could be due to independency issues, for example.

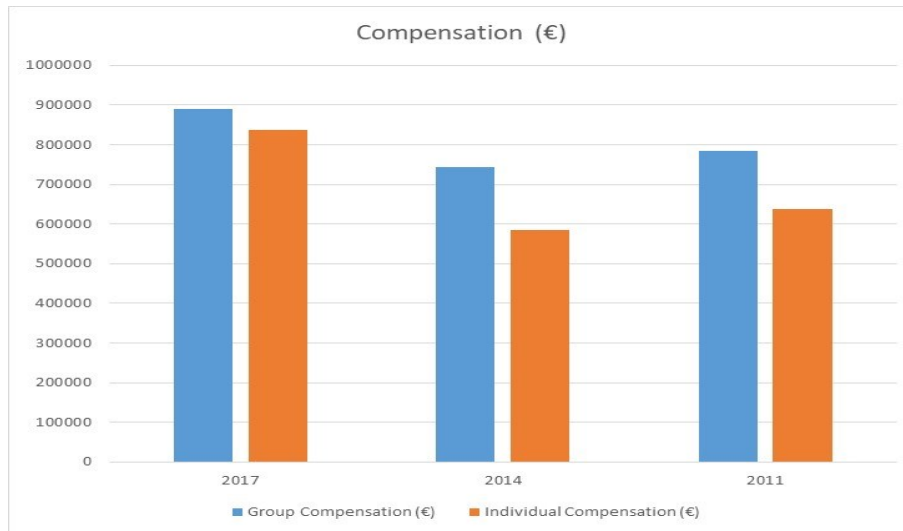


Figure 6: Group and Individual Compensation according to the median – Panel Variables

Table 10, Table 11 and **Table 12** show the mean and median values for panel variables for 2011, 2014 and 2017, respectively. From the joint analysis of the tables with **Figure 6** it is understandable that across time group compensation, as well as individual compensation, had a drop in the year of 2014, when comparing to 2011. Nonetheless, in 2017 companies fully recovered, showing higher compensation values when comparing to both other years.

Table 10: Mean and Median 2011 – Panel Variables

2011	Mean	Median
Group Compensation (€)	835282,74	783720,00
Ind. Compensation (€)	741936,37	636841,67
ROA (%)	2,68%	2,02%
Sales (€)	1198468121,82	472337405,00
Tenure (Years)	6,82	5,00
Blockholder (%)	42,78%	48,89%
Independent Board Ratio	0,19	0,18
Consultants (n^o)	3,18	3,00
Independent Consultants Ratio	0,59	0,67

Table 11: Mean and Median 2014 – Panel Variables

2014	Mean	Median
Group Compensation (€)	893632,32	744000,00
Ind. Compensation (€)	737076,80	584277,00
ROA (%)	1,13%	2,54%
Sales (€)	769796752,94	203829618,00
Tenure (Years)	6,71	3,00
Blockholder (%)	45,54%	50,01%
Independent Board Ratio	0,23	0,20
Consultants (n^o)	3,06	3,00
Independent Consultants Ratio	0,69	1,00

Table 12: Mean and Median 2017 – Panel Variables

2017	Mean	Median
Group Compensation (€)	1239875,82	891043,00
Ind. Compensation (€)	938717,74	837647,00
ROA (%)	-13,91%	3,43%
Sales (€)	763250488,31	158439382,50
Tenure (Years)	9,06	6,00
Blockholder (%)	43,89%	51,00%
Independent Board Ratio	0,25	0,26
Consultants (n^o)	3,29	3,00
Independent Consultants Ratio	0,66	1,00

Figure 7 addresses the independency case, in both the board members and compensation consultants. It is visible that the percentage of independent compensation consultants through the years is higher when comparing to board members. With the help of **Table 10**, **Table 11** and **Table 12**, it is understandable that compensation consultants are in less number when comparing to Board members. Despite the fact that, tendentially, boards have more members; it is just the proportion of independent members to total members that is minor. It is also verifiable that across time the percentage of independent persons in company social bodies is continuously increasing. This ultimately means that companies are compromised, and understand, the importance of having independent individuals in their social bodies.

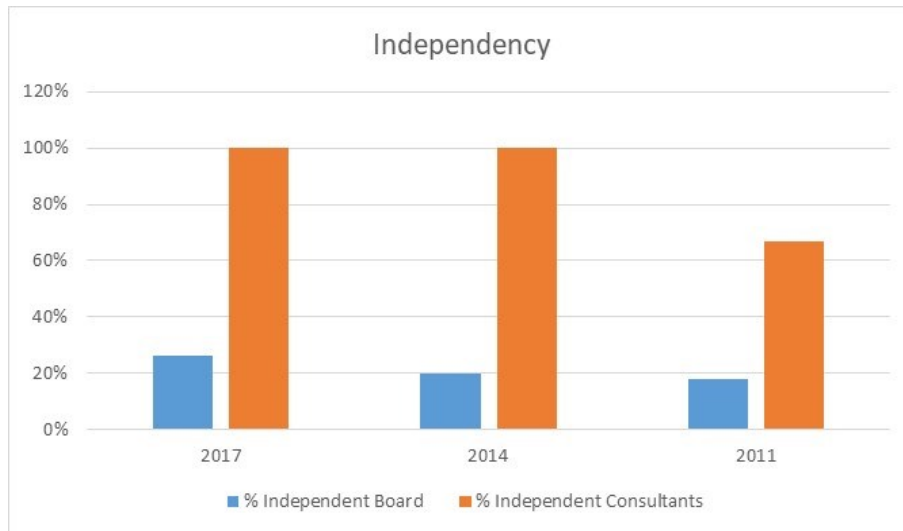


Figure 7: Percentage of independent members according to the median – Panel Variables

According to Figure 8, ROA show an increase over time, meaning that company performance have been improving. On the opposite side, Figure 9 shows a clear decrease in the sales level of the companies. This might be due to the financial crisis that Portugal in the period of 2008 to 2013. However, despite the fact that sales have decreased over the analysed years, one may argue that companies have built up their efficiency, translated in ROA increase.

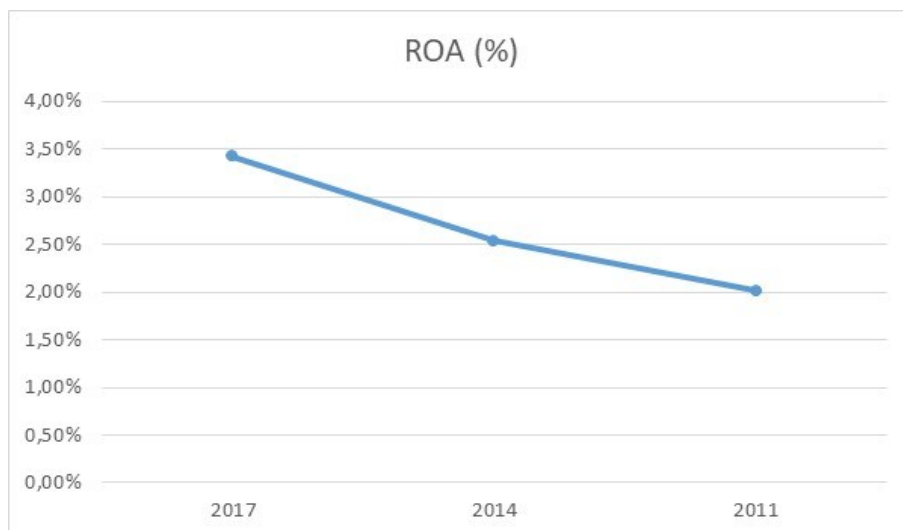


Figure 8: ROA according to the median – Panel Variables

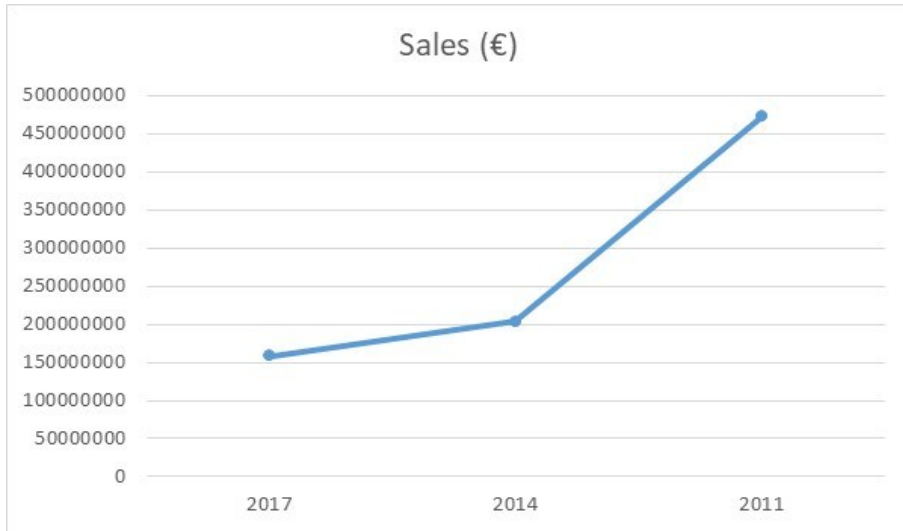


Figure 9: Sales according to the median – Panel Variables

5.2. Results

As mentioned earlier, **Table 1** hypotheses were tested by two complementary analysis. The first one, based on a cross-section regression and the second on panel data regression

5.2.1. Cross-sectional Results

Under the Ordinary Least Squares⁶⁸ approach, a regression with compensation as dependent variable, was performed (**Equation 5**).

Equation 5

$$\begin{aligned} \text{Compensation}_i = & \beta_0 + \beta_1 \text{ROA}_i + \beta_2 \text{Sales}_i + \beta_3 \text{Tenure}_i + \beta_4 \text{FamilyOwnership}_i \\ & + \beta_5 \text{Blockholder}_i + \beta_6 \text{IndependentBoardRatio}_i + \beta_7 \text{Consultants}_i \\ & + \beta_8 \text{IndependentConsultantsRatio}_i + \beta_9 \text{Duality}_i + \beta_{10} \text{TSR}_i \\ & + \beta_{11} \text{D. Construction}_i + \beta_{12} \text{D. Energy}_i + \beta_{13} \text{D. Industry}_i + \beta_{14} \text{D. Services}_i \\ & + \beta_{15} \text{D. Technology}_i + \beta_{16} \text{D. Telecommunications}_i + \beta_{17} \text{D. Sports}_i + \mu_i \end{aligned}$$

After first trying to estimate by OLS, a Breusch-Pagan test revealed that errors were not homocedastic (test statistic= 49,077440; p-value= 0,000032). Therefore, the model was reestimated by Weighted Least Squares⁶⁹, using **Equation 6** as weights.

$$W_i = \frac{1}{\hat{V}(u_i)} = \frac{1}{\exp(\widehat{\ln e_i^2})} \quad \text{Equation 6}$$

Where e_i^2 are the residuals of the OLS regression and $\widehat{\ln e_i^2}$ is obtained from the auxiliary regression showed in **Equation 7**

Equation 7

$$\begin{aligned} \ln e_i^2 = & \gamma_0 + \gamma_1 \text{ROA}_i + \gamma_2 \text{Sales}_i + \gamma_3 \text{Tenure}_i + \gamma_4 \text{FamilyOwnership}_i + \gamma_5 \text{Blockholder}_i \\ & + \gamma_6 \text{IndependentBoardRatio}_i + \gamma_7 \text{Consultants}_i \\ & + \gamma_8 \text{IndependentConsultantsRatio}_i + \gamma_9 \text{Duality}_i + \gamma_{10} \text{TSR}_i \\ & + \gamma_{11} \text{D. Construction}_i + \gamma_{12} \text{D. Energy}_i + \gamma_{13} \text{D. Industry}_i + \gamma_{14} \text{D. Services}_i \\ & + \gamma_{15} \text{D. Technology}_i + \gamma_{16} \text{D. Telecommunications}_i + \gamma_{17} \text{D. Sports}_i + \varepsilon_i \end{aligned}$$

⁶⁸ From here forward, OLS.

⁶⁹ From here forward, WLS.

Where μ_i are assumed to be the independent random disturbances.

Through the WLS estimation the results obtained were the ones present in **Table 13**.

Table 13: Regression Results – Cross-sectional Variables

	Coefficient
const	-907 911 (805 853)
ROA	260 396 * significant at 10% (130 187)
Sales	0,00011 ** significant at 5% (4,71E-05)
Tenure	41 340 * significant at 10% (21 485)
FamilyOwnership	10 166 (190 360)
Blockholder	2 098 (269 472)
Independent Board Ratio	438 784 (658 857)
Consultants	161 621 (193 619)
Independent Consultant Ratio	227 931 (188 862)
Duality	-339 506 (214 546)
TSR	-47 273 (42 904)
DCON	671 281 (444 666)
DENG	1 424 900 ** significant at 5% (619 474)
DIND	674 279 (401 949)
DSERV	312 502 (348 719)
DTECH	505 173 (414 005)
DTEL	1 220 700 *** significant at 1% (420 779)

These results allow the conclusion that only, the explanatory variables, ROA, Sales and Tenure, as well as the sector dummies for Energy and Telecommunications, when comparing Sports sector dummy, are statistically significant. It is important to outline that variables such as ROA or Tenure appear as little significant, with only 10% of statistical significance. Sales appear as more significant (5% of significance), meaning that for each million euro increase in sales CEOs tend to receive 110 euros more.

In the same line of statistical significance is the energy sector meaning that companies included in this sector tend to compensate their CEOs 1.424.900 euros more, in comparison to the sports sector. The same thing happens with the Telecommunications sector, but with a 1% statistical significance, meaning that CEOs of telecommunication companies tendentially receive 1.220.700 euros more than sports companies CEOs. These sector coefficients seem rather large, but it is important to keep in mind that sectors are being compared to the sports sector, that presents compensation values lower than the median.

For the variables ROA, Sales and Tenure, the signs showed by the coefficients were exactly as expected. The expectation was that, since the CEO is the ultimate responsible for the company operational decisions, the greater the performance⁷⁰ of the company, the larger would be the CEO compensation. This means that as stated by Chalmers et al. (2006) and Ramaswamy et al. (2000) CEOs are rewarded with larger compensation packages when companies are performing well.

The same thing was expected for size⁷¹: the larger the size of the company, the higher the compensation would be, since larger companies require rather complex management (O'Reilly III et al (1988) and Khanna (2016)). As a complex

⁷⁰ Proxied by ROA.

⁷¹ Proxied by Sales.

structure requires more effort and management ability, companies have to compensate CEOs in order to match up the work complexity and their managerial talent.

Lastly, Tenure presents a positive sign, meaning that the longer the CEO have ben CEO in the company, the higher the level of compensation will be. These results are consistent with Monti-Belkaoui and Riahi-Belkaoui (1993), and Fisher and Govindarajan (1992) that argued that tenure allows CEOs to have a better understanding of the company and the business, as well as the development their reputation amongst their companies. This ultimately means that CEOs are capable of making wiser and better informed decisions, that will have a positive impact in company performance.

Regarding the adjustment quality, the R-squared measure, for the original model, corresponds to 0,599. This means that around 60% of the observations of the dependent variable are explained by the regressors present in the model

5.2.2. Panel Results

The panel regression was estimated applying **Equation 8**:

$$\begin{aligned}
 \text{Compensation}_{it} = & \beta_0 + \beta_1 \text{ROA}_{it} + \beta_2 \text{Sales}_{it} + \beta_3 \text{Tenure}_{it} + \beta_4 \text{FamilyOwnership}_{it} \\
 & + \beta_5 \text{Blockholder}_{it} + \beta_6 \text{IndependentBoardRatio}_{it} + \beta_7 \text{Consultants}_{it} \\
 & + \beta_8 \text{IndependentConsultantsRatio}_{it} + \beta_9 \text{Duality}_{it} + \beta_{10} \text{D.Industry}_{it} \\
 & + \beta_{11} \text{D.Services}_{it} + \beta_{12} \text{D.TechnologyandTelecommunications}_{it} + \beta_{13} \text{D.Energy}_{it} \\
 & + \mu_{it}
 \end{aligned}
 \tag{Equation 8}$$

Where the μ_{it} error term is decomposed as shown in **Equation 9**:

$$\mu_{it} = \mu_i + \lambda_t + \varepsilon_{it}
 \tag{Equation 9}$$

Where μ_i is a firm specific effect, λ_t a time effect and ε_{it} are independent random disturbances.

The panel regression might be estimated by fixed or random effects. Random estimators are usually more efficient but assume that the companies specific terms (μ_i) are uncorrelated with all the explanatory variables. In order to check this assumption it was performed an Hausman test for endogeneity. The conclusion was that this assumption was not tenable for this data (test statistic= 42,9548; p-value= 0,000000896). Therefore we proceeded with a fixed effect methodology.

It is important to outline that the fixed effects approach does not account for variables that remain still over time. This means that sector dummies were not accounted for, since companies remain in the same economic sector across the analysed period. The same thing happened with ownership, as the family owned dummy did not have differences across time.

The panel model comprehended three different time frames, and for this reason time dummies were accounted for, in an attempt to assess the effect of time in compensation

The results were the following, presented in **Table 14**:

Table 14: Regression Results – Panel Variables

		Coefficient
		-619 867 (637 837)
const		
	389 150	** significant at 5% (134 734)
ROA		
		-0,000088 (8,73E-05)
Sales		
	80 861	** significant at 5% (37 823)
Tenure		
		796 788 (820 626)
Blockholder		
		831 563 (867 776)
Independent Board Ratio		
	168 480	** significant at 5% (66 963)
Consultants		
		138 094 (252 223)
Independent Consultant Ratio		
		-255 344 (196 239)
Duality		
		-13 359 (91 379)
D2014		
		192 396 (135 044)
D2011		

These results suggest that only the variables ROA, Tenure and Consultants are significant, with a statistical significance of 5%. Results propose that performance is positively correlated with compensation, as it is expected. For every percentage point increase in company performance, measured by ROA, CEOs tend to receive 389.150 euros more.

Tenure also has a positive influence on compensation, meaning that the longer the CEO has been CEO in the company the higher the compensation will be. Tendentially, for each year gone by as a CEO, the compensation will increase 80.861 euros.

Lastly, consultants appear as a significant explanatory variable in this analysis. The sign of this variable shows a positive impact on compensation, meaning that consultants positively influence compensation. This means that for any additional consultant, CEO compensation will increase by 168.480 euros. This

sign was exactly as expected and consistent with Kabir and Minhat (2014) and Conyon et al. (2019). This positive influence might be explained for the companies need to obtain a fair and unbiased compensation advice (Conyon et al., 2009), that match up CEO compensation and the need to attract and retain expert CEOs (Ogden & Watson, 2012). However it can also be consequence of company needs to justify higher levels of compensation (Bebchuk & Fried, 2003).

In fact, the explanatory variables performance and tenure are consistently significant in both analysis, cross-section and panel. In this context, it is possible to conclude that performance and tenure are, indeed, determinants of CEO compensation. Despite the statistical significance of the explanatory variable size, in the cross-section analysis, as well as the sector dummies energy and telecommunications, these variables did not show any significance in the panel analysis. The same thing happened with the number of compensation consultants that each company employ. This variable was significant in the panel analysis; however, it was not significant in the cross-section analysis.

The latter case might be explained because of the temporal dimension given by the panel analysis. This dimension includes a larger quantity of information, which allows a better and wider perception of the variables. In the consultants case, it is possible to understand that, overtime, the fluctuation of the number of Remuneration Committee members have a positive impact in compensation.

Nonetheless being on the opposite direction, the same thing might happen for the explanatory variable size. As mentioned before, despite being significant in cross-section analysis, size is not significant in panel analysis. The explanation might also be in the temporal dimension of the panel analysis. When accounting for just one period of time, compensation might be influenced by size. However, when accounting for multiple periods, size appear to be not as significant. This

might be due to the fact that in the long-term compensation might be tied up to performance indicators rather than sales growth.

In the dummies cases the explanation, for the lack of significance in the panel analysis, might lay in variability. Dummy variables have tendentially little variability within an individual. However, when the number of individuals within a sample increases, the capability to detect the influence of a dummy variable increases. For this reason, as the cross-section analysis presented a sample with more companies, when comparing to the panel analysis, dummy effects are most likely detected in cross-section.

Chapter 6: Conclusions and Future Research

CEO compensation is a mediatic subject in Portugal. How much CEOs earn, how it compares to the former year, and how it compares to the average co-worker of the companies they manage, are the most debated questions.

This thesis aimed to verify what defines the level, and what are the determinants of CEO compensation. Having a sample of 37 Portuguese listed companies, two analysis were taken into account. The first one consisted in a cross-section analysis, with a sample of 37 companies, for the fiscal year of 2017. The second one consisted in a panel analysis, for 17 companies of PSI 20, for the fiscal years of 2011, 2014, 2017.

Both analysis were performed with data retrieved from the companies Corporate Governance Reports. These reports settled, from the fiscal year of 2011, the disclosure obligation of companies social bodies compensation, in an aggregated and individual level. Hence why, the first period of the panel analysis is 2011.

Although CEO compensation showed some evidence to decrease between 2011 and 2014, and then to increase towards the year of 2017; these variations were not found to be statistically significant.

Another conclusion of this study is that performance and tenure are determinants of CEO compensation. Performance has a positive impact in compensation, acting as a reward mechanism. As CEOs are responsible for crucial operational decisions, that have a direct impact in companies performance,

when companies do well, CEOs are rewarded with higher levels of compensation.

CEO tenure is also a compensation determinant. This determinant is justified by the benefits that CEOs obtain through their longevity within the company. The development of relationships with co-workers and key management individuals, as well as the development of company insider knowledge, provide CEOs with the necessary tools to take wise decisions that will have a positive impact in companies performance.

Company size was a significant variable in the cross-section analysis, and compensation consultants, a significant variable, in the panel analysis. These variables were not consistently significant in both analysis. One explanation for this might lay in the temporal dimension in the panel analysis, and the lack of it in the cross-section analysis. This might reveal that the evolution of the number of consultants have an impact in compensation, however, for a single time frame it is not accounted for. Also, size might be significant for a given year, but when accounting for the long-term, company size do not determine compensation.

Throughout the development of this study some difficulties were faced, as lack of data, which reduced the samples and disabled the inclusion of other potentially relevant determinants. In future studies it would be interesting to explore the investment in education and the impact of market competitors compensation, as determinants.

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Appendix

Appendix A – Companies in Cross-section Analysis

Table 15: Companies – Cross-section Analysis

	Company Name	Company Abreviation
1	ALTRI, SGPS, S.A.	ALTRI
2	Banco Comercial Português, S.A.	BCP
3	Sport Lisboa e Benfica Futebol SAD - S.A.	BENFICA SAD
4	COFINA - SGPS, S.A.	COFINA
5	Compta - Equipamentos e Serviços de Informática, S.A.	COMPTA
6	Corticeira Amorim, SGPS, S.A.	CORTICEIRA AMORIM
7	CTT - Correios de Portugal, S.A.	CTT
8	EDP - Energias de Portugal, S.A.	EDP
9	EDP Renováveis, S.A.	EDP R
10	ESTORIL SOL, S.G.P.S., S.A.	ESTORIL SOL
11	FUTEBOL CLUBE DO PORTO – FUTEBOL, SAD, S.A.	FCP SAD
12	Galp Energia, SGPS, S.A.	GALP
13	Glintt – Global Intelligence Technologies, S.A.	GLINTT
14	Imobiliária Construtora Grão Pará, S.A.	GRAO PARA
15	IBERSOL – SGPS, S.A.	IBERSOL
16	Impresa - SGPS, S.A.	IMPRESA
17	Inapa - Investimentos, Participações e Gestão, S.A.	INAPA-INV.P.GESTAO
18	Jerónimo Martins SGPS, S.A.	J.MARTINS
19	LISGRÁFICA - Impressão e Artes Gráficas, S.A.	LISGRAFICA
20	Martifer SGPS, S.A.	MARTIFER
21	Média Capital, SGPS, S.A.	MEDIA CAPITAL
22	Mota-Engil – SGPS, S.A.	MOTA-ENGIL
23	The Navigator Company S.A.	NAVIGATOR
24	NOS, SGPS, S.A.	NOS

Table 15 (Cont): Companies – Cross-section Analysis

	Company Name	Company Abreviation
25	Novabase, SGPS, S.A.	NOVABASE
26	Pharol, SGPS, S.A.	PHAROL
27	F. Ramada - Investimentos, S.G.P.S., S.A.	RAMADA
28	REDITUS SGPS, SA	REDITUS
29	REN – Redes Energéticas Nacionais, S.G.P.S., S.A.	REN
30	Semapa - Sociedade de Investimento e Gestão, SGPS, SA	SEMAPA
31	Sonae Capital, SGPS, S.A.	SONAE CAPITAL
32	Sonaecom, S.G.P.S., S.A.	SONAECOM
33	Sonae Indústria, SGPS, S.A.	SONAE IND
34	Sonae - SGPS, S.A	SONAE, SGPS
35	Teixeira Duarte, S.A.	TEIXEIRA DUARTE
36	Toyota Caetano Portugal, S.A.	TOYOTA CAETANO
37	VAA - Vista Alegre Atlantis, SGPS, SA	VAA

Appendix B – Companies in Panel Analysis

Table 16: Companies – Panel Analysis

	Company Name	Company Abreviation
1	ALTRI, SGPS, S.A.	ALTRI
2	Banco Comercial Português, S.A.	BCP
3	Corticeira Amorim, SGPS, S.A.	CORTICEIRA AMORIM
4	CTT - Correios de Portugal, S.A.	CTT
5	EDP - Energias de Portugal, S.A.	EDP
6	EDP Renováveis, S.A.	EDP R
7	Galp Energia, SGPS, S.A.	GALP
8	IBERSOL – SGPS, S.A.	IBERSOL
9	Mota-Engil – SGPS, S.A.	MOTA-ENGIL
10	The Navigator Company S.A.	NAVIGATOR
11	NOS, SGPS, S.A.	NOS
12	Novabase, SGPS, S.A.	NOVABASE
13	Pharol, SGPS, S.A.	PHAROL
14	REN – Redes Energéticas Nacionais, S.G.P.S., S.A.	REN
15	Semapa - Sociedade de Investimento e Gestão, SGPS, SA	SEMAPA
16	Sonae Capital, SGPS, S.A.	SONAE CAPITAL
17	Sonae - SGPS, S.A	SONAE, SGPS

Appendix C – Cross-sectional Descriptive Statistics

Table 17: Standard Deviation and Skewness– Cross-sectional Variables

	Standard Deviation	Skewness
Group Compensation (€)	918912,36	2,63
Ind. Compensation (€)	521910,18	1,46
ROA (%)	0,50	-5,99
Sales (€)	2828229623,53	5,02
Tenure (Years)	10,41	1,96
Blockholder (%)	0,23	-0,01
Independent Board Ratio	0,24	0,69
Consultants (n^o)	0,85	0,29
Independent Consultants Ratio	0,46	-0,45
TSR (%)	3,91	5,95

Table 18: Correlation Matrix – Cross-sectional Variables

	Comp.	ROA	Sales	Tenure	Own.	BHold.	IBR	Conslt.	ICR	Dual	DInd	DServ	DTT
Comp.	1,000												
ROA	0,104	1,000											
Sales	0,379	0,067	1,000										
Tenure	0,141	0,140	0,180	1,000									
Own.	-0,036	0,110	0,247	-0,024	1,000								
BHold.	0,101	0,284	0,048	0,021	0,371	1,000							
IBR	0,155	-0,316	0,296	-0,192	0,027	-0,001	1,000						
Conslt.	0,308	0,017	-0,001	-0,396	-0,203	-0,047	0,190	1,000					
ICR	0,150	-0,144	-0,128	-0,359	-0,286	-0,175	0,089	0,078	1,000				
Dual	0,028	-0,100	0,147	0,460	0,026	-0,243	-0,006	-0,138	-0,228	1,000			
DInd	-0,160	0,018	-0,061	0,612	-0,119	-0,100	-0,146	-0,589	-0,240	0,109	1,000		
DServ	-0,133	0,032	-0,085	-0,173	0,196	0,027	-0,048	0,000	-0,182	-0,006	-0,019	1,000	
DTT	0,309	0,063	-0,089	-0,200	-0,256	-0,150	0,130	0,519	0,100	-0,131	-0,082	-0,103	1,000

Appendix D – Panel Descriptive Statistics

Table 19: 2017 Standard Deviation and Skewness – Panel Variables

2017	Standard Deviation	Skewness
Group Compensation (€)	1069928,20	2,40
Ind. Compensation (€)	545840,03	1,06
ROA (%)	0,74	-4,11
Sales (€)	1462612298,68	2,95
Tenure (Years)	7,00	1,43
Blockholder (%)	0,22	0,04
Independent Board Ratio	0,26	0,74
Consultants (n^o)	0,92	2,06
Independent Consultants Ratio	0,45	-0,73

Table 20: 2014 Standard Deviation and Skewness – Panel Variables

2014	Standard Deviation	Skewness
Group Compensation (€)	619444,72	1,15
Ind. Compensation (€)	467204,43	0,75
ROA (%)	0,07	-3,36
Sales (€)	1283908323,73	2,65
Tenure (Years)	6,69	1,41
Blockholder (%)	0,21	-0,15
Independent Board Ratio	0,20	0,33
Consultants (n^o)	0,66	-0,06
Independent Consultants Ratio	0,43	-0,94

Table 21: 2011 Standard Deviation and Skewness – Panel Variables

2011	Standard Deviation	Skewness
Group Compensation (€)	431484,82	-0,17
Ind. Compensation (€)	447311,63	0,17
ROA (%)	0,02	0,48
Sales (€)	1879537296,42	2,06
Tenure (Years)	5,23	1,51
Blockholder (%)	0,30	0,26
Independent Board Ratio	0,18	0,28
Consultants (n^o)	0,53	3,14
Independent Consultants Ratio	0,43	-0,47

Table 22: 2017 Maximum and Minimum values – Panel Variables

2017	Maximum	Minimum
Group Compensation (€)	4746579,36	294000,00
Ind. Compensation (€)	2288274,00	294000,00
ROA (%)	0,09	-3,00
Sales (€)	5710151936,00	701609,00
Tenure (Years)	27,00	3,00
Blockholder (%)	0,83	0,10
Independent Board Ratio	0,78	0,00
Consultants (n°)	6,00	2,00
Independent Consultants Ratio	1,00	0,00

Table 23: 2014 Maximum and Minimum values – Panel Variables

2014	Maximum	Minimum
Group Compensation (€)	2461875,02	149688,00
Ind. Compensation (€)	1719000,00	149688,00
ROA (%)	0,07	-0,24
Sales (€)	4974126500,00	560340,00
Tenure (Years)	24,00	1,00
Blockholder (%)	0,78	0,13
Independent Board Ratio	0,56	0,00
Consultants (n°)	4,00	2,00
Independent Consultants Ratio	1,00	0,00

Table 24: 2011 Maximum and Minimum values – Panel Variables

2011	Maximum	Minimum
Group Compensation (€)	1425895,00	154053,90
Ind. Compensation (€)	1386888,43	154053,90
ROA (%)	0,07	-0,01
Sales (€)	6000742302,00	494842,00
Tenure (Years)	21,00	1,00
Blockholder (%)	1,00	0,08
Independent Board Ratio	0,50	0,00
Consultants (n°)	5,00	3,00
Independent Consultants Ratio	1,00	0,00

Table 25: Correlation Matrix – Panel Variables

	Comp.	ROA	Sales	Tenure	Own.	BHold.	IBR	Conslt.	ICR	Dual	DInd	DServ	DTT
Comp.	1,000												
ROA	0,133	1,000											
Sales	0,334	0,092	1,000										
Tenure	0,602	0,132	0,185	1,000									
Own.	-0,193	0,107	0,171	0,095	1,000								
BHold.	0,060	0,227	0,077	0,049	0,340	1,000							
IBR	0,076	-0,309	0,363	-0,257	-0,001	0,026	1,000						
Conslt.	0,155	0,015	-0,173	-0,026	-0,359	-0,058	0,104	1,000					
ICR	0,264	-0,124	0,177	0,103	-0,319	-0,143	0,323	0,127	1,000				
Dual	0,112	-0,128	-0,127	0,503	-0,179	-0,258	-0,187	0,023	0,089	1,000			
DInd	0,172	0,117	0,052	0,492	-0,119	0,180	-0,403	-0,139	-0,120	0,267	1,000		
DServ	-0,206	0,094	0,168	-0,102	0,485	0,240	0,211	-0,068	-0,056	-0,179	-0,410	1,000	
DTT	-0,079	-0,334	0,030	-0,162	-0,019	-0,383	0,055	-0,189	0,140	0,042	-0,257	-0,342	1,000