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Dividend Policy, Ownership Structure and Debt Financing: Evidence from Portuguese listed companies

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Biographical Note

Ana Luísa Ribeiro was born in Tomar on April 14, 1991.

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Abstract

Dividend policy is one of the most complex topics of finance and has a huge impact on the investment and financing decisions of a company. In academic literature, the relationship between Dividend Policy, Ownership Structure and Debt financing is still not clear. The aim of this dissertation is to study how ownership structure and Debt financing relates to firm's Dividend Policy in Portugal.

The analysis is performed on a panel data set, which includes a sample of 25 firms listed on Euronext Lisbon in the period from 2007 to 2016. The recent studies performed for Portuguese firms only focus on the impact of dividend policy on firms' value and on several determinants of dividend policy (growth, leverage, profitability, size, tax, among others). This dissertation will allow studying the implications of the agency theory and corporate governance on dividend policy of Portuguese firms and, in particular, in firms with different levels of debt.

Our results support a U-shaped relationship between managerial ownership and dividends payments in Portuguese firms. We also find that the nature of the relationship between managerial ownership and dividends differ across firms with different levels of debt. The results of the study are consistent with the agency theory framework.

Keywords: dividend policy, ownership structure, debt financing, agency theory, corporate governance

JEL-Codes: G32, G35

Table of Contents

Table Index

Figure Index

1. Introduction

The separation between ownership and control creates conflicts of interests in a firm (Jensen & Meckling, 1976). The managers of the company can pursue their own interests and undermine the interests of the shareholders. A good corporate governance is relevant to ensure a Dividend Policy that benefits both managers and shareholders' interests. Dividends, debt issuance and managerial ownership have been discussed, by several authors, as disciplining mechanisms which mitigate the corporate governance problem (Farinha, 2003a). Therefore, the Dividend Policy of a company should be related to the ownership structure and the level of debt.

The aim of the dissertation is to study the relationship between ownership structure, debt financing and the Dividend Policy of companies in Portugal. In this study, the research questions are the following:

a) What is the relation between managerial ownership and dividends across Portuguese firms and, in particular, in firms with different levels of debt.

b) What is the impact of corporate governance on Portuguese firms' dividend policy.

For this study, a sample of 25 firms listed on Euronext Lisbon will be used. Since in Portugal there is a reduced number of firms that pays dividends to shareholders, the analysis will comprise a period of 10 years, from 2007 to 2016. Financial companies and sports clubs will be excluded from the sample.

The motivation of this research arises from the importance of this topic in the field of Finance, and its implications. Dividend Policy has a huge impact not only on firms but also in the whole economy. For instance, when a company changes its dividend policy, it affects the perception of the company that investors and the financial markets have. It is considered a sign about the performance of the company to outside investors.

Furthermore, the study of dividend policy for Portuguese companies from the point of view of corporate governance is quite an interesting and challenging analysis. In fact, this dissertation will certainly contribute to the academic literature since there are no recent studies comparing the dividend policy of Portuguese firms against corporate governance and agency theory. Most of the current studies conducted in Portugal focus on the impact of dividend policy on firm's value and on several determinants of dividend policy (growth, leverage, profitability, size, tax, among others), existing a literature gap on the point of view

of corporate governance/agency theory for Portuguese firms. In addition, the study of the relationship between corporate governance and dividend policy in Portugal may complement recently performed studies about the subject in other regions. This analysis is interesting not only for researchers, but also for all the companies involved and all its stakeholders, mainly because of contradictory opinions and theories about dividend policies and its (ir)relevance.

The methodology and model that will be used will be based on the approach of Florackis et al. (2015). A panel data analysis will be performed. We expect to get a better understanding of the relation between ownership structure, dividends and debt in reducing agency costs of free cash flow in Portugal.

This dissertation will be structured in 5 sections. In the Section 2, we will introduce some relevant definitions and literature review about the topic. In addition, we will present a critical analysis and a description of the corporate governance system in Portugal and its implications on Portuguese firms' Dividend Policy. In Section 3, we will describe the methodology, data and variables used in the analysis. In Section 4, we will present and discuss the main results for the sample and sub-samples and in the last section we will present the conclusion.

2. Literature Review

In this section, we will discuss some important definitions on the literature review about the topic. First, we present the relevant definitions of Corporate Governance and the agency problem, and the corporate governance mechanisms to reduce agency risks, namely Dividend Policy, Ownership and Debt financing. In addition, we will present some theories discussed in academic literature about corporate dividends. Then, we will discuss the main results of similar studies and present our critical view of the existing literature.

2.1 Corporate Governance and the Agency Problem

According to Jensen and Meckling (1976), the agency problem results from the separation between ownership and management. The authors define the agency relationship as a contract under which one part (the principal, the owner) engages another part (the agent, the manager) to perform some service on its behalf. Hence, the principal will delegate some decision-making authority to the agent. The principal hires the agent mainly due to his expertise and ability to perform the job and the principal's lack of time. Nevertheless, the interests of each are not necessarily the same, which gives origin to several conflicts, costs or losses of value. Considering that individuals are rational, they want to maximize their utility and value.

The major agency conflict is reflected on the theory of the free cash flow of Jensen and Meckling (1976). These agency problems arise from the impossibility of perfectly contracting for every possible action of the agent whose decisions affect both his own and the principal's welfare. The principal will not maximise his value or utility if the available free cash flow from operations are used discretionally by managers, following a dividend policy in favour of retention of earnings, under the pretext of financing new investment opportunities. The problem can lead to two different scenarios: overinvestment in line with the manager overblown ambition or, in contrast, to perquisite consumption and underinvestment.

Jensen and Meckling (1976) define corporate governance as a set of internal and external mechanisms, from incentive and control, aimed at minimizing the agency costs. Corporate governance mechanisms are destined to solve or mitigate potential conflicts of interest among stakeholders of the company (shareholders, creditors, managers, employees, customers, suppliers and the State). According to the authors, with Corporate Governance

mechanisms, shareholders are able to control the managers' performance reducing the probabilities of inappropriate behaviour and actions. Hence, with higher monitoring of the directors' actions, the agency problem should be reduced and the company performance should increase. Accordingly, in companies a way to mitigate and reduce those agency conflicts is through the implementation of good Corporate Governance mechanisms.

In the academic literature, different authors have discussed several mechanisms to solve the agency conflict between managers and shareholders (Farinha, 2003a). Particularly, the dividend payments, debt issuance and managerial ownership have been identified as corporate governance mechanisms to reduce the agency conflicts.

Nonetheless, currently there are still no robust conclusions about the relationship between these mechanisms and whether they work in substitute/complementary ways (Florackis et al., 2015).

2.2 Corporate Governance mechanisms

2.2.1 Dividend Policy

Dividend policy decisions have huge impact on the available free cash flow of the firms as well as in the investment and financing strategies. Over the past few years, dividends have been subject to an extensive research. Despite all the research on the field, there is no generally accepted model or theory describing the dividend policy behaviour of firms. In fact, the empirical findings are often difficult to interpret or inconsistent with the theories and that is why it can be referred to as a "puzzle" (Black, 1976). The explanations for the dividend policy behaviour are several and include tax effects theory, signalling theory, agency theory among others.

Dividend policy is a financial decision faced by the management, on what proportion of the company's earnings should be paid out to shareholders. The managers must decide whether the company retains the profits and reinvests in new investment opportunities or pays out the earnings to the owners of the firm in the form of dividends. In the decision on how much cash to distribute to shareholders, the managers should bear in mind the maximization of the shareholders' value.

Moreover, in general, there is a difference between the information that managers and shareholders hold. The managers, as insiders of the company, have more information about the firm's cash flow than the outsiders, that have limited access to information about it. Knowing this, due to asymmetry of information between insiders (managers) and outsiders (shareholders), there will always be conflict of interests (Fama & Jensen, 1983; Jensen & Meckling, 1976). Nevertheless, these problems of asymmetric information become less important if the ownership of the company is more concentrated.

With respect to the agency theory, there are reasons why dividends will lower agency costs in a firm. According to the theory of the free cash flow, dividends will lower the free cash flow available. Too much free cash flow could harm the company, since it gives the manager an opportunity to make investments which are not in line with the interests of the shareholders (Jensen, 1986).

A solution to reduce agency problems is to pay a high proportion of earnings as dividends to the shareholders. Dividends represent cash income to shareholders and at some extent, signal them about the success of the firm they have invested. The distribution of dividends contributes to the increase of the share price of the company and, thus, to the increase of shareholder wealth.

From another point of view, dividends will lower agency costs because it will force managers to raise money on the equity market. When this happens, the debtholders, which are willing to lend the money, will investigate the firm and the monitoring actions will increase. This increased monitoring will lead to less agency costs (Easterbrook, 1984). From this point of view, dividend payments have been considered as a "bonding" mechanism to reduce the agency problems between managers and shareholders. The implicit explanation is that when a firm pays dividends, it is submitted to monitoring by the equity markets (Easterbrook, 1984; Jensen, 1986; Jensen & Meckling, 1976; Rozeff, 1982).

2.2.2 Ownership structure

The ownership structure of a firm is of major importance in corporate governance and it is the relative amount of ownership claims held by insiders (management) and outsiders (investors with no direct role in the management of the firm). It has impact on the managers' incentives and, thereby the financial performance of companies and the wealth of shareholders.

As previously mentioned, several conflicts of interests are generated due to the separation between ownership and control. Given the governance issues arising from this separation of power, it is important to understand the ability to align managerial and shareholder interests.

The managers who own equity in the firm will act as owners and reduce the degree of expropriation from outside investors (alignment effect). Agency costs are lower in firms with high managerial ownership stakes because of better alignment of shareholder and managerial control (Jensen & Meckling, 1976).

In contrast, as managerial ownership increases to very high levels, managers may not exert sufficient effort, they may collect private benefits and entrench themselves at the expense of external shareholders (Farinha, 2003b; Florackis et al., 2015). This behaviour is known as the entrenchment effect.

According to Jensen (1986), the relation of dividends and managerial ownership as substitutes mechanisms for reducing the discretionary resources under managers' control should be negative. The author developed a life-cycle model for the firm's optimal dividend policy focusing on the trade-off between the benefits of retained earnings and the agency costs.

Against this view, some authors have argued that the relation between dividends and insider ownership would turn positive above a certain level of ownership due to the entrenchment effect. The basis of this explanation is that entrenched managers, at high ownership levels, do not see dividends and debt as substitute mechanisms. As ownership levels increase, they prefer dividends since they increase their own and the other shareholders' welfare. Therefore, this explanation takes a U-shaped dividend–ownership relation, including both the alignment and entrenchment effects (Farinha, 2003b). Hence, there is evidence of a statically significant non-linearity relation of ownership structure with debt and dividends (Farinha, 2003b; Florackis et al., 2009).

With respect to the relation between debt and managerial ownership, the empirical evidence is not clear. While some authors defend a positive relationship based on managerial preferences to maintain their control within the company, avoiding the agency costs of external equity (Florackis et al., 2009), others support a negative relationship between debt and insider ownership (Friend & Lang, 1988). Despite those arguments, it is also possible to find evidence of a non-linear relation between debt and managerial ownership (Florackis et al., 2009).

In addition, agency costs are lower in firms with large-block shareholders, which are better able to monitor managerial activities (Shleifer & Vishny, 1986). Large-block shareholders, generally institutional investors, are investors that hold at least 5 per cent of equity ownership within a firm. A higher level of ownership concentration or more large-block shareholders suggest a stronger monitoring power from investors over a firm's managerial decisions because of their incentives. On the other hand, firms with a low level of ownership concentration (diffused ownership) might indicate weaker governance power because investors with less ownership interests have little incentive to pay attention to the strategic decisions of the firm and thus, are less motivated to closely monitor and discipline management. In this case, small shareholders will act as free-riders (Fama & Jensen, 1983).

In fact, the majority of shareholders have stocks in a variety of firms. This means that the risk that affects a particular firm will not be a threat to their total portfolio. However, in the manager perspective, they usually have a large stake in the firm they work. For instance, not only they might own stocks and options to purchase additional stock, they might also have their salary tied to the performance of the company's share price in financial markets. The personal incentives of managers can have impact on the dividend policy (Lambert et al., 1989). Thus, the good performance of the company really matters to the managers.

However, following the entrenchment hypotheses, managers holding a considerable stake in the company and having enough voting power, will ensure their position and be, at some extent, protected against a takeover threat or the managerial labour market (Fama & Jensen, 1983; Farinha, 2003b).

2.2.3 Debt financing

When a company needs cash, it can obtain financing through equity, debt or both. Equity represents an ownership stake in the company, giving the shareholder a claim on future earnings. The lenders are the investors that provide the company with debt financing. In return for lending the money, they become creditors and receive a promise that the principal and the interest on the debt will be repaid. In fact, in an eventual bankruptcy situation, the first in line to receive the money are the debtholders, while the last ones are the equity holders. Debtholders have the option to take the firm into bankruptcy if management default on their debt obligations. Because of this monitoring device, debt financing is argued to be a mechanism to reduce agency costs (Stulz, 1990).

Several authors discuss the possible solutions for agency problems and one of the solutions is to use more debt financing. The use of Debt reduces the total equity financing and, consequently, the agency conflicts.

Debt financing can be difficult to obtain and risky for the company. Myers and Majluf (1984) say that information asymmetry between inside and outside investors can generate external financing constraints and raise the cost of external financing. The main advantage of debt financing over equity, besides the advantage of the interest on debt being tax deductible, is that the lender has no control over the running of the company. The decision to use debt or equity is taken by the manager and depends on the long-term goals of the company. Hence, dividends and debt interest payment will reduce the free cash flow available to be squandered away by managers (Jensen & Meckling, 1976).

Nevertheless, dividend payments will end up forcing managers to get financing to invest in future investment projects externally. Consequently, to issue new equity in the primary markets, a firm should provide relevant information to outside investors and be submitted on detailed monitoring by outsiders (Easterbrook, 1984). Once again, the monitoring role of outsiders prove to decrease the agency problem.

Rozeff (1982) argues that firms may have an optimal dividend policy, explained by a trade-off between the costs of raising external capital and the benefit of reduced agency costs. It is a fact that paying dividends comes always at some cost. When a company pays dividends, there is less liquidity available for investments. Therefore, the firm has to go to capital markets to raise money and support the associated transaction costs. That is why for the

author, the amount of dividend paid is a trade-off between the transaction costs and the benefits of paying dividends and, consequently, the reduced agency costs.

Easterbrook (1984) observes that firms pay dividends and raise capital simultaneously. In his perspective, increasing dividends raises the probability that additional capital will have to be raised from external financing on a periodic basis, and consequently, the firm will be subject to monitoring by specialists in capital markets.

Another argument for leverage as a monitoring mechanism is that firms with high financial leverage and financial risk tend to avoid paying high dividends, so they can accommodate the risk associated with the use of debt financing. In addition, leverage may impact dividend policy due to debt covenants and related restrictions that may be imposed by debtholders (Farinha, 2003b).

All things considered, dividends, debt issuance and managerial ownership have been discussed as disciplining mechanisms in providing a solution for the corporate governance problem (Farinha, 2003a). The proposed mechanisms aim to control the actions of the managers in an attempt to align their own interests with those of shareholders.

2.3 Main theories in the View of Dividend Policy

In financial theory, there is a great number of models based on dividend policy. To begin with, Miller and Modigliani (1961) irrelevance theorem states that paying dividends is irrelevant and, given the investment decision of a firm, the dividend payout ratio does not affect shareholders' wealth. They argued that the value of the firm depends only on its investment policy and its earnings. The irrelevance theorem assumes a world where there is symmetric information, complete contracting possibilities, complete markets, no taxes and no transaction costs. However, companies keep paying high amounts of dividends to their shareholders. For this reason, despite Miller and Modigliani (1961) models, the academics continue to find many flaws in the irrelevance theory and still realize the importance of dividends in making investment and financing decisions.

An appropriate understanding of dividend policy is critical for many areas in Finance such as asset pricing, capital structure, mergers and acquisitions, and capital budgeting (Allen & Michaely, 1995). In general, the consensus is that there is no single explanation for Dividend Policy behavior.

2.3.1 The pecking order theory

Besides the agency theory, there are other theories that explain corporate dividend policy and its relationship with managerial ownership and debt. The pecking order theory by Myers and Majluf (1984) shows that firms rank their sources of financing. First, they raise internal financing, then they issue external debt and, finally, they issue equity. This ranking suggests a positive relationship between debt and dividends. In fact, when firms increase the dividend pay-out, they reduce the available free cash flow (internal financing). Consequently, the firms increase the need for raising external debt in order to maintain an optimal capital structure (Aggarwal & Kyaw, 2010). This positive relationship between debt and dividends is contradictory to the view of Jensen (1986), previously described.

2.3.2 Signalling theory

From another perspective, companies also pay dividends for signalling purposes. The signalling theory states that when a firm is optimistic about the future, it will pay more dividends to signal this optimism to its shareholders (Lintner, 1956). Dividends appear to display information about companies. An unexpected change in the dividend policy is regarded as a sign of how the managers view the future prospects of the firm. An unusually large increase in the dividends is often considered to indicate an optimistic view about future profitability. On the other hand, a declining dividend behaviour often signals some pessimism. The signalling model by Miller and Rock (1985) assumes that dividend payments disclose private information to the market, considering asymmetric information between managers and shareholders.

2.3.3 Clientele effect

The clientele effect theory takes into account imperfections in the capital markets such as taxes, transaction costs, limited amount of capital, different interest rates, asymmetric information, supporting a completely different world from the one suggested by Miller and Modigliani (1961). According to this, shareholders will be faced with costs every time the Dividend Policy of the company changes. Therefore, wealth maximization may not be the only desire for shareholders. They may prefer a stable flow of dividends to match their desired consumption pattern and to counter the extra costs. Accordingly, the clientele effect has some important implications for companies. First, it suggests that companies get investors due to its dividend policy decisions and, second, it highlights the companies' difficulties in changing an established dividend policy, even if it is necessary.

Management may also be also reluctant to change the established dividend policy because if they increase dividend payments, they are left with less cash flows to finance new projects and the only alternative is to get external financing, which is even more costly. Due to this fact, companies tend to prefer stable dividend policies in order to incur in lesser costs (Scholz, 1992).

2.4 Similar studies

The present study aims to analyse the relationship between managerial ownership and debt financing on dividend policy in Portugal. Recent studies explore this relationship with different approaches in markets such as the UK and US market (Farinha, 2003b; Florackis et al., 2015; Jensen et al., 1992). However, there are no similar studies applied to the Portuguese market.

Crutchley and Hansen (1989) performed a cross-sectional analysis of dividend policy, examining managers' ownership and leverage for 603 industrial firms on the period between 1981-1985. The results are consistent with dividend policy acting as a corporate monitoring mechanism and with a substitution effect between levels of the three policies, taking advantage of the benefit-cost trade-off to reduce agency costs. They support the equilibrium condition of the Jensen and Meckling (1976) model.

Jensen et al. (1992) studied the determinants of cross-sectional differences in insider ownership, debt and dividend policies at two points in time 1982 and 1987. The authors claim that these policies are related not only directly, but also indirectly, through their relationship with operating characteristics of firms. So, they examine the determinants of the three policy choices applying a three stage least squares to a system of equations that includes one equation for each of the three policy choices. The results support that levels of insider ownership differ systematically across firms and high insider ownership firms choose lower levels of both debt and dividends. Furthermore, they support a modified "pecking order" hypothesis, because of the effects of profitability, growth, and investment spending on debt and dividend policy. The authors confirm that managerial ownership has a negative impact on dividend payout policy and firm debt.

Later, Espen Eckbo and Verma (1994) shows that dividends are a negative function of the increasing power of managerial ownership. Their results conclude that manager-controlled firms are associated with very low cash dividends due to the absolute voting power of the managers.

A different study is the one from Schooley and Barney (1994) that finds a significant relationship between dividend yield and CEO stock ownership in 235 industrial firms in US, using data around 1980. The authors find evidence that until the CEO becomes entrenched, increased executive stock ownership reduces agency costs and decreases dividend yield.

Afterwards, increased stock ownership increases dividend yield. The results from this study can give important insights to discuss the insider ownership as a mechanism to reduce agency costs.

Another interesting study is the one from Farinha (2003b), performed in United Kingdom using data for two five year periods (1987–91 and 1992–96) and with 600 firms as sample. In a cross-sectional analysis of dividend policies in the UK, the author finds evidence of a strong U-shaped relationship between dividend pay-outs and insider ownership. More precisely, after a critical entrenchment level estimated around 30%, the coefficient of insider ownership changes from negative to positive. Additionally, Farinha (2003b) also show evidence that beneficial and non-beneficial insider holdings may contribute to entrenchment.

More recently, Florackis et al. (2015) examined the relation between dividend policy, managerial ownership and debt-financing for 7376 companies listed on NYSE, AMEX and NASDAQ. They used standard and semi-parametric estimation methods to capture more effectively non-linearities in the data. The results of the study, in line with the alignment effect of managerial ownership, support a negative relationship between managerial ownership and dividends when managerial ownership is at relatively low levels. However, the negative relationship turns into a positive one at very high levels of managerial ownership. This relationship also differs significantly across firms with different levels of debt.

From the several studies identified, the main outcome is that agency theory provides useful insights to try to explain dividend policies of firms but cannot fully explain how firms determine it.

2.5 Critical analysis of the literature

To better understand the relation between dividends, ownership structure and leverage within firms, first we should look at the major differences in ownership structures.

In the United States or the United Kingdom, the ownership of companies is often dispersed and it is said that each individual shareholder has only limited incentives and ability to monitor the manager's activities. The main conflict of governance in these companies is between powerful managers and small outside shareholders. Indeed, dividend payments are seen as a means to reduce the free cash flow that managers can use discretionally (Jensen, 1986).

In contrast, in continental Europe, the scenario is quite different. The ownership structures of companies are concentrated and large shareholders have huge incentives and ability to control management. The board of directors generally operates as an advisory committee rather than controlling the company's operations. As a result, the manager-shareholder conflict does not appear to be a concern, whereas the expropriation of minority shareholders seems to be. Several authors argue that there is a potential conflict between the large controlling shareholder and small minority shareholders (La Porta et al., 2000). Large shareholders may harm the economic interests of the minority by refusing to declare dividends or attempting a squeeze out. In these governance systems, legal protection of minority shareholders is an issue. Efficient corporate governance including monitoring management and shareholder protection can reduce agency problems (La Porta et al., 2000).

In Portugal, in general, companies are characterised by large shareholders. The largest shareholder, with majority control, has considerable power and discretion over important decisions, like dividend payments.

Finally, from the arguments presented, it is proven that dividend policy has an important role in monitoring management and reducing agency costs. With the discussion of similar studies, it is possible to sustain that the relation between managerial ownership and dividends may be complex to analyse. However, considering the studies developed in the last years, there is an evident lack in the academic literature, with respect to dividend policy in the view of agency theory in Portugal. Therefore, this study will help prove/disprove existing literature and will give new insights to help managers and shareholders in the process of decision-making.

3. Methodology

3.1 Empirical Hypotheses

To perform our investigation, first, we want to test if there is U-shaped relationship between dividends and managerial ownership for Portuguese companies, in accordance with the managerial entrenchment hypothesis. This hypothesis was previously studied in Schooley and Barney (1994) for US firms, in Farinha (2003b) for UK firms and more recently in Florackis et al. (2015), also for US firms. This relationship between the dividend payout ratio and ownership concentration within a firm is not strictly negative, turning positive in a certain ownership level, due to entrenchment effect.

When managers hold little equity and shareholders are too dispersed to take disciplining actions, managers will prefer to retain earnings instead of paying dividends to ensure the growth of the company as well as to maximise their own personal benefits (Jensen, 1986). This means that, before a critical entrenchment level of ownership concentration, large amounts of dividends have to be paid out to reduce retained earnings and prevent managers from investing in projects with negative Net Present Value (NPV) for the sake of building a larger managerial empire. In contrast, when ownership is concentrated, shareholders gain more control over the firm and the management actions, reducing the monitoring costs, which in turn reduce the agency conflict. Therefore, before this critical entrenchment level, ownership concentration and dividends work as substitutes to reduce the agency costs, suggesting a negative relationship exists between these two mechanisms: when one increases, the other decreases.

On the other hand, when ownership concentration surpasses the critical entrenchment level, the dividend payout ratio rises to mitigate the agency costs due to entrenched managers. In this phase, it is observed a positive relationship between dividend policy and insider ownership. Hence, to test this relationship, we considered the following hypotheses:

H1: Managerial ownership of Portuguese firms is negatively related to dividends, when managerial ownership is at relatively low levels.

H2: The relation between managerial ownership and dividends in Portuguese firms is positive, when managerial ownership is at high levels.

The recent studies of Farinha (2003b) and Florackis et al. (2015) show that the investigation of the impact of managerial ownership and firm debt in dividend policy of a firm is crucial. The results of Farinha (2003b) identify a significant U-shaped relationship between dividend payouts and insider ownership characterised by a critical level of entrenchment for managerial ownership at 30%. This means that there is a negative relation between payouts and insider ownership until a turning point in the region of 30%, where the relation becomes positive. This result is consistent with the agency perspective, however inconsistent with tax or signalling theories. In contrast, the semi-parametric approach in Florackis et al. (2015) demonstrates a relationship with more than one turning point. The study supports a negative relationship between managerial ownership and dividends when managerial ownership is at relatively low levels, lower than 10 percent, which is consistent with the alignment effect of managerial ownership. In addition, it supports a positive relationship between dividends and managerial ownership at very high levels of managerial ownership, higher than 60 percent, supporting either the entrenchment effect of managerial ownership or the existence of strong managerial preferences over dividends for liquidity reasons. The main conclusion of Florackis et al. (2015) is that the relation for ownership levels between 10 percent and 60 percent seems to be flat, contradicting previous evidence by Schooley and Barney (1994) and Farinha (2003b), which in the authors' point of view, can only be explained in the context of tax and signalling theories.

Florackis et al. (2015) found evidence that the relationship between managerial ownership and dividends differs significantly across firms with different levels of debt. Particularly, they found that for high-leverage firms which are subject to monitoring by debtholders, dividends and ownership are substitute mechanisms to reduce the agency costs. On the contrary, for low-leverage firms, since they lack this monitoring mechanism for controlling agency costs, the firms may be exposed to entrenchment problems at higher levels of managerial ownership. For this reason, we want to clarify the existing relations between dividends and managerial ownership for these two opposite groups.

We also want to assess two groups of firms separately: one with low-leverage firms and other with high-leverage firms. This analysis will allow testing for potential relations between dividends and managerial ownership considering different levels of debt. The hypotheses are:

H3: There is no significant relation between dividends and managerial ownership, for low-leverage Portuguese firms.

H4: There is a negative relation between dividends and managerial ownership, for high-leverage Portuguese firms.

Corporate boards play an important role in monitoring and controlling management and its quality can be examined through different characteristics: the composition of the board, which means the size of the board and the type of directors. With respect to governance issues, the analysis will focus on several characteristics of the board of directors to understand and interpret their relationship with dividends.

The size of a board is important to monitor management. Previous studies have shown two opposite results about the influence of board size on dividend policy. On the one hand, the results support that larger boards allow greater specialization which can lead to more effective monitoring (Klein, 2002). In fact, larger boards can provide greater expertise and diversity of knowledge but also valuable outside advisors, working as an efficient monitoring force. For this reason, lower dividends are required as a monitoring mechanism. Similarly, the signalling theory defends a large board size, which can be perceived as a good signal to the market. As a result, dividend payments are not required to reduce agency costs.

On the other hand, Jensen (1993) supports that large boards might indicate weak monitoring. Larger boards are less effective than the smaller boards due to the difficulty of coordinating large groups. Despite all the arguments, in Portugal, in general, the boards of directors are small in size and some with family-related directors. Therefore, we expect that smaller-sized boards result in lower monitoring costs. Nevertheless, to avoid any expropriation of internal resources, shareholders may require higher dividend payments. Thus, such weak monitoring mechanisms will be substituted by dividends payments, which is in line with the substitution hypothesis (La Porta et al., 2000). Drawing on the above discussion, we expect that board size should have a significant relation with dividend payments:

H5: There is a significant relation between dividends and board size for Portuguese firms

Board independence is considered a significant characteristic of board structure. An independent director is usually a member of the audit, remuneration and nomination committees and his role is important to ensure the integrity of financial statement disclosures and to guarantee appropriate internal controls in the company. According to Rozeff (1982), when management control mechanisms are weak, shareholders use dividends to monitor the management. If independent directors are an effective monitoring mechanism, then board independence and dividend policy should be substitutes to reduce agency problems. Thus, considering that the existence of independent directors in a board strengthens the control power of shareholders, dividend payments are reduced. Based on this argument, our testable hypothesis is the following:

H6: There is a negative relation between dividends and independent directors for Portuguese firms

Finally, we want to test CEO duality. The perspective in Jensen (1993) is that, when the same person is the CEO and Chairman of the board, the board of the directors cannot perform its key function. In this case, the internal control system will be very weak, and the CEO will get more power to control the board of directors. It will consequently have impact on the independence of the board of directors. Probably the CEO will pursue his own interests and not all shareholders' interests. Baliga et al. (1996) suggest that in case of the CEO and chairman duality, the board is less effective in control mechanisms. This result is in line with the arguments of the agency theory, which states that duality promotes CEO entrenchment by reducing board monitoring effectiveness.

In Portugal, some firms show CEO duality, which implies a high portion of insiders. This specific nature of board composition should have a negative effect on board performance, leading to an increase of agency costs. As such, to better monitor managers and to limit their expropriation of free cash flow, shareholders require higher dividend payments. Thus, we want to test the following hypothesis:

H7: There is a positive relationship between the CEO duality and dividends in Portugal.

3.2 Empirical Model

The empirical approach consists of a panel data regression model to examine the relationship between dividend payments, ownership structure and board governance. Panel data is a dataset in which the behaviour of firms is described in two dimensions, in particular, time and individuals (companies). Panel datasets allow to control for individual heterogeneity due to hidden factors, to analyse a broader set of data and to obtain more variability. With this approach, the degrees of freedom are increased, the collinearity among the explanatory variables is reduced and the efficiency of the economic estimation is improved. Panel data analysis can better detect effects that are not observable in cross sections or time series data (Wooldridge, 2015).

The general form of the model can be written as follows:

$$y_{i,t} = \alpha + X'_{i,t}\beta + \mu_{i,t}$$

Where:

α is scalar,

β is K $X'_{i,t}$ and $X'_{i,t}$ is the i,t th observation on K explanatory variables,

$i = 1, ..., N$; $t = 1, ...,T$

Additionally, it is assumed that the $\mu_{i,t}$ follows a one-way error component model:

$$\mu_{i,t} = \mu_i + v_{i,t}$$

where μ_i is time-invariant and it accounts for any unobservable individual-specific effect that is not included in the regression model and the term $v_{i,t}$ denotes the remainder disturbance and it varies with the individuals and time and can be thought of as the usual disturbance in the regression.

The most common estimation methods for panel data are the pooled OLS, the fixed effects and the random effects models. In the random effect model, μ_i are assumed random and the μ_i are independent of the $v_{i,t}$. Additionally, the $X_{i,t}$ are independent of the μ_i and $v_{i,t}$, for all i and t. In contrast, in the fixed effects model, the μ_i are assumed to be fixed parameters to be estimated and the remainder disturbances stochastic with $v_{i,t}$ independent and identically distributed, i.e. $v_{i,t} \sim iid(0, \sigma_v^2)$. The $X_{i,t}$ are assumed independent of the $v_{i,t}$ for all i and t.

The fixed versus random effects issue has generated an extensive debate in the econometrics literature. We will perform the described tests in order to identify which model is more suitable to the properties of the dataset. In addition, we will use a specification test proposed by Hausman (1978) which is based on the difference between the fixed and random effects estimators.

In our analysis, we will perform an empirical model to investigate the effect of managerial ownership and board governance on dividend policy for a sample of 25 Portuguese listed companies over the period of 2007 to 2016.

In our analysis, the empirical model (1) is the following:

$$
\begin{aligned}
DIV_{i,t} = \beta_o \; &+ \; \beta_1 MAN_{i,t} + \beta_2 MAN^2{}_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 FIRM\_SIZE_{i,t} \\
&+ \beta_6 CAPEX_{i,t} + \beta_7 CASH_{i,t} + \beta_8 TOBIN\_Q_{i,t} + \beta_9 BOARDSIZE_{i,t} \\
&+ \beta_{10} INDEP\_DIR_{i,t} + \beta_{11} NONEXE\_DIR_{i,t} + \beta_{12} OLD\_DIR_{i,t} \\
&+ \beta_{13} WOMEN\_DIR_{i,t} + \beta_{14} EXP\_DIR_{i,t} + \beta_{15} CHAIRCEO_{i,t} + \mu_{i,t}
\end{aligned}
$$

Where $DIV_{i,t}$ is the dependent variable that defines the dividend payments by given company in a given year. There are two measures of ownership structure used in this analysis. $MAN_{i,t}$ is managerial ownership of a given company in a given year and $MAN^2{}_{i,t}$ is the squared managerial ownership. Six control variables are used in this study: $LEV_{i,t}$ is the level of debt of a given company in a given year, $ROA_{i,t}$ is the Return on Assets, $FIRM\_SIZE_{i,t}$ is firm size of a given company in a given year, $CAPEX_{i,t}$ the Capital Expenditures, $CASH_{i,t}$ is the Cash Holdings and $TOBIN\_Q_{i,t}$. In addition, six measures of board governance are used: $BOARDSIZE_{i,t}$ represents the number of directors in a given company in a given year, $INDEP\_DIR_{i,t}$ the number of independent directors, $NONEXE\_DIR_{i,t}$ the number of Non-executive directors, $OLD\_DIR_{i,t}$ the number of Old directors, $WOMEN\_DIR_{i,t}$ the number of Women directors and $EXPER\_DIR_{i,t}$ the number of Experienced directors in a Board of Directors of a given company in a given year. We also add a dummy variable $CHAIRCEO_{i,t}$ that assumes the value 1 if the CEO is also the Chairman of the Board and 0 otherwise. $\mu_{i,t}$ is the error term.

Table 1 provides the definitions of all the variables used in our analysis.

TABLE 1 - VARIABLE DEFINITIONS

VARIABLE NAME	DEFINITION
DIVIDENDS (percent) *Dependent variable*	The ratio of total dividends to total assets
MANAGERIAL OWNERSHIP (percent)	The percentage of shares held by the executive directors, as reported in firms' annual reports
LEVERAGE (percent)	The ratio of total debt to total assets
FIRM_SIZE	The natural logarithm of Market Value of Equity
ROA	The ratio of Net Income to total assets
CAPEX (percent)	The ratio of capital expenditures to total assets
CASH HOLDINGS (percent)	The ratio of cash holdings to total assets
TOBIN'S Q	Ratio of the book value of assets minus the book value of equity plus the market value of equity to the book value of assets
BOARDSIZE	The natural logarithm of total number of directors on the board
INDEPENDENT_DIRECTORS (percent)	The ratio of the number of all fully independent directors on a given board to the total number of directors on the board
NONEXECUTIVE_DIRECTORS (percent)	The ratio of the number of non-executive directors to the total number of directors on the board
OLD_DIRECTORS (percent)	The ratio of the number of all directors over the age of 65 on a given board to the total number of directors on the board
WOMEN_DIRECTORS (percent)	The ratio of the number of all female directors to the total number of directors on the board
EXPERIENCED_DIRECTORS (percent)	The ratio of all directors with tenure exceeding 10 years on a given board to the total number of directors on the board
CHAIR_CEO	Dummy variable that equals 1 if the CEO is also the Chairman of the Board and 0 otherwise

Additionally, it will be created two different groups, one for high-leverage firms and one for low-leverage firms. For comparison purposes and considering that the methodology uses panel data, we assigned 12 companies to each group according to the average value of debt in the period between 2007 and 2016.

Because of the number of observations of each group, we developed an adjusted empirical model (2) where we had eliminated a selection of variables from the empirical model (1) in order to run the regressions.

The adjusted empirical model (2) for the estimation of high-leverage and low-leverage firms is the following:

$$DIV_{i,t} = \beta_o + \beta_1 MAN_{i,t} + \beta_2 MAN^2{}_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 FIRM\_SIZE_{i,t}$$
$$+ \beta_6 CASH_{i,t} + \beta_7 TOBIN\_Q_{i,t} + \beta_8 BOARDSIZE_{i,t} + \beta_9 INDEP\_DIR_{i,t}$$
$$+ \beta_{10} NONEXE\_DIR_{i,t} + \beta_{11} CHAIRCEO_{i,t} + \mu_{i,t}$$

Where $DIV_{i,t}$ is the dependent variable that defines the dividend payments by given company in a given year. The definitions of the two measures of ownership structure (MAN and MAN[2]), the five control variables (LEV, ROA, FIRM_SIZE, CASH and TOBIN_Q), the three measures of corporate governance (BOARDSIZE, INDEP_DIR and NONEXE_DIR) and the dummy variable (CHAIRCEO) are previously described in Table 1. $\mu_{i,t}$ is the error term.

3.3 Empirical Variables

For a better understanding of the empirical model, this subsection describes the variables of the analysis.

Following Florackis et al. (2015), the dependent variable will be dividends, denoted by DIV, and defined as the ratio of total dividends to total assets. The main explanatory variable will be managerial ownership, denoted by MAN, and will be defined as the percentage of shares held by the executive directors, as disclosed in firms' annual financial reports.

- *MANAGERIAL OWNERSHIP:* The evidence in Farinha (2003b) and Florackis et al. (2015) is that the effect of managerial ownership in the reduction of agency costs may change its sign after a certain critical level of ownership on the possibility of managerial entrenchment. To test that relationship, we also introduced a square variable of managerial ownership in the regression. We expect a negative coefficient of MAN and a positive coefficient of MAN^2 – as according to Farinha (2003b) and Florackis et al. (2015).

Additionally, we used a set of controls in the empirical models to investigate their effect on dividend payments. The control factors selected for this study are identified in the academic literature as potentially influent to Dividend Policy of firms and as substitutes or complementary monitoring mechanisms in the presence of agency problems.

In the academic literature, dividend policy is commonly associated with leverage, profitability, investment ratios and firm size. Therefore, in this study we will include six accounting measures as control variables:

- *LEVERAGE*: is defined as the ratio of book value of debt to total assets. It was considered in the model due to its potential monitoring role of managers. According to Jensen and Meckling (1976), Jensen (1986) and Stulz (1988), among others, financial leverage is a monitoring mechanism that potentially reduces agency costs arising from the conflicts between managers and shareholders. Assuming that debt is a substitute to dividend payments, we expect that leverage has a negative impact on dividend payments.

- *RETURN ON ASSETS*: Representing a profitability measure, ROA is defined as the ratio of Net Income to total assets. Profitability is considered as an indicator of the firm's capacity to pay dividends. Jensen et al. (1992) finds evidence of a positive association between return on assets and dividend pay-outs. Dividend pay-outs may be positively

related with measures of profitability (Miller & Rock, 1985). ROA is seen as an important factor of dividend policy decisions, so we expect this variable to have a positive impact on dividend payments of Portuguese listed companies.

- *FIRM SIZE*: is defined as the natural logarithm of market capitalisation. In fact, size may be an important factor and dividends can be expected to be higher in larger firms. However, there are authors with a different point of view, arguing that the theoretical basis for an impact of firm size on dividend policy is not strong, and indeed some negative relationships have been observed (Smith & Watts, 1992). Therefore, we will not expect a particular sign in this variable.

- *CAPEX:* is defined as the ratio of capital expenditures to total assets. For this coefficient we expect a negative sign because firms with high capital expenditures are less likely to make large dividend payments.

- *CASH HOLDINGS*: defined as the percentage of cash and cash equivalents over total assets, is clearly related to the firm's free cash-flow (Jensen, 1986). When there are agency conflicts between managers and shareholders, managers tend to accumulate cash in order to proceed with their investment strategies. Dittmar et al. (2003) highlights the importance of the agency problem as a deterministic factor that influences cash holdings. Therefore, higher availability of cash, higher the probability to pay dividends and thus, the expected sign for this regression coefficient is positive.

- *TOBIN'S Q*: is defined as the ratio of the market value of a company's assets to the replacement cost of those firm's physical assets. This ratio measure the wealth generated by a company for its shareholders, as it compares how much more a company is worth when compared to the book value of its assets. A low Tobin's Q, between 0 and 1, means that the cost to replace the firm's assets is greater than the value of its stock, which implies that the stock is undervalued. The firm would be better off selling its assets. In contrast, a high Q, greater than 1, is generally a good sign because it indicates that the company is worth more than the sum of its assets. The firm's stock is more expensive than the replacement cost of its assets. Additional investment in the firm would be a great strategy because the profits generated would exceed the cost of firm's assets. Tobin's Q is used as a proxy for investment opportunity set. We expect that, with the rise in firm's assets value, there will be a positive change in dividend distribution.

Moreover, existing literature has demonstrated that governance quality has a significant impact on critical corporate decisions, including dividend policy. Thus, controlling for the impact of corporate governance is crucial in this analysis. Regarding governance measures, we have six control variables, as described below:

- BOARDSIZE: measured as the number of directors on the corporate Board (Florackis et al., 2015), it is considered an important variable influencing the quality of management control. As mentioned before, previous studies show divergent results about the influence of board size on dividend payments. Therefore, we expect a significant impact of this variable on dividend payments but not any particular sign.

- *INDEPENDENT DIRECTORS*: defined as the ratio of the number of all fully independent directors to the total number of directors on a given board. Independent directors may act as a monitoring device for the firm's management and, therefore, create a need for higher dividend payments. A negative relation is expected.

- *NONEXECUTIVE DIRECTORS*: Non-executive directors add expertise and objectivity that mitigate managerial entrenchment of firm resources (Harford et al., 2008) and they act in favour of shareholders' interests. Thus, we expected that non-executive directors on the firm's board minimise management autonomy and play a monitoring role (Fama, 1980; Weisbach, 1988; Winter Jr, 1977). Therefore, the expected sign for this coefficient is negative.

- *OLD DIRECTORS*: It is defined as the ratio of the number of all directors over the age of 65 on a given board to the total number of directors on the board. With this variable we want to assess the influence of the age of directors on dividend policy decisions.

- *WOMEN DIRECTORS*: It is defined as the ratio of the number of all female directors to the total number of directors on the board. Similarly, we want to analyse if the presence of women in the Board of Directors has a positive or negative influence on the Dividend Policy decisions of firms.

- *EXPERIENCED DIRECTORS*: This variable is the ratio of all directors with tenure exceeding 10 years on a given board to the total number of directors on the Board of Directors. With respect to this coefficient, we expect that directors with more years in a given board, will better know the market and the interests of managers and shareholders. We do not expect any particular sign for this regression coefficient.

- *CHAIR CEO*: It is a dummy variable that equals 1 if the CEO is also the Chairman of the Board of Directors and 0 otherwise. As previously discussed, we want to investigate the effect of CEO duality on Portuguese company's Dividend Policy. The CEO/Chairman may exert his/her authority in the processes of decision making. Therefore, higher dividend payments is needed for monitoring purposes. We expect a positive sign.

3.4 Collection of sample, data and databases

For this dissertation, it will be used a sample of 25 Portuguese listed firms in Euronext Lisbon which annually pay dividends to its shareholders. Financial companies (banks) and sports clubs will be excluded from the sample as they are subject to different regulations and follow different investment and dividend polices. The analysis was performed for a period of 10 years, from 2007 to 2016, to get a substantial number of observations. The final sample comprises 248 firm-year observations.

In the present study, the data is compiled from different sources. The data on managerial ownership, board structure and several other board and director characteristics will be compiled from firm's annual financial reports from 2007 to 2016. Financial data on dividends, leverage (external debt) and other accounting measures and market variables will be obtained from Thompson Reuters EIKON.

The final sample is shown in Annex 1. In Annex 2 we also present a graph with the number of companies in our sample by industry type.

4. Empirical results

In this section, we present the results of the regressions analysis. Firstly, we show the main descriptive statistics of the sample for the period 2007-2016 and the results of the empirical models. Then, the conclusions concerning the relation between the governance variables and dividends are described. At last, we present an analysis concerning the relation between dividends and high-leverage and low-leverage firms by comparing results from the two subsamples.

4.1 Descriptive Statistics

Descriptive statistics are presented in Table 2, which show the value of mean, standard deviation, median, quantile 25%, quantile 75%, minimum and maximum. The data set combine a total of 248 observations of 25 Portuguese non-financial companies over a period of 10 years.

TABLE 2 - DESCRIPTIVE STATISTICS FOR ALL FIRMS

	Mean	Std. Dev.	Maximum	Q3	Median	Q1	Minimum	Skewness	Kurtosis
DIV	0.021	0.025	0.181	0.029	0.014	0.004	0.000	2.442	11.752
MAN	0.246	0.287	0.884	0.531	0.025	0.000	0.000	0.617	1.804
LEVERAGE	0.684	0.179	1.055	0.810	0.720	0.566	0.032	-1.119	5.292
ROA	0.019	0.153	0.374	0.044	0.028	0.013	-2.246	-13.301	197.599
FIRM_SIZE	5.865	2.262	9.697	7.454	6.016	4.519	0.000	-0.636	3.317
CAPEX	0.049	0.040	0.231	0.072	0.041	0.018	0.000	1.276	4.952
CASH	0.075	0.095	0.563	0.094	0.048	0.016	0.000	2.711	11.775
TOBIN_Q	1.125	0.420	3.612	1.246	1.022	0.897	0.472	2.278	11.090
BOARDSIZE	10.536	5.719	30.000	14.000	9.000	6.000	3.000	1.144	4.169
INDEP_DIR	0.228	0.202	0.800	0.333	0.250	0.000	0.000	0.447	2.509
NONEXE_DIR	0.516	0.236	0.917	0.677	0.571	0.388	0.000	-0.859	3.080
OLD_DIR	0.155	0.129	0.500	0.237	0.148	0.059	0.000	0.474	2.240
WOMEN_DIR	0.098	0.105	0.429	0.167	0.068	0.000	0.000	0.897	2.933
EXPER_DIR	0.257	0.276	1.000	0.429	0.186	0.000	0.000	1.005	3.257

Note: This table provides descriptive statistics of all variables used in the analysis. The sample contains 25 non-financial Portuguese companies over the 2007-2016 period. Definitions of all variables are reported in Table 1.

First, the dependent variable, DIV, registers a mean of 0.021, which means that on average firms paid a total of 2.1% of dividends from 2007 to 2016. However, we can observe a variation in the dependent variable across firms over the time period as shown by the standard deviation of 0.025, with a minimum and maximum dividend payments of 0% and

18.13%, respectively. The median value indicates that 50% of the sample show a ratio of total dividends to total assets equal or above 1.4%.

With respect to the level of managerial ownership, the mean is 0.246 and the standard deviation is 0.287, which suggests that the average level of firm's shares held by managers of Portuguese companies in the sample from 2007 to 2016 is 24.6%. From the results, we observe that the managerial ownership of the companies in the sample has a maximum of 88.4% and a minimum of 0%.

In addition, the sample shows for LEVERAGE an average value of 0.684 and a maximum of 1.055. The standard deviation (0.179) suggests that there is no considerable variations of this specific variable across the sample. With respect to ROA, we can observe that the mean is relatively low (1.9%) when compared with the maximum reported (37.4%).

The sample also includes both small and large firms (with a mean and standard deviation for FIRM_SIZE of 5.865 and 2.262, respectively).

Regarding CAPEX, we can conclude that the maximum value for CAPEX in Portuguese companies in the sample from 2007 to 2016 was 23.4%, whereas the minimum was 0%. CASH showed a maximum value of 0.563 and the mean value was 0.075.

With respect to Tobin's Q, the mean value was 1.125, which implies that on average Portuguese companies' stocks in the sample during the period from 2007-2016 were overvalued. The maximum value was 3.612, whereas the minimum value is 0.472, which remains between 0 and 1 (undervalued).

About BOARDSIZE, we can observe that the mean number of Directors in the Board is 10, while the maximum number is 30 and the minimum 3. Furthermore, the average value of this variable is curiously superior to the optimal number of Directors in a Board as suggested in the literature - of seven or eight people (Jensen, 1993). However, the results of BOARDSIZE show a standard deviation of 5.719, explaining a huge variation of this specific variable across the sample.

Regarding the other corporate governance variables, we can conclude that from 2007 to 2016 the average percentage of independent directors (INDEP_DIR) in a given board of Directors was 22.8%, the average percentage of non-executive directors (NONEXE_DIR) was 51.6% and the average percentage of directors with 65 years or more in a given board (OLD_DIR) was 15.5%. In addition, the average percentage of women directors

(WOMEN_DIR) was 9.8% and the average percentage of directors with at least 10 years of experience in a given Board of Directors (EXPER_DIR) was 25.7%.

With respect to the maximum values, in our sample, the maximum percentage of independent directors (INDEP_DIR) in a given board of Directors was 80%, the maximum percentage of non-executive directors (NONEXE_DIR) was 91.7% and the maximum percentage of directors with 65 years or more in a given board (OLD_DIR) was 50%. Moreover, the maximum percentage of women directors (WOMEN_DIR) was 42.9% and the maximum percentage of directors with at least 10 years of experience in a given Board of Directors (EXPER_DIR) was 100%. The standard deviation of these variables confirms some dispersion of the results between companies along the period of analysis (2007-2016).

Among all the variables, the standard deviation of the variable BOARDSIZE is the highest whereas the variable DIV shows the lowest standard deviation. Based on these results, we can conclude that the percentage of dividends over total assets is quite similar across firms along the period of the study.

In addition, Figure 1 presents a graph with the evolution of the average of the independent variable DIV, defined as the ratio of dividends over total assets, for all the sample of 25 Portuguese firms, comparing the two subsamples of 12 high-leverage firms and 12 low-leverage firms for the period between 2007 to 2016.

From the graph, we can observe that low-leverage firms pay more dividends than high-leverage firms. In 2009 and 2011 the percentage of dividend payments had decreased compared to previous years, possibly due to the financial crisis. It was only in 2016 that low-leverage firms achieved an average percentage of dividends to total assets of 3,6%. The lowest average percentage of dividends paid was in 2011 for high-leverage firms.

FIGURE 1 - EVOLUTION OF THE RATIO OF DIVIDENDS TO TOTAL ASSETS
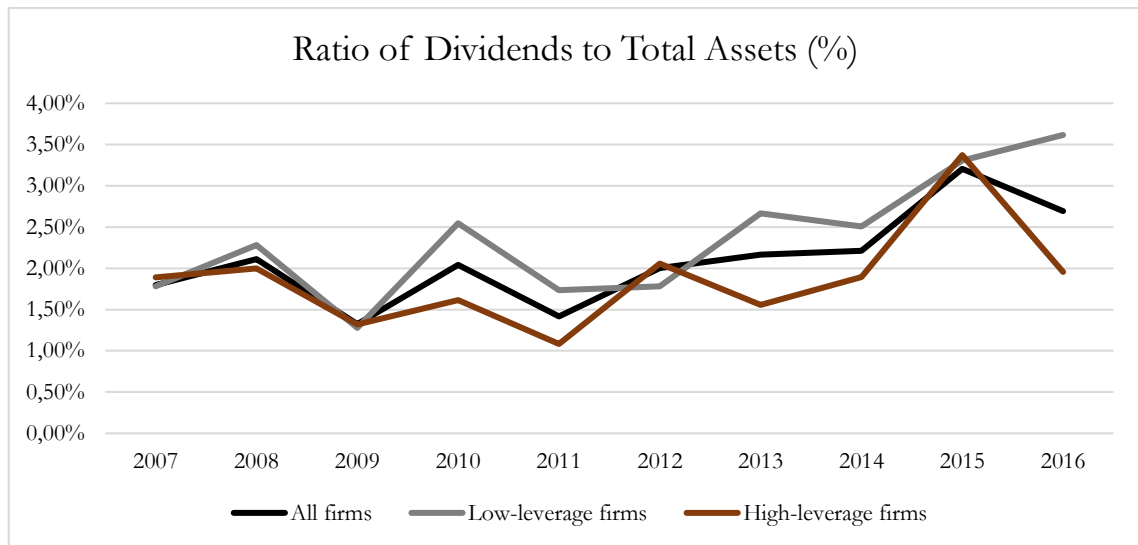
Note: The figure shows the average of the ratio of dividends to total assets for the sample of 25 Portuguese firms, for the group of 12 low-leverage firms and the group of 12 high-leverage firms from the period of 2007 to 2016.

For comparison purposes, we also present the descriptive statistics for the two subsamples of high-leverage and low-leverage firms in our sample in Table 3 and 4, with the value of mean, standard deviation, median, quantile 25%, quantile 75%, minimum and maximum.

With respect to the dependent variable, DIV, the high-leverage firms showed a mean value of 0.019, which means that on average the group of firms with high levels of debt paid a total of 1.9% dividends from 2007 to 2016. On the contrary, the low-leverage firms showed a mean value of 0.024, meaning that the group of firms with low level of debt paid on average a total of 2.4% dividends from 2007 to 2016. From these results, we can conclude that low-leverage firms pay a higher percentage of dividends to their shareholders than high-leverage firms.

Moreover, the mean level of managerial ownership in high-leverage firms is 0.129, suggesting that the average percentage of shares held by management in Portuguese high-leverage companies is 12.9%. In contrast, in low-leverage firms the mean level of managerial ownership is 31.8%, a value clearly superior when compared to the group of firms with high-leverage.

TABLE 3 - DESCRIPTIVE STATISTICS FOR HIGH-LEVERAGE FIRMS

	Mean	Std. Dev.	Maximum	Q3	Median	Q1	Minimum	Skewness	Kurtosis
DIV	0.019	0.020	0.117	0.023	0.014	0.005	0.000	2.103	8.671
MAN	0.129	0.200	0.838	0.231	0.000	0.000	0.000	1.346	3.588
LEVERAGE	0.807	0.082	1.055	0.862	0.798	0.751	0.536	-0.075	3.695
ROA	0.025	0.040	0.104	0.038	0.027	0.016	-0.301	-4.899	40.021
FIRM_SIZE	6.283	2.189	9.697	7.567	6.744	5.056	0.000	-1.179	4.727
CAPEX	0.055	0.042	0.231	0.078	0.042	0.024	0.005	1.292	4.800
CASH	0.082	0.118	0.563	0.088	0.049	0.016	0.000	2.599	9.345
TOBIN_Q	1.235	0.442	3.612	1.313	1.069	0.994	0.741	2.454	10.594
BOARDSIZE	11.229	5.940	30.000	14.000	10.000	7.000	3.000	1.380	4.828
INDEP_DIR	0.229	0.194	0.778	0.375	0.250	0.000	0.000	0.366	2.520
NONEXE_DIR	0.516	0.272	0.917	0.700	0.600	0.429	0.000	-0.842	2.611
OLD_DIR	0.156	0.131	0.444	0.222	0.154	0.059	0.000	0.489	2.216
WOMEN_DIR	0.109	0.105	0.400	0.182	0.100	0.000	0.000	0.532	2.268
EXPER_DIR	0.272	0.261	1.000	0.444	0.222	0.000	0.000	0.670	2.467

Note: This table provides descriptive statistics of all variables used for the group of high-leverage firms. The sample contains 12 non-financial Portuguese companies over the 2007-2016 period. Definitions of all variables are reported in Table 1.

TABLE 4 - DESCRIPTIVE STATISTICS FOR LOW-LEVERAGE FIRMS

	Mean	Std. Dev.	Maximum	Q3	Median	Q1	Minimum	Skewness	Kurtosis
DIV	0.024	0.030	0.181	0.033	0.015	0.001	0.000	2.267	10.037
MAN	0.318	0.299	0.884	0.618	0.307	0.000	0.000	0.124	1.391
LEVERAGE	0.559	0.167	0.983	0.636	0.565	0.502	0.032	-1.120	6.098
ROA	0.013	0.216	0.374	0.049	0.033	0.011	-2.246	-9.684	102.048
FIRM_SIZE	5.694	2.236	9.632	7.545	5.321	4.415	0.000	-0.400	3.179
CAPEX	0.047	0.038	0.204	0.066	0.041	0.017	0.000	1.190	4.817
CASH	0.063	0.064	0.314	0.093	0.043	0.011	0.000	1.377	4.990
TOBIN_Q	1.030	0.389	3.274	1.210	0.958	0.791	0.472	2.106	11.284
BOARDSIZE	10.158	5.579	25.000	14.500	8.500	6.000	3.000	0.758	2.705
INDEP_DIR	0.203	0.192	0.625	0.333	0.250	0.000	0.000	0.376	2.025
NONEXE_DIR	0.517	0.198	0.875	0.649	0.567	0.369	0.000	-0.732	3.334
OLD_DIR	0.144	0.116	0.429	0.222	0.143	0.059	0.000	0.400	2.186
WOMEN_DIR	0.095	0.106	0.429	0.143	0.063	0.000	0.000	1.161	3.584
EXPER_DIR	0.251	0.298	1.000	0.429	0.111	0.000	0.000	1.181	3.542

Note: This table provides descriptive statistics of all variables used for the group of low-leverage firms. The sample contains 12 non-financial Portuguese companies over the 2007-2016 period. Definitions of all variables are reported in Table 1.

4.2 Correlation Analysis

Additionally, we performed correlation analysis between the variables to investigate the existence of possible correlation among them. Table 5 reports the correlation coefficients between the main variables used in the study. In a correlation analysis, the coefficients of correlations between the independent variables must not exceed 0.80, otherwise, a coefficient greater than 0.80 may reveal multi-collinearity. From the results, we can argue that multi-collinearity is not a potential problem in the regression models.

From the results, several interesting relations can be highlighted. First, the correlation coefficients between Dividends and ROA, FIRM_SIZE, CAPEX, CASH and TOBIN Q are positive and the correlation coefficient between Dividends and DEBT is negative, as we expected.

Dividends (DIV) does not show significantly positive or negative correlations. The strongest correlation between variables is equal to 0.639 between BOARDSIZE and FIRM_SIZE.

Therefore, according to the table below, the correlation matrix suggests the existence of a reasonable relationship between all variables, in which none of the variables in the study is highly correlated.

TABLE 5 - CORRELATION MATRIX FOR ALL FIRMS

	DIV	MAN	LEV	ROA	FIRM SIZE	CAPEX	CASH	TOBIN Q	BOARD SIZE	INDEP DIR	NONEXE DIR	OLD DIR	WOMEN DIR	EXPER DIR
DIV	1.000													
MAN	-0.286	1.000												
LEVERAGE	-0.128	-0.349	1.000											
ROA	0.120	0.046	0.227	1.000										
FIRM_SIZE	0.219	-0.395	0.012	0.074	1.000									
CAPEX	0.064	-0.191	0.073	0.111	0.464	1.000								
CASH	0.195	-0.088	0.038	-0.023	-0.158	-0.202	1.000							
TOBIN_Q	0.398	-0.344	0.232	0.169	0.506	0.395	0.039	1.000						
BOARDSIZE	0.212	-0.564	0.169	0.003	0.639	0.312	-0.081	0.190	1.000					
INDEP_DIR	-0.011	-0.090	0.026	-0.018	0.297	0.179	0.004	0.061	0.343	1.000				
NONEXE_DIR	0.291	-0.370	-0.030	-0.042	0.546	0.200	-0.232	0.296	0.567	0.509	1.000			
OLD_DIR	0.033	0.186	0.028	-0.037	0.103	-0.035	0.049	-0.023	0.018	0.139	0.144	1.000		
WOMEN_DIR	-0.091	0.210	-0.107	0.003	-0.071	-0.177	0.023	-0.114	-0.153	-0.255	-0.082	-0.047	1.000	
EXPER_DIR	-0.108	0.250	-0.041	0.056	-0.175	-0.178	-0.121	-0.004	-0.407	-0.214	-0.196	-0.120	-0.006	1.000

Notes: This table reports the correlation between variables used in the analysis. The sample contains 25 non-financial companies over the 2007-2016 period. Definitions of all variables are reported in Table 1.

4.3 The Dividend-ownership relation results

Firstly, we run the empirical model (1) with pooled OLS, fixed effects and random effects. In the analysis, to identify the most suitable model, we performed two statistic tests: Breusch-Pagan Lagrange multiplier (LM) and the Hausman tests. We performed the Breusch-Pagan Lagrange multiplier (Breusch & Pagan, 1980), which helps to choose between Pooled OLS and random effects models. The test result rejected the null hypothesis, validating the random effects model. Then, in order to select the most suitable model between the fixed effects and random effects models, we performed the Hausman (1978) test. The results of the regression showed a p-value higher than 0.05, therefore we did not reject the null hypothesis. The p-value of Hausman statistics suggested that the random effects method is more appropriate for the empirical model (1). Nonetheless, we suspected of heteroskedasticity problems in the estimations. To solve this problem, we used OLS with GLS cross-section weights to estimate the model. Thus, we will focus on the results of the random effects model and the Pooled OLS results.

Table 4 reports the Pooled OLS, fixed effects and random effects panel estimation results of the empirical model (1) based on a full sample of 248 firm-year observations.

In the Pooled OLS estimation, the R-square value is equal to 53.15%, which indicates that 53% of the variance regarding the dividend ratio is explained by the independent variables. In addition, the global significance test suggests reliability and accuracy of the independent variables to explain the dependent variable. The R-squared of the random effects model is equal to 27.96%, lower than the one under the Pooled OLS estimation. On the basis of the F-statistic, the global significance of both models is strongly statistically significant (p-value <0.01). Comparing between models, we obtain a higher R-squared in the Pooled OLS in comparison with the random effects model. Therefore, the first model is preferred.

According to the Pooled OLS estimation, the regression coefficient of managerial ownership is negative, and the regression coefficient of the squared managerial ownership is positive. The results support a U-shaped relationship between dividends and managerial ownership. Therefore, the managerial ownership variable (MAN) and the square managerial ownership (MAN^2) are signed as expected. The results are consistent with the expected U-shaped relationship between dividend and the level of managerial ownership as predicted in our Hypothesis H1 and H2. The estimation reveals that both the managerial ownership and the squared managerial ownership terms are statistically significant.

TABLE 6 - REGRESSION RESULTS OF THE IMPACT OF OWNERSHIP STRUCTURE, DEBT FINANCING AND CORPORATE GOVERNANCE ON DIVIDEND POLICY FOR ALL FIRMS

VARIABLE	Expected Sign	Pooled OLS		Fixed Effects		Random Effects	
INTERCEPT		-0,0027		0,0208	**	0,0092	
		(-0,400910)		*(2,107981)*		*(0,654172)*	
MAN	(-)	-0,0278	***	0,0230		-0,0315	
		(-2,625887)		*(1,354600)*		*(-1,254336)*	
MAN2	(+)	0,0286	**	-0,0270		0,0233	
		(1,937569)		*(-1,255621)*		*(0,691586)*	
LEV	(-)	-0,0334	***	-0,0531	***	-0,0515	***
		(-5,515254)		*(-5,927716)*		*(-4,668718)*	
ROA	(+)	0,0246	**	0,0320	***	0,0342	***
		(2,294684)		*(3,870029)*		*(3,888201)*	
FIRM SIZE		-0,0012	**	-0,0011	**	-0,0024	**
		(-2,315792)		*(-1,976363)*		*(-2,33728)*	
CAPEX	(-)	-0,0227		-0,0174		-0,0017	
		(-0,982069)		*(-0,941408)*		*(-0,040853)*	
CASH	(+)	0,0441	***	0,0084		0,0320	*
		(5,191899)		*(0,66485)*		*(1,707375)*	
TOBIN Q	(+)	0,0234	***	0,0209	***	0,0260	***
		(7,704931)		*(6,734763)*		*(5,840683)*	
BOARDSIZE		0,0069	***	0,0084	**	0,0112	**
		(2,800576)		*(2,214358)*		*(2,055875)*	
INDEP DIR	(-)	-0,0094	**	-0,0074		-0,0127	
		(-1,944517)		*(-1,209947)*		*(-1,294604)*	
NONEXE DIR	(-)	0,0119	**	0,0015		0,0136	
		(2,328478)		*(0,257073)*		*(1,365517)*	
OLD DIR		0,0099	*	-0,0006		0,0143	
		(1,838626)		*(-0,105377)*		*(1,204653)*	
WOMEN DIR		0,0008		-0,0075		-0,0066	
		(0,108312)		*(-0,798992)*		*(-0,442766)*	
EXPER DIR		0,0000		0,0068		0,0062	
		(-0,010751)		*(1,430996)*		*(0,844196)*	
CHAIRCEO	(+)	0,0059	***	-0,0037		0,0022	
		(3,463821)		*(-1,227864)*		*(0,563759)*	
R-squared		53,15%		71,67%		27,96%	
Adjusted R-squared		50,12%		66,36%		23,30%	
Obs.		248		248		248	
F-statistic		17,5452	***	13,4944	***	6,0035	***
LM test						19,4298	***
Hausman test						22,4802	

Notes: This table reports the Pooled OLS, fixed, random effects panel model estimation, and the output estimations of Breusch-Pagan Lagrange Multiplier (LM) and Hausman tests. The model sets the relationship between dividend policy, ownership structure and debt financing for a sample of 25 non-financial Portuguese companies over the 2007-2016 period. Dependent variable is DIV, defined as the ratio of total dividends to total assets. Definitions of all variables are reported in Table 1. t-statistics are reported in parentheses. Statistical significance is represented by * at 10% level, ** at 5% level and *** at 1% level.

Another important result is that, while in Pooled OLS the coefficients managerial ownership and the squared managerial ownership are statistically significant, in the random effects model they are not statically significant at any level (1%, 5% or 10%). Nonetheless, the results show the negative relationship of managerial ownership with dividends and the positive relationship with the square managerial ownership, as in the Pooled OLS model.

Furthermore, given the results, it is possible to estimate a critical entrenchment level for managerial ownership which is approximately 49%. This means that, controlling for other factors, we find evidence that after a critical entrenchment level of managerial ownership of 49%, the coefficient on managerial ownership changes from negative to positive.

Among control variables, LEV is found to be statistically significant at 1% level in Pooled OLS and random effects models. The results support a negative statistically significant relationship between the level of debt and dividend payments, as expected.

The variable ROA reveals a statistically significant positive relationship with dividends at a significance level of 0.05. This result supports that profitability is considered an important factor in influencing dividend payments and that a highly profitable firm is more likely to pay dividends. In fact, profitable firms are able to accumulate more earnings over time and, therefore, may be capable of paying higher dividends to their shareholders. This result confirm our hypothesis of a positive relationship between firm profitability and dividend payments, and is consistent with prior empirical studies (Jensen et al., 1992).

The variable FIRM_SIZE is statically significant at 5% level for both models. The results show that the relation between firm size and dividend payments is negative. This result contradicts the view of Smith and Watts (1992) about the weak relationship between firm size and dividend policy.

With respect to CAPEX, the relation between capital expenditures is in line with our expectations, showing a negative regression coefficient. With this in mind, it is clear that high capital expenditures have a negative impact on dividend payments.

CASH holdings turn out to be statically significant at 1% level (in Pooled OLS model), validating a significant positive relation between cash holdings and distribution of dividends. The result confirmed our expectations and is in accordance with the view of Jensen (1986) about the firm's free cash-flow. Therefore, with higher cash holdings, higher is the probability to make dividend distributions to shareholders.

In addition, TOBIN Q is found to be statistically significant at 1% level for both the Pooled OLS and random effects model. The results support a significant and positive relation between Tobin Q and dividends, as expected.

Regarding the corporate governance variables, the variable board size proves to be statistically significant at 1% level. Our findings show a positive and significant relationship between board size and dividend payments, supporting our hypothesis H5. The increase in the number of board size reduces agency costs for monitoring managers and can be perceived as a positive decision that affects the firms' dividend policy. As suggested in La Porta et al. (2000), large boards provide higher protection of shareholders' interests and increase dividend payouts.

The independent directors variable (INDEP_DIR) shows a significant (at 5% level) and negative effect on dividend payments in Portugal. This means that firms with a higher percentage of external board members in the Board of Directors may pursue low-dividend policies. These results are in line with hypothesis H6.

With respect to the percentage of non-executive directors in the Board (NONEXE_DIR), we observe a statically significant at 5% level in the Pooled OLS model, whereas in the random effects model this variable is not statically significant. Against our expectations, the results show a positive relation between the percentage of non-executive directors on a Board and dividend distribution. This means that the presence of non-executive directors in the Board of Directors has a positive effect on dividend payments to shareholders.

The variable OLD_DIR show a positive and significant (at 10% level) relation between dividend payments and the presence of directors with more than 65 years old in the Board of Directors. In addition, the variables WOMEN_DIR and EXPER_DIR are not statistically significant according to Pooled OLS and random effects models.

Finally, the dummy variable CHAIRCEO is found to have a positive and significant impact on dividends. This result support our hypothesis H7. This means that in Portugal firms where the CEO is also the Chairman of the Board, pay more dividends to shareholders. This result can be explained by the fact that combining positions as Chairman of the Board and CEO cannot be considered as an effective tool to mitigate agency costs. Therefore, to solve free cash flow problems, shareholders claim higher dividend payments.

4.4 High-leverage firms results

In a next phase, the objective was to divide the sample of 25 Portuguese non-financial listed firms in two different subsamples, namely the low-leverage firms and the high-leverage firms. To create the subsamples, we selected companies based on the average values of leverage in the period between 2007-2016. The group of high-leverage firms was composed by 12 companies, which corresponds to a number of 118 firm-year observations.

As previously, we estimated both fixed and random effects specifications of the model and Pooled OLS. In addition, the Breusch-Pagan Lagrange multiplier (LM) and the Hausman tests were conducted to determine the appropriate model. We report the results of the tests performed on this subsample in Table 7.

First, we performed the Breusch-Pagan Lagrange multiplier (LM) test. The result showed a p-value superior to 0.05, which means that the Pooled OLS model is preferred over the random effects model. The Hausman specification test suggested the non-rejection of the null hypothesis, indicating that the random effect model is appropriate. Based on the results, we consider the Pooled OLS model as the preferred model.

Similarly to the empirical model (1), the results from the model (2) suggest a negative relationship between dividends and managerial ownership and a positive relationship between dividends and the squared managerial ownership, supporting the U-shaped relationship predicted in the hypotheses H1 and H2. Additionally, according to our model results, the critical entrenchment level for high-leverage firms is approximately 42%.

In addition, a curious result is that in the case of high-leverage firms, we found that the variables managerial ownership and the squared managerial ownership are not statically significant. That result possibly emerges from the fact that entrenched managers, due to firm leverage, fail to pay more dividends at high levels of ownership, as stated in the "entrenchment irrelevance hypothesis". Based on the results, we can suppose that high leverage exercises a negative effect upon agency costs, which are consequently mitigated, mainly through monitoring by capital markets (Easterbrook, 1984; Rozeff, 1982). This result is also consistent with Jensen (1986) view that leverage reduces agency costs, since there is control over managers actions in the use of free cash flow for personal benefits. These results are consistent with previous studies and is in accordance to hypothesis H4.

With respect to control variables, LEV, CASH and TOBIN Q are equally statistically significant at 1% level and the relationship between those variables and dividend payments did not change when compared to the sample of 25 firms.

In particular, the variable ROA turned out to be only statically significant at 10% level and the relationship changed. The regression coefficient for this variable in the group of high-leverage firms turned out to be negative.

With respect to FIRM_SIZE for the group of high-leverage firms, we find that the variable is not statistically significant and, comparing with the sample of all firms, the relationship between dividend payments and firm size did not change.

Regarding corporate governance variables, some of them change their significance comparing the group of high-leverage firms versus the sample with all firms. For high-leverage firms BOARDSIZE and INDEP_DIR are not statistically significant. According to these results, there are no significant relationship between dividends and board size, contradicting the Hypothesis H5. In addition, the INDEP_DIR variable show a positive relationship between dividends and the percentage of independent directors on the Board, contradicting the hypotheses H6.

For the variable CHAIRCEO, the results are similar to the ones obtained from the sample of all firms. We observe a positive statically significant (now at 5% level versus 1% level in the sample with all firms) relation between CEO duality and dividend payments. This result support the Hypothesis H7.

TABLE 7 - REGRESSION RESULTS FOR HIGH-LEVERAGE FIRMS

VARIABLE	Expected Sign	Pooled OLS		Fixed Effects		Random Effects	
INTERCEPT		0,0340	**	0,0172		-0,0107	
		2,351202		*0,936058*		*-0,487381*	
MAN	(-)	-0,0255		0,0309		-0,0267	
		-1,55085		*1,246595*		*-0,928495*	
MAN2	(+)	0,0305		-0,0467		0,0380	
		1,007215		*-1,162647*		*0,765394*	
LEV	(-)	-0,0619	***	-0,0341	*	-0,0242	
		-4,363807		*-1,822851*		*-1,101089*	
ROA	(+)	-0,0366	*	-0,0323		-0,0135	
		-1,852975		*-1,338768*		*-0,331463*	
FIRM SIZE		-0,0004		-0,0004		-0,0018	*
		-0,767787		*-0,607092*		*-1,626702*	
CASH	(+)	0,0555	***	0,0360		0,0505	***
		6,513824		*1,408127*		*3,63632*	
TOBIN Q	(+)	0,0181	***	0,0166	***	0,0257	***
		4,698655		*3,110742*		*6,614104*	
BOARDSIZE		0,0017		0,0044		0,0073	
		0,593289		*1,022051*		*1,352621*	
INDEP DIR	(-)	0,0015		-0,0040		0,0058	
		0,290824		*-0,626551*		*0,60312*	
NONEXE DIR	(-)	0,0107	***	0,0009		0,0117	
		3,077932		*0,127951*		*1,379891*	
CHAIRCEO	(+)	0,0041	**	-0,0034		0,0039	
		2,341044		*-0,995334*		*1,142992*	
R-squared		72,58%		78,20%		54,26%	
Adjusted R-squared		69,73%		73,15%		49,52%	
Obs.		118		118		118	
F-statistic		25,5060	***	15,4912	***	11,4336	***
LM test						2,9931	*
Hausman test						17,4901	*

Notes: This table reports the Pooled OLS, fixed, random effects panel model estimation for high-leverage firms and the output estimations of Breusch-Pagan Lagrange Multiplier (LM) and Hausman tests. The model sets the relationship between dividend policy, ownership structure and debt financing for a sample of 12 non-financial Portuguese companies over the 2007-2016 period. Dependent variable is DIV, defined as the ratio of total dividends to total assets. Definitions of all variables are reported in Table 1. t-statistics are reported in parentheses. Statistical significance is represented by * at 10% level, ** at 5% level and *** at 1% level.

4.5 Low-leverage firms results

The second group is composed by 12 companies with lower levels of leverage also in the period between 2007-2016. Table 8 reports the estimation results of the regressions with Pooled OLS, Fixed effects and Random effects model for a number of 120 firm-year observations.

According to the Hausman test, the fixed effects model is preferred. However, the Breusch-Pagan Lagrange multiplier (LM) test confirmed that Pooled OLS is the appropriate model. In addition, the results from the Pooled OLS are in line with the estimation results obtained for the sample that includes all firms.

The results from the model (2) suggest a negative relationship between dividends and managerial ownership and a positive relationship between dividends and the squared managerial ownership, in accordance with the hypotheses H1 and H2. Additionally, based on the model results, the critical entrenchment level for low-leverage firms is approximately 65%, while in high-leverage firms is approximately 42%. The result suggests that in high-leverage firms the alignment effect is smaller than in low-leverage firms. Because of leverage, after a critical level of managerial ownership of 42%, companies consider necessary to compensate potential managerial entrenchment paying more dividends to shareholders. In the case of low-leverage this critical level rises to 65%, suggesting that before the critical level dividends are less needed for monitoring purposes.

The results with Pooled OLS model reveal that for Portuguese low-leverage firms the relationship between dividends and managerial ownership is statically significant at 5% level (versus 1% level when compared to the sample with 25 firms), whereas the squared of managerial ownership is not significant. The results contradict hypothesis H3.

Regarding control variables, LEV, CASH and TOBIN Q are equally statistically significant at 5%, 1% and 1% level respectively. The relationship between those variables and dividend payments did not change when compared to the sample of 25 firms and the group of high-leverage firms.

For the group of low-leverage debt, the variable ROA turned out to be statically significant at 1% level and the relationship with dividends is positive, as it is in the sample with all firms.

With respect to FIRM_SIZE, for the group of low-leverage firms, the variable is not statistically significant and the relationship between dividend payments and firm size did not change when compared to the sample of all firms and the group of high-leverage firms.

Regarding corporate governance variables, we found that for low-leverage firms BOARDSIZE is not statistically significant. We find no statistically significant relation between dividends and board size, contradicting the Hypothesis H5. Furthermore, for this specific group we found a negative relationship between board size and dividend payments for low-leverage Portuguese companies.

In addition, the INDEP_DIR variable show a negative statically significance (at 1% level) relationship between dividends and the percentage of independent directors on the Board, in accordance with the hypotheses H6.

Similarly to the results for all firms, the variable NONEXE_DIR show a positive statically significance (at 1% level) relationship between dividends and the percentage of non-executive directors on the Board.

For the variable CHAIRCEO, the results are also similar to the ones obtained from the sample of all firms and high-leverage firms. We observe a positive statically significant (now at 5% level versus 1% level in the sample with all firms) relation between CEO duality and dividend payments. This result support the Hypothesis H7.

TABLE 8 - REGRESSION RESULTS FOR LOW-LEVERAGE FIRMS

VARIABLE	Expected Sign	Pooled OLS		Fixed Effects		Random Effects	
INTERCEPT		0,0106		0,0067		0,0179	
		0,777704		*0,347708*		*1,012948*	
MAN	(-)	-0,0430	**	0,1025		-0,0408	
		-1,966129		*1,594479*		*-1,199007*	
MAN2	(+)	0,0328		-0,0984	*	0,0165	
		1,137222		*-1,644256*		*0,357192*	
LEV	(-)	-0,0301	**	-0,0661	***	-0,0493	***
		-2,313852		*-5,749384*		*-2,900796*	
ROA	(+)	0,0295	***	0,0429	***	0,0378	***
		2,667663		*5,196319*		*3,309505*	
FIRM SIZE		-0,0008		-0,0012		-0,0021	
		-0,680374		*-1,569313*		*-1,346766*	
CASH	(+)	0,0731	***	0,0638	**	0,0985	***
		3,159467		*2,228153*		*2,735433*	
TOBIN Q	(+)	0,0186	***	0,0223	***	0,0228	***
		3,731905		*5,875095*		*3,066481*	
BOARDSIZE		-0,0047		0,0081		0,0009	
		-1,098243		*1,058082*		*0,142831*	
INDEP DIR	(-)	-0,0381	***	-0,0123		-0,0459	***
		-3,746622		*-0,763146*		*-3,253338*	
NONEXE DIR	(-)	0,0541	***	0,0103		0,0591	***
		4,349353		*0,909939*		*3,389182*	
CHAIRCEO	(+)	0,0087	**	-0,0036		0,0048	
		2,22891		*-0,797885*		*0,820882*	
R-squared		47,36%		74,89%		39,95%	
Adjusted R-squared		42,00%		69,20%		33,84%	
Obs.		120		120		120	
F-statistic		8,8322	***	13,1526	***	6,5330	***
LM test						2,4512	
Hausman test						35,9452	***

Notes: This table reports the Pooled OLS, fixed, random effects panel model estimation for low-leverage firms and the output estimations of Breusch-Pagan Lagrange Multiplier (LM) and Hausman tests. The model sets the relationship between dividend policy, ownership structure and debt financing for a sample of 12 non-financial Portuguese companies over the 2007-2016 period. Dependent variable is DIV, defined as the ratio of total dividends to total assets. Definitions of all variables are reported in Table 1. t-statistics are reported in parentheses. Statistical significance is represented by * at 10% level, ** at 5% level and *** at 1% level.

Conclusion

This study examined the relationship between dividend policy, managerial ownership and debt-financing based on a sample of 25 firms listed on Euronext Lisbon from 2007 to 2016, using a panel data estimation methodology. This analysis is crucial to better understand whether dividends, managerial ownership and debt financing are substitute mechanisms in reducing agency costs.

We investigated the impact of several control variables, such as Leverage, Return on Assets, Firm size, CAPEX, Cash holdings and Tobin's Q on Dividend payments. In addition, we also investigated the impact of some corporate governance variables on dividend policy, namely the board size, the percentage of independent directors, non-executive directors, women directors, old directors and experienced directors on the Board of Directors of non-financial Portuguese listed companies. We also included a dummy variable to test for CEO duality significance and infer the existing relationship with dividend payments.

The U-shaped relationship between dividends and managerial ownership is confirmed in our results. As Jensen and Meckling (1976) support, when managers hold a small portion of equity and shareholders are too dispersed to take monitoring action, managers make corporate decisions in order to obtain personal benefits. However, as managerial ownership increases, managers will support higher agency costs. As managerial ownership increases, managers will hold a percentage of shares to obtain enough voting power and there is a point at which managers secure their position enough to become protected from external disciplinary forces (Demsetz, 1983; Fama & Jensen, 1983; Farinha, 2003b). This is called the entrenchment hypothesis and it has important implications for the dividend–ownership relation, supported by a U-shaped relationship. In short, below a certain ownership level, dividends and ownership are substitute mechanisms and thus, they are negatively related. Nevertheless, this negative relation may become positive due to the fact that managers with significant managerial ownership might be too entrenched, increasing the probability to pay higher portion of dividends (Farinha, 2003b; Florackis et al., 2015; Schooley & Barney, 1994). In particular, for Portuguese listed companies the coefficient on managerial ownership changes from negative to positive at a critical entrenchment level of approximately 49%. This critical level is clearly superior to the critical entrenchment level estimated by Farinha (2003b) of 30%. We find a U-shaped relationship between managerial ownership and dividends, which is consistent the entrenchment effect of managerial ownership (Farinha, 2003b;

Schooley & Barney, 1994). Therefore, our findings seem to be explained in the view of agency theory.

To compare the results and test whether leverage plays an important role in mitigating agency problems, we also examined if the impact of managerial ownership on dividends differed across firms with different levels of leverage.

With respect to the relationship between dividends and managerial ownership for high and low leverage firms the results lead to several interesting conclusions. We find that in fact the relationship between managerial ownership and dividends is slightly different in high-leverage and low-leverage firms. While for firms with high level of debt, we observed that dividends and managerial ownership are substitute mechanisms to reduce agency costs, for firms with low level of debt, there is a lack of disciplinary mechanisms for controlling agency costs, increasing the probability of entrenchment problems at higher levels of managerial ownership. The results are consistent with Agrawal and Jayaraman (1994) with respect to find a more pronounced negative relationship between managerial ownership and dividends in low-leverage firms, since they have greater free cash flow and do not use debt as a disciplinary mechanism for controlling agency costs.

For the sample of 25 firms Portuguese listed companies, we find a statically significant impact of leverage, Return on Assets, firm size, cash holdings and Tobin Q on dividend distribution to shareholders. In contrast, we conclude that capital expenditures do not have a significant impact on dividend policy of Portuguese firms.

Our results also provide strong evidence of the significant role of corporate ownership structure and board characteristics in explaining the behaviour of dividend policy in Portuguese firms. We find a significant impact of Board size, the percentage of independent directors, non-executive directors and old directors in the Board of Directors on the Dividend Policy of Portuguese companies. On the other hand, the presence of women and experienced directors on the Board of Directors do not have a significant impact on dividend policy decisions in Portuguese companies.

Concerning the CEO duality, we show that in Portugal, non-financial listed firms with CEO being also the Chairman of the Board of Directors have a positive and significant impact on Dividend Policy. This means that firms with CEO duality pay higher level of dividends.

All in all, in the absence of other corporate mechanisms, dividend policy is likely to have an important role in monitoring management and mitigating agency costs, especially in the case of Portuguese firms, which are mainly characterized by high managerial ownership and low dispersed capital.

Limitations

This study presents some limitations. One of the most important limitation of this dissertation is the sample size. Due to the fact that there is a small number of listed companies in Portugal that pay dividends, we have a reduced number of observations, which could affect the statistical inference and consequentially the results from the analysis. In addition, an important limitation of the analysis of the impact of managerial ownership structure and corporate governance on dividend policy is the availability of data. There was no available database with corporate governance data for the Portuguese companies, demanding a very exhaustive work to gather all the necessary information for all the firms along the period from 2007 to 2016.

Further Research

This topic should be a subject for further investigation in the future. A possible line of investigation is to focus, not only on linear, but also on non-linear relationships between dividends, ownership structure and debt financing, using non-parametric methodologies as suggested by Florackis et al. (2015). In addition, it would be interesting to test a model with a cubed managerial ownership variable as performed in Farinha and López-de-Foronda (2009) to investigate the relationship between dividend policy and the level of managerial ownership in Portuguese firms. According to the authors, it is possible to obtain two inflection points, where there is a change in the behaviour of insider shareholders with respect to Dividend Policy decisions within the firm.

As future work it would be interesting to deepen this study with a larger sample of firms applying alternative dividend policy measures (the probability of paying dividends, dividend payout ratio and dividend yield) and using other regression techniques to test the research hypotheses.

In addition, a possible development of this work is to study for the Portuguese listed companies the impact of managerial ownership, corporate governance and debt financing on dividends payments, particularly in the period before, during and after the financial crisis. Further research might usefully extend the present use of dividend models to examine the impact of managerial ownership, corporate governance and debt financing not only in Portugal, but also in other markets.

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Annexes

Annex 1: Sample from Euronext Lisbon

	Company	Industry	Sector
1	ALTRI SGPS	Industrials	Industrial Goods & Services
2	COFINA,SGPS	Consumer Services	Publishing
3	CORTICEIRA AMORIM	Consumer Goods	Food & Beverage
4	CTT CORREIOS PORT	Industrials	Industrial Goods & Services
5	EDP	Utilities	Conventional Electricity
6	EDP RENOVAVEIS	Utilities	Alternative Electricity
7	F.RAMA	Basic Materials	Industrial Metals & Mining
8	GALP ENERGIA-NOM	Oil & Gas	Oil & Gas Producers
9	IBERSOL,SGPS	Consumer Services	Restaurants & Bars
10	J.MARTINS,SGPS	Consumer Services	Food Retailers & Wholesalers
11	MEDIA CAPITAL	Consumer Services	Broadcasting & Entertainment
12	MOTA ENGIL	Industrials	Heavy Construction
13	NOS, SGPS	Consumer Services	Broadcasting & Entertainment
14	NOVABASE,SGPS	Technology	Computer Services
15	OREY ANTUNES ESC.	Industrials	Marine Transportation
16	PHAROL	Telecommunications	Fixed Line Telecommunications
17	REN	Utilities	Conventional Electricity
18	SEMAPA	Basic Materials	Paper
19	SONAE	Consumer Services	Food Retailers & Wholesalers
20	SONAE CAPITAL	Financials	Specialty Finance
21	SONAECOM,SGPS	Telecommunications	Mobile Telecommunications
22	SUMOL+COMPAL	Consumer Goods	Beverages
23	TEIXEIRA DUARTE	Industrials	Heavy Construction
24	THE NAVIGATOR COMP	Basic Materials	Paper
25	TOYOTA CAETANO	Industrials	Commercial Vehicles & Trucks

Source: https://www.bolsadelisboa.com.pt/cotacoes/accoes-lisboa

Annex 2: Graph with number of companies by industry type