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DOES MANAGER SENTIMENT HAVE ANY EFFECT ON A COMPANY'S DIVIDEND POLICY? THE PORTUGUESE CASE

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ABSTRACT

The aim of this project is to find out whether behavioural patterns on the managers perspective tend to have any effect in dividend policy in Portuguese companies listed in the Lisbon Stock Exchange.

A major challenge we faced was how to determine confidence levels to conduct our study. Knowing any methodology would be subject to a certain level of subjectivity, in the end we used our own interpretation of information published publicly in every company's earnings report and surveys of confidence, conducted by the European Commission, and applied to Portuguese companies.

Based on the results obtained we conclude that behavioural perspective had some impact in Portuguese companies' dividend policy, especially during the years of economia recovery after the major crisis which affected the country's economy.

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1- INTRODUCTION

Description

Over the years it has been getting harder and harder to predict and to even understand every decision made by company's managers, basing ourselves only in the more traditional theories of corporate finance. Since those traditional models find it more difficult to explain the decision-making process in some of the most critical areas of company activity, other types of research have started to be conducted by more recent authors who look to find loopholes in traditional models and how to fix them.

These changes may be partly explained by a big paradigm shift in investors' minds throughout this last generation. In fact, in the 20th century it was much more common for investors to invest their savings in long term financial products or even stocks to hold for years and only withdraw their gains when really needing to reinvest their profits. Nowadays, driven by the ease of access to digital platforms who allow and attract more and more people to the financial markets, investor's minds have changed a lot. Apart from the more financially literate investors who have always been active in the markets, there are also less financially literate people who are starting to enter the markets and tend to have significantly different approaches and investment strategies.

Two concepts that help us characterize the new type of less financially literate investors flooding the markets with their money are **loss aversion** and **herd instinct**. Especially the latter, makes stock values much more volatile given the impulse these investors have to copy what others might be doing, known as *fear of missing out* (FOMO), highly increasing the probability to create speculative bubbles which can have serious impacts in a company's stock value long-term and making investors who have less financial literacy much more open to the risk of losing large amounts of money by not understanding the final results of these speculative bubbles.

Motivations

These concepts are becoming more common in the financial markets, and, with this report, we are trying to determine whether they have starting to weigh in managerial decisions since managers, as well as investors, are human and have their sentiments towards how a company will perform for years to follow. However, these sentiments should not be used in important decision-making processes. In this report we will study the decisions made regarding dividend distribution by Portuguese companies during the period from 2012 to 2019, trying to assess if those decisions were made based only on technical indicators and the current financial status of each company or, on the other hand, if non-technical indicators such as expectations for future capacity to grow and generate more profits, or even possible conflicts of interests between managers and investors.

The investigation conducted in behavioural finance area have been developing models which try to explain the impacts some behavioural-based decisions by all economic agents, managers, or investors. This research has been focusing more specifically on the concepts of *optimism* and *overconfidence*, which together help to explain the changes in the rationality of decisions made (Barberis and Thaler, 2003).

The main motivation to make this study is trying to discover if Portuguese managers make decisions based on their own thoughts of the company's future performance or if they are still using only technical indicators to support their decisions. As far as we know there is no other research on this theme has been conducted in the past, we believe we can show some new insights in this topic.

Objectives

The main objective of this report is to answer the question: "Does manager sentiment influence their decision to decide about dividend distribution policy?"

To reach this objective we gather data from companies listed in Lisbon Stock Exchange, in the time period between 2012 and 2019, which gives us a panel data of thirty firms during 8 years with 12 firm year observations

Dissertation structure

This dissertation is structured in five main chapters, organised as follows:

The first chapter consist of an introduction to both the theme we will approach and the main objectives of the work we plan on doing.

In the second chapter we conducted some literature review regarding the topic of our study. Here we wanted to gather the most information we could regarding past studies, starting with the more traditional theories Dividend Irrelevance Theory and Residual Theory, as well as their biggest limitations, discovered throughout time, before starting to describe more recent theories which reckoned the behavioural finance area, such as the "Signalling Theory".

The explanatory variables used in the study are presented and explained in the third chapter. The key for the results we hope to achieve going forward in this report will be based on the variables we determine and how we will determine them, all of which is explained in this chapter. All companies' earnings reports between 2012 and 2019 will be thoroughly analysed to determine a result for each of the quantitative control variables required, as well as the "Business and Consumers Surveys" conducted monthly by the European Commission to some of the biggest companies in each country's managers, which will give us values for the average manager sentiment index each year, to be used as independent variables. The statistical procedure regarding data analysis will also be explained in this chapter.

After explaining how the variables were gathered and how we will work them, the fourth chapter presents the main results obtained. Based on a Linear Model, we use multiple regressions with longitudinal data analysis, in hope to find which variables weigh the most in dividend distribution, dividend payout and dividend yield – our three independent variables.

Finally, in the fifth chapter we will present our main study conclusions, the analysis' limitations, and suggestions we find useful for future studies in the area.

2- LITERATURE REVIEW

2.1 Lintner's initial studies

2.1.1. Lintner's model

Throughout the years there have been many theories published regarding dividend process and its influence on both companies individually and what signs can changes in dividend policies give to the market, but one thing that all these theories and models have in common is that its authors originated from a positive theory of dividend behaviour published by Lintner, in 1956. Lintner's model was built through the process of interviewing managers about their companies' dividend policies. In his research, Lintner found that managers are more likely to exchange their dividend policies "in response to an unanticipated and non-transitory change in their firm's earnings". Using these patterns Lintner was able to come up with a model which could explain company's dividend changes.

Since this model was developed in 1956, at a time where dividends were the most common form of payout since stock repurchases were not viewed by the managers as a way of transmitting trust to its investors, it is still used today as a starting point to study how a company's dividend policy may behave overtime.

Lintner's model of regular dividend behaviour followed the formula

$$Dividend(t) = k + SOA\ (Target\ Dividend_t - Dividend_{t-1}) + e^t \qquad (1)$$

where "k" is a constant; SOA < 1 is the speed of adjustment and "e^t" is the error term. SOA, as well as k, are assumed to be constants overtime and should only vary across different firms. This states that according to this model, dividends are based on a company's net income.

This model was established based on responses that Lintner received to multiple interviews conducted to managers of large industrial and manufacturing companies. When building this model, Lintner observed important facets of corporate dividend policies, mainly:

- Companies always tend to set long-run target "dividend-to-earnings" ratio according to the number of positive Net Present Value (NPV) projects they are conducting at the time. Even though most companies wish to maintain the dividend policy practically the same, natural business fluctuations force them to make changes in the long run, based on their target payout ratio;

- Earnings increases are not constant overtime since there can be abnormal activities affecting them (either in a positive or negative way). For this matter companies will only make material changes to the dividend policy when managers can see that earning levels are sustainable overtime and do not happen due to unordinary events.

2.1.2. Posterior studies to improve Lintner's conclusions

For many years it was thought that current dividends paid by companies was fully dependent on their current income and the variations it had seen in comparison to previous periods. However, Lintner stated a different opinion which revolutionized the literature around dividends. In fact, he said not only did past and current earnings influenced dividend policy and dividend payout rates, but predictions for the future also had a big impact.

Lintner's work revolutionized the study of dividends and the impact companies' earnings and growing expectations had for them as it created a dispute between authors who agreed with him and authors who believed dividend policy had little to no impact on firm value, and vice-versa.

Some of the first authors to dispute Lintner's theory were Miller and Modigliani who, in 1961, developed a model which, following some assumptions, allowed them to conclude that firm value was independent from dividend payout rate. Miller and Modigliani's theory will have a deeper analysis later.

However, Miller and Modigliani factored various assumptions which are not present or even realistic in the stock markets, the main being that both investors and managers had the same level of knowledge regarding company's internal procedures and investment projects.

Since managers have access to a lot more information than regular investors, it was to think they could convey this information by signalling them in many different forms, the most important of them being earnings reports and dividend figures. A decision to change dividend payout is always made by the managers, and investors are always both receptive and apprehensive to know what these decisions will be. For this, managers tend not to provide ambiguous numbers when making dividend-related decisions due to the devastating consequences they would have on investors' trust in them long-term. This makes dividend announcements the biggest signal investors have regarding the expectations managers have

for the future, even bigger than annual (or quarterly) earnings reports (Aharony and Swary, 1980).

2.2. Dividend irrelevance theory

Contrasting with Lintner's model there is the Dividend Irrelevance Theory. Developed by Modigliani and Miller, in 1961, is a work in which the authors concluded that dividend policy is completely irrelevant and does not affect both the company's stock price nor its cost of capital. The authors believed that only the company's investment policy and its capacity to create revenues from the investment projects they undertook had any effect in the current stock price, with dividend policy having no impact on investors' willingness to put money into the company (Miller and Modigliani, 1961).

This theory was revolutionary for the scientific and corporate community at the time since it was believed that managers always made decisions to broaden shareholders' wealth.

Modigliani and Miller said that if an investor considers the dividend to be too high, he will reinvest the surplus (depending on what he thinks the dividend's fair value is) in buying more shares of said company, and if the same investor thinks the dividend is too low, he can sell some of his shares to replicate his expected dividend payout. With this argument, Modigliani and Miller stated that dividend policy did not change investors' behaviours and would not change the value of the investment in the company because the cash flow would be the same. For them, the only way to determine a company's fair value was through its capacity of incurring in high NPV investments.

To conduct this theory, Miller and Modigliani obviously had to determine certain restrictions which had to be seen for correctly demonstrating this theory. Three main suppositions were defined:

- Perfect capital markets: every piece of information regarding companies needs to be free and accessible to everyone, every agent in the market is *price-taker*, which means they have no capability of swaying stock prices and there can be no costs of transaction nor taxes on capital gains/dividends.
- Rational behaviour: investors are rational regarding where changes in wealth come from, either capital gains or dividend distribution.

- Investors have total knowledge on what the next investment projects of each company will be and there is no asymmetry of information. This overrides market imperfections and allows us to isolate dividends.

While this theory is considered to have valid arguments, such as the fact that investors can always manipulate cash flows regarding of what the dividend policy is, it received a lot of criticism from other authors right after it was published, with John Lintner (the author whose work Modigliani and Miller tried to contradict) and Myron Gordon in 1962 being the first ones to criticise it publishing the "bird-in-hand" theory.

2.3. Residual theory

Each author has his own way of looking at the optimal model for dividend distribution and which components make his/her model more reliable on both short and long-term. To Brigham and Gapenski (1996) there were four main factors from which optimal values for dividend distributions could be calculated (despite only three of them being a part of the residual theory). These four factors were:

- Shareholders preferences between dividends and capital gains.
- Company's investment opportunities.
- Company's capital structure.
- Availability and cost of borrowed capital.

The residual model of dividend distribution ignores shareholders preferences and focuses exclusively on managers' decisions and behaviours. Firstly, companies need to define which investment strategies they will follow over the forthcoming periods in order to reach a balanced capital structure and being able to measure both their capital needs and the capital available to distribute. Only if generated cash-flows beat needs of financing the company will be able to distribute dividends.

Since this theory only focuses on managers' decisions, ignoring investors' preferences, it doesn't force companies to give the markets signs of dividend payout long-term stability, hence it is susceptible to some questionable decisions managers can make in order to avoid distributing dividends, such as incurring in negative NPV projects. Companies, however,

need to invest in more positive NPV projects than negative ones so that they can continue providing increases in revenues and keep on gaining the investors' confidence.

Given the unpredictable decisions that would be made if following this model, we cannot adhere to it while analysing managers' behaviour over a short period of time. However, it can be used to conduct a guide to establish a target payout ratio in the long term (Brigham and Gapenski, 1996).

2.4. Tax field and dividends

Dividends and capital gains have different treatments taxwise. In fact, dividends have higher tax rates associated to them than capital gains do. However, most companies keep distributing annual dividends to their shareholders, making fiscal discrimination between dividends and capital gains a big contributing factor to stock price fluctuations.

Farrar and Selwyn (1967) developed a model in which, assuming capital gains tax (T_g) is always lower to dividend tax (T_p), showed that under no circumstances should companies prefer to distribute dividends instead of incorporating capital gains on stock prices, as long as the company is expected to incur in positive NPV projects, thus having positive expected cash-flows for the future.

Brennan (1970) with support on the Capital Asset Pricing Model (CAPM) improved Farrar and Selwyn's theory, which had a supposition that investors could only own one type of asset. Brennan (1970), assuming the possibility of contracting funds at a *risk-free* rate, *short-selling* being allowed on the market and previous knowledge on what the dividend payout would be, developed his own model with the premise that, given discrimination between T_g and T_p, investors require a premium for owning higher dividend yield stocks. The higher the dividend yield is, the higher the premium will be. To put things into perspective, Brennan's model is represented by the equation:

$$R_{i,t} - r_{nr,t} = \partial_0 + \partial_1 \beta_{i,t} + \partial_2 (DY_{i,t} - r_{rn,t}) + \mu_{i,t} \qquad (2)$$

This equation intends to estimate expected returns before any taxes are applied and expose its correlation with dividend yield and market risk. In fact, $R_{i,t}$ represents the expected return of any given asset (i) at a moment of time (t) while $r_{nr,t}$ is the expected return of the risk-

free asset at the same (t) moment, which determines that this value can never be zero, so investors always ask for a premium when owning higher dividend yield shares in order to compensate fiscal discrimination.

This work from Brennan (1970) was a starting point from which many authors developed their own theories, always focusing on improving what Brennan had determined. Two of these authors were Litzenberger and Ramaswamy (1979) who worked together trying to build a more complex version of Brennan's model by adding both a progressive tax rate and restrictions to income and to the contraction of financing. In fact:

- Total debt can never exceed total dividend payouts. Unlike in Brennan's model, if interests paid deriving from external financing contracted by an individual exceed dividend payouts, tax rate can never be considered negative;
- Only a small part of an investor's portfolio can be financed by borrowed capital.

Litzenberger and Ramaswamy (1979) use the same formula Brennan (1970) created with the only changes being ∂_0 (the independent term referring to debt restrictions) being equal to a $\beta = 0$ portfolio whose dividend yield is the risk-free rate r_{nr}.

Litzenberger and Ramaswamy's (1979) introduction came as a clear advantage for more leveraged investors who would benefit from the fact that interests paid could never surpass the total amount of dividend payouts received, thus making them more susceptible to always purchasing high dividend stocks. This behavioural pattern is commonly known as the *clientele effect* and is one of the major factors managers take into consideration when analysing possible changes in dividend policy. Introduced by Miller and Modigliani (1961, p.431):

> *"(…) If, for example, the frequency distribution of corporate payout ratios happened to correspond exactly with the distribution of investor preference for payout ratios, then the existence of these preferences would clearly lead ultimately to a situation whose implications were different in no fundamental respect from the perfect case. Each corporation would tend to attract to itself a clientele effect consisting of those preferring its particular payout ratio, but one clientele would be entirely as good as another in terms of the valuation it would imply for the firm (…)"*

The clientele effect is a behavioural pattern which implies that a company is dependent on a certain type of investors (in this case investors who prefer higher dividend payouts over

capital gains) and any changes made to this policy have an unpredictable impact on investors' confidence thus resulting in instability in stock price when these changes are made. If high dividend payouts are reversed, many investors may sell their positions and lose confidence in the company's ability to generate future dividend payouts thus making stock prices tank and create financial difficulties. That's why most managers who run high dividend payouts companies opt to maintain their dividend payouts stable, even during troubled times.

Litzenberger and Ramaswamy (1979) had a different vision to clientele effect than that of Black and Scholes (1974). While the latter thought that changes in dividend policy had little to no implications on a company's stock price, Litzenberger and Ramaswamy (1982) saw there was an association between common stock returns and dividend yields, even though this association was non-linear, which means there was not a perfect correlation between both variables.

Miller and Modigliani's (1961) dividend irrelevance theory was later supported by Miller and Scholes (1978, 1982) who said that contracting debt made an investor able to eliminate any fiscal discrimination regarding dividends over capital gains. In fact, if an investor can contract financing and invest that money in risk free solutions they will, simultaneously, decrease their full portfolio average risk level while relieving their tax burden. For Miller and Scholes, taxes over dividends are only relevant if there is no possible way of reducing tax burden. With the premise of contracting debt added to their model, it becomes possible to eliminate fiscal discrepancies thus reaching Miller and Modigliani's (1961) theory on how the form of receiving wealth created by the firm was indifferent for investors.

Later, Lasfer (1996) determined that companies take into consideration both corporation and personal income taxes when deciding which dividend policy they will adopt.

Lasfer (1996) stated that companies decided their dividend policies with a goal to minimize their tax liabilities, as well as maximizing their shareholders' after-tax returns.

To sum up, companies who could not deduct most corporation taxes from their tax liabilities usually paid lower dividends than those who could. He also found no evidence that tax differences created dividend clienteles.

2.5. Agency Theory

The Theory of the Firm, however, had flaws which made it not last long enough as other authors had different visions. Jensen and Meckling (1976) criticised it on the basis that it was not a theory of the firm itself, but a theory which took the whole markets into account and where firms were important actors. In this theory firms are only operated to meet marginal conditions regarding inputs and outputs in order to maximize present values. However, as time passed, corporations started to have more obligations than just making profits to give confidence to their shareholders, the increasing social responsibility of the firms and separation of ownership and control boosted the need for a more in-depth theory which looked at the firms as more than just a small player in big markets.

As Jensen and Meckling stated, in an agency relationship, which is described as a managers *vs.* stakeholders relationship where the principals (who can be one or more people) delegate power to a determinate agent. This can lead to trouble, especially regarding conflicts of interest between the parts that can bring extraordinary costs to the company (defined as costs of agency). These costs can be related to both overspending in superfluous activities or overinvesting in projects with higher associated risk with the goal of transferring wealth from creditors to stakeholders. The cost of agency will be higher depending on how many stakeholders a company has, since they will always put their own interests as a priority.

As the manager's power in the company (proportional to the fraction of the company's equity he owns) falls, his behaviour tends to drastically change. This reduction in terms of property "will tend to encourage him to appropriate larger amounts of the company's resources in the form of perquisites and will also make it desirable for the minor stakeholders to expend more resources in monitoring the manager's behaviour" (Jensen and Meckling, 1976). However, since in the majority of the companies, equity is distributed through a very large group of small shareholders and they can't incur the whole monitoring costs on their own due to the small benefits it would give them (each shareholder would only benefit from such monitoring in the proportional part of the company's equity they own), surges the *free-riding problem*. In the case in hand the unbalancing between costs and benefits regarding each shareholder incurring in all monitoring costs by himself will lead to no monitoring at all being exercised on the managers.

To eliminate free-riding problem it is necessary to have independent entities monitoring market agents (i.e. banking unions monitoring the way capital is invested in a company).

Hansen and Torregrosa (1992) consider this to be an efficient way of eliminating most conflicts of interests between manager and shareholder. In fact, unions would be responsible for monitoring the manager's actions, assuring the shareholders (current and potential new ones) that the price they are paying for any new position is fair and promoting the company on the primary market to attract new investors.

Hansen and Torregrosa's point of view is a continuation of a previous work by Easterbrook (1984) who stated that reaching for the capital markets (either by increasing equity or through borrowed capital) allow companies to minimize their agency costs. By being active in the capital markets, the company had more agents (mainly new creditors and investors) involved in monitoring activities and the constant growing of the company would force the managers to base on the investor's interests. This supports his theory that dividends allowed a more efficient monitoring action, since a company with a consistent dividend policy needs to be active on the markets, always looking to find new investors in order to gather money to carry out new investment projects and increase its growing expectations.

To sum up, Easterbrook believes that, by being present in the capital markets, managers will find it likely to be monitored impartially by a larger number of agents, thus stimulating them to work closer to the shareholder's interests and goals.

In contrast with this, there are authors who believe dividends alone do not have a relevant impact on the reduction of agency costs, since they can always be increased, decreased, or even extinguished at any moment based on managers' expectations and/or other interests.

Ghoshen (1995) said that the only way a dividend policy may have a relevant impact on reducing agency costs and, consequently, increase the value of the company's stocks is through a dividend stability policy. In fact, having a stable dividend payout throughout the years is the only way both a company and its managers can develop a solid reputation in the capital markets, attracting new investors (especially risk averse investors who prefer stable dividends over capital gains speculation), thus contributing to an increase in the company's stock value. A similar work was conducted by Zwiebel, in 1996. This explains why most companies tend to maintain their dividend policy stable even during periods of default instead of reducing or, especially, omitting dividends since this last action is the one managers are most reluctant about. In fact, De Angelo and De Angelo (1990), after analysing 80 NYSE companies who were experiencing financial trouble, realised that not even in this situation managers opted to omit dividends. Adding to that, companies which had little

financial capacity, either tried to stabilise their dividend payouts throughout the years or did not pay dividends at all. This way they would never reduce their dividend payouts drastically, sending investors away from them and losing capacity to attract new ones.

2.6. Signalling Theory

In contrast with the dividend irrelevance theory (Miller and Modigliani, 1961), in which it is assumed that both managers and investors have the same knowledge of what's happening in the company, thus making expectations about cash-flows, capital gains, etc, the same in both managers and investors point of view. This, however, is not the case in most situations since managers often have much more information regarding future expectations for the company (especially the higher their share in the firm is). This way managers can use increases in dividend payouts as a mechanism to transmit higher levels of confidence to investors, since they will view this action as a sign of higher capacity to generate future cash-flow.

Contrasting with both theories cited above, Ross (1977) believed managers could use both capital structure as well as dividends to inform the markets about future expectations. In fact, companies with better prospects of cash-flows for the future may use leverage while others with worse expectations would not be able to do so. Ross's theory is strengthened by the fact that companies with worse future expectations would not be able to either pay their debts or maintain their dividend payouts consistent throughout the time, thus not using leverage. To sum up, the more leverage the company uses, the better are the signs it is giving to the market.

In line with Ross' conclusions, Bhattacharya (1979) theorised that companies determine a certain dividend policy for the long term based on the Net Present Value of their current investments and their main goal is always to maintain that dividend policy in order to not lose their investor's trust, even if they have to contract debt to finance dividend distribution. For this theory, Bhattacharya assumed neither fiscal nor transaction costs. This allowed him to prove that dividends are an effective mean of signalling future cash-flow expectations to the market.

After Bhattacharya, other authors try to find different ways of signalling to the markets with dividends, without having to resort to fiscal disadvantages associated to those. John and

Williams (1985) integrated share repurchases in their model. In fact, they believed companies, at the same time, should distribute dividends as well as recurring to the capital markets to grant equity increases. This equity increase may come from the emission of new shares or share repurchasing. Either way, this will mean investors will see a decrease in their participation, which can be resolved if the information known by the managers and not available to the markets is positive since it will allow the company to distribute higher dividend payouts and, *ceteris paribus*, represent a gain in stock value, decreasing the dilution effect that share repurchases have on shareholders.

Miller and Rock (1985) took a deeper look and considered that every announcement managers gave to the market contained important information. The same way an unexpected increase in dividends meant a growth in the company's shares value, an unexpected announcement regarding equity increases or a new need of contracting financing were interpreted by investors as a sign of weakness and incapacity to grant future cash-flows, thus leading to a decrease in company's shares value.

Miller and Rock (1985) found an interesting behavioural pattern on both investors and managers which could allow the latter to use dividends as a form of forging the stock value on the very short-term. In fact, if managers announce an increase in dividend payouts, even if that means backsliding in future investment projects, stock value will have an upwards tendency after the announcement, allowing investors who alienate their participations during this upwards tendency to expropriate those who did not and ended up panic-selling during the downwards tendency.

To sum up, Miller and Rock, while believing dividends are an effective way of signalling future expectations to the markets, also represent one of the main causes for inefficiency given the psychological effects some announcements have on investors and the way managers exploit those effects.

Based on two forms of signalling the markets (dividends and shares, via new emission or repurchase) there is always an associated cost to this signal. Ambarish *et al* (1987) presented a model in which stated that for companies who pay dividends, the announcement of a new dividend will be positive as long as there are no changes in equity. On the other hand, after announcing dividends, if a company announces emission of new shares, the signals the market has on this company will determine whether this share emission is good or bad. If the company's investment projects are unknown to the market, investors will tend to believe

the company wants to increase equity as a way of financing new investment projects without contracting debt and will see this emission as a positive sign and a high capability of generating future cash-flows. Nonetheless, if the markets have information regarding investment projects the company will undertake and their correspondent NPV, emitting new shares will be seen as a sign of financial difficulties. To sum up, this theory contrasts with Miller and Rock (1985) in the way managers can use dividend announcements to create behavioural patterns on investors.

Later, Benartzi *et al* (1997) studied if there was any relation between variations in dividends and future changes in earnings. The authors found a strong correlation between variations in dividends and changes in earnings. In fact, as Healy and Palepu (1988) had found, Benartzi *et al* (1997) saw that in every dividend reduction, companies suffered losses in the year those reductions took place but big increases in earnings on the two years following those reductions.

2.7. Bird-in-the-hand theory

Like the old saying: "a bird in the hand is worth two in the bush", this theory exploits a behavioural aspect of most investors, in which the authors claim that, due to uncertainty associated with capital gains, investors would rather hold high dividend paying stocks in exchange to stocks which could potentially mean higher capital gains in the future. Since most investors, in line with the human nature, tend to be impatient regarding their investments and are normally risk averse, as time passes "each dollar in dividends is worth more than a dollar in capital gains expected to be received in the same moment in the future". As a consequence, dividend policy would allow an increase in the company's valuation given a reduction in the company's cost of capital associated to the lower risk dividend policy has as opposed to earnings distributions based on capital gains.

Gordon (1962) and Lintner (1962) believed that receiving cash through dividends right now had a lower risk than hoping for higher capital gains in the future. The fact that most of the factors which determine a stock's performance throughout the year are out of the investor's control also weighs a lot in the decision to prefer dividend paying stocks over capital gains, for more risk averse investors. The authors then developed a model to calculate current stock price, based on a few assumptions:

- A company may only be financed by equity;
- A company's expansion projects may only be financed by retained earnings from previous periods, there is no external sources of financing available;
- Both the earnings and the retained earnings growth rate are constant;
- The company's cost of capital is constant and higher than the growth rate;
- There are no corporate taxes.

Based on all these assumptions, to describe the relationship between the stock price and the dividend, Gordon developed the dividend discount model, whose formula is:

$$Stock\ price = \frac{D_0 * (1+g)}{k_e - g} = \frac{D_1}{k_e - g} \quad (3)$$

Breaking down the model, D_0 is the per share amount of the last dividend paid, g is the constant growth rate, k_e represents the rate of return investors require and D_1 is the expected per share dividend for the next period.

To sum up, this model allows us to calculate the current fair value for any stock and to determine how viable it is to buy said stock at any given moment. If the stock price calculated by the Gordon Growth Model is higher than the current stock price then the company is likely to provide high capital gains for the year.

However, Gordon and Lintner's theory has a strong opposition from authors such as Miller and Modigliani (1961) who stated that the expected future cash-flows are determined based on the operational risk and, as long as the distribution of dividends does not affect the investment projects already in place, investors should be indifferent between higher dividend payouts and higher capital gains.

2.8. Behavioural perspective

Behavioural factors also have a huge implication on the capacity an investor has to evaluate different signs given by the markets. Kahneman and Tversky (1979) built a theory based on the hypothesis of an agent (manager) regretting his decisions, having chosen a project with a higher expected value but also higher risk over a project with a lower expected value but with practically no risk associated. The authors present their own concept of regret:

"*(…) Regret is felt if one can readily imagine having taken an action that would have led a more desirable outcome. This interpretation explains the close link between experience of regret and the availability of choice: actions taken under duress little regret. The reluctance to violate standard procedures and to act innovatively can also be an effective defence against subsequent regret because it's easy to imagine doing the conventional thing and more difficult to imagine doing the unconventional one (…)".*

Kahneman and Tversky (1979, p.172)

Based on Kahneman and Tversky (1979), Shefrin and Statman (1984) try to interpret an investor's rationality when making a tough decision. Some investors are willing to pay a premium to receive dividends and the authors believe this is related to a behavioural nature, since every investor needs to be disciplined and create a savings fund, so they see dividends as a way of financing this fund and guaranteeing their subsistence on the long term. From the agent's point of view, he incurs in agency costs while distributing dividends instead of capital gains which could lead him to have less interest in distributing dividends. On the other hand, dividend distributions, if uniform throughout the years, often create a *clientele effect,* in which investors put their money in the company hoping to receive constant dividend payouts. Cancelling this dividend could make some investors lose their interest on the company, consequently making them lose market value, hence why Shefrin and Statman (1984) considered very complex to evaluate manager's decisions, based on their behaviour.

Cyert and March's Behavioural Theory of the Firm (BTF) is one of the most important papers regarding theory of the firm. The paper lists three main ideas which contribute to the BTF and that all managers take into consideration before making any decisions, being *bounded rationality, imperfect environmental matching,* and *unresolved conflict*.

Bounded rationality implies that companies set their own targets based on what they expect to achieve, and all decisions that are made have the purpose of contributing to reaching these targets instead of trying to optimise best possible solutions. *Imperfect environmental matching* shows the importance of adapting to new circumstances and creating new working methods. Firms can never work under a projected environment since it would end up putting workers off and decrease productivity. *Unresolved conflict* is the last and probably the most difficult task to overcome inside a company. In fact, conflicts of interests always exist between multiple actors inside firms and those conflicts are not always resolved with contracts (at least not fully resolved). This forces lots of negotiations between the parts and

may lead to decisions which harm the company's capability of generating cash-flows on behalf of the interests of a particular.

To guarantee rational decision making inside a company, we must determine that company's organisational slack. According to Näslund (1964) *"organisational slack can be defined as the excess capacity maintained by an organisation"* and refers to the difference between the resources required to maintain an organisation and the resources received by a coalition within the organisation. Slack is a guarantee of rational decision making since it provides the company the resources needed to innovate and stay ahead of their competitors. In fact, slack provides a source of funds for innovation that would not be approved in the case of scarcity but that have strong subgroup support, as stated by Cyert and March (1963)

2.9. Catering Theory

Fama and French (2001) stated that paying dividends was becoming less common for American companies. In fact, between 1978 and 1999 the percentage of dividend-paying companies dropped from 66,5% to just 20,8%. Baker and Wurgler (2004) then wanted to analyse what was driving companies to stop paying dividends.

Baker and Wurgler (2004) state their theory differs from Black and Scholes (1974) theory in which the authors assumed dividend irrelevance saying if corporations could increase their stock prices by either increasing or decreasing dividend payouts, they would do so. This would saturate the demand for higher (or lower) dividend yields, bringing an equilibrium in which marginal changes in dividend policy would have no effect on the company's stock price. Baker and Wurgler did not think dividend policy was irrelevant and developed a behavioural model taking into consideration "the possibility that investor demand for dividends is affected by sentiment" (p. 2).

All in all, Baker and Wurgler (2004) concluded that the existence of a premium which compensates higher dividend-paying stocks is what drives companies to decide whether to pay dividends or not. They assume as variables for their theory the investor demand for dividends, limited arbitrage, and catering as a rational response.

2.10. Life cycle theory and dimension effect

Some authors relate dividend distributions to a company's life cycle. Works from authors such as Fama and French (2001), Grullon *et al* (2002) and De Angelo *et al* (2006) have empirical analysis from companies on different stages on their life cycle (some younger and still on a growing phase and some older with a strong and consolidated position on the market) and they all state that dividends tend to be paid by companies which already have a consolidated position and tend to have larger market caps than their main competitors. On the other hand, younger companies in spite of having more demand from capital gain seekers and less risk-averse investors, do not tend to pay dividends in the same proportions of older companies due to having limited resources to both invest on high NPV investment projects and distribute dividends. Since they are still trying to capitalize on their investment projects to increase their market value and to keep growing, most resources are channelled to these projects, overlooking dividend distributions.

De Angelo *et al* (2006) went a bit further on their analysis and checked for a relation between the retained profits from companies and their total equity. This is somewhat related to the life cycle theory since older companies with a more consolidated position on the market always tend to have better capacity to generate profits, thus retaining part of them while younger companies have less capacity to generate profits and have to invest a bigger percentage of those in new high NPV projects to fulfil their growth expectations. As expected, De Angelo *et al* (2006)'s results showed what other authors had previously found, reaching fairly similar conclusions than those from the life cycle theory.

2.11. Industry effect

It is also important to ask whether there is any industry influence on dividend policy decisions to see if a company's industry type has any influence on manager's decisions regarding dividend policy. Already existing literature points to different conclusions. In fact, Baker, Farrelly and Edelman (1985) conducted a study which conclusions showed that managers of service/utilities sector companies' opinions differed significantly from managers working on other sectors, mainly manufacturing and retail. Additionally, service sector companies also tend to be the ones with higher dividend payouts and yields.

The reasons for these different opinions may be several: Soter, Brigham and Evanson (1996) explain the situation by the sector's characteristics. Since it is a highly competitive environment with tendency to major changes in small periods of time and also a highly regulated market, it is a riskier place for both companies to operate and investors to risk their money thus managers' need to increase dividend payouts and yields so that they can attract more investors.

Different conclusions were reached by Baker and Powell (1999) in their study which consisted in analysing if managers' views about dividends differed among different industry groups. The authors conducted a survey based of 26 questions divided into different groups, each group consisting in different issues regarding company's activity. Out of the 26 questions asked in the surveys conducted, in only 4 of them were the responses significantly contrasting from one industry sector to the other. However, in these 4 statements the results were similar to the ones in Baker, Farrelly and Edelman (1985) study, where service sector companies had different opinions from the majority, mainly regarding how managers of services are more sensitive to unexpected changes in dividend policy and in how these unexpected changes affect the company's stock price and shareholder value.

Their study also shows managers of service companies believe any drastic changes in dividend policy should be thoroughly communicated and explained to shareholders, which is consistent to the last conclusion reached by the authors, in which service sector managers believe investors prefer certain current dividends in lower risk stocks instead of potential higher risk stocks which may pay higher dividends.

The strong competition companies face in the service sector may explain why managers of these companies tend to have more awareness to situations which most investors may interpret as signs of high risk and feel discouraged to invest in said stocks.

3- METHOD AND SAMPLE SELECTION

3.1 Investigation approach

On this chapter we intend to explain the methodology used in the investigation and define the variables we have used in order to determine if and how managers' sentiment affects their decision regarding dividend policies.

Based on the literature review we already conducted, there are several factors which could determine how a company determines its dividend policy, but these factors are mostly economic and financial and instead of searching for economic fundamentals only, we want to look deeply into the behavioural side of how a company is ran.

After researching variables, we think will be important to our study we gathered already existing data which had to have strong theorical support and knowledge, had to come from studies conducted by reliable authors or organizations, data which has been used by other authors in their works, data that was available for the whole period which we will analyse and easily accessible to the public. All these factors considered, we will use as independent variables the results of an Economic Sentiment Index study conducted by the European Commission (EC) which gives monthly values for managers and consumers' confidence in every country in the European Union (EU). This Index is based on surveys made to some of the biggest companies in every country focusing on the 4 main sectors of economic activity in the union, which were: industry, services, retail trade and construction. The sentiment in each sector has a different weighting on the result. As additional explanatory variable we will use a database we created analysing manually all the Portuguese Stock Exchange companies (Euronext Lisbon) (PSI 20 and non-PSI 20). For this analysis we have defined ten factors which we believed to be the most important when trying to determine managers' sentiments for the future. These variables were named from C1 to C10.

3.2. Investigation hypothesis

3.2.1. Hypothesis and variables

It is well known that some companies pay dividends to their shareholders and others don't. Each company has its own dividend policy, while some pay yearly dividends there are others who pay them quarterly and, in some odd cases, especially in the United States, monthly. Apart from that we also know there are several economic factors (especially microeconomic ones) which may make dividend policies differ between years. Sometimes these economic effects may be mitigated by the lack of managers' willingness to perform significant changes to these policies, so we tend to see them being very similar throughout the years even if there are clear reasons on the company's financial performance to justify a change.

Manager's profiles can have a major impact in the decision-making process. We can identify two main types of managers, each type with its own characteristics:

1. Optimistic or overconfident managers – this type of manager tends to have higher growing expectations than the average, always focus on new projects to invest, ending up increasing the company's debt level in case of economic growth or maintaining it during periods of crisis.
2. Pessimistic or underconfident managers – these managers tend to be more contained in the projects they decide to invest money, especially during periods of more economic volatility. Their decisions are never in favour of increasing the company's debt level and will focus on decreasing it during periods of crisis.

Since managers who are more optimistic tend to increase companies' debt level by having a higher tendency to embark on new projects, we can ask ourselves if these traits of personality also have an impact in the company's dividend policy. In fact, dividends are out-flows so they avoid debt reduction or may increase debt or even may imply cash reduction.

What we intend to know is if sentimental factors i.e., manager's expectations for the incoming years have any correlation with the decision to change dividend policies or if, instead of also focusing on more abstract factors, managers only rely on current and objective information to make their decisions.

Based on this, there are two types of results we are expecting to achieve when analysing the collected data:

1. A positive relation between managers expectations and dividend policy. This would mean the data collected from Annual Company's Reports, resuming managers expectations, was consistent with their final decision i.e., the higher and positive expectations, the higher the dividend yield and payout rate.
2. A negative relation between managers expectations and dividend policy. In this case dividend policy decisions would not be consistent with managers sentiments.

Both cases can show managers sentiments as a reliable source of information which weighs in the final dividend policy decision but can also be representative of a confidence problem based on managers personalities since we can never know if people behind the decisions are more cautious or more confident.

3.2.2. Definition of explanatory variables

The following variables express the perceptions and managers expectations about several topics we have considered potentially relevant affecting dividend policy:

Table 3.2.2.1. Variable Descriptions

Variable	Description	Measurement assumptions
C1	Projections for European and global economy	Varying from a steep fall of the global economy (grade 1) to a significant rise in global GDP (grade 5). The values in between represent more conservative expectations, either up or down.
C2	Projections for Portuguese economy	This variable's measurement is similar to C1, but applicable to expectations regarding Portuguese economy.
C3	Tendency for the company's main cost drivers	The higher the cost drivers, the bigger the barriers a company will have on its production. If a rise in main cost drivers is expected, the variable will have a low grade. On the other hand, if the cost drivers

		are seeing a decreasing trend, the grade will be higher.
C4	Competitive rivalry the company has on the sector (nationally and internationally if they operate abroad)	Severe competition is a reality in most sectors of activity and changes in this scenario may hurt a company's long-term stability, thus we attribute a higher grade based on each company having a bigger market share or a lower grade if it has a small market share.
C5	Technological innovations being conducted by the company	Technological advance can either by a driver to a company's growth or mean its demise, so a high investment in technology is a big contributor to an expectation in continuous growth and will mean a higher grade in this variable.
C6	Political risks	If a company operates in countries where barriers to exports or several other bureaucratic obstacles can be seen, they are at risk of incurring in cost increases or even not being able to sell in those markets. This variable's grade will be lower if companies face these obstacles.
C7	Sales increase (or decrease) expectancy	Companies which expect positive increases in sales will be graded higher, whereas companies with expectations of sales decreases will be graded lower.
C8	Expecting increase (or decrease) in company revenues	This variable's measurement is similar to C7, but regarding expectations in total revenue increase or decrease.

C9	Investment projects being taken by closest competitors	Inside highly competitive markets, companies are also subject to increases in investment projects from their closest competitors, and their reaction to them is key for their success in the long-term. We determine how big the projects from each company's closest competitors are. The bigger these projects are, the lower we grade the variable.
C10	Other associated risks, such as default risk, Exchange rate risk, credit risk, etc	This variable considers other risks associated to a company's activity, such as exchange rate risks, credit risks or default risk. Companies operating in countries which do not use the Euro but instead currencies with a significantly lower value will tend to have higher exchange rate risks, thus downgrading their score.

3.2.3. Year effect

We have included in our model dummies to capture generic factors, not explained by the independent variables. This dummy variable is called FYxxxx, in which "xxxx" represents every year between 2012 and 2019.

3.2.4. Dependent variables

To analyse dividend policy, we have defined two dependent variables. We use a binary variable (PayYN) which takes the value 1 if a company distributed dividends during the year, and 0 if it did not.

The other dependent variables, which are the ones our analysis will focus on, will be the dividend payout and the dividend yield. We gathered information on these variables for every company, every year and proceeded to estimate a random effects regressions in

order to analyse which of the factors above indicated had any effect on these dependent variables.

3.3. Panel data model

3.3.1. General linear model: Ordinary Least Squares (OLS)

Our sample consists of a total of 30 Portuguese companies listed on the Lisbon Stock Exchange (Euronext Lisbon), some listed on the PSI20 index while others are not, during the period from 2012 to 2019 (inclusive). Thus our sample is a panel of 30 entities i = 1,…,30 times 8 years of t = 2012,…,2019. giving us 240 firm year observations. Since some companies are not listed in the Lisbon Stock Exchange throughout the whole analysis period, this panel is unbalanced.

The ordinary least squares regression (OLS), commonly known as a linear regression will be the model used to conduct our analysis. The statistic relation between the variables we are studying can be written as follows:

$$Y_{i,t} = \alpha + \delta^T X_{i,t} + \varepsilon_{i,t},\ i = 1,\ldots,30 \text{ and } t = 1,\ldots,8 \qquad (3.1)$$

In our analysis, $Y_{i,t}$ represents the dependent variable we are studying. Having two alternative dependent variables, the dividend yield of the company *i* during the year *t* and the dividend payout for that same period of time being analysed separately, $Y_{i,t}$ will always represent one of them.

$X_{i,t}$ is a vector of the explanatory variables C1 to 10 as well as the other independent variables gathered from the European Commission's Economic Sentiment Index. This vector $X_{i,t}$ also includes the year dummy variables aiming to figure out any macroeconomic shocks that might have influenced the world's economy and some companies in particular.

An assumption of the Ordinary Least Squares model is that the error ($\varepsilon_{i,t}$) is uncorrelated with each of the regressors and has mean zero. Another assumption needed for the consistency of OLS is that the regressors cannot have a linear relationship between each other (Wooldridge, 2002).

3.3.2. Endogeneity problems

To efficiently apply the model defined in 3.1 its parameters have to be clearly defined, which sometimes in not the case when applying the OLS model. In order to do that we need to analyse what the main subjects that may be causing us trouble identifying the parameters are. In an OLS type model, the error term can be associated with a variety of things, but it cannot be correlated with any of the regressors. If this happens it means the regressors are endogenous which gives inconsistency to the model. The term endogeneity "*is used to describe any situation where an explanatory variable is correlated with the disturbance*" (Wooldridge, 2002).

According to the same author, endogeneity usually comes in one of three different possible ways:

1. Omitted variables;
2. Measurement error;
3. Simultaneity.

The presence of omitted variables in a model violates the main assumption of an OLS type regression that the error term must be uncorrelated with the regressors, making the model highly inconsistent. In fact, there can be variables which are correlated with the regressors but are not included in a regression model. A possible way of mitigating the omitted variables bias and a solution we applied in our analysis in to create unobserved variables which do not change overtime and test them using both fixed effects and random effects models (Wooldridge, 2002). These unobserved variables which do not change are dummy variables and, in our study, are the year effects "FYxxxx".

Measurement errors is something our model can be susceptible to. There are some variables which can't be estimated with 100% accuracy due to how they were collected. Having reached our conclusions while analysing companies' earnings reports, managers can always be biased while reporting about their expectations for the company or even the whole economy's future or they can be looking at the future based on their own personality or their own wishes and not giving completely reliable information to the people analysing the reports.

In our study we use explanatory variables which are always defined based on interpretation of annual companies' reports. In spite of some variables being defined based on analysing

actual data, which helps us mitigate measurement errors that can arise, others are defined based on interpreting scenarios which can be abstract and biased. This problem can be mitigated by using proxy variables.

Simultaneity problem occurs when one or more explanatory variables is determined simultaneously with the independent variable. If $X_{i,t}$ and $Y_{i,t}$ in equation 3.1. are simultaneously determined, then $X_{i,t}$ and $\varepsilon_{i,t}$ are also correlated, thus creating an endogeneity problem. Wooldridge (2002) uses instrumental variables in a simultaneous equation system thus making the regression consistent.

3.3.3. Checking for homoscedasticity

Homoscedasticity represents the homogeneity of variances, and it is one of the most important features of any linear regression, including OLS type regressions.

This feature refers to a condition in which the error term between the dependent and all the independent variables used in the model is roughly the same to all independent variables. Homoscedasticity suggests the model is consistent and well-defined, thus, the results obtained are more trustworthy.

When these criteria are not met and there is a significant difference in the variables' error term, the opposite condition from homoscedasticity is met: heteroscedasticity. In this scenario the variables have discrepant error terms, making the model slightly poor-defined and impacting the validity of the analysis made.

In this study, the variables used are coherent with each other since they are all related to economic perspectives and levels of expectations for companies' activity. To add to this fact, all of them were collected after analysing reports written entirely by people working for said companies, whose probity and transparency is guaranteed.

All in all, the variables we determined, and which will be used to perform our analysis are homoscedastic, thus meeting the requirements for OLS type regression results to be trustworthy.

3.4. Sample description

The subjects of this study are companies listed in the Lisbon Stock Exchange (Euronext Lisbon), except financial entities, insurance providers and football teams which are also listed in Euronext. For each company we had to determine the variables presented in chapter 3.2.2. and, for that purpose, every annual company report was analysed, and all the information needed from them was gathered. These reports are easily accessible to the public in both the company's websites and/or in the Comissão do Mercado de Valores Mobiliários (CMVM) website. Furthermore, we made use of the European Commission's Economic Sentiment Indicator (ESI) surveys to better capture the sentiment effect from managers.

The European Commission's ESI consists of monthly surveys conducted by the *Directorate General for Economic and Financial Affairs* for different sectors of economic activity. The EC divides these surveys in 4 sectors of economic activity: industry, services, retail, and construction. Since the EC has been consistently doing these reports every month since 1998 and our study focuses on the period between 2012 and 2019, we had no trouble gathering this information and all the data needed was available.

Regarding the companies listed in Euronext Lisbon there are some details that need to be specified: even though Lisbon Stock Exchange has not seen many companies entering or leaving the stock market, it is also not static. In fact, in some years there were more companies listed than in others and there were even companies which were not listed at the start of our period of analysis, entered the stock market and ended up leaving before our period of analysis had finished.

To define our sample (unbalanced sample) and select the firms to our study, we impose two criteria in our triage process:

1. To be listed in the Lisbon Stock Exchange (both companies from and outside the PSI20 Index were eligible);
2. All financial entities, insurance providers and football teams listed in Euronext Lisbon were removed;
3. Yearly earnings reports for the companies had to be available to the public so that we could determine the variables needed to conduct the analysis. If a company did not have the annual earnings reports available, we would not consider them in the

analysis (this was not an issue since every earnings reports needed was available and properly analysed to determine every variable needed).

4- ANALYSING RESULTS

4.1. Analysis and interpretation of results

The following chapter will consist in presenting the results given by our panel data model analysis, more specifically the Ordinary Least Squares type of regression used to achieve such results. The hypothesis our model will study consist of two dependent variables: a company's dividend yield during the year *t* and the dividend payout for the same period. Therefore, we conducted our model to each dependent variable separately, hoping to see interesting and conclusive results in both analyses. In this chapter we will analyse such results and discuss relevant information they give us.

Subsequently we will give significance levels to the variables seen to have bigger relevance in each model.

Based on the sample used to conduct our study, the variables take on the following values:

Table 4.1.1. Summary Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Dividend Yield	227	0,0321211	0,0371457	0	0,2245
Payout	227	0,4342137	0,4788228	0	2,81
C1	227	3,687225	0,5517188	2	5
C2	227	3,264317	0,5804369	2	4
C3	227	2,757709	0,6574085	1	4
C4	227	3,911894	1,121468	1	5
C5	227	3,726872	0,5607599	2	5
C6	227	3,629956	0,8062705	2	5
C7	227	3,651982	0,6005403	2	5
C8	227	3,502203	0,5011001	3	4
C9	227	3,145374	0,9173901	1	5
C10	227	3,295154	0,6283307	2	4
PayYN	227	0,6299559	0,4838832	0	1

CI_nov	227	-3,974449	17,15147	-67,4	17,2
CI_dez	227	-3,47533	16,38813	-64,5	16,3
CI_jan	227	-2,793392	16,26091	-64	18,6
CI_fev	227	-2,979736	15,34482	-60,9	15

Apart from the control variables mentioned in 3.2.2. there are five additional independent variables we used to conduct our study. They are PayYN which consists of a binary variable that takes the value 1 if a company has paid dividends in a year and the value 0 if they have not paid dividends in said period of time.

The variables CI_nov, CI_dez, CI_jan and CI_fev represent the variables we extracted from the European Commission's Economic Sentiment Indicator survey for the last 2 months of each year and the first two months of the following year. We decided to take into account the results seen in these months due to the fact they are the months in which biggest decisions tend to be made and the ones where more discrepant results can be seen.

4.2 Linear Model with Panel data

Table 4.1, taking Dividend Payout as independent variable, gives us information regarding the main contributors for a company to increase their dividend payout. With an r-squared value of .5537, over half of the observer variation can be explained by the inputs we inserted in our model, thus being considered a high r-squared value given the number of variables considered and the number of observations.

We can observe some variables with statistical significance levels, some of them even reaching the 1% significance level, meaning almost perfect correlation. The most significant variables were "PSI20" at 1% significance level, i.e., if a Portuguese company is listed in the PSI20 Index they will have a higher dividend payout than non-listed companies, and we also found that year effects sometimes were a determinant factor whether a company had higher dividend payouts, namely in the year 2014 in which the variable reached a very solid level of confidence. One possible explanation is the fact Portugal had already passed the most difficult years of economic recession and in 2014, precisely the year Troika left the country, managers were starting to get more confident in future economic growth.

Table 4.2.1 Dividend Payout Regression

Dividend Payout	**Obs**	**Coef.**	**Standard-deviation**	**Error**	**'z'**	**P>|z|**
PSI20	227	0.5723069	.091773	6.24	0.000***	.3924351
C1	227	0.0501877	.0526668	0.95	0.341	-.0530373
C2	227	-.0315771	.0482249	-0.65	0.513	-.1260962
C3	227	-0.033697	.041977	-0.80	0.422	-.1159703
C4	227	0.0430892	.0349967	1.23	0.218	-.0255031
C5	227	-0.0124366	.0468768	-0.27	0.791	-.1043135
C6	227	0.0200573	.0386499	0.52	0.604	-.0556951
C7	227	0.0052362	.0418593	0.13	0.900	-.0768065
C8	227	-0.0298362	.048956	-0.61	0.542	-.1257881
C9	227	-.0372147	.0347661	-1.07	0.284	-.1053551
C10	227	.0193576	.0460463	0.42	0.674	-.0708915
FY2012	227	.0652779	.1709371	0.38	0.703	-.2697527
FY2013	227	.0491174	.1325371	0.37	0.711	-.2106505
FY2014	227	.2301712	.1035497	2.22	0.026**	.0272176
FY2015	227	.1662828	.0914119	1.82	0.069*	-.0128813
FY2016	227	.0587671	.1206851	0.49	0.626	-.1777713
FY2017	227	.168061	.0983945	1.71	0.088*	-.0247887
FY2018	227	.1573967	.1202997	1.31	0.191	-.0783864
CI_nov	227	-.0131682	.0140559	-0.94	0.349	-.0407171
CI_dez	227	-.0370383	.0207999	-1.78	0.075*	-.0778053
CI_jan	227	.0182383	.0158181	1.15	0.249	-.0127646
CI_fev	227	.032441	.0218777	1.48	0.138	-.0104385
_cons	227	-.0797596	.4682433	-0.17	0.865	-.9974996
	means 10% statistical significance, ** 5% significance and *** 1% significance					

Table 4.2.2 Dividend Yield Regression

Dividend Yield	**Obs**	**Coef.**	**Standard-deviation**	**Error**	**z**	**P>|z|**
PSI20	227	.0272255	.0077494	3.51	0.000***	.0120371
C1	227	.0044997	.0047494	0.95	0.343	-.0048089
C2	227	-.0070055	.0043553	-1.61	0.108	-.0155418
C3	227	.0033933	.0037822	0.90	0.370	-.0040198
C4	227	.0036317	.0031359	1.16	0.247	-.0025145
C5	227	.0020643	.0042241	0.49	0.625	-.0062148
C6	227	-.0023974	.0034769	-0.69	0.490	-.009212
C7	227	-.001175	.003771	-0.31	0.755	-.0085661
C8	227	-.0093774	.0044188	-2.12	0.034**	-.018038
C9	227	-.0034702	.0031314	-1.11	0.268	-.0096077
C10	227	-.0000505	.004152	-0.01	0.990	-.0081882
FY2012	227	.0293127	.0153828	1.91	0.057*	-.000837
FY2013	227	.0201724	.0119896	1.68	0.092*	-.0033267
FY2014	227	.0268041	.0093687	2.86	0.004***	.0084419
FY2015	227	.0251548	.0082746	3.04	0.002***	.008937
FY2016	227	.0191578	.0109105	1.76	0.079*	-.0022264
FY2017	227	.0172242	.0089096	1.93	0.053*	-.0002383
FY2018	227	.0192916	.0108838	1.77	0.076*	-.0020402
CI_nov	227	.0009196	.0012719	0.72	0.470	-.0015732
CI_dez	227	-.0036622	.0018776	-1.95	0.051*	-.0073422
CI_jan	227	.0011535	.0014273	0.81	0.419	-.001644
CI_fev	227	.001892	.0019755	0.96	0.338	-.00198
_cons	227	.0287278	.0420361	0.68	0.494	-.0536616
means 10% statistical significance, ** 5% significance and *** 1% significance						

In accordance with what we have observed in Dividend Payout regression, the independent variable, belonging to the PSI20 Index also has perfect correlation in case of using Dividend Yield as independent variable, being statistically significant at 1% level. Also reaching a significance level of 1% we found the years “FY2014” and “FY2015”. The most plausible

explanation is the same as before, in 2014 Troika left Portugal, bringing managers more trust in future economic growth, and 2015 was the year where that economic growth materialised and confidence indexes for both managers and consumers skyrocketed for the first time since the beginning of the 2008 crisis, making companies more susceptible of distributing dividends.

This model also shows the variable C8 with statistical significance at 5% level, but with a negative coefficient. Variable C8 is a proxy for managers expectations on sales volumes. If they expect a drop in sales, then C8 value will be lower whereas if an increase in sales is expected, variable C8 will exhibit a higher value. For the estimated coefficient being negative, we can interpret, that managers are more likely to make decisions of increasing dividend payouts if they think their company's sales levels will drop. While this may seem peculiar it can be explained by the fact that during the years of more severe economic downfall (mainly 2012 and 2013) managers expected their sales volume to decrease, also causing a decrease in firm value. At the same time, they did not want to risk losing so many investors. Given that confidence levels were so low at the time, managers had to have something to give their investors in order to convince them to keep their investments in their companies intact, thus continuing to distribute dividends, sometimes maintaining dividend yields at roughly the same levels.

Additionally, we also estimated a third regression against a binary variable named PayYN to determine which variables influence the decision of distributing dividends and which are not. In this model the coefficient gives us an idea of how much each variable weighs in the probability of a company to distribute dividends.

The as the same independent variables and year dummies.

Additionally, we also estimated a third regression against a binary variable named PayYN to determine which variables influence the decision of distributing dividends and which are not. The logit model (equation 3.2) gives us an estimation regarding the contribution of each variable weighs in the probability of a company to distribute dividends.

$$D_{it} = \frac{1}{1 + exp\left[-\left(\alpha + \sum_{j=1}^{J} \beta_j \cdot X_{jit} + \varepsilon_{it}\right)\right]} \tag{3.2}$$

D_{it} is a binary variable denoting dividend payer (1 = payer; 0 = no payer) for firm *i*, X_{it} is a matrix of explanatory variables for such firm at year *t*.

Table 4.2.3 Logit Regression for payers and non-dividend payers

PayYN	Obs	Coef.	Standard-deviation	Error	z	P>|z|
PSI20	106	19.17318	2869.475	0.01	0.995	-5604.895
C1	106	-.8520546	.905025	-0.94	0.346	-2.625871
C2	106	-.6232271	.75727	-0.82	0.411	-2.107449
C3	106	.8552185	.848213	1.01	0.313	-.8072483
C4	106	.4058842	.7413441	0.55	0.584	-1.047124
C5	106	1.069112	.867406	1.23	0.218	-.6309722
C6	106	.1467121	.6213523	0.24	0.813	-1.071116
C7	106	.3437145	.688955	0.50	0.618	-1.006612
C8	106	-.7976227	1.003642	-0.79	0.427	-2.764724
C9	106	-1.705189	.7304897	-2.33	0.020**	-3.136922
C10	106	-1.102969	.8501902	-1.30	0.195	-2.769311
FY2012	106	6.151569	4.156471	1.48	0.139	-1.994965
FY2013	106	3.63325	2.620411	1.39	0.166	-1.502662
FY2014	106	7.247739	2.683778	2.70	0.007***	1.987631
FY2015	106	6.804509	2.265765	3.00	0.003***	2.363692
FY2016	106	.4831674	2.951318	0.16	0.870	-5.301309
FY2017	106	3.350222	1.623718	2.06	0.039**	.1677939
FY2018	106	2.640418	2.430096	1.09	0.277	-2.122483
CI_nov	106	-.137963	.2691778	-0.51	0.608	-.6655418
CI_dez	106	-.773704	.4452645	-1.74	0.082*	-1.646406
CI_jan	106	-.0247423	.3168008	-0.08	0.938	-.6456604
CI_fev	106	1.050989	.6544264	1.61	0.108	-.2316636
means 10% statistical significance, ** 5% significance and *** 1% significance						

Table 4.3 presents a firm fixed effects regression and the results are similar to the ones seen previously in the other two models, especially on the year-effect variables. The years 2014 and 2015 were the ones in which non-payer firms had tendency to distribute dividends, boosted by the fact that the country had finally overcome the more difficult years of the financial crisis and confidence was returning to the markets, both on the managers and investors point of view.

As can be seen, in the Logit regression the number of observations has drastically decreased from the other two models. This can be explained by the fact that "PayYN" is a binary variable, which takes the value of 1 when companies pay dividends and the value 0 when they do not. Given that a fixed effects logit regression is not applicable whenever a dependent variable doesn't change, taking the value of 0 or 1 during the period of time..

Other relevant result observed in table 4.3 points that the variable C9" has statistical significance at 5% level, making it a highly statistically relevant variable in our model. On the other hand, C9, just like C8 variable on the previous model, has a negative coefficient. In fact, the results for C9 are the unexpected considering the variable definition. Thus, the sign for variable C9 shows that managers are more likely to decide dividend distribution when they expect to face lower investments made by their closest competitors. This decision may be partly explained by a change in managers' behaviour when facing fiercer competition. Instead of a cost containment policy they see the only way of possibly competing against high investment companies is by making investments themselves and trying not to lose current investors who might want to start investing in their closest competitors, therefore, not only they do not tend to change their dividend policies in these situations to a reduction in dividend distribution, but they also even tend to increase them.

5 – CONCLUSIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE INVESTIGATION

Trying to determine whether certain manager sentiment variables, even if they are obtained based on disclosed and expressed in firm's reports, have a significant effect and correlation on the decision to change dividend policy throughout the years.

In this essay we created several variables considered to be stable given that they were determined based on every company's yearly earnings report, under the assumption that managers always tell the whole truth and always expose full information on earning reports, not hiding anything from the investors.

All existing empirical information, which we used as a basis and as a motivation to write this report, had shown that in previous decades. Throughout times we had different economists and financial experts writing papers on dividend policy, everyone with different opinions but all of them being well grounded. Some examples of this circumstance are the first studies in the area, from Lintner (1956) and Modigliani and Miller (1961). Lintner, after interviewing some of America's biggest firms' managers, believed that both manager sentiment had impact on future dividend policy and previous dividend policy had impact on managers' earnings expectations. On the other hand, Modigliani and Miller believed that only the company's investment strategy was able to create revenues and generate higher expectations for the investors, with any dividend policy in which the company undertook being completely irrelevant to investors' willingness to invest their money in those companies. The authors also stated that investors would either reinvest the surplus into buying more shares of any company or sell some of their previously owned shares, depending on if they thought dividend payouts were, respectively, too high, or too low.

This example explains our own line of thought. If some of the biggest authors in the area which, to this day, are some of the biggest inspirations to anyone who wants to conduct any new analysis or try to refine some of the already existing work, can have such different opinions on the same matters, it would be impossible for us to exactly determine which sentimental variables had the biggest impact at the dividend policy decision-making time. In spite of this we believe this piece of work allowed us to have a slight idea of the correlation existing between increasing dividend distribution when seen a tendency for a company's

closest competitors to conduct more and higher value investment projects. At least in Portuguese companies between 2012 and 2019, this fact was easily observable.

Unfortunately, our investigation has some limitations at various levels, especially the independent and control variables:

Every control variable used to conduct the study was determined based on our own interpretation of the information given by the managers on the yearly earnings report. Even though this information is trustworthy and well representative of what managers are truly believing at the time of writing the report, our interpretation will tend to differ, even if by a small margin. For this reason, we might have given certain out of step with reality levels to some of the variables.

The results of the Economic Sentiment Index study conducted by the European Commission (EC) were achieved via a series of surveys made to some of the biggest companies in every country focusing on the 4 main sectors of economic activity in the union, which were: industry, services, retail trade and construction. For Portugal the companies who are most likely to have been surveyed are the PSI20 companies, while others in Euronext Lisbon probably were not subject to these surveys. Given that we used data from both PSI20 and non-PSI20 companies, using the European Commission's Economic Sentiment Index results for all companies is a small weakness our model has that we were not able to overcome in any moment.

For future investigations, the main goal will be to try to find even more reliable control variables, preferably variables that do not require the writer's own interpretation of data given by a third party.

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