Financial Reporting Quality Impact on the Firm's Capital Structure

Master's Degree in International Business

Carolina Pereira Reis

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Dissertation under the supervision of Professor Inês Margarida Cadima Lisboa and Professor Magali Pedro Costa.

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Originality and Copyright

This dissertation is original, made only for this purpose, and all authors whose studies and publications were used to complete it are duly acknowledged.

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Abstract

Past literature on capital structure has demonstrated that firms' financing decisions play a crucial role in their performance and longevity. Accordingly, researchers have often addressed this subject to understand why firms opt for either debt or equity financing. Most research suggests that capital structure is predominantly determined by two elements: the firms' internal and external characteristics. In this study, we investigate the possible impact of the quality of financial information that has been frequently neglected. Since financial reports are the principal basis for most financial decisions, their quality and information heavily influence capital structure choices. However, some managers have been known to resort to earnings management practices during times of financial hardship, to conceal difficulties and maintain a facade of growth and stability for stakeholders. Such practices compromise the quality of financial information, possibly hindering financial decisions. Therefore, this study aims to investigate the potential impact of financial reporting quality on firms' capital structure. Our hypothesis is tested using an unbalanced panel sample of 414 firms from four European stock exchanges between 2013 and 2022. To evaluate capital structure, we employ total and maturity debt ratios, based on book and market values, to achieve a more comprehensive result. Financial reporting quality is also evaluated through multiple proxies, such as accruals quality, smoothness, timeliness, and accounting conservatism. Our empirical regressions were estimated through the fixed effects and the OLS models. The global analysis revealed mixed findings, with three variables of financial reporting quality exhibiting a positive impact on debt (accruals quality, smoothness, and accounting conservatism), while the remaining proxy presented a negative impact (timeliness). Further analysis also indicates that companies affected by Troika policies experienced a contrasting effect of timeliness on debt, while the other firms displayed results consistent with the global analysis. Moreover, both firm-specific and macroeconomic factors exhibited substantial statistical significance in influencing debt in all the estimated models. These conclusions broaden our knowledge on factors that define capital structure, as well as the relevance of financial reporting.

Keywords: Capital Structure, Financial Reporting Quality, Listed Companies, European Countries, Troika.

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List of Abbreviations and Acronyms

ADR	Accounting-based Debt Ratio
ALTDR	Accounting-based Long-term Debt Ratio
ASTDR	Accounting-based Short-term Debt Ratio
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciations, and Amortizations
FASB	Financial Accounting Standards Board
GDP	Gross Domestic Product
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
MDR	Market-based Debt Ratio
MLTDR	Market-based Long-term Debt Ratio
MSTDR	Market-based Short-term Debt Ratio
OLS	Ordinary Least Squares
R&D	Research and Development
ROA	Return on Assets
ROE	Return on Equity
SME	Small and Medium Enterprise
VIF	Variance Influence Factors
WACC	Weighted Average Cost of Capital

1. Introduction

Capital structure, also known as financial framework, refers to the combination of debt and equity that companies utilise to fund their operations (Frank & Goyal, 2009; Gitman & Zutter, 2012; Danso et al., 2020; Shazad et al., 2020). Due to the associated implications (e.g., cost of capital), understanding why firms favour equity or debt over the other is of great importance (Graham & Leary, 2011).

Over the past seventy years, a significant amount of literature has been published on the topic of capital structure (e.g., Durand, 1952; Modigliani & Miller, 1958; Modigliani & Miller, 1963; Jensen & Meckling, 1976; Myers, 1984; Myers & Majluf, 1984; Booth et al., 2001; Baker & Wurgler, 2002; Frank & Goyal, 2009; Danso et al., 2020; D'Amato, 2020; Shazad et al., 2020). However, researchers have struggled to adequately explain the reasoning behind financing decisions because of the inconsistent results obtained (Myers, 1984; Graham & Leary, 2011). Discrepancies have also been found when comparing information sourced from book and market values (Titman & Wessels, 1988; Jermias, 2008), further limiting possible generalizations. Nonetheless, it should be acknowledged that each developed theory has enhanced our comprehension of capital structure to some degree, even if they are unable to provide a complete explanation (Durand, 1952; Graham & Leary, 2011).

Additionally, it is crucial to note that a major part of capital structure is shaped not by companies' financing preferences, but by their characteristics (Frank & Goyal, 2009). Lenders consider factors such as age, size, profitability, among other firm traits to determine the creditworthiness of a company (Frank & Goyal, 2009; D'Amato, 2020). Besides, the company's ability to raise additional capital can be greatly influenced by external factors such as the financial condition of the industry or the country, as well as the prevailing government policies (Frank & Goyal, 2009; Graham & Leary, 2011).

Financial reports serve as the cornerstone for internal decision-making and to publicize pertinent information about the company to stakeholders, making them an indispensable component of companies (Cascino et al., 2014; Tran, 2022). It is therefore reasonable to assume that financial reports influence the company's capital structure, as managers utilize this data to determine whether to issue more debt or equity (Leuz & Verrecchia, 2005).

Since financial reports are significant to both the company and the stakeholders, they should present a precise, reliable, and valuable representation of the company's financial state (Gaio & Raposo, 2014; Costa et al., 2022). If financial reports do not fulfil these criteria, they will lose their value as decision-making will be based on inaccurate conclusions, resulting in management inefficiencies, and stakeholders will have a faulty perception of the company (Huynh, 2019; Ashraf et al., 2020; Costa et al., 2022). Still, there are instances when managers intentionally sacrifice the accuracy of financial reports to conceal difficulties and to prevent any disruption in negotiations with third parties (DeFond and Park, 1997). Therefore, the aim of this dissertation is to better comprehend the potential impact of financial reporting quality on capital structure.

For the purpose of our research, we assembled a sample of non-financial firms listed on the main stock exchanges of Portugal, Italy, Greece, and Spain; this is, the PSI, the FTSE/MIB, the FTSE/ATHEX, and the IBEX 35. After removing financial firms and those with insufficient data, our final sample compiled observations from 414 companies over the period between 2013 and 2022. All the data regarding the observed companies was obtained from the Orbis database, with further data on macroeconomic variables being sourced from Eurostat. To obtain our findings, we utilised an unbalanced panel data methodology on our sample and estimated the regressions using both fixed effects and Ordinary Least Squares (OLS) models.

Capital structure is measured through six different proxies: the total debt ratio, the short-term debt ratio, and the long-term debt ratio based on both accounting and market values. We apply all these measures to gain a more comprehensive understanding of the capital structure and its influencing factors. To assess the quality of financial reporting, we employed four measures, namely, accruals quality, smoothness, timeliness, and accounting conservatism. Prior research has predominantly focused on accruals quality (or earnings management), with smoothness and accounting conservatism being acknowledged to a lesser extent. However, as far as we are aware, no assessment has been made on the effect of timeliness on debt. Our goal is to enhance the understanding of the relationship between financial reporting quality and capital structure, by utilizing various proxies that address different aspects of reporting quality. Finally, to ensure consistency and accuracy among the findings, firm-specific and macroeconomic variables were incorporated into the empirical models. The firm-specific factors, included to mitigate the differences between the analysed companies, consist of age, size, assets' collateral value, profitability, and market-to-book

value. To decrease macroeconomic disparities, we added inflation and gross domestic product (GDP) per capita to the empirical model. Besides the global analysis, our research also investigates two subsamples to understand the differences between firms that were under the influence of Troika policies and those that were not.

This study makes a significant contribution to the existing literature. First, it examines additional determinants of the capital structure ratio, as financial reporting quality proxies are frequently overlooked, as well as the impact of the proxy timeliness which has not previously been addressed. Second, it enhances the understanding of financial reporting quality and its importance by demonstrating its impact on other financial aspects of the company. Third, it extends the scope of previous research by investigating four economies that are often neglected. Lastly, it improves our understanding on how reformative measures impact companies. Therefore, this dissertation aims to provide generalizable conclusions that can be applied to other samples and generate informative insights for the stakeholders of the examined firms.

This research is structured as follows: Section 2 presents a literature review of capital structure, financial reporting quality, as well as the past research on the correlation between both subjects. Section 3 details the methodology employed in this research, including the sample, variables, and the procedure to obtain the empirical models. Subsequently, section 4 presents and discusses the findings. Finally, the dissertation concludes with section 5, presenting the overall conclusion and covering limitations and possible future research.

2. Literature Review

2.1. Capital Structure

2.1.1. Concept and Relevance

Corporate capital structure can be defined as the financial framework of a company, and it is widely known for being one of its critical aspects (Ahmed & Hla, 2018; Alexandridis & Hasan, 2019; Danso et al., 2020). It is defined as the combination of equity and debt used by companies to finance their assets (Frank & Goyal, 2009; Gitman & Zutter, 2012; Shazad et al., 2020). Impetuous financial decisions can imply severe consequences for the company, limiting its access to third parties' capital or even leaving the firm on the bankruptcy lane (Danso et al., 2020).

Even though this topic is of massive importance and has been empirically approached an impressive number of times throughout the last seventy years (e.g., Durand, 1952; Modigliani & Miller, 1958; Modigliani & Miller, 1963; Jensen & Meckling, 1976; Myers, 1984; Myers & Majluf, 1984; Booth et al., 2001; Baker & Wurgler, 2002; Frank & Goyal, 2009; Danso et al., 2020; D'Amato, 2020; Shazad et al., 2020), there is an evident lack of consensus regarding the actual essence of capital structure. Besides, the several theories developed in an attempt to better explain this topic, offer divergent reasonings and perspectives, further strengthening the disagreement (Graham & Leary, 2011).

In 1984, Myers started his infamous paper *The Capital Structure Puzzle* by mentioning that, in reality, we have no idea of how companies choose their capital structure. Nowadays, nearly four decades later, it is indisputable that subsequent research brought up several new and relevant perspectives (DeAngelo, 2022) and has broadened our understanding of the matter. However, "(...) it is still not clear what it all adds up to." (Graham & Leary, 2011, p. 40).

2.1.2. Theories

Durand (1952, p. 215) stated that "(…) a good theory should enable us to understand [capital structure] problems much better, even if does not dimmish them appreciably."

Therefore, even if a proposed approach is unable to fully explain a firm's capital structure, it is still relevant if it can help clarify the discrepancy between different capital structures (Graham & Leary, 2011).

Traditional Theory (1952)

Durand (1952) highlights two methods of capitalizing earnings: the net income approach and the net operating income approach, which can also be labelled as the traditional theory, the first attempt at hypothesizing capital structure.

The net income approach was established upon three assumptions: debt is cheaper than equity, there are no corporate taxes, and the investors' perception of risk does not change depending on the debt-to-equity ratio (Durand, 1952). This method defends that companies can maximize their value by opting to finance themselves with a mix of equity and borrowed capital. Until the company reaches a debt-to-equity ratio perceived as risky by lenders, the cost of debt will be stable and lower than the equity cost, which will decrease the weighted average cost of capital (WACC) increasing the company's value as a consequence (Durand, 1952).

Contrariwise, the net operating income method bases itself on three different beliefs: the cost of capital is constantly equal, the value of equity (the firm's value minus the debt value) is residual, and the shareholders' expectations are positively related to the debt value. Therefore, considering that the cost of equity and debt is equal, the degree of leverage has no impact on the WACC and no impact on the value of the firm (Durand, 1952).

While the net income approach focuses on a model structure that will maximize the firm's value at its optimal efficiency point, the net operating income method claims that the capital structure has no actual impact on it (Durand, 1952).

Modigliani and Miller's Propositions (1958, 1963)

Parallel to Durand (1952), Modigliani and Miller's 1958 propositions were based on a significant number of assumptions (e.g., the tax rate, transaction, and floatation costs are equal to zero; no corporate dividend tax; and no information asymmetry between investors

and companies) defended as crucial to understand such a complex topic (Modigliani & Miller, 1958).

1958's Proposition I states that the market value of a company and its financial structure are not correlated (Modigliani & Miller, 1958). Instead, Modigliani and Miller (1958) suggest that it depends on underlying assets and future profits. In addition, Proposition II argues that increasing debt increases the expected return and the perceived risk of equity shareholders, which implies that the equity cost will increase accordingly being directly proportional to the company's leverage (Modigliani & Miller, 1958). As a result, and given that the WACC in this scenario is simply the combination of the debt and equity costs, it is always constant because the increase in the equity cost immediately neutralizes the benefit of having access to cheaper debt. Therefore, opting for debt over equity does not generate any extra value.

However, in 1963, Modigliani and Miller re-wrote the propositions acknowledging taxes' existence and their impact on the cost of capital. Since the improved model recognizes debt's cost as a deductible expense, debt becomes cheaper than equity generating tax savings and increasing the firm's market value, altering Proposition I's conclusion (Modigliani and Miller, 1963). Accordingly, the WACC decreases and firms benefit from using debt instead of equity. Despite this significant adjustment, Proposition II remains unaffected as the equity shareholders still expect higher returns and risks when the percentage of debt financing increases, which ultimately raises the equity cost.

Modigliani and Miller's propositions were revolutionary and unleashed significant economic theory development (Stern & Chew, 2003), but researchers also pointed out its limitations. Stiglitz (1969) stated five notable limitations of Modigliani and Miller's propositions: highly dependent on risk classes, the use of risk classes corrupted the possible outcomes, the analysis' foundation is on partial equilibrium instead of general, no specifications regarding the study's target market, and bankruptcy is repeatedly overlooked. As a result, even if the suggested propositions are theoretically appealing, the conditions which compose its core drift far from reality, indicating that they can hardly explain actual financing decisions.

Trade-Off Theory (1973)

Based on Durand's 1952 theory and Modigliani and Miller's 1963 propositions (Shahzad et al., 2020), appears the trade-off theory which proposes that each and every company has an optimal financing mix (Myers, 1977). This equilibrium is achieved when the marginal benefits and costs of debt are balanced, with the costs of bankruptcy being compensated by the fiscal benefits (DeAngelo & Masulis, 1980; D'Amato, 2020; Myers, 1977).

Debt can be understood as the capital owed by a company to a third party, and while debt is well known for its risks, it is often overlooked for its advantages. The ponderation between these two contrasting aspects is the basis of this approach (Kraus & Litzenberger, 1973).

The reliance on debt as a capital source entails strict costs and repayment deadlines (Sun & Xia, 2021). Failure to comply with these deadlines may result in bankruptcy costs (e.g., penalties and additional fees) that were not considered beforehand. Therefore, managers who opt for this resource must responsibly manage the company and steer it towards an increase in profits that justifies its use since an ill-considered action "(…) can have profound implications on the cost of capital, the degree of risk and the performance of a firm." (Danso et al., 2020, p. 3). Nonetheless, it is important to note that debt repayments are considered a tax-deductible expense, which reduces the company's taxable income, and yields fiscal savings.

The trade-off theory has been responsible for many relevant insights on leverage patterns, but it is often discussed that it struggles to justify common financial behaviour, and consequently, fails at providing practical guidance (Myers, 1993). Furthermore, it is evident that this theory mainly focuses on the capital flowing out of the firm, disregarding funding, an important piece of a company's financial structure (DeAngelo, 2022).

Agency Theory (1976)

In 1976, Jensen and Meckling brought to attention another relevant aspect of borrowing capital: how it disciplines the company's agents. In their belief, an agency relationship is a deal between two (or more) individuals in which the agent agrees to perform a task on the principal's behalf (Jensen & Meckling, 1976). These relationships take place between any and all agents belonging to or involved in the company's activities (e.g., shareholders, lenders, managers, owners, and employees).

This agreement does not ensure that the agent will always act in the principal's best interest. Consequently, principals have to reduce the possibility of divergence by designing methods to limit activities out of order and offering the agent reasons to follow their guidance (e.g., audits, incentives). These expenses are often labelled as monitoring costs and are one of the three components of agency costs. Bonding costs, the second element, are the costs incurred by managers to reduce agency conflicts and reassure the principal that they are acting in their best interest. However, there is no guarantee that the agent's decisions will always be in the best interests of the principal. Nor is it possible to guarantee that the agent will never act in his own interest, given that the agent and the principal may disagree with some frequency. Consequently, the third component of agency costs, the residual loss, is the monetary equivalent of the principal's interests not being maximised because the agent's interests were given priority (Jensen & Meckling, 1976).

Jensen (1986) also argued that the existence of free cash flow repeatedly provoked increased agency costs; the term free cash flow stands for the capital remaining after subtracting all the required funds for projects and expenses, and it can be used to fund additional projects, repurchase stock, or share between shareholders as part of a larger dividend (Jensen, 1986). Shareholders are often more interested in the last solution as it represents a higher return on their investment. However, maintaining this capital inside the company is beneficial for managers as it expands the company resources, decreasing the need for external capital. It also suggests company growth, which is often linked to better compensations (e.g., promotions and salary increases) (Murphy, 1985; Jensen, 1986). Therefore, to avoid losing this capital, managers would rather invest it in low-return projects (Jensen, 1986).

According to Jensen (1986), debt can be a useful tool in minimizing this problem. With the issuance of debt, a new pressure arises surrounding the manager to maximize the company's profitability to not only cover the usual expenses, but also the debt costs. As Jensen stated (1986, p. 325), "(…) debt service payments serve as an effective motivating force to make (…) organizations more efficient." More often than not, the repayment terms of a debt are settled before the capital exchange takes place and the company obtaining the funds is already aware of the amount and frequency with which they will be repaying the lending party. Consequently, the need to meet reimbursement deadlines forces managers to prioritize the maximization of profits to avoid financial distress. In this scenario, spending money on an unpromising project to retain free cash flow is no longer an option as the firm needs available capital to repay the loan.

Relationship-wise, the use of debt as a financial source reduces the conflicts between managers and shareholders since both have as their priority the maximization of the company's profits. However, the same cannot be said for the one between shareholders and debt holders (Stulz, 1990; Frank & Goyal, 2009). Since their priorities diverge, the connection deteriorates, generating tough negotiations and increasing agency costs.

Scholars have praised this theory for its approach to capital structure, but they have also pointed out its flaws. Bohren (1998) indicated that this theory assumes that agents will be opportunistic at any given chance, and even if there is no way to ensure that they will always act in the principal's best interest, there is no way to prove the opposite either.

Pecking Order Theory (1984)

In the pecking order theory, first established by Myers and Majluf in 1984 and later expanded by many other researchers, the focus is on market deficiencies and there is no optimal ratio being targeted (Booth et al., 2001). Instead, this approach is known for its particular order of preference when raising new capital (Myers 1984; Myers & Majluf, 1984).

As early as 1961, Donaldson stated (1961, p. 67) that "Management strongly favoured internal generation as a source of new funds even to the exclusion of external funds except for occasional unavoidable 'bulges' in the need for funds." The observation made by the author is essentially the baseline for what was later articulated by Myers (1984) as the pecking order theory.

According to this approach, companies prioritize the use of internal funds to finance their investments, avoiding the imbalance provoked by information asymmetry when dealing with a third party (Frank & Goyal, 2009). Information asymmetry is an anomaly that can be defined as the inequality between two, or more, negotiating parties concerning meaningful information about the matter under discussion; and negotiation-wise, both managers and investors are aware that they do not share the same level of knowledge regarding the accurate value of a company's asset (Myers & Majluf, 1984). In case the internal capital is not sufficient, companies resort to external funds. Considering that it is safer to avoid risky tools, firms will first opt for using debt (giving preference first to secure debt and only then to risky debt) and will only issue new equity when no other option is available (Myers, 1984; Myers & Majluf, 1984).

Often labelled as funds' hierarchy, this preference companies display when choosing new capital is highly motivated by information asymmetry (Myers & Majluf, 1984), one of the many outcomes of market imperfections. As a consequence, sellers have the opportunity to trade their assets at an overvalued price, unduly profiting off the buyer and increasing their expenses. Consequently, the value additionally spent due to information imbalance is termed as asymmetry costs (Myers & Majluf, 1984).

As with all the remaining theories, multiple researchers have addressed the shortcomings of this approach. Myers (2001, p. 93) stated that while the theory "(…) explains why the bulk of external financing comes from debt (…)", it was also built on multiple assumptions which would explain why it is prone to work better under some conditions than others; thoughts further corroborated by Graham and Leary (2011).

Market Timing Theory (2002)

In 2002, Baker and Wurgler developed the market timing theory. This approach proposes that "(…) managers can increase current shareholders' wealth by timing the issue of securities." (Ater, 2017, p. 81). Consequently, the market timing theory only aims to help understand the capital structure of listed companies, as it is directly connected to stock price fluctuation.

Firms wisely choose when to issue or repurchase equity as opting for the right moment boosts the company's value (Baker & Wurgler, 2002). Accordingly, they also decide to issue equity when their market value is perceived as high, and when the opposite scenario occurs, companies repurchase said shares by a lower value. This scenario is a consequence of market inefficiencies (e.g., information asymmetry) and it results in a significant advantage for long-term shareholders, although it sacrifices the remaining ones (Baker & Wurgler, 2002).

According to Allini et al. (2018), the market timing approach rose from the permutation of a firm's financial characteristics and the impact market flaws have on it. As managers time their decisions according to the market, the firm's capital structure arises as an outcome of multiple market scenarios, becoming the aftermath of all the occurrences (Baker & Wurgler, 2002).

It is also necessary to mention that this theory heavily relies on the managers' belief in their capacity to time the market (Baker & Wurgler, 2002). However, this premise does not automatically mean that managers are able to correctly estimate the market value of the company's shares and evaluate the outcomes of all possible financing decisions (DeAngelo, 2022); this opens a gap for misinterpretations that may lead to losses instead of the expected gains.

2.1.3. Proxies of Capital Structure

Capital structure proxies are measures used by researchers to analyse a company's degree of indebtedness.

Literature on this subject divides capital structure measures into two groups: accounting-based and market-based proxies (Titman & Wessels, 1988; Jermias, 2008). In accounting-based proxies, indebtedness is measured by the book value of items, that is subject to unstandardized accounting and tax policies and only reflects past financial events, making these indicators more susceptible to manipulation. As a consequence, accounting-based proxies neglect investment-oriented companies whose future economic prospects are disregarded, valuing them incorrectly (Jermias, 2008). Conversely, the autonomy from the market highlights these proxies' main advantage, its applicability to all companies.

On the other hand, and given that market value corresponds to the market capitalization of a publicly traded company, indicators based on market data are only applicable to listed companies. As a result of the stock exchange policies imposed on these businesses, this data is easier to analyse and compare because it is subject to a group of well-defined and publicly available accounting principles. Since market-based data incorporates external information, it decreases the likelihood of manipulation (Merchant & Van der Stade, 2007) while simultaneously integrating stakeholders' expectations, which, according to O'Brien (2003), allows for a more accurate assessment of the firm's indebtedness. Accordingly, several researchers (e.g., Ahmed & Hla, 2018; Ahmed, 2019; Bernardo et al., 2018; Mogha & Williams, 2021) have chosen to incorporate market data into their work as a means of diversification.

Given that equity and debt, the two components of capital structure, carry different costs and risks, the total debt ratio is a crucial source of information for stakeholders, as it is important to understand the proportion of assets financed by external capital. Following Michaelas et al. (1999), Sogorb-Mira (2005), Palacín-Sánchez et al. (2013), Daskalakis et al. (2017), Shazad et al. (2020), D'Amato (2020), among others, the total debt ratio is calculated by dividing company i's total debt (D) by its total assets (TA) in period t (Equation 1). Its output is equal to the debt percentage of company i.

$$Debt_{i,t} = \frac{D_{i,t}}{TA_{i,t}} \quad (1)$$

In order to gain a better understanding of the various effects of leverage on the company, researchers also analyse debt maturity. According to Van der Wijst and Thurik (1993), Chittenden et al. (1996), Barclay and Smith (1999), and Bevan and Danbolt (2000a), among others, the exclusive use of the total debt ratio in the analysis of corporate leverage can conceal key countervailing effects of short-term and long-term debt on some of the explanatory variables. For this reason, researchers decompose their analysis of corporate leverage. Short-term debt, or current liabilities, corresponds to the amount of capital owed by the company that is due in less than one year (e.g., bank overdraft, debt repayable within one year, unearned revenues, goods or service warranties), while long-term debt, or non-current liabilities, refers to the remainder of the borrowed capital, due in periods longer than one year (e.g., long-term bank loans, directors' loans, leasing obligations) (Hall et al., 2004).

These proxies, often used by researchers cumulatively to the total debt ratio (e.g., Palacín-Sánchez et al., 2013; Daskalakis et al., 2017; Shazad et al., 2020; Adhikari et al., 2020; D'Amato, 2020), are calculated by dividing the company i's short-term debt (STD) by its total assets (TA) (Equation 2) and its long-term debt (LTD) by its total assets (TA) (Equation 3) in the period t, respectively.

$$STD_{i,t} = \frac{STD_{i,t}}{TA_{i,t}} \quad (2)$$

$$LTD_{i,t} = \frac{LTD_{i,t}}{TA_{i,t}} \quad (3)$$

Studying these ratios can provide valuable information concerning the company's financial situation since they assess the ability of company i to meet its financial obligations; the first ratio in the near future and the other in the remaining period (Handoo & Sharma, 2014).

Although the debt-to-equity ratio is a less common presence in prior research, it has also been the subject of analysis (e.g., Hasan & Butt, 2009; Ahmed, 2019). This proxy is a financial measure that examines and compares the two main sources of financing, by dividing company i's total debt (D) by its total equity (E) in period t (Equation 4). This ratio illustrates the extent to which the company is dependent on leverage to operate (Ahmed, 2019).

$$Debt\ to\ Equity_{i,t} = \frac{D_{i,t}}{E_{i,t}} \tag{4}$$

Mogha and Williams (2021) also compare these two financing sources. However, they do it through a debt maturity perspective, using short-term (Equation 5) and long-term debt (Equation 6) instead of total debt.

$$STD_{i,t} = \frac{STD_{i,t}}{E_{i,t}} \tag{5}$$

$$LTD_{i,t} = \frac{LTD_{i,t}}{E_{i,t}} \tag{6}$$

Previous literature has also brought new perspectives to this field. Despite the scant evidence, researchers have also attempted to measure capital structure through accounts payable (Huang et al., 2011; Palacín-Sánchez et al., 2019). Huang et al. (2011) define accounts payable as the financial obligations incurred by a company throughout its operations relating to trade credit obtained from creditors or suppliers that are yet to be paid (e.g., legal expenses, supplier invoices), and research suggests that it can be used as a complementary or alternative financial source to bank indebtedness (Alphonse et al., 2005; Palacín-Sánchez et al., 2019; Tang & Moro, 2020).

Banks perceive accounts payable as a source of information, which decreases information asymmetry between both parties, facilitating access to bank loans (Alphonse et al., 2005). However, past studies have also shown that businesses recur to accounts payable to finance themselves when in need of short-term financing (Tang & Moro, 2020) and when facing debt supply restraints (Palacín-Sánchez et al., 2019).

Huang et al. (2011) present Equation 7, the ratio of accounts payable over total assets, as a measure of company i's indebtedness during period t.

$$Accounts\ Payable_{i,t} = \frac{Accounts\ Payable_{i,t}}{TA_{i,t}} \quad (7)$$

In contrast to accounts payable, bank loans are frequently used as a capital structure proxy (e.g., Alphonse et al., 2005; Love et al., 2007; McGuiness & Hogan, 2014; Palacín-Sánchez et al., 2019; Lisboa, 2019). According to Lisboa (2019), this proxy highlights long-term debt impact due to these two items' similarity, and takes shape as a ratio of company i's bank loans to total assets in period t as presented below in Equation 8.

$$Bank\ Loans_{i,t} = \frac{Bank\ Loans_{i,t}}{TA_{i,t}} \quad (8)$$

In market-based proxies, total assets (TA) is replaced by the sum of total debt (D) and the market value of the company's equity (E) (e.g., Ahmed & Hla, 2018; Bernardo et al., 2018; Ahmed, 2019; Mogha & Williams, 2021). Since market data considers aspects that transcend book values (e.g., investments, stakeholder expectations) (O'Brien, 2003), researchers frequently use these proxies to strengthen their findings.

2.1.4. Determinants

Firms seek external capital for a variety of reasons: to finance their expansion and related investment opportunities, to avoid financial constraints, to improve cash flow, among others. However, the debt acquisition process tends to differ across firms due to economic and financial determinants; this is, specific characteristics that influence not only a firm's process of raising capital but also the other transactions it undertakes (Frank & Goyal, 2009) due to their crucial role in estimating the likelihood of companies meeting their financial obligations.

Determinants can be divided into two categories: internal and external determinants. Internal determinants refer to the intrinsic characteristics of the firm in question (e.g., size, age, profit), while external determinants refer to the characteristics of the market in which the firm operates, that is, sectoral and macroeconomic variables (e.g., inflation, interest rates, recessions) (Bougheas et al., 2006; Lago et al., 2007; D'Amato, 2020).

Internal Determinants

Internal determinants, or firm-specific factors, are known as the intrinsic characteristics of a business. Currently, most of the published research concerning these specific aspects follows the perspectives of the three most popular approaches: the agency theory, the trade-off theory, and the pecking order theory (Psillaki & Daskalakis, 2009; Frank & Goyal, 2009; D'Amato, 2020). As market timing theory is only applicable to listed companies, it is often disregarded concerning this issue.

Age

Age is one of the key factors in assessing risk, as older firms are often well-established and have experienced previous crises; firms also tend to diversify their activities as they grow, implying that they are less likely to fail due to sectoral problems (Rajan & Zingales, 1995; Frank & Goyal, 2009).

Frank and Goyal (2009) refer to this stability and diversity provided by age as indicators of security, which lowers the risk of default, reducing agency costs. However, such financial prosperity frequently leads to additional cash flows, which are known to increase problems among agents (Jensen & Meckling, 1986). Therefore, older firms tend to take on more debt to maintain control over their agents when following the agency theory. From the perspective of the trade-off theory, older firms are more likely to issue debt because investors perceive in it a smaller risk, defending that age is positively correlated to the company leverage (Frank & Goyal, 2003; Warner, 1977). On the other hand, the pecking order theory argues that older companies are prone to accumulate more retained earnings, which ensures their financing needs and reduces the need for external financing (Myers, 1984). Older companies also tend to be far more complex, increasing their asymmetry costs, hindering deals, and ultimately increasing the cost of external financing (Myers, 1984). Consequently, the pecking order theory argues that age and debt are negatively correlated (D'Amato, 2020).

Size

Firm size is another critical aspect to consider when assessing capital structure, as large firms are frequently able to negotiate better transaction terms than their competitors (Frank & Goyal, 2009). According to past research (e.g., Rajan & Zingales, 1995; D'Amato, 2020),

due to their above-average financial resources, stable profits, and business diversification, large firms are less likely to depend on a single sector and have a lower business risk.

Therefore, the trade-off theory suggests that corporate leverage and size are positively correlated, as lower risk tends to imply lower cost of debt and increased benefits, leading companies to opt for this type of financing (Warner, 1977; Frank & Goyal, 2003). Conversely, the pecking order theory argues that since larger firms can accumulate more earnings, they will prioritise it over debt when financing the business; moreover, and due to the increased complexity of these firms, there are higher asymmetry costs involved. Therefore, this perspective advocates that leverage and firm size are negatively correlated (Fama & French, 2002; D'Amato, 2020). In another perspective, the reduced risk borne by larger firms, also decreases the burden of financial commitments, thereby reducing the agency costs (Frank & Goyal, 2009).

Assets' Collateral Value

Examining the collateral value of a company's assets is also relevant to stakeholders because it provides quantitative insights into possible guarantees that can be useful to bridge financial difficulties. Since tangible fixed assets can be perceived by touch and quantified (e.g., property, plant, and equipment), they are easier to value and liquidate, facilitating capital raising and providing more security. Thus, the accumulation of these assets reduces the company's default risk (Harris & Raviv, 1991; Rajan & Zingales, 1995; Frank & Goyal, 2003; D'Amato, 2020).

Trade-off theorists argue that as the discrepancy between stakeholders' perception of the company's worth and its actual value diminishes; this is, when companies have a significant amount of tangible fixed assets that allow for a more accurate assessment of the company's value, lenders become more willing to provide capital because the risk of default decreases, suggesting a positive relationship between tangible fixed assets and corporate leverage (Myers, 1977; Harris & Raviv, 1991; Rajan & Zingales, 1995; D'Amato, 2020).

From an agency theory perspective, since these assets provide security, a firm with a considerable quantity of tangible fixed assets is less prone to financial distress, thereby reducing agency costs associated with debt financing (Frank & Goyal, 2009).

Given that companies with high percentage of asset tangibility tend to have fewer information asymmetry concerns, the pecking order theory suggests that they are more likely to issue debt and equity at better rates. These companies are prone to better generate the necessary capital for their operations internally, leading pecking order theorists to believe in the existence of a negative relationship between the collateral value of assets and the issuance of additional debt (Harris & Raviv, 1991; Frank & Goyal, 2009; D'Amato, 2020).

Profitability

Profitability is crucial to ensure business stability, but it is also a critical aspect in assessing a company's debt capacity. Since profitable companies are more likely to accumulate retained earnings that can be used to fund investment, according to the pecking order theory they are less likely to be dependent on borrowed capital, thus avoiding that financial distress and the possibility of bankruptcy (Fama & French, 2002; Rajan & Zingales, 1995). In contrast, the trade-off theorists suggest a positive correlation between profitability and leverage, as firms frequently opt for debt over retained earnings to take advantage of their tax deductibility benefit (D'Amato, 2020). Profitable firms are also more prone to have free cash flow problems (Jensen, 1986). Accordingly, the agency theory defends that the use of debt disciplines agents to strive for better results to cover the costs, rather than relying on past earnings (Jensen, 1986; Frank & Goyal, 2009).

Risk

Firm risk is also frequently mentioned as a key internal determinant in several academic papers (e.g., DeAngelo & Masulis, 1980; Titman & Wessels, 1988; Fama & French, 2002; Frank & Goyal, 2009; Daskalakis et al., 2017; D'Amato, 2020; Danso et al., 2020). High risk suggests that a company is in significant financial difficulty, forcing creditors to increase the cost of borrowed capital to cover the risk, thus making it difficult for the company to access additional external financing (Danso et al., 2020). Trade-off theory suggests a negative correlation between risk and leverage, as high risk increases the cost of capital and reduces the offsetting benefits of debt, thereby reducing the company value (Fama & French, 2002; Frank & Goyal, 2009; D'Amato, 2020). Pecking order theorists also agree that firms with high financial distress should be less leveraged, suggesting a negative relationship

between firm risk and debt. Since risky companies, for the most part, can only raise borrowed capital on less favourable terms (e.g., stricter repayment conditions, higher cost), the company's overall risk will inevitably increase, leading to an even more unfavourable financial position (Fama & French, 2002; D'Amato, 2020). From an agency theory perspective, firms with high levels of financial distress tend to have higher agency costs associated with debt financing (Jensen & Meckling, 1976). Therefore, a higher risk is generally associated with higher agency costs.

Liquidity

Liquidity is another important debt determinant (Antoniou et al., 2003; Schiantarelli & Srivastava, 1997). Firms with high liquidity are perceived as less risky and have a greater probability of being successful in borrowing capital (De Jong et al., 2008). As a consequence, and in parallel with the profitability assumptions, the pecking order theorists defend that high liquidity firms will use their retained capital to finance their assets, avoiding borrowed capital and its associated costs (Myers, 1977); the trade-off theorists defend that firms will use leverage over retained earnings to reduce their taxable income (D'Amato, 2020); while the agency theory still favours the use of debt over self-funding because of its disciplinary qualities (Jensen, 1986).

Non-debt Tax Shields

As researchers often point out, since debt expenses are deductible from a company's taxable income and result in tax savings, there is a frequent demand for debt that is driven by the reduction of financial burdens (De Jong et al., 2008; Frank & Goyal, 2009; D'Amato, 2020, Danso et al., 2020). However, depreciations can also be used to decrease the company's taxable income and are, for that reason, considered a non-debt tax shield (DeAngelo & Masulis, 1980; D'Amato, 2020; Danso et al., 2020). Firms that easily accumulate these expenses tend to be less reliant on corporate leverage for tax benefits, as they can achieve tax savings through a less risky tool (DeAngelo & Masulis, 1980). Therefore, the trade-off theory defends that non-debt tax shields and leverage are negatively correlated (D'Amato, 2020). Given that debt financing entails many obligations and restrictions, it tends to aggravate financial distress (Jensen & Meckling, 1976). Accordingly, the agency theory

argues that the use of non-debt tax shields to obtain tax savings leads to lower agency costs. Given that the pecking order theory focuses on the hierarchy and need for financing, it does not consider non-debt tax shields as a critical determinant in their financial decisions. Nonetheless, research suggests that firms following this approach are prone to invest more capital to obtain a more significant amount of non-debt tax protection, which may translate into a considerable reduction in their available funds and increase the need for external financing (e.g., corporate leverage) (Myers & Majluf, 1984).

Growth Opportunities

Research has shown that growth opportunities are a key factor for a firm, as they assess the ability to expand a business and increase its profitability, thus indicating potential for success in the long-term. Yet, these firms are often associated with an increased risk of failure given the substantial capital required to finance their growth, which is mainly outsourced (Harris & Raviv, 1991; Myers, 1997; Myers, 1984). From a pecking order perspective, since the internal resources of high growth firms are not sufficient to finance their business, and there are more complicated asymmetry problems, they often opt to borrow capital, suggesting a positive correlation between growth opportunities and corporate leverage (Myers, 1977). In contrast, the trade-off research points to a negative correlation. Since these firms are associated with a higher risk of bankruptcy, they hardly ever obtain reasonably priced deals which increases the firm's cost of capital, decreasing its value (D'Amato, 2020). Therefore, they should be less levered (D'Amato, 2020).

It is also important to note that growth opportunities often imply an increase in free cash flow, further fuelling agency problems (Frank & Goyal, 2009). Since managers prefer to retain excess capital as an additional resource rather than increasing shareholder dividends, free cash flow is often mismanaged and its potential profit is lost (Jensen, 1986). Jensen (1986) offers debt as a solution to this problem; since its use imposes an extra financial burden on the company, managers are forced to seek the highest possible profit to cover the cost, making it impossible to rely on free cash flow, which will be redirected. Consequently, the agency theory defends the use of corporate leverage to discipline its agents, suggesting a positive correlation between debt and growth opportunities.

A synthesis of the relationship between indebtedness and each of the determinants, according to each theory, and their proxies is presented in Table 1.

Table 1 - Impact of Internal Determinants on Firms' Degree of Indebtedness

Internal Determinant	Agency Theory	Pecking Order Theory	Trade-off Theory	Measures	Authors
Age	+	–	+	• Total number of years of activity since its establishment.	• Hall et al. (2004).
Size	+	–	+	• Natural logarithm of total assets.	• Fama and French (2002), Sogorb-Mira (2005), Degryse et al. (2012), Palacín-Sánchez et al. (2013), Daskalakis et al. (2017), García-Sánchez and Noguera-Gámez (2017), Danso et al. (2020).
Assets' Collateral Value	+	–	+	• Ratio of tangible fixed assets to total assets.	• Hall et al. (2004), Kayo and Kimura (2011), Danso et al. (2020).
				• Ratio of non-current assets to total assets.	• Titman and Wessels (1988).
Profitability	+	–	+	• Ratio of earnings before interest and taxes to total assets.	• Michaelas et al. (1999), Denis and Kruse (2000), Fama and French (2002), Sogorb-Mira (2005), Daskalakis et al. (2017).
				• Ratio of operating income to total assets.	• Kayo and Kimura (2011), Danso et al. (2020).

Notes: +: positive; -: negative; NF: impact not found.

Impact of Internal Determinants on Firms' Degree of Indebtedness					
Internal Determinant	**Agency Theory**	**Pecking Order Theory**	**Trade-off Theory**	**Measures**	**Authors**
Risk	–	–	–	• Ratio of the standard deviation of operating income to total assets.	• De Jong et al. (2008), Danso et al. (2020).
				• Standard deviation of the earnings before interest and taxes over a set period (three or more) years.	• Daskalakis et al. (2017).
Liquidity	+	–	+	• Ratio of current assets to current liabilities.	• De Jong et al. (2008), D'Amato (2020), Danso et al. (2020).
Non-debt Tax Shields	–	NF	–	• Ratio of total depreciation expenses to total assets.	• Titman and Wessels (1988), Barton et al. (1989), Michaelas et al. (1999), Daskalakis et al. (2017), D'Amato (2020), Danso et al. (2020).
Growth Opportunities	+	+	–	• Annual sales growth rate over a set period (three or more years).	• Palacín-Sánchez et al. (2013), Daskalakis et al. (2017), D'Amato (2020), Danso et al. (2020).
				• Ratio of intangible assets to total assets.	• Titman and Wessels (1988), Michaelas et al. (1999), Sogorb-Mira (2005).

Notes: +: positive; -: negative; NF: impact not found.

External Determinants

While company-specific characteristics can justify a significant portion of a company's capital structure, there is also a significant portion that is heavily influenced by the environment in which it operates (Frank & Goyal, 2009).

Literature has often highlighted the impact of the industry on capital structure, as leverage ratios tend to vary significantly across industries (Frank & Goyal, 2009; Graham & Leary, 2011). Therefore, and due to these discrepancies, researchers frequently rely on the average industry debt as a point of comparison to achieve a more accurate analysis. Hovakimian et al. (2001) indicate that the average industry debt serves merely as a direction for companies. However, the results of their research prove that, in the absence of better guidance, managers tend to follow the industry trend and actively adjust their capital structure to a more favoured one among competitors, expecting better results (Hovakimian et al., 2001).

Firms from the same industry are also prone to suffer from common threats that will not impact the remaining markets (e.g., scarcity of raw material, shortage of human capital in the field), which further justifies inter-industry indebtedness ratios' disparities (Lemmon et al., 2008; Ross et al., 2008). Still, there are many external factors that transcend industry barriers and impact the entire economic structure (e.g., crisis, inflation, gross domestic product).

Mainly due to the frequent occurrence of crises in the past two decades (e.g., the 2008 financial crisis, the Covid-19 pandemic, the Russo-Ukrainian war), research has extensively documented the aftermath of financial disasters (e.g., Deyoung et al., 2015; Thakor, 2015; D'Amato, 2020), proving that no company remains unchanged throughout a crisis (Gertler & Gilchrist, 1993; Danso et al., 2020; D'Amato, 2020). As crises erupt, businesses witness a reduction in credit supply, limiting their investments while simultaneously suffering from significant revenue instability (D'Amato, 2020).

As a result, companies refrain from acquiring debt (especially long-term debt) and often abandon promising investments to avoid a more delicate financial situation (Demirgüç-Kunt et al., 2020; Danso et al., 2020). Mishkin (1999) stated that in economic adverse situations, information asymmetry worsens, which increases the carefulness of both: lenders and borrowers; the principal outcome of this increased precaution is a smaller financial leverage supply at a higher rate.

However, it remains uncertain whether financial instability surrounding the economy increases or decreases external financing demand. Although there is a vast amount of research (e.g., Ivashina & Scharfstein, 2010; Campello et al., 2010; Vermoesen et al., 2013) supporting the premise that adverse macroeconomic conditions lead to smaller demand due to financial instability, there is also a significant portion of academic papers backing up the hypothesis that, as crises decrease revenues, liquidity, and cash flows, companies recur to borrowed capital in an attempt to balance their financial situation and maintain their market position, increasing their level of indebtedness (e.g., Fosberg, 2012; Iqbal & Kume, 2014).

Inflation, the general rise in the cost of goods and services, is a well-known consequence of financial crises. Generally, inflation is associated with reduced economic growth (Sarel, 1996), increased business risk, and loss of consumer power (Hatzinikolaou et al., 2002), rendering credit channels even scarcer and weaker, considerably affecting firms' capital structure (Daskalakis et al., 2017). On one hand, part of the existing research suggests a negative connection between inflation uncertainty and debt, mainly due to the ambiguity of the market landscape and the company's future financial situation (e.g., Hatzinikolaou et al., 2002). Nonetheless, there is academic research that supports the opposite premise (e.g., Bernardo et al., 2018; Lisboa, 2019), stating that companies issue additional borrowed capital during economic distress and high inflation to compensate for the lack of earnings and cash flow.

Furthermore, previous research on this topic has also identified interest rates as an important driver of corporate debt. According to Martins and Terra (2014), higher interest rates aim to offset the increased risk implied by the ambiguity of the economic environment. However, higher financing costs limit the financial availability of companies to acquire debt, suggesting a negative relationship between interest rates and corporate leverage (Hackbarth et al., 2006; Martins & Terra, 2014). Research by Hackbarth et al. (2006) also suggests that in periods of high interest rates, firms tend to issue short-term rather than long-term debt in anticipation of a rate decrease.

The gross domestic product (GDP) reflects a country's economic success, and its score tends to directly reflect its market. This is, a high and stable GDP is usually associated with increased abundance of resources, steady and growing revenues (that increase retained earnings and ease financing necessities) (Lisboa, 2019) and easier access to borrowed capital at a more affordable cost (Bernardo et al., 2018). With the increase in a company's self-

financing capacity, most research suggests a negative correlation between GDP and corporate leverage (Kayo & Kimura, 2011; Bernardo et al., 2018). Regardless, Lisboa (2019) proposed a positive relationship, arguing that the improved financial situation and the increase in resources made it easier for companies to access external financing and prioritize their investments.

Table 2 summarizes the correlation found between the mentioned external determinants and corporate debt, along with measures for the estimation of each determinant.

Table 2 - Impact of External Determinants on Firms' Degree of Indebtedness

External Determinant	Correlation with Debt	Authors	Measures
Inflation	+	• Bernardo et al., 2018; Lisboa, 2019.	• Annual inflation growth (Bernardo et al., 2018; Lisboa, 2019).
	–	• Hatzinikolaou et al., 2002.	
Interest Rates	–	• Hackbarth et al., 2006; Martins and Terra, 2014.	• The nominal rate discounted for inflation (Martins & Terra, 2014).
Gross Domestic Product (GDP)	+	• Lisboa, 2019.	• Annual growth of the gross domestic product (Bernardo et al., 2018; Lisboa, 2019).
	–	• Kayo and Kimura, 2011; Bernardo et al., 2018.	

Notes: +: positive; -: negative; NF: impact not found.

2.2. Financial Reporting Quality

2.2.1. Concept and Relevance

Financial reporting is the practice of detailing a company's financial activities over a specific period (often quarterly, biannually, or annually) on official documents (Tran, 2022), providing a 'picture' of its economic position at the end of that period. Cascino et al. (2014) and Tran (2022) note that these financial statements are an important source of information, as they provide key insights for internal decision-making and present financial information to the public.

Costa et al. (2022) indicate six critical aspects that should consistently feature in high-quality financial statements: relevance, faithful representation, understandability, comparability, verifiability, and timeliness. Gaio and Raposo (2014) also argue that high-quality financial reports must comply with three important rules: (1) supply useful and accurate information to stakeholders; (2) provide valuable information to the company's control mechanisms in order to support decision-making; and (3) reduce the information disparities between agents. If the reports comply with these conditions, the final product will be more accurate, which generally leads to higher stakeholder satisfaction, better reputation, and improved financial performance in the future (Berrone et al., 2007; Huynh, 2019).

Reports with poor information quality are prone to misrepresent the financial condition of the company (Huynh, 2019). Ashraf et al. (2020) suggest that misreporting can lead to uninformed decisions that result in inefficient resource management, thus impoverishing the company's performance and negatively impacting its market value.

DeFond and Park (1997) suggest that managers will manage earnings when a company is experiencing or expecting difficult times by anticipating or delaying the reporting of income so that the firm is perceived as more profitable and stable. Nonetheless, during these crises, companies often suffer from capital shortages, which prevents them from adequately satisfying stakeholder needs, thereby aggravating agency problems (Almahrog et al., 2016).

Since accounting standards allow companies to adjust financial reports without compromising the law, managers will continue to mislead third parties by engaging in these practices (Rosner, 2003; Gaio & Raposo, 2011; Almahrog et al., 2016; Huynh, 2019), also known as earnings management (Healy & Wahlen, 1999).

Costa et al. (2022) suggest three motivations for managers to change financial reports: (1) to avoid being replaced and maintain investor interest as a result of the firm failing to meet stakeholder expectations; (2) to ensure smoother negotiations with external parties and to raise capital at a more favourable rate; and (3) to comply with the law and avoid fees and penalties.

However, the final product of these distorted financial reports is unable to offer accurate financial information about the company and will provide erroneous information about future performance (Tabassum et al., 2014). History has witnessed the negative outcomes of this situation countless times (e.g., Lehman and Brothers, Banco Espírito Santo, Parmalat, Enron, and others), corroborating the theory that poor financial data can deceive investors into believing that the company is sustainable and performing well when the misleading statements are actually providing false information about its present and inadvertently compromising its future (Gaio & Raposo, 2011; Huynh, 2019; Costa et al., 2022).

During negotiations, transparency in reporting is essential to ensure that all parties understand the financial statements presented. However, while this may be fairly straightforward at a national level due to country regulations, globally we still witness a lack of financial guidance. In 2002, the International Accounting Standards Board (IASB) enforced the use of International Financial Reporting Standards (IFRS) for all the listed companies, in the belief that this would be the first step towards global accounting standardization.

2.2.2. Measurement Methods of Financial Reporting Quality

As noted by Gaio and Raposo (2011), the quality of financial reporting has become increasingly more important due to financial scandals in recent decades. Correspondingly, greater emphasis has been placed on the quality of financial statements. As a result, proxies have been developed to assess the performance of the company's financial reporting in its relevant characteristics (Costa et al., 2022).

Past research (e.g., Francis et al., 2004; Gaio & Raposo, 2011; Perotti & Wagenhofer, 2014; Huynh, 2019; Costa et al., 2022) has shown that financial information quality is difficult to measure. Therefore, to eliminate the possibility of bias from omitted factors and to obtain

the most accurate evaluation possible, previous studies have cumulatively used multiple measures of financial reporting quality (Gaio & Raposo, 2011). Huynh (2019) points out that the proxies used in the past are often formulas designed to assess the quality of financial statements, while satisfying the required aspects of financial accounting.

Gaio and Raposo (2011) divide the financial reporting quality measures into two groups: the accounting-based earnings and the market-based earnings. On one hand, accounting-based earnings include all measures that depend only on accounting information (accruals quality, earnings persistence, earnings predictability, and earnings smoothness). For these proxies, higher quality is associated with the effectiveness of cash-flow distribution (Gaio & Raposo, 2011). On the other hand, market-based earnings combine both: accounting and market information. Accordingly, stock information is taken into account and earnings are considered to be of higher quality when they are more aligned to stock returns (Gaio & Raposo, 2011).

Previous works usually evaluate earnings quality using four to seven measures (e.g., Francis et al., 2004; Gaio & Raposo, 2011; Gaio & Raposo, 2014; Lyimo, 2014; Latif et al., 2017; Pagalung & Sudibyo, 2018), with the most frequent ones generally being accruals quality, persistence, predictability, and smoothness that, due to their accounting nature, offer accuracy and ensure applicability to listed and unlisted companies. Still, researchers' decision of which proxies to use mainly depends on the type of company and the subject at hand (Costa et al., 2022).

Accruals Quality

The quality of accruals is a measure that assesses the quality of financial reporting by evaluating the mapping accuracy of non-cash transactions on financial statements (Jones, 1991). Poor quality accruals are often the result of deliberate misreporting by managers to pretend that the company has met or exceeded its performance expectations (Healy & Wahlen, 1999). As a result, high-quality accruals are essential because they provide a more faithful 'picture' of the company's financial position. Due to its importance, extensive research has been conducted on this topic, providing a wide variety of models (e.g., Jones, 1991; Dechow et al., 1995; Dechow and Dichev, 2002; Larcker & Richardson, 2004; Kothari et al., 2005).

Jones (1991) emphasised the distinction between discretionary and non-discretionary accruals and their importance in assessing the quality of financial information. According to Jones (1991), while non-discretionary accruals are a reflection of the company's ordinary transactions, discretionary accruals are adjustments made by managers that can compromise the reporting quality. Therefore, discretionary accruals are negatively correlated with quality and their existence implies low quality accruals (Jones, 1991). Through the initial calculation of total accruals (Equation 9 and 10), Jones' (1991) model achieves Equation 11 which determines discretionary accruals by calculating the error term ($\varepsilon_{i,t}$) in period t.

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta_{0,i}\frac{1}{TA_{i,t-1}} + \beta_{1,i}\frac{\Delta REV_{i,t}}{TA_{i,t-1}} + \beta_{2,i}\frac{PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (9)$$

$$TAC_{i,t} = (\Delta CA_{i,t} - \Delta CASH_{i,t}) - (\Delta CL_{i,t} - \Delta CMLTD_{i,t} - \Delta ITP_{i,t}) - DEP_{i,t} \quad (10)$$

$$\varepsilon_{i,t} = \frac{TAC_{i,t}}{TA_{i,t-1}} - \left(\hat{\beta}_{0,i}\frac{1}{TA_{i,t-1}} + \hat{\beta}_{1,i}\frac{\Delta REV_{i,t}}{TA_{i,t-1}} + \hat{\beta}_{2,i}\frac{PPE_{i,t}}{TA_{i,t-1}}\right) \quad (11)$$

Where:

- $TAC_{i,t}$: the totality of accruals in period t.
- $TA_{i,t-1}$: the total assets at the beginning of the period t.
- $\Delta REV_{i,t}$: the variation in revenues (between period $t-1$ and period t).
- $PPE_{i,t}$: the property, plant, and equipment.
- $\Delta CA_{i,t}$: the variation in current assets.
- $\Delta CASH_{i,t}$: the variation in cash and equivalents.
- $\Delta CL_{i,t}$: the variation in current liabilities.
- $\Delta CMLTD_{i,t}$: the variation in current maturities of long-term debt.
- $\Delta ITP_{i,t}$: the variation in taxes payable change.
- $DEP_{i,t}$: the depreciations and amortizations.

Later, Dechow et al. (1995) revamped Jones' (1991) model by subtracting receivables from revenues ($\Delta REV_{i,t} - \Delta REC_{i,t}$).

Dechow and Dichev's (2002) model has been frequently applied in research, either in its original version (e.g., Francis et al., 2004) or in modified versions (e.g., McNichols, 2002; Francis et al., 2005; Gaio & Raposo, 2011; Gaio & Raposo, 2014; Eliwa et al., 2021; Benkraiem et al., 2022); this method assesses the quality of accruals by calculating the residual's standard deviation of the accuracy between working capital accruals and cash flow realisations (Dechow & Dichev, 2002; Gaio & Raposo, 2011).

$$\frac{WC_{i,t}}{TA_{i,t-1}} = \beta_{0,i} + \beta_{1,i}\frac{CFO_{i,t-1}}{TA_{i,t-1}} + \beta_{2,i}\frac{CFO_{i,t}}{TA_{i,t-1}} + \beta_{3,i}\frac{CFO_{i,t+1}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (12)$$

$$WC_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta DEBT_{i,t} \quad (13)$$

$$CFO_{i,t} = NIBE_{i,t} - (WC_{i,t} - DEP_{i,t}) \quad (14)$$

Where:

- $WC_{i,t}$: the working capital's accrual.
- $CFO_{i,t}$: the operating cash flow.
- $\Delta DEBT_{i,t}$: the variation in debt.
- $NIBE_{i,t}$: the net income before extraordinary earnings.

McNichols' (2002) model adjusts Dechow and Dichev's (2002) to correct a measurement error. According to McNichols (2002), Dechow and Dichev's (2002) model has a greater tendency to generate inaccurate results due to its assumption that discretionary accruals are consistently miscalculated. As a result, McNichols' (2002) model additionally combines explanatory variables of Jones' (1991) model to guarantee better accuracy.

$$\frac{WC_{i,t}}{TA_{i,t-1}} = \beta_{0,i} + \beta_{1,i}\frac{CFO_{i,t-1}}{TA_{i,t-1}} + \beta_{2,i}\frac{CFO_{i,t}}{TA_{i,t-1}} + \beta_{3,i}\frac{CFO_{i,t+1}}{TA_{i,t-1}} + \beta_{4,i}\frac{\Delta REV_{i,t}}{TA_{i,t-1}} + \beta_{5,i}\frac{PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (15)$$

By examining the financial compensation paid by companies to auditors, Larcker and Richardson (2004) provide a different perspective on the quality of accruals. Since substantial payments indicate a high level of financial dependence of the auditor on the client, impartiality might be compromised, enabling companies to engage in erroneous accruals. Through Equation 16's residual value (Larcker & Richardson, 2004), the

researchers determine the unexpected element of total accruals (the discretionary accruals) to estimate their quality.

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta_{0,i} + \beta_{1,i}\left(\frac{\Delta REV_{i,t}}{TA_{i,t-1}} - \frac{\Delta REC_{i,t}}{TA_{i,t-1}}\right) + \beta_{2,i}\frac{PPE_{i,t}}{TA_{i,t-1}} + \beta_{3,i}\frac{BM_{i,t}}{TA_{i,t-1}} + \beta_{4,i}\frac{CFO_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (16)$$

Where:

- $BM_{i,t}$: the book to market ratio.

Because Dechow and Dichev's (2002) method and its variants are difficult to apply to non-listed companies, Kothari et al. (2005) suggest a different ratio based on Jones's (1991) model (Equation 9, 10, and 11) that allows a more accurate estimation of accruals quality in this situation.

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta_{0,i} + \beta_{1,i}\frac{1}{TA_{i,t-1}} + \beta_{2,i}\frac{\Delta REV_{i,t}}{TA_{i,t-1}} + \beta_{3,i}\frac{\mathrm{PPE}_{i,t}}{TA_{i,t-1}} + \beta_{4,i}\frac{ROA_{i,t\,(or\,i,t-1)}}{TA_{i,t-1}} + \varepsilon_{i,t} \quad (17)$$

Where:

- $ROA_{i,t\,(or\,i,t-1)}$: the return on assets, in period t (or period $t-1$).

Persistence

Prior research suggests that earnings persistence evaluates earnings sustainability (Francis et al., 2004; Duarte et al., 2022). It is an attractive aspect of revenue because it indicates that the company is capable of continuously being profitable, offering more certainty to stakeholders (Penman & Zhang, 2002; Francis et al., 2004; Gaio & Raposo, 2011).

To calculate earnings persistence, researchers (e.g., Lev, 1983; Ali & Zarowin, 1992; Francis et al., 2004; Larcker et al., 2007; Gaio & Raposo, 2011; Huynh, 2019; Eliwa et al., 2021; Duarte et al., 2022) have often used the regression slope coefficient estimate of the equation below (Equation 18).

$$\frac{NIBE_{i,t}}{WAOS_{i,t}} = \beta_{0,i} + \beta_{1,i}\frac{NIBE_{i,t-1}}{WAOS_{i,t-1}} + \varepsilon_{i,t} \quad (18)$$

$$Persistence_i = -\beta_{1,i} \quad (19)$$

Where:

- $WAOS_{i,t}$: the weighted average number of outstanding shares of company i in period t (and period $t-1$, respectively).

Lower results in Equation 19 indicate higher earnings persistence and more sustainable earnings, resulting in higher quality of financial reporting (Francis et al., 2004; Gaio & Raposo, 2011).

Despite this method's extensive use in previous research, the use of outstanding shares means that this formula is only applicable to listed firms. Therefore, research focused on non-listed firms adapted the proxy by replacing the deflation by weighted average number of outstanding shares with the total assets at the beginning of period t (Duarte et al., 2022).

Predictability

Earnings predictability evaluates the extent to which earnings are expected (Lipe, 1990; Francis et al., 2004) and is considered to be greatly connected to persistence, since high persistence increases predictability (Duarte et al., 2022). Lee (1999) argues that predictability is a crucial aspect of valuation, and the Financial Accounting Standards Board (FASB) (2023) also points to it as an essential element of financial reporting quality, as high predictability allows stakeholders to better estimate the future financial situation of a company. Accordingly, predictability is positively correlated to financial reporting quality (Gaio & Raposo, 2011).

Lipe (1990) measured predictability by calculating the earnings shocks' variation (with greater variance indicating lower predictability). However, recent papers (Francis et al., 2004; Gaio and Raposo, 2011; Eliwa et al., 2021) use the square root of the estimated error variance from Equation 18 (Equation 20).

$$Predictability_i = \sqrt{\sigma^2(\varepsilon_{i,t})} \tag{20}$$

With this formula, smaller values suggest more predictability, and thus more financial reporting quality, and vice-versa (Francis et al., 2004; Gaio and Raposo, 2011).

Since Equation 18 is only applicable to listed firms, as noted on earnings persistence, researchers use as a basis the adaptation of this proxy (replacing outstanding shares with total assets) (Duarte et al., 2022). Previous literature (e.g., Perotti & Wagenhofer, 2014; Huynh, 2019; Duarte et al., 2022) calculates the predictability of earnings using the R-squared of this modified measure.

Smoothness

Costa et al. (2022) define earnings smoothness as a practice of hiding fluctuations in earnings by allocating them to periods where they do not belong. Although this may be accidental, it may also be intentional; therefore, we need to identify these cases when measuring the quality of financial reporting (Costa et al., 2022).

Previous research uses different methods to analyse earnings smoothness (e.g., Eckel, 1981; Francis et al., 2004; Prencipe et al., 2011). According to Eckel (1981), earnings smoothness exists when the coefficient of variation for sales is greater than the coefficient of variation for income ($CV_{\Delta\, Sales_{i,t}} > CV_{\Delta\, Income_{i,t}}$). Prencipe et al. (2011) use the same items but in a ratio (Equation 21), where third parties can identify earnings smoothness if the ratio is less than one (Costa et al., 2022).

$$Smoothness_i = \frac{CV_{\Delta\, Income_{i,t}}}{CV_{\Delta\, Sales_{i,t}}} \tag{21}$$

However, other proxies have emerged. Researchers (e.g., Francis et al., 2004; Dechow et al., 2010; Gaio & Raposo, 2011; An et al., 2016; Dang et al., 2018) popularized Leuz et al.'s (2003) ratio of the standard deviation (σ) of earnings before interest and taxes (EBIT) to the standard deviation of cash flow operations (CFO) (with both deflated by total assets), as shown in Equation 22.

$$Smoothness_i = \frac{\sigma\left(EBIT_{i,t}/TA_{i,t-1}\right)}{\sigma\left(CFO_{i,t}/TA_{i,t-1}\right)} \tag{22}$$

Ratio results smaller than one indicate that the company engages in smoothing practices, with higher results indicating a higher quality of earnings and better financial reporting quality (Francis et al., 2004; Gaio & Raposo, 2011).

Value Relevance

Gaio and Raposo (2011, p. 476) define the value relevance of earnings as "(…) the ability of earnings to explain variations in returns or prices (…)." Costa et al. (2022) corroborate this idea, suggesting it measures the capacity of a firm's financial information to explain its stock price. Therefore, previous research indicates value relevance as a measure of utility (e.g., Collins et al., 1997; Francis and Schipper, 1999; Francis et al., 2004) because it evaluates two important elements of financial reporting quality: relevance and reliability (Barth et al., 2001; Francis et al., 2004).

Basu (1997) originally proposed to calculate the value relevance of earnings using Equation 23.

$$\frac{\Delta X_{i,t}}{P_{i,t-1}} = \beta_{0,i} + \beta_{1,i} D + \beta_{2,i} \frac{\Delta X_{i,t-1}}{P_{i,t-2}} + \beta_{3,i} D \frac{\Delta X_{i,t-1}}{P_{i,t-2}} \quad (23)$$

Where:

- $\Delta X_{i,t}$: the variation of earnings per share.
- $P_{i,t-1}$: the price per share at the end of period $t-1$ (and $t-2$, respectively).
- D: the dummy variable (equal to 0 if $\frac{\Delta X_{i,t-1}}{P_{i,t-2}}$ is positive and 1 if it is negative).

However, subsequent research (e.g., Collins et al., 1997; Francis & Schipper, 1999; Francis et al., 2004) addressed this subject through the derive of the regression's explanatory power (R^2) of Equation 24 (Francis et al., 2004; Gaio & Raposo, 2011).

$$RET_{i,t} = \beta_{0,i} + \beta_{1,i} EARN_{i,t} + \beta_{2,i} \Delta EARN_{i,t} + \varepsilon_{i,t} \quad (24)$$

$$Relevance_i = -R^2_{i,\, RET_{i,t}} \quad (25)$$

Where:

- $RET_{i,t}$: the fifteen-month return ending three months after the end of fiscal period t.
- $EARN_{i,t}$: the earnings before extraordinary items.
- $\Delta EARN_{i,t}$: the variation of earnings before extraordinary items.

According to past research (Francis et al., 2004; Gaio & Raposo, 2011; Costa et al., 2022), higher value relevance indicates reduced relevance of earnings, resulting in a decreased financial reporting quality.

Timeliness

Earnings timeliness evaluates the temporal distance between the end of the reporting period and the issuance of the report. Considering that managers can adjust the timing of financial information issuance to better serve their own interests (DeFond & Park, 1997) (e.g., delaying reports to cover losses that might hinder ongoing negotiations and prevent stakeholders from assessing their financial status accurately), the faster the information issuance, the more it is worth (Brown et al., 2011; Costa et al., 2022). Accordingly, financial reporting quality is prone to increase with prompt reporting (Brown et al., 2011).

Several papers (e.g., Ball et al., 2000; Francis et al., 2004; Gaio & Raposo, 2011; Gaio & Raposo, 2014) have used the regression presented below (Equation 26), initially suggested by Basu (1997), where the dummy variable is equal to one ($NEG_{i,t} = 1$) if the company's return is negative ($RET_{i,t} < 0$) and zero otherwise. Timeliness is calculated through the equation's explanatory power (Equation 27).

$$Earnings_{i,t} = \beta_{0,i} + \beta_{1,i} NEG_{i,t} + \beta_{2,i} \mathrm{RET}_{i,t} + \beta_{3,i} NEG_{i,t} \mathrm{RET}_{i,t} + \varepsilon_{i,t} \quad (26)$$

$$Timeliness_i = -R^2_{i,\,Earnings_{i,t}} \quad (27)$$

Despite its popularity, Basu's (1997) method is only applicable to listed companies, which has led other researchers to fill this gap. In 2005, Ball and Shivakumar proposed a proxy to be applied to unlisted companies (Equation 28).

$$\Delta NI_{i,t} = \alpha_0 + \alpha_1 \mathrm{D}\Delta NI_{i,t-1} + \alpha_2 \Delta NI_{i,t-1} + \alpha_3 \mathrm{D}\Delta NI_{i,t-1} \Delta NI_{i,t-1} + \varepsilon_{i,t} \quad (28)$$

Where:

- $\Delta NI_{i,t-1}$: the annual variation in income at the end of period t (and $t-1$, respectively).
- D: the dummy variable (equal to 1 if $\Delta NI_{i,t-1}$ is negative).

According to Ball and Shivakumar (2005), if α_2 is equal to zero, the company's income is recognized steadily; if α_2 is negative, earnings are recognized in a timelier manner, but the values tend to be assumed as 'temporary' with the possibility of reversion, which results in lower quality of financial information; and if α_3 is negative, accounting conservativism is prominent in the company's financial information.

Gaio and Raposo (2011) suggest that earnings quality decreases as the timeliness ratio increases due to less timely earnings.

Accounting Conservatism

Previous research indicates that the concept of accounting conservatism can be understood as predicting zero revenues, but forecasting for all possible losses (Bliss, 1924; Basu, 1997). It is perceived as a desirable trait because it discloses data that managers may try to conceal and reduces the likelihood of overstating income or understating expenses (Gaio & Raposo, 2011). Basu (1997) suggests that as the reason why stakeholders acknowledge bad news faster than good ones, because good news require a higher level of verification. However, this creates a permanent time asymmetry between good and bad events, which affects the timeliness of earnings (Basu, 1997).

To calculate conservatism, prior research (e.g., Basu, 1997; Pope & Walker, 1999; Givoly & Hayn, 2000; Francis et al., 2004; Benkraiem et al., 2022) has predominantly utilized Basu's (1997) proxy, a derivation of Equation 26 presented above.

$$Conservatism_i = \frac{-(\beta_{2,i}+\beta_{3,i})}{\beta_{2,i}} \quad (29)$$

Ball and Shivakumar (2005) later revamp Basu's (1997) model to include non-listed companies (Equation 30).

$$TA_{i,t} = \beta_{0,i} + \beta_{1,i}DCFO_{i,t} + \beta_{2,i}CFO_{i,t} + \beta_{3,i}DCFO_{i,t}CFO_{i,t} + \varepsilon_{i,t} \quad (30)$$

Where:

- D: the dummy variable (equal to 1 if $CFO_{i,t}$ is negative and 0 if positive).

Gaio and Raposo (2011) suggest that lower results of conservatism are associated with better conservative practices and better financial reporting quality.

2.3. Capital Structure and Financial Reporting Quality

Past research has often suggested that financial reporting quality has a significant impact on a company's cost of capital (Leuz & Verrecchia, 2005). Arthur Levitt, the former Chairman of the U.S. Securities and Exchange Commission, corroborated this idea by stating that "(…) high quality accounting standards result in greater investor confidence, which improves liquidity [and] reduces capital costs (…)." (Levitt, 1988, p. 81). However, limited research has been conducted on this subject (Leuz & Verrecchia, 2005; Habib, 2006; Okyere et al., 2020).

Firms' financing decisions are dependent on a variety of elements of their economic situation (e.g., cash flow, profitability, earnings volatility, liquidity) (Khémiri & Noubbigh, 2018; Ramli et al., 2019). Since managers collect and verify this information through accounting statements, decision-making is assumed to be extremely dependent on this information and its quality (Myers & Majluf, 1984). Lenders are also frequent users of these statements, often relying on them, their quality, and their availability to accurately price their capital (Bharath et al., 2008).

In 2001, Bushman and Smith summarized the importance of high quality in three points: (1) it generates reports with increased accuracy that allow more precise predictions of investment opportunities and share prices; (2) it is a better reflection of the company's financial position, which reduces the likelihood of poor decisions; and (3) it reduces the disparity of knowledge between internal and external parties, reducing the probability of liquidity constraints (Bushman & Smith, 2001). This increased financial accuracy should significantly reduce information asymmetries and adverse selection problems (Leuz & Verrecchia, 2000; Bharath et al., 2009; Lang & Maffett, 2011; Bushman & Williams, 2015; Synn & Williams, 2015); adverse selection problems occur when sellers withhold important details about a good or service from buyers, leading them to make uninformed decisions (Bharath et al., 2009). As a result, companies that prioritize the quality of their financial statements are expected to issue equity at a more affordable price and therefore accumulate less debt (Tran, 2022).

Since the cost of equity is heavily reliant on the quality of information, and poor reporting quality is frequently associated with reduced investor confidence, faulty risk perception, and inaccurate valuations (Myers and Majluf, 1984; Cooney & Kalay, 1993; Synn & Williams,

2015), shareholders tend to demand greater compensation than lenders when issuing additional capital (Gao & Zhu, 2015). Therefore, firms facing information issues (e.g., substandard reports, information asymmetries, adverse selection problems) are prone to acquire more debt to avoid the rising equity rates and minimize expenses, even if it means risking excessive debt (Gao & Zhu, 2015).

Given the scarcity of empirical research concerning the direct impact of financial reporting quality on companies' capital structure, the empirical research examined will address different measures of financial reporting quality (e.g., earnings management, earnings smoothness, accounting conservatism) and their subsequent effect on the structure or cost of companies' equity or debt capital.

Prior research has frequently addressed the impact of earnings management on corporate indebtedness (e.g., Tahir et al., 2011; An et al., 2016; Okyere et al., 2020; Gregova et al., 2021). However, there are inconsistencies in the findings. Accordingly, we started by citing research that identified a positive correlation between earnings manipulation and debt, followed by studies that contradicted this conclusion.

To understand the impact of earnings management on corporate leverage, Tahir et al. (2011) study a sample of 2780 observations of Pakistani non-financial listed companies, ranging from 2001 to 2005. The authors measure capital structure using an accounting-based debt ratio (Equation 1) and earnings management using Jones' (1991) model (Equation 9, 10, and 11). Their results report that discretionary accruals have a statistically significant and positive impact on debt, suggesting that firms engaging in earnings management tend to accumulate greater levels of debt (Tahir et al., 2011).

An et al. (2016) find that firms that frequently resort to earnings management practices, thereby compromising the quality of the information they produce, have higher leverage ratios. Their results also indicate that this phenomenon is reduced in the presence of stricter financial rules, that ensure a higher quality of financial reporting. An et al. (2016) use a sample of over 25000 non-financial firms from 37 countries, for a twenty-one-year period (between 1989 and 2009), to achieve their conclusions. The authors proxy debt through the market-based debt ratio and earnings management through earnings discretion, smoothing, and correlation, as employed by Leuz et al. (2003) (Equation 22). An analysis that results in positive and statistically relevant coefficients for earnings management, suggesting that companies engaging in such practices rely more on debt.

Nikoomaram et al. (2016) also find a positive relationship between earnings management and corporate leverage while studying a sample comprising 119 non-financial listed firms from Iran (with observations from the period of 2000 to 2008). Debt is determined using the accounting-based debt ratio (Equation 1) whilst earnings management is analysed through Jones' (1991) model (Equation 9, 10, and 11). Using the estimated values, the researchers conduct a regression analysis that results in a significant and positive discretionary accruals coefficient, justifying the positive impact of discretionary accruals on debt (Nikoomaram et al., 2016).

Consistent with the studies mentioned beforehand (Tahir et al., 2011; An et al., 2016; Nikoomaram et al., 2016), Dang et al. (2018) exhibit similar findings while investigating the impact of earnings management on financing decisions internationally. Based on a sample listing companies from 41 countries, Dang et al. (2018) use debt ratios (with accounting and market values) as capital structure measures and assess the company's earnings smoothness and correlation through Leuz et al.'s (2003) model (Equation 22). Presenting relevant and positive statistical values for earnings management variables across multiple regressions, the evidence provided further corroborates the hypothesis that earnings management lead to higher debt ratios.

Okyere et al. (2020) explore an eleven-year sample (from 2008 to 2018) of 62 listed non-financial companies from African countries, obtaining additional evidence concerning the connection between earnings management and indebtedness. The data is measured using the market-based equity ratio as a proxy for indebtedness and the discretionary accruals method of Jones (1991) (Equation 9, 10, and 11) and Kothari et al. (2005) (Equation 17) as proxies for earnings management. Based on these measures' results, Okyere et al. (2020) conducted regressions that exposed a statistically significant and negative correlation between discretionary accruals and the indebtedness proxy. Consequently, companies that engage in earnings management practices tend to experience a reduction in equity, indicating a higher reliance on borrowed capital (Okyere et al., 2020).

Adeneye and Kammoun (2022) analyse over 100 non-financial listed companies from five Asian countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) for a six-year period (from 2014 to 2019) to further understand earnings management impact on debt. With the accounting debt ratio (Equation 1) as a debt proxy and the abnormal levels of operating activities, production costs, and discretionary expenses as earnings management proxies,

Adeneye and Kammoun's (2022) results demonstrate relevant and positive earnings management values, which indicates that the variable has a positive impact on corporate leverage. Therefore, companies with lower accruals quality are prone to have higher debt ratios (Adeneye & Kammoun, 2022).

Tran's (2022) evidence indicates that higher financial reporting quality is associated with reduced indebtedness because of the decreased adverse selection and information asymmetry (Pan et al., 2015; Petacchi, 2015) that reduce the cost of equity. These results are the product of a study carried out on a sample of 588 non-financial Vietnamese firms (between 2008 and 2017), in which the data regarding capital structure was measured through the debt ratio (in accounting and market-based form) and the data regarding financial information quality was measured through discretionary accruals models (Dechow and Dichev, 2002; Francis et al., 2005); the estimations of these variables lead to a statistically significant and positive discretionary accruals result, justifying the aforementioned conclusion.

Different results arise when assessing earnings management's impact on debt in Gregova et al. (2021). The research recurs to a sample compiling 19910 listed and non-listed companies, from Poland, Czech Republic, Slovakia, and Hungary, over the period of 2014 to 2017. Capital structure was estimated using the accounting-based debt ratio (Equation 1) and earnings management was assessed through the Dechow et al. (1995) model. Using the respective proxies' results, Gregova et al. (2021) calculated the empirical model for each country, resulting in four statistically significant and negative coefficients for earnings management. Thus, the study findings indicate that there is a decrease in debt when companies engage in earnings management practices (Gregova et al., 2021).

Along with Gregova et al.'s (2021) results, Mendoza et al. (2021) also find evidence supporting the negative correlation between earnings management and indebtedness. Their results arise from a sample of 983 non-financial companies from six south American countries (from 1995 to 2017), that was measured using the accounting-based debt (Equation 1) and long-term debt (Equation 3) ratios as capital structure measures and Dechow et al. (1995) and Kothari et al.'s (2005) (Equation 17) models as earnings management measures. Mendoza et al. (2021) provide empirical evidence of a negative correlation between earnings management and firm leverage, as demonstrated by the variable's significant and negative regression coefficients.

Ajay and Madhumati (2015) target a different point of view and examine the effects of reporting quality on the capital structure through earnings smoothing. Counting nearly 14000 observations from listed companies on the Indian Stock Exchange, the sample covers a ten-year period ranging from 2004 to 2013. The accounting-based debt ratio (Equation 1) is used as a capital structure proxy and earnings smoothing is measured through an asset-based earnings ratio (of earnings before interest, taxes, depreciations and amortizations over total assets), a project-based earnings ratio (of the sum of R&D and advertisement over total assets), and a ratio of the standard deviation of cash flow from operating activities (ranging from $t-3$ to t) over total assets. According to Ajay and Madhumati's (2015) empirical model, earnings smoothing has an adverse effect on debt, suggesting that engaging in these manipulative practices is likely to reduce companies' reliance on leverage.

Assessing financial quality through a different financial quality proxy, Habib and Hossain (2013) study accounting conservatism's influence on debt. Using two samples, cumulatively compiling nearly 11500 observations from Australian companies between 1992 and 2005, Habib and Hossain (2013) obtained a positive coefficient when estimating the impact of accounting conservatism on leverage, suggesting that a high degree of accounting conservatism is often associated with increased indebtedness. To obtain these results, the capital structure was measured through the debt ratio, both from an accounting (Equation 1) and market perspective, while accounting conservatism was measured through Basu's (1997) model (Equation 29) and two other complementary ratios focused on non-operating accruals (non-operating accruals over total assets) and the skewness of capital (earnings skewness over cash flow skewness) (Habib & Hossain, 2013).

Salama and Putnam (2015) follow Habib and Hossain's (2013) research focus, also studying the impact of accounting conservatism on debt. Covering a seven-year period (from 2000 to 2006), the analysed sample comprises over 2000 companies (excluding financial and utility businesses) from the USA. The authors proxy capital structure with the debt ratio (both in accounting and market form), and accounting conservatism through a variety of measures such as Basu's (1997) model (Equation 29), a capital skewness measure (earnings skewness over cash-flow skewness), and a non-operating accruals measure (non-operating accruals over total assets) as in Habib and Hossain (2013). Using the variables' outcomes, Salama and Putnam (2015) performed a regression analysis to assess the impact of accounting conservatism on debt, finding statistically significant and positive coefficients for the

independent variable. Therefore, the researchers concluded that engaging in accounting conservatism is prone to increase corporate leverage.

As previously noted, a significant proportion of prior literature is centred on the quality of accruals, whilst other proxies for financial reporting quality tend to be under-researched. However, researchers generally focus on examining diverse samples from various geographical areas, either spanning developed countries (e.g., Habib & Hossain, 2013; Salama & Putnam, 2015), underdeveloped countries (e.g., Tahir et al., 2011; Nikoomaram et al., 2016; Adeneye & Kammoun, 2022), or combinations of both (An et al., 2016; Dang et al., 2018), over periods commonly ranging from five to twenty years, as summarized in Table 3.

In the cited research, the determinants of capital structure (presented in section 2.1.4.) are predominantly used to explain debt. However, additional metrics have emerged amongst those previously presented: market-to-book value, R&D, cash flow, agency costs, and ownership.

The market-to-book value aims to illustrate whether companies are overvalued or undervalued by the market (Dang et al., 2018; Tran, 2022), and this measure is often included in research on listed companies. Market-to-book value can be calculated by dividing the market value of equity by its book value (Salama & Putnam, 2015; An et al., 2016; Dang et al., 2018; Adeneye & Kammoun, 2022; Tran, 2022), and the evidence found in past research indicates that it can have a positive (Dang et al., 2018; Adeneye & Kammoun, 2022) or a negative (Salama & Putnam, 2015; Tran, 2022) relationship with book debt. Past research also suggests that market leverage tends to be negatively impacted by market-to-book value (Salama & Putnam, 2015; An et al., 2016; Dang et al., 2018; Tran, 2022).

Research and development, often labelled as R&D, is also mentioned as a control variable in the cited research (Salama & Putnam, 2015; Dang et al., 2018). Measured as the ratio of R&D expenses to total sales (Salama & Putnam, 2015) or total assets (Dang et al., 2018), the variable measures investment efficiency and is often included in research concerning listed companies. Still, the findings are inconsistent as Dang et al. (2018) discovered a positive correlation between R&D and debt, whereas Salama and Putnam (2015) identified a negative correlation.

Table 3 - Previous Research on Financial Reporting Quality's Impact on Debt

Author	Sample	Capital Structure Proxies	Financial Reporting Quality Proxies	Control Variables	Main Conclusions
Tahir et al. (2011)	• 2780 Observations from Listed Firms • Pakistan • 2001 to 2005	• Accounting-based debt ratio	• Earnings Management: Jones Model (1991)	• ROA • ROE • Size	Earnings management has a positive impact on debt.
An et al. (2016)	• 25777 Firms • 37 Countries • 1989 to 2009	• Market-based debt ratio	• Earnings Management: Leuz et al. Model (2003)	• Assets' Collateral Value • Size • Profitability • Market-to-Book Value • Average Industry Debt • GDP per Capita • GDP Growth	Earnings management has a positive impact on debt.
Nikoomaram et al. (2016)	• 119 Listed Firms • Iran • 2000 to 2008	• Accounting-based debt ratio	• Earnings Management: Jones Model (1991)	• ROA	Earnings management has a positive impact on debt.

Previous Research on Financial Reporting Quality's Impact on Debt					
Author	**Sample**	**Capital Structure Proxies**	**Financial Reporting Quality Proxies**	**Control Variables**	**Main Conclusions**
Dang et al. (2018)	• 193605 Observations from Listed Firms • 41 Countries • 2000 to 2010	• Accounting and market-based debt ratio	• Earnings Management: Leuz et al. Model (2003)	• Assets' Collateral Value • Size • Market-to-Book Value • Profitability • R&D • Cash Flow • Liquidity • Accounting Average Industry Debt • Market Average Industry Debt	Earnings management has a positive impact on debt.
Okyere et al. (2020)	• 62 Listed Firms • Ghana, Kenya, Botswana, Nigeria, Uganda, and Namibia • 2008 to 2018	• Market-based equity ratio	• Earnings Management Model of Kothari et al. (2005) - Earnings Management Model of Jones (1991).	• Size • Age • Cash Flow • GDP per Capita • Inflation	Earnings management has a positive impact on debt.

Previous Research on Financial Reporting Quality's Impact on Debt					
Author	**Sample**	**Capital Structure Proxies**	**Financial Reporting Quality Proxies**	**Control Variables**	**Main Conclusions**
Adeneye & Kammoun (2022)	• 116 Listed Firms • Indonesia, Malaysia, Philippines, Singapore, and Thailand • 2014 to 2019	• Accounting-based debt ratio	• Sum of the Abnormal Level of Cash-flows from Operating Activities, Production Costs, and Discretionary Expenses	• Profitability • Market-to-Book Value • Assets' Collateral Value • Size • Non-debt Tax Shields	Earnings management has a positive impact on debt.
Tran (2022)	• 588 Firms • Vietnam • 2008 to 2017	• Accounting and market-based debt ratio	• Earnings Management: Dechow & Dichev Model (2002) • Earnings Management: Francis et al. Model (2005)	• Market-to-Book Value • Size • Assets' Collateral Value • Profitability • Accounting Average Industry Debt • Market Average Industry Debt	Earnings management has a positive impact on debt.

Previous Research on Financial Reporting Quality's Impact on Debt					
Author	**Sample**	**Capital Structure Proxies**	**Financial Reporting Quality Proxies**	**Control Variables**	**Main Conclusions**
Gregova et al. (2021)	• 19910 Firms • Poland, Czech Republic, Slovakia, and Hungary • 2014 to 2017	• Accounting-based debt ratio	• Earnings Management: Dechow et al. Model (1995)	• Assets' Collateral Value • Liquidity • Profitability • Size • Growth Opportunities • Non-debt Tax Shields • Risk	Earnings management has a negative impact on debt.
Mendoza et al. (2021)	• 983 Firms • Argentina, Brazil, Chile, Colombia, Mexico, and Peru • 1995 to 2017	• Accounting-based debt ratio	• Earnings Management: Dechow et al. Model (1995)	• Ownership • Growth Opportunities • Assets' Collateral Value	Earnings management has a negative impact on debt.
		• Accounting-based long-term debt ratio	• Earnings Management: Kothari et al. Model (2005)	• Size • Agency Costs • Profitability	

Previous Research on Financial Reporting Quality's Impact on Debt					
Author	**Sample**	**Capital Structure Proxies**	**Financial Reporting Quality Proxies**	**Control Variables**	**Main Conclusions**
Ajay & Madhumati (2015)	• 13910 Observations from Listed Firms • India • 2004 to 2013	• Accounting-based debt ratio	• Ratio of EBITDA over Total Assets	• Age	Earnings smoothing has a negative impact on debt.
			• Ratio of the Sum of R&D and Advertisement over Total Assets	• Size	
			• Ratio of the Standard Deviation of Cash Flow from Operating Activities (from $t-3$ to t) over Total Assets Ratio	• Profitability	
				• Assets' Collateral Value	

Previous Research on Financial Reporting Quality's Impact on Debt					
Author	**Sample**	**Capital Structure Proxies**	**Financial Reporting Quality Proxies**	**Control Variables**	**Main Conclusions**
Habib & Hossain (2013)	• 11373 Observations • Australia • 1992 to 2015	• Accounting and market-based debt ratio	• Accounting Conservatism: Basu Model (1997) • Ratio of Non-operating Accruals over Total Assets • Ratio of Earnings Skewness over Cash Flow Skewness	• Profitability • Dividends • Size • Non-debt Tax Shields • Assets' Collateral Value • Growth Opportunities • Average Industry Debt	Accounting conservatism has a positive impact on debt.
Salama & Putnam (2015)	• 2079 Firms • The USA • 2000 to 2006	• Accounting and market-based debt ratio	• Accounting Conservatism: Basu Model (1997) • Ratio of Earnings Skewness over Cash Flow Skewness • Ratio of Non-operating Accruals over Total Assets	• Dividends • Size • R&D • Profitability • Non-debt Tax Shields • Market-to-Book Value • Assets' Collateral Value • Average Industry Debt	Accounting conservatism has a positive impact on debt.

Also frequently included in studies regarding companies on stock exchanges is cash flow, that is often measured as the difference between net income before extraordinary items and dividends, scaled by total assets minus cash and equivalents (Dang et al., 2018). Both Dang et al. (2018) and Okyere et al. (2020) find evidence that the relationship between cash flow and indebtedness is predominantly positive.

Mendoza et al. (2021) include two unconventional control variables in their empirical model: ownership, determined as the percentage of controlling shareholders' ownership, and agency costs, measured as the ratio of net income before extraordinary items to total assets. By combining all the control variables (ownership and agency costs, along with growth opportunities, assets' collateral value, size, and profitability), Mendoza et al. (2021) created an interactive variable, which was subsequently employed in their empirical model; the findings presented a negative effect on the overall debt ratio, but also a positive effect on the long-term debt ratio.

Some other studies focus on the cost of capital, which provide crucial information regarding firms' financing decisions. Previous studies indicate that the cost of equity decreases in the presence of reduced earnings quality (Bhattacharya et al., 2012), a high disclosure degree of financial (Easley & O'Hara, 2004) and non-financial information (Romito & Vurro, 2021), financial reports with high readability (Rjiba et al., 2021), relevance (Vitolla et al., 2022), and comparativeness (Vitolla et al., 2022), and reduced information asymmetry (Bhattacharya et al., 2012; Sony & Bhaduri, 2021).

3. Methodology

To better understand the impact of financial reporting quality on capital structure, this research is supported by a database analysis and the conclusions drawn from its results. Accordingly, the following section summarizes the research sample, the variables selected, and the final methodology.

3.1. Sample

Given that the vast majority of prior research tends to focus either on companies from developed (e.g., Habib & Hossain, 2013; Salama & Putnam, 2015) or emerging (e.g., Tahir et al., 2011; Nikoomaram et al., 2016; Okyere et al., 2020; Gregova et al., 2021; Mendoza et al., 2021, Adeneye & Kammoun, 2022; Tran, 2022) economies, this research opts to focus on a group of four Western European economies that, as far as we know, have not yet been explored: Portugal, Italy, Greece, and Spain.

Despite being considered first-world countries, these European economies are known to have lower levels of compliance with laws and regulations and, as a result, lower levels of transparency compared to the remaining first-world countries (Transparency International, 2023). Poor transparency often leads to an increase in corruption, ultimately impacting the accuracy of financial data provided by the economic entities within the country such as government, banks, and companies (Ho et al., 2018; Asteriou et al., 2021). According to Transparency International (2023), Portugal (ranking 33rd out of 180 countries with 62% of transparency), Italy (ranking 41st with 56% of transparency), Greece (ranking 51st with 52% of transparency), and Spain (ranking 35th with 60% of transparency), rank far below other developed countries; such as, Finland (2nd), Sweden (5th), Netherlands (8th), Germany (9th), Australia (13th), Canada (14th), Belgium (18th), and many other (Transparency International, 2023).

For the purpose of having a deeper understanding of debt through the combination of book and market leverage, the sample focus exclusively on listed companies from the main stock exchanges of each country: the PSI (the main Portuguese stock exchange), the FTSE MIB (the main Italian stock exchange), the FTSE/ATHEX (the main Greek stock exchange), and

the IBEX 35 (the main Spanish stock exchange), for a ten-year period (from 2013 to 2022). This data has been extracted from the Orbis database by Bureau Van Dijk.

To obtain the final sample, we first selected the companies present on PSI, FTSE MIB, FTSE/ATHEX, and IBEX 35, resulting in a sample with observations from 822 companies. We then excluded all companies categorized as Property Services or Banking, Insurance, and Financial Services from the database since their accounting information undergoes a distinct processing that could potentially skew the results; this step reduced the sample size to 605 companies. Finally, we removed all companies with insufficient data for the analysis; this is, all the companies without at least three consecutive years of data. This last procedure resulted in a final sample of 414 companies and 4140 observations from seven different countries (Table 4).

Table 4 - Sample Composition by Country

Country	Number of Firms	%
Greece	72	17.39%
Italy	235	56.76%
Luxembourg	3	0.72%
Netherlands	2	0.48%
Portugal	35	8.45%
Spain	66	15.94%
Switzerland	1	0.24%
Total	**414**	**100%**

To estimate the empirical models of the research, we employed the unbalanced panel data approach on our sample.

3.2. Variables

3.2.1. Dependent Variable

The dependent variable of our research is the capital structure (or the degree of indebtedness), commonly measured in prior research (e.g., Michaelas et al., 1999; Sogorb-

Mira, 2005; Palacín-Sánchez et al., 2013; Daskalakis et al., 2017; Shazad et al., 2020; D'Amato, 2020) through the accounting-based debt ratio (Equation 1), the ratio of the book value of debt to total assets. Nevertheless, past research (e.g., Van der Wijst & Thurik, 1993; Chittenden et al., 1996; Barclay & Smith, 1999; Bevan & Danbolt, 2000a), has also provided evidence that the sole use of the debt ratio masks important repercussions of short-term and long-term debt use. As a result, the two maturity ratios, short-term and long-term debt ratio (Equations 2 and 3), are often employed to improve the accuracy of the analysis.

Given that book values merely reflect the historical records of the company, frequently neglecting other crucial financial information (e.g., investments, stakeholder expectations, external information), several researchers believe that an analysis of market-based proxies for capital structure (when possible) significantly improves the analysis (e.g., O'Brien, 2003; Merchant & Van der Stade, 2007). Therefore, and considering that our sample consists entirely of listed companies, we will also include the market-based version of the three aforementioned ratios to further strengthen the research.

Table 5 - Dependent Variable (Capital Structure) Proxies

Source	Variable	Proxy
Book Values	Debt Ratio	Debt/Total Assets (Equation 1)
	Short-term Debt Ratio	Short-term Debt/Total Assets (Equation 2)
	Long-term Debt Ratio	Long-term Debt/Total Assets (Equation 3)
Market Values	Debt Ratio	Debt/(Total Assets – Book Value of Equity + + Market Value of Equity)
	Short-term Debt Ratio	Short-term Debt/(Total Assets – Book Value of Equity + Market Value of Equity)
	Long-term Debt Ratio	Long-term Debt/(Total Assets – Book Value of Equity + Market Value of Equity)

3.2.2. Independent Variables

To accurately evaluate the influence of financial reporting quality on capital structure, we can categorise the independent variables in our regression into two groups: financial

reporting quality variables and control variables. Control variables are employed with the objective of mitigating the dispersion of results caused by the inherent characteristics of the company or the surrounding market.

Financial Reporting Quality Proxies

Most academic studies tend to adopt either earnings management (or accruals quality), earnings smoothness, or accounting conservatism measures as proxies for financial reporting quality, as stated in the section 2.3. of this research. As such, we will consider these three variables as independent variables in our empirical model. Moreover, we will also consider earnings timeliness, which assesses the timeliness of reporting.

Accruals Quality

As mentioned above, earnings management has been a widely discussed topic in the financial reporting literature and, as a result, there are several measures that allow its calculation (e.g., Jones, 1991; Dechow et al., 1995; Dechow & Dichev, 2002; McNichols, 2002; Larcker & Richardson, 2004; Kothari et al., 2005).

Accordingly, we first choose the Dechow and Dichev's (2002) model (Equations 12, 13, and 14) because of its extensive use in previous research (e.g., Tran, 2022). However, to overcome the lack of financial data from some companies (working accruals and cash flow data in particular), we also choose the Kothari et al. (2005) model (Equation 17), which is often applied to non-listed companies (e.g., Okyere et al., 2020; Mendoza et al., 2021).

To obtain the final data for the empirical model, we initially applied both proxies to an industry-specific database; this approach is necessary due to the significant discrepancies that industry characteristics tend to provoke amongst results. Afterwards, the results were converted into their respective absolute values, as in Duarte et al. (2022), because we want to understand if companies have incurred in earnings management, regardless of whether it was positive or negative. Subsequently, we calculated the mean value in cases where results for both measures were available, as in Gomariz and Ballesta (2014). In this variable, increased levels of discretionary accruals imply greater engagement in earnings management and consequently, lower financial information quality.

Smoothness

Earnings smoothing is also mentioned and studied by researchers focusing on the quality of reporting and capital structure (e.g., Ajay & Madhumati, 2015). Therefore, we included it as one of the independent, variables.

Earnings smoothing is measured using one of the most selected measures in the literature (e.g., Francis et al., 2004; Dechow et al., 2010; Gaio & Raposo, 2011; An et al., 2016; Dang et al., 2018): Leuz et al. (2003) (Equation 22). The model was applied to our sample as shown in Equation 22, where smoothness is measured by dividing the standard deviation of earnings before interest and taxes (EBIT) (over total assets in $t-1$) by the standard deviation of operating cash flow (over total assets in $t-1$) over the last three consecutive years.

Timeliness

Despite not being as frequently discussed in prior literature earnings timeliness is a crucial component of reporting quality, as it monitors the promptness of reporting (Costa et al., 2022). Although data management primarily involves adjusting the amount or distribution of earnings and expenses (e.g., earnings management, earnings smoothness), it is not uncommon for managers to rush or postpone financial reports for personal gain (DeFond & Park, 1997). As a result, we incorporated earnings timeliness into our model.

In previous literature, the measurement of timeliness has frequently been conducted using the models proposed by Basu (1997) or Ball and Shivakumar (2005). However, despite the extensive use of Basu's (1997) model in past research (e.g., Basu, 1997; Pope & Walker, 1999; Givoly & Hayn, 2000; Francis et al., 2004; Benkraiem et al., 2022), we opted for the most recent model, Ball and Shivakumar's (2005) (Equation 28). After applying the chosen model to our dataset, we calculated the variable's results needed for our empirical model by computing the negative adjusted coefficient of determination ($-R^2$) (Equation 27) (Basu, 1997).

Accounting Conservatism

Completing the set of proxies used to assess the quality of financial reporting, we incorporate accounting conservatism, paralleling the approaches of Habib and Hossain (2013) and Salama and Putnam (2015), who explored related topics in their research.

Accounting conservatism measures typically align with earnings timeliness measures since they are frequently studied simultaneously by researchers, as seen in the studies conducted by Basu (1997) and Ball and Shivakumar (2005). To maintain consistency, we will apply Ball and Shivakumar's (2005) model to our dataset. The final conservatism values will be estimated by calculating the negative sum of $\beta_{2,i}$ and $\beta_{3,i}$ to $\beta_{2,i}$, according to Equation 29 (Basu, 1997).

Control Variables

Past literature frequently indicates the importance of company characteristics, whether firm or country-specific, in their degree of indebtedness (Frank & Goyal, 2009; Huang et al., 2016; Okyere et al., 2020). Therefore, we include a variety of control variables in our empirical model to mitigate the discrepancy across results.

Accordingly, our firm-specific variables consist of five measures that are often featured in past research on capital structure (age, size, assets' collateral value, and profitability) (e.g., Frank & Goyal, 2009; Huang et al., 2016; Daskalakis et al., 2017; D'Amato, 2020; Danso et al., 2020), as well as in studies connecting capital structure to financial information quality (the market-to-book value) (e.g., Ajay & Madhumati, 2015; An et al., 2016; Okyere et al., 2020; Adeneye & Kammoun, 2022; Tran, 2022). In our empirical model, (1) age was calculated as the natural logarithm of the number of years since incorporation (D'Amato, 2020); (2) size was calculated as the natural logarithm of the current years' total assets (Daskalakis et al., 2017; García-Sánchez & Noguera-Gámez, 2017; Danso et al., 2020); (3) assets' collateral value was calculated as the ratio of tangible fixed assets to total assets (Kayo & Kimura, 2011; Danso et al., 2020); (4) profitability was calculated as the ratio of earnings before interest and taxes (EBIT) to total assets (Sogorb-Mira, 2005; Daskalakis et al., 2017); and (5) market-to-book value was calculated as the ratio of the sum of the book value of the debt and the market value of the equity to the book value of total assets (An et al., 2016; Dang et al., 2018; Adeneye & Kammoun, 2022).

Since macroeconomic variables are crucial to in justify companies' capital structure (Frank & Goyal, 2009), we included two factors in the empirical model that significantly impact the economy: inflation and GDP per capita, as in Okyere et al. (2020). Inflation was calculated in our empirical model as the annual inflation growth (Bernardo et al., 2018; Lisboa, 2019) and GDP per capita as the annual growth rate of the ratio of gross domestic product to the total population of the country in which the companies operate (Bernardo et al., 2018; Lisboa, 2019). All the data related to the macroeconomic control variables was sourced from Eurostat.

3.3. Methodology

To identify the most suitable model for our research, we analysed the results of the F test, the Breusch-Pagan test, and the Hausman test, comparing the fixed effects, random effects, and Ordinary Least Squares (OLS) models. Before proceeding, we also evaluated the variables' normality using the Kolmogorov-Smirnov test.

Subsequently, we computed Spearman's rho to assess the correlation between the selected variables. Additionally, to corroborate the results obtained from this analysis, we also calculated the variance influence factors (VIF).

We opted for an unbalanced panel data approach to understand the impact of financial reporting quality on capital structure. Since this approach offers a number of advantages, such as: (1) mitigation of collinearity issues (Palacín-Sánchez & Di Pietro, 2016), (2) increasing degrees of freedom (Palacín-Sánchez & Di Pietro, 2016), (3) higher control over heterogeneity (Palacín-Sánchez & Di Pietro, 2016), and (4) reduction of any potential biases in the estimations (Mateev et al., 2013); panel data is a popular method frequently applied in prior research (e.g., Ajay & Madhumati, 2015; Salama & Putnam, 2015; Dang et al., 2018; Gregova et al., 2021; Mendoza et al., 2021; Adeneye & Kammoun, 2022).

Overall, the general model is as follows:

$$Capital\ Structure_{i,t} = \beta_{0,i} + \sum \beta_{1,i,t} * Financial\ Reporting\ Quality_{i,t} + \sum \beta_{2,i,t} * \\ * Internal\ Control\ Variables_{i,t} + \sum \beta_{3,i,t} * External\ Control\ Variables_{i,t} + \\ + \varepsilon_{i,t} \quad (31)$$

Where:

- $Capital\ Structure_{i,t}$: the dependent variable (accounting-based debt ratio, accounting-based short-term debt ratio, accounting-based long-term debt ratio, market-based debt ratio, market-based short-term debt ratio, and market-based long-term debt ratio).
- $Financial\ Reporting\ Quality_{i,t}$: the independent variables concerning financial reporting quality (accruals quality, smoothness, timeliness, and accounting conservatism).
- $Internal\ Control\ Variables_{i,t}$: the firm-specific factors (age, size, assets' collateral value, profitability, and market-to-book value).
- $External\ Control\ Variables_{i,t}$: the macroeconomic factors (inflation and GDP per capita).
- i: each of the analysed companies.
- t: the annual period under analysis.
- ε: the model's errors.

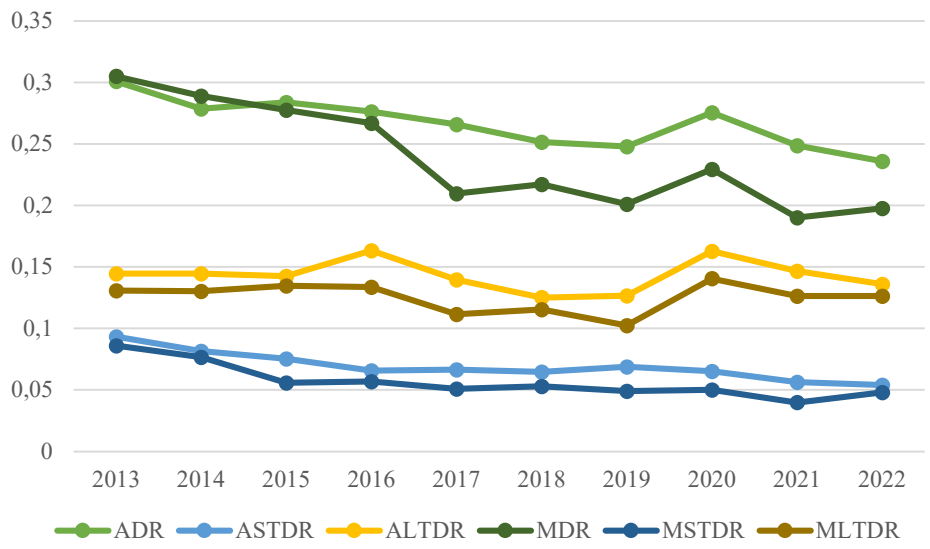
All the statistical analysis present in this research was conducted via Gretl and SPSS.

4. Empirical Results

In the following section, the results of the empirical research will be presented and discussed.

4.1. Descriptive Statistics

After conducting the Kolmogorov-Smirnov test, at a 10% significance level, it was concluded that the variables under analysis do not follow a normal distribution, as proven by the null results obtained (Table A2). Since the variables analysed do not follow normality, Graph 1 illustrates the progression of the median capital structure between 2013 and 2022.



Graph 1 - Evolution of Capital Structure

Source: Author

Notes: ADR: accounting-based debt ratio; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MDR: market-based debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio.

Displaying a significant reliance on equity, companies in the PSI, FTSE/MIB, FTSE/ATHEX, and IBEX 35 have less than 30% of their assets financed by debt (median).

Most of this capital tends to be allocated to long-term debt, as opposed to short-term debt, in accordance with the data presented in Graph 1 and Table 6.

Graph 1 also indicates a minor decline in the general indebtedness over the ten years. However, a much extreme reduction occurred between 2020 and 2022, coinciding with the Covid-19 pandemic which extensively affected the global economy.

Long-term debt appears to be a consistent funding source for the observed firms (Graph 1), as the graph depicts a predominantly stable pattern with little variation. From 2013 to 2022, the long-term debt ratio showed minimal variation, with a median of 12.52% in 2018 and 16.33% in 2020 (book values), a variation of less than 4%. Short-term debt exhibits a comparable range; nonetheless, it has been consistently decreasing (in both book and market values) since 2013, dropping from 9.33% to 5.40% (book values). This suggests that the decrease in debt usage is largely attributable to the steady decrease in short-term debt.

Graph 1 also emphasizes a slight divergence between book and market values, which is reinforced by the mean and median values present in Table 6. The market-based proxies indicate lower ratios, with the discrepancy gradually increasing during the studied period. However, the general debt ratio exhibited an average decline of 3%, while the short-term debt ratio decreased by 1%, and the long-term debt ratio by 2%. Therefore, the results are largely consistent with the accounting-based findings. This decrease also implies that the market value of equity tends to slightly exceed its book value, indicating that external information is prone to improve the firm value (as demonstrated by the median value of the market-to-book value, 113.36%, in Table 6).

Table 6 presents the main descriptive statistics for the variables under analysis. Among the information listed, we present the mean, the median, the standard deviation, the minimum and the maximum value for each variable.

Discretionary accruals, the proxy for accruals quality, displays a mean value of 52.0982, which generally indicates a significant involvement in earnings management by the analysed companies. However, this value is contradicted by the median, 0.4986, and the standard deviation of the variable, 1247.5027, that indicate significant data dispersion and suggest that only a part of the observed firms is involved in substantial earnings management practices. Therefore, it can be assumed that most companies only engage in minimal earnings management, which slightly reduces the quality of financial reporting.

Table 6 - Descriptive Statistics

Variables	Mean	Median	Standard Deviation	Minimum	Maximum
Accounting-based Debt Ratio	0.2909	0.2642	0.2369	0.0000	5.3660
Accounting-based Short-term Debt Ratio	0.1187	0.0678	0.1983	0.0000	5.3660
Accounting-based Long-term Debt Ratio	0.1727	0.1414	0.1600	0.0000	3.0237
Market-based Debt Ratio	0.2541	0.2260	0.1788	0.0000	0.8640
Market-based Short-term Debt Ratio	0.0986	0.0537	0.1298	0.0000	0.8303
Market-based Long-term Debt Ratio	0.1558	0.1252	0.1422	0.0000	0.7820
Discretionary Accruals	52.0982	0.4986	1247.5027	0.0003	72657.6311
Smoothness	8.1012	1.0843	356.9357	0.0048	20594.4601
Timeliness	-0.0030	0.0879	0.5212	-0.9954	1.8982
Accounting Conservatism	234.6409	-1.0000	5141.4313	-14063.3528	100859.5022
Age	43.0585	33.0000	33.4645	2.0000	230.0000
Size	19.5320	19.3762	2.2560	10.8198	26.1152
Assets' Collateral Value	1.1557	0.2273	51.7896	0.0000	3078.5400
Profitability	0.2744	0.0482	13.0130	-1.2431	774.9800
Market-to-Book Value	1.3832	1.1336	0.8854	0.2369	13.2379
Inflation	0.0138	0.0060	0.0259	-0.0140	0.1160
GDP per Capita	0.0097	0.0120	0.0415	-0.1180	0.0864

Previous research on accruals quality generally lack standardisation because of the multiple models commonly used to estimate it. Nonetheless, a substantial part of statistical analysis reveals that companies have a small tendency to manipulate their results (Dang et al., 2018; Okyere et al., 2020; Gregova et al., 2021; Mendoza et al., 2021; Adeneye & Kammoun, 2022).

Displaying a similar pattern, smoothness presents a significant discrepancy between the mean and median values, which is further justified by its high standard deviation. Besides, the dispersion of values also indicates that only a limited number of companies engage in severe earnings smoothing practices, as the median is near one. Prior research indicates that the greater the smoothness ratio, the lower the level of earnings smoothness (Francis et al., 2004; Gaio & Raposo, 2011). Nonetheless, this assumption cannot be applied to the entire sample since the value fluctuates.

Timeliness stands as the financial reporting quality variable with the highest concentration of data. The median value of the variable, 0.0879, is not excessively high, suggesting that the results are communicated promptly. Since previous literature indicates that higher timeliness values are associated with poorer financial reporting quality, it seems that the reporting quality of the analysed companies does not experience a significant decrease as a result of this factor.

In contrast, accounting conservatism has the greatest dispersion of values. Despite the considerable range, the median value of the variable suggests that, overall, the companies under analysis have a slightly greater tendency to verify negative news faster than positive ones. As the value of conservatism increases, the level of conservative practices within the firm decreases, resulting in a reduced financial reporting quality. Prior research on accounting conservatism presents similar characteristics, with values indicating that most companies indulge in minimal conservatism (Habib & Hossain, 2013; Salama & Putnam, 2015). However, the significant standard deviations suggest that a few firms heavily rely on accounting conservatism practices to manipulate their financial data (Habib & Hossain, 2013; Salama & Putnam, 2015).

In terms of firm-specific variables, we find substantial variation in age. Although the sample displays a median age of 33 years, analysed companies range from 2 to 230 years old. This indicates that our sample is comprised of mostly younger companies, with only a few existing for a longer period.

Size presents mean (19.5320) and median values (19.3762) with minimal discrepancies, indicating that, possibly due to their status as listed firms, these companies do not vary significantly in size.

Whilst the median of assets' collateral value rests at approximately 23%, implying that at most half of the analysed companies possess 22.73% of their assets as collateral, the large degree of skewness evidenced by the standard deviation shows that these values differ substantially across our sample.

Considerable volatility is also evident in profitability, that presents a median of 4%, accompanied by a standard deviation of 1301.30%. The findings suggest that, over the ten-year period studied, the profits of these companies experienced significant fluctuations.

Finally, the market-to-book value presents a narrower dispersion, but still with a considerable spectrum (between 0.2369 and 13.2379). With a median of 1.1336, this metric indicates that the market is prone to slightly overvalue the companies in comparison to their book values.

Since the observed companies are from economically similar countries, both the yearly inflation and GDP per capita growth exhibit limited dispersion, displaying a minimal standard deviation.

To avoid multicollinearity issues, a Spearman's correlation analysis was conducted. The findings, presented in Table 7, demonstrate that all the independent variables proposed have weak correlations with each other. Therefore, all were kept in the empirical model.

Table 7 - Spearman's Correlations

	ADR	ASTDR	ALTDR	MDR	MSTDR	MLTDR	DA	SMOOTH	TIME
ADR	1								
ASTDR	0.5160***	1							
ALTDR	0.6890***	-0.0890***	1						
MDR	0.8640***	0.4860***	0.5850***	1					
MSTDR	0.4940***	0.9370***	-0.0630***	0.6180***	1				
MLTDR	0.6360***	-0.0640***	0.9280***	0.7060***	0.0520***	1			
DA	0.0267*	0.0720***	-0.0066*	0.0289*	0.0710***	-0.0000*	1		
SMOOTH	-0.0265*	-0.0168*	0.0144*	-0.0308*	-0.0156*	0.0043*	-0.0720***	1	
TIME	0.0750***	0.0900***	0.0199*	0.0710***	0.0890***	0.0249*	0.0460***	-0.0630***	1
CONSERV	-0.0450***	0.0360**	-0.0640***	-0.0000*	0.0690***	-0.0242*	0.0740***	-0.0390**	0.0313*
LAGE	0.0440***	-0.0133*	0.0800***	0.0880***	0.0324*	0.0820***	-0.0283*	0.0265*	-0.0470***
SIZE	0.1180***	-0.2770***	0.3960***	0.1060***	-0.2370***	0.3740***	-0.0360**	0.0305*	-0.1090***
COLLVALUE	0.2110***	-0.0048*	0.2400***	0.2040***	0.0123*	0.2320***	-0.0520***	0.0340**	-0.0550***
PROFIT	-0.2140***	-0.1970***	-0.0390**	-0.3280***	-0.3110***	-0.1280***	- .1020***	0.0940***	-0.1600***
MTBVALUE	-0.0195*	-0.0450***	-0.0153*	-0.4440***	-0.3360***	-0.3130***	-0.0184*	0.0205*	-0.0580***
INFLATION	-.0900***	-0.0830***	-0.0163*	-0.1390***	-0.1160***	-0.0490***	-0.2220***	0.0014*	-0.0050*
GDP	-0.0238*	-0.0840***	0.0510***	-0.0570***	-0.1090***	0.0240*	-0.1450***	-0.0319*	-0.0051*

***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Notes: ADR: accounting-based debt ratio; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MDR: market-based debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio; DA: discretionary accruals; SMOOTH: earnings smoothness; TIME: earnings timeliness; CONSERV: accounting conservatism; LAGE: natural logarithm of age; SIZE: size; COLLVALUE: assets' collateral value; PROFIT: profitability; MTBVALUE: market to book value; INFLATION: annual inflation rate; GDP: annual GDP per capita rate.

Spearman's Correlations								
	CONSERV	**LAGE**	**SIZE**	**COLLVALUE**	**PROFIT**	**MTBVALUE**	**INFLATION**	**GDP**
ADR								
ASTDR								
ALTDR								
MDR								
MSTDR								
MLTDR								
DA								
SMOOTH								
TIME								
CONSERV	1							
LAGE	0.0370**	1						
SIZE	-0.0950***	0.2350***	1					
COLLVALUE	-0.0156*	0.2200***	0.2450***	1				
PROFIT	-0.1230***	-0.0165*	0.1840***	0.0510***	1			
MTBVALUE	-0.0980***	-0.1140***	-0.0680***	-0.0440**	0.3560***	1		
INFLATION	-0.0072*	0.0193*	0.0610***	-0.0620***	0.1170***	0.1060***	1	
GDP	-0.0104*	0.0660***	0.0610***	0.0187*	0.1010***	0.0600***	0.5500***	1
***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.								

Notes: ADR: accounting-based debt ratio; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MDR: market-based debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio; DA: discretionary accruals; SMOOTH: earnings smoothness; TIME: earnings timeliness; CONSERV: accounting conservatism; LAGE: natural logarithm of age; SIZE: size; COLLVALUE: assets' collateral value; PROFIT: profitability; MTBVALUE: market to book value; INFLATION: annual inflation rate; GDP: annual GDP per capita rate.

Table 7 indicates a positive correlation between discretionary accruals and both total and short-term debt. These findings align with those of multiple cited studies (e.g., Tahir et al., 2011; An et al., 2016; Nikoomaram et al., 2016; Dang et al., 2018; Okyere et al., 2020; Adeneye & Kammoun, 2022; Tran, 2022), which suggest that firms with higher levels of earnings management practices, and lower financial reporting quality, have higher indebtedness. However, it is worth noting that long-term debt displays an opposite correlation, implying that firms engaging in earnings management use less long-term debt, as found in the studies by Gregova et al. (2021) and Mendoza et al. (2021).

The smoothness ratio presents a negative correlation with both total and short-term debt, indicating that reduced earnings smoothness (i.e., a higher ratio) decreases firms' indebtedness. However, there seems to be a positive correlation between long-term debt and the variable, i.e., a rise in earnings smoothing practices contributes to an increase of long-term debt. This evidence validates the findings of Ajay and Madhumati (2015) and implies that debt maturity affects the results.

Timeliness demonstrated positive correlations with all capital structure proxies. Higher timeliness ratios suggest that information in reports does not meet stakeholders' needs, indicating lower reporting quality. Consequently, debtholders may find it more challenging to accurately assess the firm's value, which affects their decisions regarding lending.

Past research on the relationship between accounting conservatism and debt suggests that conservatism practices increase corporate leverage (Habib & Hossain, 2013; Salama & Putnam, 2015). Our results are predominantly consistent with these findings, as the identified values are not excessively high, implying good conservatism practices.

To further ensure that the empirical model did not suffer from collinearity issues, we also calculated the variance inflation factors (Table A3). The findings of this analysis corroborated the ones previously found through Spearman's correlations.

4.2. Empirical Model

To accomplish the purpose of this research, which is to comprehend the impact of financial reporting quality on capital structure, we applied a regression model to our data. The full procedure is explained in detail below.

We initiated our analysis by computing the F test, the Breusch-Pagan test, and the Hausman test to establish which methodology was more appropriate for our data (the fixed effects model, the random effects model, or the standard OLS regression). All these statistical tests are conducted at a significance level of 10%. Since all tests resulted in null significance values (Table A1), the fixed effects model was employed.

Our empirical model, present in Table 8, comprises only nine of the eleven independent variables originally proposed. This is a result of the time-invariant nature of timeliness and accounting conservatism, which makes their estimation in a fixed effects model infeasible, leading to perfect collinearity (Duarte et al., 2022). Consequently, the variables are omitted in fixed effects models.

Even though the correlation between discretionary accruals and most debt variables was positive, apart from long-term debt, the variable is only statistically significant to negatively explain the accounting-based debt ratio. This result suggests that firms demonstrating better financial reporting quality, with fewer discretionary accruals, exhibit higher levels of indebtedness. Similar results were reported in the studies conducted by Gregova et al. (2021) and Mendoza et al. (2021), who argue that firms deliberately inflate their profits to minimize the impact of debt on their operations, conceal their actual performance, and strengthen management control.

Smoothness, the other financial reporting quality proxy, shows no relevance to any of the capital structure measures. Our results suggest that firms' indebtedness cannot be attributed to earnings smoothing throughout the analysed period. Accordingly, our findings do not confirm the conclusions of Ajay and Madhumati (2015), who discovered that smoothness results in a reduction of corporate leverage.

In terms of control variables, age has a significant impact on capital structure, except for the market-based long-term debt proxy. In general, age appears to have a negative impact on most capital structure proxies, indicating that older firms tend to rely on equity to finance themselves. This aligns with the pecking order theory, which suggests that companies prefer to finance their activities using internal capital before seeking external capital (Myers, 1984; D'Amato, 2020). On the other hand, the positive impact of age on the accounting-based long-term debt ratio demonstrates that older firms tend to accumulate more long-term debt. This is consistent with the trade-off theory, which suggest that companies will opt for debt acquisition over issuing additional equity (Frank & Goyal, 2003; D'Amato, 2020).

Table 8 - Empirical Model (Fixed Effects)

	Accounting-based Ratios			Market-based Ratios		
	Debt Ratio	**Short-term Debt Ratio**	**Long-term Debt Ratio**	**Debt Ratio**	**Short-term Debt Ratio**	**Long-term Debt Ratio**
Constant	0.0080	0.3933***	-0.4456***	-0.3133***	0.1729*	-0.5022***
Discretionary Accruals	-0.0000*	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
Smoothness	-0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000
Age	-0.0564***	-0.0946***	0.0314*	-0.1033***	-0.0990***	-0.0061
Size	0.0209***	0.0003	0.0246***	0.0499***	0.0151***	0.0359***
Assets' Collateral Value	0.1284***	0.0334**	0.1018***	0.0710***	0.0061	0.0667***
Profitability	-0.2445***	-0.1524***	-0.1100***	-0.0933***	-0.0347**	-0.0637***
Market-to-Book Value	0.0362***	0.0353***	0.0040	-0.0444***	-0.0135***	-0.0301***
Inflation	-0.1158	0.0090	-0.1086	-0.2587***	-0.1510**	-0.1035
GDP	-0.1055**	-0.0747	-0.0379	-0.1128***	-0.0734**	-0.0414
	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects

***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Based on our findings, a company's size is also a significant factor in capital structure. In our model, size is highly relevant in five out of the six indebtedness ratios, with exception to the accounting-based short-term debt ratio. In all the indicators affected, size exhibits a positive effect, indicating that larger firms rely more on debt financing. Accordingly, this variable appears to follow the trade-off theory approach, whereby larger companies prefer debt to equity due to its fiscal advantages (e.g., reduction of the taxable income) (Warner, 1977; Frank & Goyal, 2003).

The collateral value of assets is also considerably relevant in our model (apart from the market-based short-term debt ratio). With a positive impact on all capital structure proxies, the collateral value of assets in our sample is consistent with the trade-off theory, that suggests that firms accumulate more debt to use their offsetting benefits (Myers, 1977; Rajan & Zingales, 1995; D'Amato, 2020).

Profitability consistently displays negative values, indicating that lucrative firms tend to fund themselves using retained profits and internal resources, aligning with the principles of the pecking order theory (Rajan & Zingales, 1995; Myers, 1984; D'Amato, 2020).

Likewise, market-to-book value also shows great relevance for the capital structure proxies (except for the accounting-based long-term debt ratio), demonstrating a positive effect on accounting-based ratios, as in Dang et al. (2018) and Adeneye and Kammoun (2022), and the opposite effect on the market-based ratios, as in Salama and Putnam (2015), An et al. (2016), Dang et al. (2018), and Tran (2002). This discrepancy in the findings can be attributed to the market timing theory, as when the market overvalues companies in comparison to their book value, there is less demand for debt; however, this outcome is not accounted for in the book values of the debt.

In terms of macroeconomic factors, inflation seems to negatively impact total and short-term market-based ratios, indicating that companies tend to reduce their borrowed capital when facing financial constraints, probably to minimize the risk of default. These results contradict the correlation previously found by Okyere et al. (2020), which predominantly suggested that inflation increased corporate leverage.

Finally, it seems that GDP per capita only affects a few debt proxies, such as the accounting-based debt ratio and the market-based debt and short-term debt ratios. Aligning with An et al.'s (2016) results, GDP per capita appears to reduce firms' debt, implying that during

financial prosperity, companies tend to restrict external financing and favour internal sources.

In order to address the limitations of our fixed effects model, this is the absence of timeliness and accounting conservatism, we conducted a standard OLS regression (Table 9). Since this model includes all the initially proposed variables, it allows for a more comprehensive evaluation of the possible impact of financial reporting quality on capital structure.

In the first model estimated, discretionary accruals were found to explain the accounting-based debt ratio at a significance level of 10%. However, in the subsequent OLS model, this variable showed no relevance to any of the capital structure proxies. Still, earnings management can be detected through other financial reporting quality proxies.

On the contrary, the absence of statistical significance for smoothness in the fixed effects model is now offset by its relevance in the accounting-based long-term debt ratio. The positive coefficient suggests that the higher the ratio of smoothness, which increases financial reporting quality, the higher the corporate leverage, in accordance with Ajay and Madhumati's (2015) findings.

Timeliness, another financial reporting quality proxy, shows a significant impact on four out of six capital structure indicators, namely the total debt and long-term debt ratios, implying that rushing or delaying financial reporting affects the company's indebtedness. Our findings indicate that less timely earnings, identified by higher timeliness values, contribute to increased debt levels possibly due to firms' desire of concealing their true financial situation.

In line with past research (Habib & Hossain, 2013; Salama & Putnam, 2015), accounting conservatism practices reveals a statistically significant impact on capital structure for both total debt and long-term debt ratios. Our findings suggest that companies implementing more conservative practices (i.e., exhibiting smaller conservatism ratios) and providing higher quality of financial information are prone to be more indebted.

Table 9 - Empirical Model (OLS)

	Accounting-based Ratios			Market-based Ratios		
	Debt Ratio	**Short-term Debt Ratio**	**Long-term Debt Ratio**	**Debt Ratio**	**Short-term Debt Ratio**	**Long-term Debt Ratio**
Constant	0.1973***	0.4051***	-0.2056***	0.2605***	0.3954***	-0.1336***
Discretionary Accruals	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
Smoothness	0.0000	-0.0000	0.0000*	0.0000	-0.0000	0.0000
Timeliness	0.0298***	0.0085	0.0215***	0.0206***	0.0029	0.0178***
Accounting Conservatism	-0.0000***	-0.0000	-0.0000***	-0.0000***	-0.0000	-0.0000***
Age	-0.0029	0.0088***	-0.0117***	0.0021	0.0090***	-0.0069**
Size	0.0036**	-0.0170***	0.0205***	0.0040***	-0.0147***	0.0187***
Assets' Collateral Value	0.1520***	0.0312***	0.1203***	0.1136***	0.0273***	0.0859***
Profitability	-0.3358***	-0.1531***	-0.1801***	-0.1525***	-0.0493***	-0.1016***
Market-to-Book Value	0.0084**	0.0075**	0.0008	-0.0783***	-0.0295***	-0.0489***
Inflation	-0.4060***	-0.3164***	-0.0915	-0.5863***	-0.4283***	-0.1594
GDP	0.0074	-0.0038	0.0095	0.0084	-0.0093	0.0171
	OLS	OLS	OLS	OLS	OLS	OLS

***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

There were some differences detected among the control variables, as well. In the original model, age had a significant, and predominantly negative, effect on the six capital structure indicators. Conversely, in the OLS model, age only has relevance when analysing debt maturity, having a positive effect on short-term debt and a negative effect on long-term debt. Therefore, the OLS model indicates that older companies tend to favour short-term debt, while younger companies tend to opt for long-term debt, as suggested by the pecking order theory (Myers, 1984; Rajan & Zingales, 1995).

Size's findings only partially support the values discovered in the initial model estimation, as they demonstrate significance for the six of the debt-related measures. Despite maintaining a positive effect on the debt and long-term debt ratios (still following the trade-off theory approach, where larger companies favour issuing debt over equity) (Frank & Goyal, 2003; D'Amato, 2020), the negative values of the short-term debt ratios imply that this source of financing is more prevalent among smaller companies.

The firm-specific factors remaining stay mostly consistent: the collateral value of assets continues to positively impact debt, but now is relevant to all proxies; profitability maintains its relevance and negative impact on the ratios; and the market-to-book value still impacts the same five capital structure measures (apart from accounting-based long-term debt ratio), showing a positive impact for the accounting ratios and negative for the market ones.

In terms of macroeconomic factors, inflation ceases to be significant for long-term debt and continues to negatively affect the other variables. Conversely, GDP per capita becomes completely irrelevant in the model, losing its impact.

As an additional analysis, we investigate whether the economies that faced substantial financial difficulties during the 2008 economic recession produce distinct results in comparison to those of the other economies.

In response to the severe financial distress, the European Commission, the European Central Bank, and the International Monetary Fund collaboratively established a decision-making group, known as Troika, to manage the emergency funds to prevent the bankruptcy of Cyprus, Greece, Ireland, and Portugal (Castillo-Manzano et al., 2020). During the economic recession, the abbreviation PIGS gained popularity as a pejorative term for the economies of Portugal, Italy, Greece, and Spain (Krouse, 2012). Subsequently, there was an effort to encompass Ireland, resulting in the alternative abbreviations PIIGS (Krouse, 2012) or GIPSI (Castro, 2013).

Therefore, the following analysis aims to investigate potential differences in the financial reporting quality amongst the countries that relied on Troika and those that have not. Table 10 analyses the effects of financial reporting quality on the capital structure of Greek and Portuguese companies, as both countries sought assistance from Troika, while Table 11 demonstrates the findings related to the other companies. All regressions presented were estimated through the OLS model.

Upon analysis of both tables, singular conclusions can be drawn. Discretionary accruals, which measures the quality of accruals, shows no statistical significance for any capital structure proxy among the companies affected by Troika's intervention. However, it does negatively explain the market-based short-term debt ratio of the remaining firms. Therefore, it is suggested that firms that resort to earnings management practices, resulting in decreased financial reporting quality, present lower short-term debt.

Smoothness is only significant to explain the accounting-based long-term debt ratio of firms from countries unaffected by Troika policies, whereas it has no statistically significant impact on others. Accordingly, when companies from Italy, Luxembourg, the Netherlands, Spain, and Switzerland present higher smoothness ratios, which indicates better financial reporting quality, they also tend to increase their long-term debt.

The impact of timeliness varies between the two subsamples. For Portuguese and Greek companies, the ones impacted by Troika's intervention, timeliness shows a significant and negative impact on the accounting-based debt ratio and both short-term debt ratios. Accordingly, Portuguese and Greek companies that issue their reports more promptly tend to present higher debt levels. For the other subsample, consisting of companies from Italy, Luxembourg, the Netherlands, Spain, and Switzerland, the effect of timeliness is identical to that of the overall sample, where less timely earnings (i.e., higher timeliness values) contribute to increased debt levels. This conclusion suggests that the reformative measures implemented by Troika affected the timeliness of firms.

Finally, regarding accounting conservatism, the findings illustrate a statistically significant and negative impact on debt across the two subsamples, consistent with the results from the global sample.

Table 10 - Empirical Model (Companies affected by Troika Policies)

	Accounting-based Ratios			Market-based Ratios		
	Debt Ratio	**Short-term Debt Ratio**	**Long-term Debt Ratio**	**Debt Ratio**	**Short-term Debt Ratio**	**Long-term Debt Ratio**
Constant	0.4282***	0.4577***	-0.0301	0.5272***	0.5437***	-0.0175
Discretionary Accruals	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
Smoothness	-0.0040	-0.0037	-0.0002	-0.0017	-0.0029	0.0014
Timeliness	-0.0291*	-0.0250*	-0.0040	-0.0215	-0.0235*	0.0023
Accounting Conservatism	-0.0002***	-0.0000*	-0.0002***	-0.0002***	-0.0000	-0.0002***
Age	-0.0486***	0.0068	-0.0552***	-0.0282**	0.0095	-0.0374***
Size	-0.0022	-0.0194***	0.0172***	-0.0008	-0.0205***	0.0197***
Assets' Collateral Value	0.1572***	0.0840***	0.0728***	0.1340***	0.0738***	0.0596***
Profitability	-0.6732***	-0.4220***	-0.2505***	-0.4639***	-0.2656***	-0.1974**
Market-to-Book Value	0.0942***	0.0212*	0.0727***	-0.0961***	-0.0473***	-0.0492***
Inflation	-0.3399	-0.4584*	0.1175	-0.5754**	-0.6032***	0.0262
GDP	-0.0187	0.0662	-0.0838	-0.0002	0.0520	-0.0505

***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Table 11 - Empirical Model (Companies unaffected by Troika Policies)

	Accounting-based Ratios			Market-based Ratios		
	Debt Ratio	**Short-term Debt Ratio**	**Long-term Debt Ratio**	**Debt Ratio**	**Short-term Debt Ratio**	**Long-term Debt Ratio**
Constant	0.1149***	0.3517***	-0.2338***	0.1264***	0.2936***	-0.1654***
Discretionary Accruals	-0.0000	-0.0000	0.0000	-0.0000	-0.0000*	0.0000
Smoothness	0.0000	-0.0000	0.0000*	0.0000	-0.0000	0.0000
Timeliness	0.0475***	0.0208***	0.0269***	0.0353***	0.0137***	0.0218***
Accounting Conservatism	-0.0000***	-0.0000	-0.0000***	-0.0000***	-0.0000	-0.0000***
Age	0.0054	0.0071**	-0.0020	0.0085**	0.0070***	0.0014
Size	0.0056***	-0.0141***	0.0196***	0.0080***	-0.0098***	0.0178***
Assets' Collateral Value	0.1374***	-0.0069	0.1438***	0.0914***	-0.0115	0.1026***
Profitability	-0.3031***	-0.1187***	-0.1818***	-0.1254***	-0.0200	-0.1037***
Market-to-Book Value	0.0087**	0.0092***	-0.0007	-0.0672***	-0.0233***	-0.0440***
Inflation	-0.2593*	-0.1571	-0.1051	-0.2966**	-0.1970**	-0.1014***
GDP	-0.0484	-0.0477	-0.0031	-0.0651	-0.0629	-0.0038

***, **, and * indicate the statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

In terms of control variables, age is relevant for the total debt and long-term debt ratios of Greek and Portuguese firms. For the remaining companies observed, there is more limited statistical significance, with age only affecting the total market-based debt ratio and both short-term debt ratios. Age appears to have a negative impact on debt for companies subject to Troika policies, in line with the pecking order theory, whereas for other companies, it has a positive impact on debt, according to the trade-off theory approach. This could potentially be a result of indebtedness constraints, that led older firms to favour internal finances as opposed to borrowed capital.

For Portuguese and Greek companies, the impact of size is only significant for the debt maturity ratios: short-term and long-term debt. Moreover, it appears that the impact of size hinges on maturity, as short-term debt ratios are negatively affected by size, whereas long-term debt ratios display the opposite scenario. For companies unaffected by Troika's intervention, the scenario is comparable, apart from the increase in statistical significance due to the inclusion of the total debt ratios, which experience a positive impact from size. It is worth noting that firms experience a positive impact on their total and long-term debt ratios, consistent with a trade-off theory perspective, while short-term debt ratios are negatively affected by the variable, which aligns with the pecking order approach. Notably, these findings align with the ones find trough the global analysis.

The statistical evidence also emphasises the importance of the collateral value of assets on all debt measures across both samples, excluding the short-term debt ratios of the companies unaffected by Troika policies. The findings, which align with previous ones reported, indicate that assets' collateral value has a positive impact on all debt metrics, with this hypothesis remaining true regardless of the potential influence of the Troika rules. Therefore, it can be argued that the variable operates according to a trade-off approach.

Profitability is also coherent across both models, having a negative impact on all capital structure measures, except for the market-based short-term debt ratio in the Troika-unaffected sample. These findings are in line with the previous two model estimations, which suggest that profitability adheres to the pecking order theory approach.

Consistent with our past research, the market-to-book value holds considerable statistical significance for capital structure, except for the accounting-based long-term debt ratio for the firms unaffected by Troika. Market-to-book value generates a positive impact on book

ratios and yields the opposite impact on the market-based proxies, demonstrating consistent signals across both samples.

Inflation appears to negatively affect debt across both samples, with Portuguese and Greek companies exhibiting statistical significance for the total market-based debt ratio and both short-term debt ratios, while the sample comprising the remaining companies presents additional evidence for the market-based long-term debt ratio. Despite the inconsistencies in the affected ratios, inflation constantly impacts debt negatively across all samples and all estimated models.

Lastly, and similarly to the first OLS model, GDP per capita shows no statistical significance for any of the capital structure proxies in the two analysed groups, indicating that it has no impact on debt. Table 12 below presents a summary of the models' results.

Overall, the estimated regressions indicate that discretionary accruals and smoothness are statistically significant only in specific cases: the fixed effects accounting-based debt ratio and the OLS accounting-based long-term debt ratio, respectively. By contrast, earnings timeliness and accounting conservatism displayed greater relevance, albeit affecting only the total debt and long-term debt ratios.

Our study provides consensual findings. The results for discretionary accruals, smoothness, and accounting conservatism imply that inferior financial reporting quality reduces indebtedness. In contrast, timeliness, the other financial reporting quality measure, suggests that a decrease in reporting quality leads firms to accumulate greater levels of debt, but this only applies to firms not affected by Troika's intervention.

Past literature suggests that managers may enhance profits through discretionary accruals to weaken the impact of debt control and strengthen corporate management, potentially justifying the variable's negative impact on leverage (Mendoza et al., 2021). Accordingly, superior accruals quality (i.e., reduced discretionary accruals), indicates better quality of financial reporting and increased indebtedness.

Smoothness displays a similar dynamic, whereby increased financial reporting quality results in an increase in debt levels. Firms that resort to smoothing practices, which compromises their reporting quality, are considered riskier by stakeholders; this results in an increased debt rate, forcing firms to seek for alternative financing methods (Ajay & Madhumati, 2015).

Table 12 - Variable Results

	Global Analysis				Subsample Analysis			
	Fixed Effects Model		OLS Model		Countries Affected by Troika		Countries Unaffected by Troika	
Variables	**Accounting Results**	**Market Results**	**Accounting Results**	**Market Results**	**Accounting Results**	**Market Results**	**Accounting Results**	**Market Results**
Discretionary Accruals	–	NS	NS	NS	NS	NS	NS	–
Smoothness	NS	NS	+	NS	NS	NS	+	NS
Timeliness	OMT	OMT	+	+	–	–	+	+
Accounting Conservatism	OMT	OMT	–	–	–	–	–	–
Age	– (+ for ALTDR)	–	+ for ASTDR – for ALTDR	+ for MSTDR – for MLTDR	–	–	+	+
Size	+	+	+ (– for ASTDR)	+ (– for MSTDR)	– for ASTDR + for ALTDR	– for MSTDR + for MLTDR	+ (– for ASTDR)	+ (– for MSTDR)
Assets' Collateral Value	+	+	+	+	+	+	+	+
Profitability	–	–	–	–	–	–	–	–
Market-to-book Value	+	–	+	–	+	–	+	–
Inflation	NS	–	–	–	–	–	–	–
GDP	–	–	NS	NS	NS	NS	NS	NS

Notes: +: positive; –: negative; NS: non-significant; OMT: omitted; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio.

Accounting conservatism follows a comparable pattern, whereby better financial reporting quality denotes greater leverage. Past research indicates that engaging in conservatism practices results in decreased information asymmetry between the company and its stakeholders; consequently, firms are granted access to more cost-effective borrowing options (Salama & Putnam, 2015).

For timeliness, the remaining proxy, firms that present less timely earnings have inferior financial reporting quality. This could be attributed to a decline in the company's transparency and reliability to stakeholders, which leads to a rise in equity cost. As a result, firms might opt for debt to minimise expenses, resulting in increased debt.

In a supplementary analysis, we assessed how financial reporting quality impacted the indebtedness of companies subject to Troika's intervention in comparison to those that were unaffected. Our findings indicate distinct results for the two subsamples. Our evidence suggests that neither discretionary accruals nor smoothness have any relevance in explaining the capital structure of firms affected by Troika's intervention. Timeliness shows contrasting results compared to the global analysis, as it currently exhibits a negative impact on the capital structure of Portuguese and Greek companies. This suggests that a decrease in financial reporting quality results in a reduction of debt. Lastly, both subsamples present accounting conservatism results that are congruent with previous findings. For the companies unaffected by Troika's policies, there were no significant changes as the variables' impact on debt remained in accordance with the results of the overall analysis.

Moreover, the results present in Table 12 indicate that a single capital structure theory is insufficient to fully explain the empirical models. Therefore, the pecking order theory and trade-off theory intertwine to provide an all-encompassing explanation of the capital structure determinants and their effects on our empirical models. The subsamples yield comparable results, indicating that both approaches are still required to comprehensively elucidate the estimated regressions.

5. Conclusions

This dissertation investigates financial reporting quality's impact on capital structure. Our empirical model is based on a sample of 414 listed firms, observed between 2013 and 2022, from four different stock exchanges: the PSI, the FTSE/MIB, the FTSE/ATHEX, and the IBEX 35. To estimate the regressions, we employed an unbalanced panel data method on the collected data.

To conduct a more detailed analysis of the effect of reporting quality on debt, we selected six capital structure indicators: the total debt ratio, the short-term debt ratio, and the long-term debt ratio, both in book and market values. For financial reporting quality, we employed four measures (accruals quality, smoothness, timeliness, and accounting conservatism) that capture distinct qualities of the subject to properly assess the reporting quality of the companies in our sample. Our empirical model also includes several control variables that aim to mitigate the dispersion of data at the company level, including age, size, assets' collateral value, profitability, and market-to-book value, and at the macroeconomic level, with inflation and GDP per capita.

Our primary research provides conflicting evidence regarding the effect of financial reporting quality on debt. According to our results, resorting to earnings management practices, which reduce accrual quality, to smoothness, or accounting conservatism practices results in a decline in financial reporting quality, subsequently leading to decreased indebtedness. In contrast, engaging in timeliness practices also results in a reduction of financial reporting quality; however, in this case it is prone to increase debt.

Our additional analysis investigated the effect of financial reporting quality on debt in companies that were impacted by Troika policies compared to those that were not. While our main findings were upheld for companies not subject to Troika's intervention, the Portuguese and Greek companies, impacted by Troika policies, exhibited significant differences in their results. First, neither discretionary accruals nor smoothness yielded any statistical significance in explaining capital structure. Subsequently, we found that timeliness has a negative impact on Portuguese and Greek companies' debt. Therefore, accounting conservatism is the only variable that provides a consistent outcome throughout all analyses.

Moreover, our data indicates that both firm-specific and macroeconomic control variables demonstrate substantial statistical relevance when explaining capital structure, despite not all variables being relevant. Furthermore, the control variables seem to combine elements of both the pecking order and trade-off theories, as demonstrated by the conflicting results, suggesting that neither of these theories completely clarify the models. These observations also apply when analysing the subsamples. Therefore, it is necessary to consider both approaches to fully comprehend the findings.

Even though the dissertation achieves the intended objective, it also has a few limitations that are worth noting. Despite aiming for listed companies to comprehend the capital structure at an accounting and market-based level, it is important to note that listed companies tend to only make up a small portion of the total market and are, as a result, not a representative sample of all companies in the countries reviewed. Therefore, further research could investigate a wider sample compiling listed and non-listed companies to gain a deeper understanding of how multiple capital structures are affected by financial reporting quality.

Our study was also limited to four stock exchanges from developed countries with similar financial environments, which restricts the possibility of generalising our findings to companies from other countries with distinct macroeconomic backgrounds. Further investigation could tackle this limitation to obtain a more detailed understanding of the potential impact of the macroeconomic context on this relationship between debt and financial reporting quality.

Lastly, we only applied four of the seven financial reporting quality measures found in previous research. Therefore, our findings on reporting quality are restricted to the variables that were applied in our empirical model. A more thorough investigation, encompassing additional or even all the variables, may produce more complete findings regarding the influence of financial reporting quality on capital structure.

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7. Appendices

Table 13 - F Test, Breusch-Pagan Test, and Hausman Test

	ADR	ASTDR	ALTDR	MDR	MSTDR	MLTDR
F Test	0.000	0.000	0.000	0.000	0.000	0.000
Breusch-Pagan Test	0.000	0.000	0.000	0.000	0.000	0.000
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000

Notes: ADR: accounting-based debt ratio; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MDR: market-based debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio.

Table 14 - Kolmogorov-Smirnova's Normality Test

	Statistics	Observations	Sig.
DA	0.4830	3466	0.0000
SMOOTH	0.4910	3331	0.0000
TIME	0.0980	3625	0.0000
CONSERV	0.4800	3986	0.0000
LAGE	0.0440	4052	0.0000
SIZE	0.0450	3686	0.0000
COLLVALUE	0.4970	3533	0.0000
PROFIT	0.4870	3547	0.0000
MTBVALUE	0.1980	3382	0.0000
INFLATION	0.2860	4140	0.0000
GDP	0.2010	4140	0.0000

Notes: DA: discretionary accruals; SMOOTH: earnings smoothness; TIME: earnings timeliness; CONSERV: accounting conservatism; LAGE: natural logarithm of age; SIZE: size; COLLVALUE: assets' collateral value; PROFIT: profitability; MTBVALUE: market to book value; INFLATION: annual inflation rate; GDP: annual GDP per capita rate.

Table 15 - Collinearity Statistics: Variance Inflation Factor

	ADR	ASTDR	ALTDR	MDR	MSTDR	MLTDR
Discretionary Accruals	1.0020	1.0022	1.0020	1.0020	1.0022	1.0020
Smoothness	1.0020	1.0016	1.0020	1.0020	1.0016	1.0020
Timeliness	1.0290	1.0291	1.0290	1.0290	1.0291	1.0290
Accounting Conservatism	1.0070	1.0075	1.0070	1.0070	1.0075	1.0070
Age	1.0300	1.0307	1.0300	1.0300	1.0307	1.0300
Size	1.0680	1.0684	1.0680	1.0680	1.0684	1.0680
Assets' Collateral Value	1.0730	1.0734	1.0730	1.0730	1.0734	1.0730
Profitability	1.1250	1.1237	1.1250	1.1250	1.1237	1.1250
Market-to-Book Value	1.0900	1.0898	1.0900	1.0900	1.0898	1.0900
Inflation	1.2610	1.2614	1.2610	1.2610	1.2614	1.2610
GDP	1.2540	1.2536	1.2540	1.2540	1.2536	1.2540

Notes: ADR: accounting-based debt ratio; ASTDR: accounting-based short-term debt ratio; ALTDR: accounting-based long-term debt ratio; MDR: market-based debt ratio; MSTDR: market-based short-term debt ratio; MLTDR: market-based long-term debt ratio.