The impact of family control on capital structure on emerging economies

Master degree in Corporate Finance

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Leiria, September of 2022

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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.

Dedication

To my parents,

I dedicate this work to my parents, Leandro and Rafaela (Basy). Thank you for all your constant motivation and love. Thank you for always believing in me and supporting my decision to conduct a second master's degree. You are the best encouragers anyone could ask for, without both of you, I could not have done any of this. Thank you for teaching me to push through the hard times, believing in me and the rewards of hard work.

With all my love,

Lisbeth

A mis padres,

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Abstract

Family firms are the leading pillar of the economy in most emerging and developed economies, representing between 60% to 90% of non-governmental gross domestic product (GDP). Therefore, Family firms' decisions about their capital structure have a significant weight on a country's economy, and the study on how the determinants of capital structure is affected by family firms' decisions has become an important research topic. However, so far, despite the significant expansion of firms from emerging countries in recent years, the studies regarding Latin American family firms are limited. Therefore, the work examined how family governance-related factors impacts capital structure decisions in multinationals firms from Latin America, and how the board of directors and female presence within the board can influence its effect. The work is empirically tested by an unbalanced data panel model using the Generalized Method of Moments (GMM) system of 85 firms from six Latin American countries for the period 2011-2021. The capital structure determinants results were mostly mixed, with family firm control showing a mostly positive effect on the levels of indebtedness, while Gender Diversity showed the contrary effect. Macroeconomic factors demonstrated that they impact the capital structure in emerging economies.

Keywords: Capital structure, Family Firms, Emerging Economies, Board of Directors, Gender Diversity.

Resumo

As empresas familiares são o principal pilar da economia na maioria das economias emergentes e desenvolvidas, representando entre 60% a 90% do produto interno bruto (PIB). Deste modo, as decisões das empresas familiares sobre a sua estrutura de capital têm um peso significativo na economia de um país, pelo que estudar como os determinantes da estrutura de capital são afetados pelas decisões das empresas familiares tornou-se um importante tópico de pesquisa. No entanto, até ao momento, apesar da significativa expansão de empresas de países emergentes nos últimos anos, os estudos sobre empresas familiares latino-americanas são limitados. Este estudo visa então analisar como os fatores relacionados com o controlo familiar impacta as decisões de estrutura de capital nas empresas multinacionais da América Latina, e como o conselho de administração e a presença feminina no conselho podem influenciar o seu efeito. O trabalho é testado empiricamente por um modelo de dados em painel não balanceado usando o método de estimação *Generalized Method of Moments* (GMM) para 85 empresas de seis países da América Latina para o período 2011-2021. Os resultados dos determinantes da estrutura de capital foram na sua maioria mistos, com o controlo familiar a apresentar um efeito maioritariamente positivo sobre os níveis de endividamento, enquanto a diversidade de género mostrou um efeito negativo. Os fatores macroeconómicos também causam impacto nos resultados.

Palavras-chave: Estrutura de capital, Empresas Familiares, Economias Emergentes, Conselho de Administração, Diversidade de Género.

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List of Abbreviations and Acronyms

BOD	Board of Directors
CEO	Chief Executive Officer
EBIT	Earnings Before Interest and Taxes
EMNEs	Emerging multinational enterprises
EU	European Union
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
LAC	Latin American and Caribbean
Max.	Maximum
Min.	Minimum
NDTS	Non-debt tax shield
SEW	Socio-Emotional Wealth
SMEs	Small and Medium-Sized Enterprises
USA	United States of America
WACC	Weighted Average Cost of Capital

1. Introduction

Family firms represent the principal organizational structure in the world (Ampenberger et al., 2013), and have an important weight in the economy both nationally and globally (Acedo-Ramírez et al., 2017). A family firm is a firm where considerable parts of the shares belong to a family, and family members are actively involved in the board of directors and management positions (Lisboa, 2015). Some researchers suggest that family firms are the pillar of economic development (Acedo-Ramírez et al., 2017). Despite their importance, the financing decisions of family firms have been relatively ignored (Keasey et al., 2015). Even though, a growing amount of research has demonstrated that family firms are in significant ways different from non-family firms (Gómez-Mejía et al., 2011), and their financing decisions tend to be different from non-family firms, mainly due to their composition and inner characteristics (Fernández & Nieto, 2005; Gottardo & Moisello, 2014; Molly et al., 2019; Zahra, 2005). Researchers in the last few years have prioritize the study of the determinants or factors that influence family firms financing decisions and their capital structure, and how they differ from non-family firms (Ampenberger et al., 2013; Gottardo & Moisello, 2014).

Most of the studies about family firms' financial decisions have been on firms' performance such as the works of Gómez-Mejía et al. (2011) and, Miller et al. (2007). In the last few years, the corporate finance literature on family firms has grown (Parada et al., 2016), especially on how families impact firms' financial decisions such as the firm's capital structure (González et al., 2013). However, most existing literature on family firms' capital structure decisions has been conducted in European countries (Acedo-Ramírez et al., 2017; Ampenberger et al., 2013; Gottardo & Moisello, 2014; Ramalho et al., 2018; Serrasqueiro et al., 2020), other developed economies such as the USA (Anderson & Reeb, 2003; Keasey et al., 2015; Villalonga & Amit, 2006), and on Emerging multinational enterprises (EMNEs) in East Asia (Bunkanwanicha et al., 2008; Chow, 2019; Claessens et al., 2000; Hamid et al., 2015). The very few studies from EMNEs in Latin American are mainly focused on specific countries such as Brazil (Kayo et al., 2018; Pamplona et al., 2021), Mexico (Debicki et al., 2020), Chile (Jara et al., 2018), or Colombia (González et al., 2013). In the recent years, some researchers have examined the relationship between family firms and capital structure

decisions, and how firms from the Latin American region behave (Bastos et al., 2009; Bernardo et al., 2018; Martins, & Terra, 2014; Poletti-Hughes & Martínez-Garcia, 2022), because Latin America is an excellent study environment for emerging economies due to the different conditions across Latin American countries yet sharing similar ties and history (Conti et al., 2016; Cuervo-Cazurra, 2016). However, very few studies have considered how the institutional environment might influence the financial behaviour of family firms (Ampenberger et al., 2013; Bastos et al., 2019; Bernardo et al., 2018). Furthermore, there are few research works on the effects of the board of directors' composition and gender diversity on family firms, how it might impact financing decisions (García & Herrero, 2021; Poletti-Hughes & Martínez-Garcia, 2022) – which is exactly the gap intended to be fill by going one-step further and studying the relationship between these factors on Latin American firms.

Capital structure is one of the most researched topics in the finance field and examine firms financing mix of debt and equity for its operations (Hamid et al., 2015; Vieira, 2014). However, results regarding capital structure determinants are mixed (Ramalho et al., 2018). Researchers suggest that differentiating from type of indebtedness such as accounting data or market data (Öztekin & Flannery, 2012), or according to maturity: short term vs medium-long term (Handoo & Sharma, 2014; La Rocca et al., 2020) might help better understand capital structures results. Nonetheless, it is important to highlight that some determinants or institutional settings can change the level of importance of certain capital structure decisions (Bernardo et al., 2018). The institutional infrastructure of emerging economies is different from developed economies (Meyer & Peng, 2005; Wright et al., 2005), which might result in different results. The higher challenges in emerging economies related to the differences in the institutional environment have let to the following research questions: (1) What is the impact of family control on the capital structure decisions on emerging economies? and (2) Does having Gender Diversity within the Board of Directors affects the firm's financial decisions on debt?. The main purpose of this research is to understand how EMNEs capital structure decisions are affected by family governance-related factors by examining this phenomenon in Latin American firms from countries with underdeveloped and volatile institutional environments (Casanova, 2010; Casanova & Dumas, 2009), and how the role that macroeconomic factors might affect the firms' level of indebtedness. Moreover, verify if Gender Diversity could help lessen or hinder these effects.

To test the assumptions, a sample of 85 EMNEs firms from six emerging economies from Latin America was used. The six emerging economies are Argentina, Brazil, Chile, Colombia, Mexico, and Peru. These 85 EMNEs are publicly traded and in the stock market. The firms were selected from the 500 largest Latin American Companies and the 2021 Multilatinas Ranking of AméricaEconomía (Aguilera et al., 2017; Cuervo-Cazurra & Dau, 2009; López-Morales & Vargas-Hernández, 2014; Vásquez et al., 2020). Then, accounting, financial and market information was collected from EIKON-DataStream, while family and corporate governance information was collected from each firm's financial annual report or webpage. Therefore, by collecting data for the period 2011-2021, 1020 observations were obtained and included in the research, and an unbalanced data panel model using the GMM system was used to test the assumptions.

In terms of the main findings, family firm control showed a positive effect on mostly total and long-term levels of indebtedness confirming that Latin American family firms prefer to avoid the presence of non-family member shareholders, and rather acquiring more debt (Gottardo & Moisello, 2014; Ramalho et al., 2018). Yet, gender diversity demonstrated that a more diverse board of director, mostly reduces the levels of indebtedness because female directors usually offer greater monitoring and are more risk averse than their male counterpart (López-Delgado & Diéguez-Soto, 2020; La Rocca et al., 2020). The results on the determinants of capital structure were mixed, but mostly supporting the pecking-order theory[1]. Latin American EMNEs as part of a region with more volatile and less developed financial markets (Céspedes et al., 2010) have different behaviours especially with regards of age and risk. The macroeconomic factors showed that they impact the capital structure of a firm (Bernardo et al., 2018; Santos, 2013), and might be different depending on the institutional environment (Booth et al., 2001; Mouton & Smith, 2016).

This study contributes to the literature in several ways. First, it contributes to family firms' literature by examining the impact of family control on capital structure decisions which has been understudied. Second, the research aims to contribute to a better understanding of how the determinants of the capital structure can be affected by macroeconomic factors due to firms being in a different economic and institutional environment. Third, it contributes to the

[1] The pecking-order theory by Myers and Majluf (1984) suggests that firms have a hierarchy order of financing: internal financing is the first choice, and if external finance is necessary, debt is preferred and equity is the last option.

literature by examining firms from emerging economies in Latin American & Caribbean (LAC) countries, which have been understudied by most research works regarding emerging economies (Cuervo-Cazurra & Dau, 2009). Fourth, in line with the work of Poletti-Hughes and Martínez-Garcia (2022), there is a contribution to the literature by examining the presence of female members within the board of directors, and the impact of independent female members. Hence, this research provides new understanding into the capital structure and family firms literature on emerging economies (Bernardo et al., 2018; Poletti-Hughes & Martínez-Garcia, 2022).

This master dissertation is organized as follows. First, on chapter 2, the literature review of family firms, the main theories, valuation, and determinants of capital structure and lastly, the relationship between family firms and capital structure are presented. On chapter 3, the method, namely the selected sample, the variables and the procedure used to test the hypotheses are presented. In chapter 4, the results and discussion are shown. And lastly, on chapter 5, the conclusions, contributions, limitations, possible future research directions of this research are presented.

2. Literature Review

This chapter aims to examine the relevant literature about family firms; capital structure and its main theories; the influence of the board of directors and gender diversity, and the relationship between these topics.

2.1. Family firms

Family firms are national and global pillars of the economy, remaining as the most common form of business (Seaman et al., 2014). According to the International Family Enterprise Research Academy (2003), from small to multinational firms, two-thirds of all firms in the world are either controlled, operated, or owned by families (Muhammad et al., 2020).

Regardless of the perspective or definition used, there is an unquestionable message: family firms are the main organizational structure around the world (Ampenberger et al., 2013). In fact, most of the firms in the world are managed and controlled by their founders or by the founders' families and successors (Muhammad et al., 2020). It is estimated that family firms represent between 70 and 95% of all firms in most countries, contribute between 60% to 90% of non-governmental gross domestic product (GDP), employ around 50 to 80% of the workforce in the private sector and about 85% of all business start-ups are started with family money (European Family Businesses, 2012). Just in the European Union (EU), family firms represent 65 to 80% of all European firms, providing between 40-50% of all jobs on the private sector (European Family Business, 2020). In the United States of America (USA), family firms represent at least 80% of all firms and in some sectors such as construction, retail services, and wholesaling the percentage is higher (Gómez-Mejía, et al., 2007). While, In Latin America, family firms represent between 65% to 90% of all registered firms (Dwaikat et al., 2014). Therefore, family firms have an important weight in the economy of nations and globally (Acedo-Ramírez et al., 2017; Ramalho et al., 2018).

Some researchers suggest that family firms are the backbone of economic development (Acedo-Ramírez et al., 2017) and thus the ability of family firms to be successful is crucial for economic development (Ramalho et al., 2018). The success and performance of firms will depend on several factors, including investment decisions and the way in which they finance themselves (Mudany et al., 2020; Vieira, 2017). Family firms structure affects both their capacity and their disposition to invest and finance themselves (San Martín Reyna &

Durán Encalada, 2016). Hence, it is fundamental to examine family firms' capital structure choices and its implications.

The literature on family firms is wide-ranging (Miller et al., 2007) and due to the great heterogeneity of firms with a family influence (Ramalho et al., 2018) it is difficult to reach a consensus and an exact definition of a family firm (López-Gracia & Sánchez-Andújar, 2007). In fact, in 2009, the European Commission conducted a study on family businesses and found more than 90 different definitions (European Commission, 2009). Despite the lack of consensus on a unanimous definition for family firms, most definitions have two essential elements: ownership and management (Lisboa, 2015). The typical family firm has been defined as a company where substantial parts of the shares belong to the founder, a family member or multiple family members, and the family is actively involved in management positions and board (Acedo-Ramírez, et al., 2017; Miller et al., 2007).

Although must definitions agree on the involvement of family members as owners or possess a managerial position, there are differences in the acceptable thresholds to consider it a family owned or controlled. In regards of the ownership, according to López-Gracia and Sánchez-Andújar (2007), Gottardo and Moisello (2017), Lohe and Calabrò (2017) and Ramalho et al. (2018) for a firm to be consider as a family firm, it must have a family member with at least 50% of the shares or voting rights. While Kristanti et al. (2016) refer that it is a family organization when the family holds just at minimum of 25% of the voting rights. Some authors use a threshold of 20% such as Gottardo and Moisello (2014), La Porta, Lopez-de-Silanes and Shleifer (1999), and Vásquez et al. (2020). Other researchers such as Lisboa (2015) and, Villalonga and Amit (2006) simply define a family firm as a company owned and controlled by a family member, without establishing a minimum threshold for family ownership. In regards with the managerial position, the Expert Group on Family Business, European Commission, and most empirical studies, consider a family participation when at least one family member is in a managerial position that monitors the firm, either on the Board of Directors or in management (Acedo-Ramírez et al., 2017).

Family businesses have characteristics that are specific to them and that differentiate them from other organizations. The financial behaviour or decisions adopted by non-family firms could not be followed by family firms (López-Gracia & Sánchez-Andújar, 2007) due to their core differences. Most studies regarding family firms highlight the role of noneconomic

factors in the management as the key element that differentiates family firms. The intertwined nature of family and business systems due to family embeddedness gives these firms their idiosyncrasies (Gómez-Mejía et al., 2011).

Business values and family values can overlap (Astrachan et al., 2002). In fact, the overlapping roles between family and management, and their succession priorities separates them from non-family firms (Ramalho et al., 2018). Family firms often can adapt quickly and are very innovative (Acedo-Ramirez et al., 2017) due to their idiosyncrasies such as succession, where the active participation of new generations in the firm bringing new knowledge, different and current points of view that can positively impact the performance of the firm (Fernández & Nieto, 2005; Zahra, 2005). However, family succession which is the process of transitioning the management and ownership from one generation to next (KPMG & European Family Businesses, 2015) is also one of the main issues for family firms' longevity. Therefore, transitioning plans must be discussed and planed with time (Associação Empresarial de Portugal, 2011).

Family firms have very distinguishing characteristics, which are their desire to maintain control over the organization through several generations (Acedo-Ramirez et al., 2017), maintain their socioemotional wealth (SEW) and reputation. The socioemotional wealth of family firms can include the need for belonging, affect, and intimacy, the perpetuation of family values and dynasty, among others (Gómez-Mejía et al., 2007; Gómez-Mejía et al., 2011; Molly et al., 2019; López-Delgado & Diéguez-Soto, 2020). That family-centred culture is one of the fundamental elements for the firm to survive after the first generation (Ramadani & Hoy, 2015). Family managers usually base their financial decisions more on how these decisions may impact family control of the firm (Croci et al., 2011) and their socioemotional wealth that identifies them (Gómez-Mejía et al., 2007). For example, in non-family business firms, shareholders are free to sell their shares and walk away from the business. However, for family members leaving the firm and selling their shares may not be a viable alternative (Gómez-Mejía et al., 2011).

Family firms are the leading form of organization in most emerging and developed economies; thus, they have an important weight in both national and global economies (Romano et al., 2000), and usually operate in environments or industries that are in constant dynamism. When a few families control and are the basis of an economy, political

connections are created, and the family firm's activities have a big impact on the macroeconomic factors of a country, affecting rates of innovation, economy wide resource allocation, and economic growth, a phenomenon labelled as economic entrenchment (Villalonga et al., 2015). This is particularly prominent in the larger family firms, which further reinforce their political connections. Political connections are very common in countries with higher levels of corruption, countries with restrictions on foreign investments by their residents, and countries with more transparent systems. Yet, political connections are less common in countries with higher regulations, limiting the possibilities of political conflicts of interest (Faccio, 2006). Due to the high influence of family firms in the world economy, the research on family business has grown considerably (Gómez-Mejía et al. 2011), demonstrating the importance of this research field.

2.2. Capital Structure

Capital structure is one of the most studied topics in the finance field (Vieira, 2014) and its one of the most important corporate decisions made by Chief Executive Officers (CEOs), managers, and owners of a firm (Boateng et al., 2017; Li et al., 2019). It can be defined as the mix of debt and equity chosen by a firm to finance its activities, investments, and operations (Hamid et al., 2015). Capital structure decisions are significant because it could affect firm's performance (Gill et al., 2009; Shubita & Alsawalhah, 2012) and its survival (Dwaikat et al., 2014). Generally, high levels of debt are associated with higher risks, thus an incorrect mix of debt and equity could lead to bankruptcy, especially during periods of financial crisis (MacKay & Phillips, 2005; Ross et al., 2013). Thus, the debt-to-equity ratio has become an important survival indicator (Campello et al., 2010). Consequently, capital structure decisions are fundamental for users of financial information to make strategic decisions for firms creating value and being profitable (Hamid et al., 2015). Firms' main objective is to maximize their value and minimize their costs (Mert, 2018). Consequently, several theories were proposed to better explain which factors affect firms' value and how they influence capital structure decisions.

The study of capital structure has its origins with the traditional approach posit by Durand (1952) that assumed that firms have an optimal capital structure. A few years later, several studies followed that line of research such as the seminal work of Modigliani and Miller (1958) which proposed some simplifying assumptions that were later abandoned by the same

authors (Modigliani & Miller, 1963). The following literature and theories also have relaxed the simplifying assumptions (Psillaki & Daskalakis, 2009). Thus, creating a wide range of theoretical approaches such as the trade-off theory (DeAngelo & Masulis, 1980; Kraus & Litzenberger, 1973), principal-agent theory (Jensen & Meckling, 1976), pecking order theory (Myers, 1984; Myers & Majluf, 1984), managerial entrenchment theory (Berger, Ofek & Yermack, 1997) and market timing theory (Baker & Wurgler, 2002). Yet no theory is universally accepted or applied (Psillaki & Daskalakis, 2009). The confirmation of the different theories of optimal capital structure depend on which economic aspect and firms' characteristics are examined (Psillaki & Daskalakis, 2009).

2.2.1. Main theories

The traditional approach

The traditional approach created by Durand (1952) assumes the existence of an optimal capital structure. It posits that an optimal capital structure can be reached by balancing between equity and debt, where it is possible to minimize the weighted average cost of capital (WACC), which is the weighted average cost of each source of financing across the financing mix the firm uses, thus maximizing the value of the firm.

The work of Durand (1952) posits that firms should make use of debt rather than equity because the cost associated with debt is lower than the cost associated with equity, and the increase of equity financing usually increases WACC because equity financing dilutes ownership shares of a firms and increases the risk for investors (Muthoni et al., 2019). Consequently, firms should increase their levels of debt to the point that the WACC is at a minimum level, considering the solvency of the firm. The traditional approach concludes that for moderate levels of debt, the value of the firm increases with its use. For Durand (1952) the maximization value of the firm occurs at the optimal point, but from that point on, the increase of debt has a negative impact on the firm value, this is because beyond the optimal point firms might also incurred in unjustified and unnecessary risks resulting in diminished value.

Modigliani & Miller

The capital structure thematic gained more prominence with the controverse work of Modigliani and Miller (1958) since the authors proposed that firms' value is independent of their financing decisions, basing capital structure on the following assumptions:

- Perfect efficient capital markets.
- Homogenous expectations regarding the future profitability of the firm.
- Frictionless market: no taxes, no agency costs, no bankruptcy, or transaction costs.
- Absence of opportunities for arbitration.
- Investors behave rationally to maximize their wealth.
- A firm can issue two types of financial securities: bonds (debt without risk) and shares (equity).

Considering these assumptions, Modigliani and Miller (1958) concluded that it is indifferent for a firm to use equity or debt. Thus, a firm's capital structure does not influence its value, because what generates firm's value is the assets and not their financing mix. However, these assumptions do not hold in the real world (Hamid et al., 2015) because market imperfections such as taxes, bankruptcy costs, agency costs and asymmetric information can impact the value of a company according to their financing policy (Vieira, 2014). Therefore, some years later, Modigliani and Miller (1963) abandoned the assumption of the absence of taxes in the market and took into consideration its presence. Thus, Modigliani and Miller (1963) acknowledge the presence of tax benefits by using debt rather than equity, concluding that the increase in a firm's indebtedness increases its value. The tax benefit provided by debt reduces the cost of capital (WACC) as interest on loans is a tax-deductible expense, and therefore increases firms' value (Vieira, 2014) creating the phenomenon called tax savings. Thus, an optimal capital structure will be one that allows to obtain the maximum tax savings. In this way, firms tend to seek debt to obtain greater fiscal savings (Modigliani & Miller, 1963). However, the authors highlighted that it does not necessarily mean that firms should always prefer higher levels of debt despite the tax saving benefits, because in some cases other forms of financing such as retained earnings might be cheaper and a better financing option. In conclusion, the corrected assumptions by Modigliani and Miller (1963) demonstrated that firms' value is affected by their financing decisions.

Trade-off theory

The trade-off theory, proposed by Kraus and Litzenberger (1973), as well as DeAngelo and Masulis (1980), follows the premise of Modigliani and Miller (1963) that firms seek debt to gain tax benefits. It defends the existence of an optimal capital structure determined by balancing tax savings from debt against possible financial distress and bankruptcy costs. The benefit is the tax savings generated due to a tax shield that enables tax deductions, which can enhance firm's performance. On the other hand, the cost of debt and the financial distress caused by the future interest payments that can cause a risk of insolvency (i.e., bankruptcy). A high level of debt also increases the likelihood that the firm will not be solvent enough to take advantage of the benefits of tax savings, and increase the likelihood of bankruptcy, consequently diminishing the firm's value. Thus, firms must acquire debt until the moment when the financial costs equal the tax savings.

The work of DeAngelo and Masulis (1980) further enriched this approach by introducing other tax benefits in addition to debt, such as depreciation deductions and investment tax credits. In conclusion, a firm seeking to maximize its value will select the combination of debt and equity financing that represents marginal costs and higher benefits (Boateng et al., 2017; Hamid et al., 2015).

Dynamic Trade-Off

The dynamic trade-off theory proposed by Fischer, Heinkel and Zechner (1989) is based on the works of Kraus and Litzenberger (1973), as well as DeAngelo and Masulis (1980) with the addition of the variable time. These works suggested that firms balance the tax benefits of debt with the risk of bankruptcy costs, thus, the tax benefits become an incentive to use debt, as the benefits obtained by using debt reduce the tax burden of firms (Boateng et al., 2017; Hamid et al., 2015). Overtime the variable time was added, creating the dynamic trade-off theory, which is based on the importance of time, and how firms choose their financing based on the level of financing that the company expects to need for the next period. That way firms can balance the costs and benefits by predicting the distribution of their funds and when to acquire them. Thus, firms seek to reach their optimal range while factoring in costly adjustments (Gomes, 2012).

The dynamic trade-off theory recognizes the existence of adjustment costs incurred in the operations of obtaining financing and determines how much firms adjust their capital structure. These costs are referred to as transaction and are all expenses related to the acquisition of financing such as interest rates, bankruptcy costs or the volatility of cash flows (Gomes, 2012). The dynamic trade-off model states that firms will only adjust its capital structure to its optimal structure when the benefits of adjustment are greater than its incurred costs to obtain the tax benefits.

Frank and Goyal (2008) posit that the studies on dynamic trade-off theory are mainly based on the following assumptions:

- The optimal financing decision depends on the financing margin that the firm anticipates in the next period.
- In the next period, firms might distribute funds or raise more funds through debt or equity, or a combination of both.
- In each case, what is expected to be an optimal capital structure in the next period will serve as a comparison for the firm in the current period.
- The rate of return of the firm needs to be compared to the expected rate of return of the investor.
- Transaction costs and taxes can create wedges between investors and the firm.

Principal-agent theory

Prior literature has used the agency theory to explain the financing decisions of a firm because agency problems can impact its financing decisions and value (Boateng et al., 2017). Jensen and Meckling (1976) based on the trade-off theory, propose the principal-agent theory or agency theory. An agency relationship can be defined as: *"... one that involves a contract in which one or more persons (the principal), hires another (the agent), to develop some service in your favour, involving the delegation of some power decision for the agent."* (Jensen & Meckling, 1976: 308). The principal-agent theory argues that the separation of ownership and control causes conflicts of interest and asymmetric information between the principal and its agents, thus this separation between the principal and its agent creates a cost on the agency relationship (Fama & Jensen, 1983). Jensen and Meckling (1976) define agency cost as the sum of the costs of the principal monitoring expenditures, the bonding

expenditures by the agent, and the residual loss (i.e., the reduction in welfare experienced by the principal due to the conflict of interest between both parties).

In the case of firms, may exist conflict between the owner or shareholder (principal) and whoever exercises control (agent). Therefore, Jensen and Meckling (1976) suggest that problems related to the "separation of ownership and control" in a firm are considerably related with an agency problem. The conflict occurs because the agent tends to behave in his or her own interest rather than the interest of the principal (Gottardo & Moisello, 2014). Jensen and Meckling (1976) argue that the optimal capital structure of each firm depends on the value of debt that mitigates the conflicts, thus using debt as a mechanism of control. Research within financial economics has identified four conflicts of interest in firms (Villalonga et al., 2015), that are identify as follows:

- **Agency Problem I: shareholders (or owners) versus managers:** Managers (the agent) often pursue their own interests above the shareholder (the principal), thus creating conflicts between both parties.
- **Agency Problem II: controlling versus noncontrolling shareholders:** The solution mechanism for the agency problem I (i.e., ownership concentration) creates a new agency problem between the large and smaller shareholders because the large shareholder (the agent) may use its controlling position for its own interest without considering the interests of the smaller shareholders (principal).
- **Agency Problem III: shareholders versus creditors:** Agency Problem III can have both benefits and costs because it can be used as a mechanism to reduce Agency Problem I, but it also creates a new agency problem between the shareholders and its creditors (Villalonga et al., 2015).
- **Agency Problem IV: Family Shareholders and Family Outsiders:** This agency problem occurs between the family (principal) and the family shareholders (the agent). A problem that can be reduced by the creation of a Board of Directors, acquisition of debt to maintain control, and the creation of family councils (Villalonga et al., 2015).

Pecking order theory

The pecking order theory by Myers and Majluf (1984) is based on the existence of asymmetric information. According to Harris and Raviv (1991) there is asymmetric

information between managers and its investors, i.e., managers have some internal and privileged information about the firm that investors do not have, such as expected returns, the risks involved, the investment opportunities and the operational decisions.

The pecking order theory does not take an optimal capital structure as a starting point. Instead, it suggests that a firm has a preferred order for its financing choice because of asymmetric information (Myers & Majluf, 1984) and to minimize the costs of financing (Ramalho et al., 2018). Thus, a hierarchy order of financing is established for the sources of financing available. This theory suggests that a firm prefers to finance themselves as follows:

1. **Internal resources:** Firms prefer to self-finance (i.e., use their own funds/retained earnings) because it is a less risky option since it avoids the creation of information asymmetries between shareholders and managers, and capital dispersion. Also, profitable firms that generate high earnings are also expected to use less debt (Boadi et al., 2015).
2. **Issue debt:** when internal funds are not enough or during a crisis, firms will use external financing opting first for short-term debt and only after issuing medium to long-term debt, when necessary (Flannery, 1986), usually via bank loans which increases the risks of the firm.
3. **Issue shares or equity:** if there is still a need for financing, firms will issue shares This is the last option because it involves a loss of power and control by the current shareholders, as well as the possible creation of agency problems (Myers & Majluf, 1984).

In conclusion, the pecking order theory suggests that internal financing is preferred over external financing, and if external finance is necessary, preferring debt first and equity as a last option.

Managerial Entrenchment Theory

Following the agency theory that proposes that managers do not always assume the optimal capital structure for the value-maximizing of the firm, Berger et al. (1997) suggest that some managers may make decision against pressures from internal and external corporate governance mechanisms, thus entrenching themselves. Berger et al. (1997: 1411) define entrenchment as *"the extent to which managers fail to experience discipline from the full range of corporate governance and control mechanisms"*. Entrenched managers have

discretion over the firm financing choices; thus, they may not select the optimal capital structure for the firm because of the agency costs of managerial discretion (Berger et al., 1997).

According to Berger et al. (1997), entrenched managers usually prefer lower levels of debt due to their personal preference because of the pressures associated with big investments or to reduce risk, thus guaranteeing their longevity within the firm. Therefore, the optimal choice of debt for shareholders might differ from the entrenchment choice (optimal for managers), creating conflict (Jensen, 1986).

Market timing theory

The market timing theory proposed by Baker and Wurgler (2002) suggests that a listed firm's capital structure is linked to the issue of shares, taking into consideration the existence of imperfect and inefficient market. The market timing theory suggests that the firm's capital structure is the accumulative outcomes of the previous financing decision based on different market conditions (Muhammad et al., 2020). Firms' capital structure is impacted by fluctuations in market value and its efforts to time the equity market, thus firms issue new shares when they predict that the shares will be overvalued by the market and repurchase them when they predict they are undervalued (Baker & Wurgler, 2002). Therefore, managers try to take advantage of market imperfection to obtain financing at the lowest possible cost. The market timing theory can only be used on listed firms, as it is necessary to analyse indebtedness according to market data or measurements (Lisboa, 2017).

2.2.2. Capital structure valuation

Firms' ability to satisfy their operational and financial needs plays a crucial role in their success (Tang & Moro, 2020). However, sometimes firms do not have enough internal funds to cover all their financial needs, thus are forced to obtain external financing (Vieira, 2014; Ramalho et al., 2018) such as bank loans, trade credit, bond loans, among others (Tang & Moro, 2020).

In capital structure literature, there are different ways to measure indebtedness, the calculation can vary from country to country, by the industries examined (Guillen et al., 2019), and even by the type of indebtedness that is intended to be analysed. Some authors use total debt to measure indebtedness (Daskalakis et al., 2017; Handoo & Sharma, 2014),

others use Liabilities (Lisboa, 2019). Accounting data or market data can be used to calculate debt (Öztekin & Flannery, 2012). Other studies measure indebtedness according to maturity: short term vs medium-long term (Handoo & Sharma, 2014; La Rocca et al., 2020); based on the type of financing such as: debt to suppliers through accounts payable (Huang et al., 2011; Palacín-Sánchez et al., 2019; Tang & Moro, 2020) or borrowing through the bank or loans (Huang et al., 2011; Palacín-Sánchez, et al., 2019).

Indebtedness measured with accounting data vs. market data:

Debt can be measure using both accounting and market data (Ampenberger et al., 2013; Bastos & Namakura, 2009). The differentiation based on the type of data and information source is important because there are some determinants that might provide different results depending on how the data information was obtained and its source, thus the distinction should be considered (Gómez et al., 2014). Accounting data is not completely standard around the world since some countries have additional or modified accounting standards, some firms might even switch from country accounting standards to an international accounting standard during a period of time (Ampenberger et al., 2013), creating several differences in accounting-based figures. Therefore, there are some studies that prefer to use market-data, also there is a higher probability of finding information since market regulations require firms to adhere to the minimum disclosure requirements (Raffournier, 1995) and contains investor's expectations (Alves, 2011).

- *Accounting data:* book value is the most used measure of indebtedness for empirical studies because of the unbiased of accounting data (Jermias, 2008; Vieira, 2017) and because it has historical data of the accounts of the firm (Guillen et al., 2019). Yet there are some limitations to access this type of data, since non-listed firms usually do not publicly offer their data (Raffournier, 1995).

Chen (2004), Molly et al. (2010), Öztekin and Flannery (2012), and Acedo-Ramírez et al. (2017) measured debt as the ratio of book value of total debt divided by total assets:

$$\mathrm{Db} = \frac{Total\ debt\ (Book\ value)}{\mathrm{Total\ assets}}$$

Psillaki and Daskalakis (2009), and Gómez et al. (2014) measured indebtedness as the ratio of Total Liabilities divided by total assets:

$$\text{Db} = \frac{Total\ Liabilities}{\text{Total assets}}$$

- *Market data:* the market value refers to the market capitalization of a publicly traded firm, thus, it is only used for firms in the stock market. Market data is often used as a robustness test to corroborate results. Bastos and Namakura (2009), Granado-Peiró and López-Gracia (2017), Baek, Cho and Fazio (2016), Öztekin and Flannery (2012) measured debt as the ratio with the market value, while Bernardo et al. (2018) measured indebtedness as the ratio of Liabilities with the market value as follows:

$$\text{Ddm} = \frac{\text{Total debt}}{(\text{Total assets} - \text{Book Equity} + \text{Market Equity})} \qquad \text{Dlm} = \frac{\text{Total Liabilities}}{(\text{Asset at Market Value})}$$

Indebtedness according to maturity:

Based on their maturity, debt can be classified as medium-long term debt and short-term debt (Bastos & Namakura, 2009; Handoo & Sharma, 2014; Molly et al., 2019). The differentiation based on maturity is important because there are some determinants that differ depending on the maturity of the debt, thus the distinction should be considered. Firms seek medium-long term debt and short-term debt depending on the benefits and risks they present and their current situation. Short-term debt is easier to obtain and present less risks both for firms and creditors, especially when it is for new projects or relatively young firms that have not develop a status or reputation with its debtors (Le Breton-Miller & Miller, 2006; Pacheco, 2016). On the other hand, long-term debt presents longer commitments, thus is easier to access it when firms and projects have established their sustainability and reputation (Keasey et al., 2015).

1. *Medium-Long term debt ratio:* This proxy indicates the portion of a firm's total assets that is financed from long term debt. The value varies from industry to industry and firm to firm and shows whether a firm will be able to satisfy its long-term financial obligations (Handoo & Sharma, 2014). The long-term debt ratio can be measured as follows:

$$\text{LD} = \frac{\text{Medium} - \text{long term debt}}{\text{Total assets}}$$

2. *Short-term debt ratio or current debt:* Indicates the portion of a firm's total assets that is financed from short term debt (within one year). The debt in this account usually consists

of short-term bank loans taken by the firm and the ratio indicates whether a firm will be able to satisfy its immediate financial obligations (Handoo & Sharma, 2014). The short-term debt ratio can be measured as follows:

$$\mathrm{SD} = \frac{\text{Short} - \text{term debt}}{\text{Total assets}}$$

Based on their maturity, other researchers such as Gómez et al. (2014) measured indebtedness by the portion of a firm's total assets that is financed from their liabilities. Liabilities can be classified as current and non-current. Current Liabilities usually include commercial credit and other non-financial liabilities, while non-current liabilities mostly include debt with financial costs (Gómez et al., 2014). Psillaki and Daskalakis (2009) also considered that liabilities are composed by both short-term (current) and long-term (non-current) liabilities, thus they can be measured as follows:

$$\mathrm{NCL} = \frac{\text{Non}-\text{Current Liabilities}}{\text{Total assets}} \qquad \mathrm{CL} = \frac{\text{Current Liabilities}}{\text{Total assets}}$$

Indebtedness based on the type of financing:

The relationships with suppliers and creditors may also influence the capital structure of firms (González et al., 2013). The type of relationship maintained and its tailoring with the suppliers of financing (financial institutions, suppliers, among others) affects the supply-demand of financing, which may result in a different capital structure depending on which source might provide better and less constraint conditions (Molly et al., 2019), thus it is important to further examine the debts ratios obtained through these relationships.

Financing can be harder to obtain through financial institutions and might involve more collateral requirements (Ramalho et al., 2018). However, building close ties between the two (creditors and firms) can result in beneficial long-terms results such as the availability of larger amounts of credit and the reduction of collateral requirements due to the relationship and reputation established with the financial institution (Petersen & Rajan, 1994; Ramalho et al., 2018). Due to the difficulties and constraints associated with initiating a relationship with creditors, firms might prefer to opt for another source of debt-financing such as a trade credit in the form of delayed payment (Danielson & Scott, 2004).

The debt ratio based on the type of financing can be measured as follows:

- *Accounts payable:* creditor obligations throughout trade credit financing obtained from sellers/suppliers can be measured as the ratio between accounts payable and total assets (Huang et al., 2011).

$$\mathrm{AP} = \frac{\text{Accounts Payable}}{\text{Total assets}} \qquad \mathrm{AP} = \frac{\text{Accounts Payable}}{(\text{Total assets} - \text{Book Equity} + \text{Market Equity})}$$

- *Other ratios:*

Debt can also be measured taking into consideration the level of equity of a firm. For some firms, it is more useful to focus on measures aimed at improving their access to external equity and the functioning of stock markets (Ramalho et al., 2018). While for other firms, external equity represents greater risks (Ahmed, 2019), preferring higher debt to equity ratios.

$$\mathrm{D} = \frac{\text{Total debt}}{\text{Equity}}$$

2.2.3. Determinants of Capital Structure

Several studies analyse the determinants of capital structure to assess its impact on firms and to characterize their financing decisions. Empirical research, in general, differ as to which are the determinants of capital structure (Bastos & Nakamura, 2009; Vieira, 2014) because the results and determinants can vary depending on the context that involves the firm (Harris & Raviv, 1991). Some of the capital structure determinants commonly used and recognized are asset tangibility or asset structure, firm size, growth opportunities, age, non-debt tax shield, profitability, liquidity, and risk (Acedo-Ramírez et al., 2017; Bastos & Namakura, 2009; Psillaki & Daskalakis, 2009; Vieira, 2014). There is a wide range of theoretical approaches used to support the impact of determinants on capital structure. However, it is important to highlight that despite the vast number of approaches, theories such as managerial entrenchment and market timing are considerably new (Muhammad et al., 2020; Zhu, 2015). Not all researchers have found the importance of all the theories to examine the determinants of capital structure (Lisboa, 2019), because the sample and the researcher's aim might not be appliable to some of them. The main determinants of capital structure and its expected behaviour are the following:

1. Asset structure or asset tangibility

The asset structure or asset tangibility determinant is the ratio of tangible assets to total assets (Acedo-Ramírez et al., 2017; Molly et al., 2010; La Rocca et al., 2020). The type of assets that a firm possesses are not homogenous among all firms. The capital structure choice of a firm is determined by its asset's because the costs of financial distress depend on the type and amount of assets (Psillaki & Daskalakis, 2009; Lisboa, 2019). Tangible assets influence debt because they may serve as collateral, and firms are able to access to more debt (Mouton & Smith, 2016) and reduce risk (Acedo-Ramírez et al., 2017).

The trade-off theory proposed by Kraus and Litzenberger (1973) suggests a positive relationship between the structure of assets and debt because firms that have more fixed assets have easier access to finance, thus firms acquire higher levels of debt and gain tax benefits. The pecking-order theory by Myers and Majluf (1984) also suggests a positive relationship between the structure of assets and debt because new investments often require external financing since internal funds are usually insufficient. This positive relationship is proposed as well by the principal-agent theory (Jensen & Meckling, 1976) because of their use as collateral, allowing firms to have higher access to debt, and therefore serving as mechanism to reduce the conflicts of interests between the principal and managers. Finally, the market timing theory (Baker & Wurgler, 2002) proposes a positive relationship between debt and asset tangibility because the levels of debt acquired by a firm is affected by market fluctuations, i.e., low-leverage firms tend to acquire debt when they achieve high market valuation, while high-leverage firms acquire debt when they have low market.

Most of previous studies regarding asset tangibility or asset structure have found a positive relationship between asset structure and debt (see Table 1), such as the studies made by Psillaki and Daskalaskis (2009) that examined the capital structure determinants of Greek, French, Italian, and Portuguese small and medium-sized enterprises (SMEs) with the purpose of comparing the capital structure decisions of SMEs across countries and with different country characteristics and, Lisboa (2019) that studied capital structure choices of Portuguese firms of the mold industry, and found that Fixed assets are accepted as collateral, especially in the long-term, and Chow (2019) that examined the determinants of capital structure of various sectors in the Malaysian Stock market; among other studies.

2. Firm size

Size is one of the most used determinants in studies about the capital structure of firms. This determinant can be measured in different ways such as the natural logarithm of sales (Céspedes et al., 2010; Psillaki & Daskalakis, 2009), natural logarithm of total assets (Muhammad et al., 2020; Sardo et al., 2022), or using the criteria of the European Union (Commission on 6 May 2003, 2003/361/EC) (Acedo-Ramírez et al., 2017). The EU criteria divide firm's size as follows:

- *Micro-enterprise:* a firm that employs less than 10 persons and whose annual turnover and/or assets does not exceed EUR 2 million.
- *Small enterprise:* a firm that employs less than 50 persons and whose annual turnover and/or assets does not exceed EUR 10 million.
- *Medium-size enterprise:* a firm that employs between 50 and 250 persons and whose annual turnover does not exceed EUR 50 million, and/or assets does not exceed EUR 43 million.
- *Large enterprise:* a firm that does not meet the previous classifications.

The trade-off theory suggests a positive relationship between firm size and the debt because larger companies are generally more transparent and have higher reliability (Lisboa, 2017), thus have easier access to finance. The market timing theory (Baker & Wurgler, 2002) also proposes a positive relationship because larger firms are less likely to undergo financial distress or bankruptcy, and therefore have better reputations and higher market value. On the other hand, the pecking order theory (Myers & Majluf, 1984) implies the opposite effect, with a negative relationship because larger firms usually have more internal funds, thus they prefer self-financing rather than acquiring external funds (Lisboa, 2019). This negative relationship is also suggested by the agency theory because larger firms have more agency costs and problems due to the separation and difference of goals between the principal and the owner (Jensen & Meckling, 1976). At the same time, small-size firms also can have agency problems and costs between the managers and debt holders (Ramalho et al., 2018) due to the closely knit nature of family firms (Michaelas et al., 1999) and higher difficulty to obtain credit (Ramalho et al., 2018), thus also suggesting a negative relationship between size and debt.

Most of previous studies regarding firm size as a determinant of capital structure have found a positive relationship between size and debt supporting the trade-off theory (see table 1), and this relationship is also consistent with Fama and French (2002) view that larger firms tend to be more diversified and less volatile, thus they use more debt and probably have a better relationship with creditors (Mattev et al., 2013). Some of the studies that found a positive relationship were made by Psillaki and Daskalaskis (2009), Mateev et al. (2013), and Lisboa (2017), all of whom studied SMEs firms in Europe (Southern, Northern, Central and Eastern countries) ranging for periods of samples from 1997-2014. Chow (2019) studied listed firms in Malaysia from 2000-2014, and Rao et al. (2019) studied non-financial SMEs in India from 2006-2013. All studies are consistent with research conducted in the period 1997-2014, with most of them focusing on SMEs which might explain their similar results.

3. Growth opportunities

Growth opportunities can be measured as the annual change on earnings (Psillaki & Daskalakis, 2009), the market-to-book ratio or the ratio of capital expenditures to fixed assets (Céspedes et al. 2010). Firms with greater growth opportunities usually have more expansion projects, thus presenting greater need for financial resources to cover their investment (Handoo & Sharma, 2014; Lisboa, 2019). Also, growth may strain retained earnings, making firms go into borrowing and acquire debt (Mateev et al., 2013).

The trade-off theory (DeAngelo & Masulis, 1980) suggests a negative relationship between growth opportunities and debt because higher levels of growth lead to more uncertainties, thus more volatility, and risks. A higher level of volatility and risk can increase firms' probability of bankruptcy and greater probability of default. At the same time, risk and volatility can induce financial and regulatory entities to reduce their willingness to provide external financing, or request firms to allocate a greater percentage of available capital to face investments (Daly, 2008). On the other hand, the pecking order theory (Myers & Majluf, 1984) suggests a positive relationship, because the greater the opportunities for growth, the greater the financing needs will be, and therefore firms will need to obtain external financing. The principal-agent theory (Jensen & Meckling, 1976) follows the same direction as the pecking order and suggests a positive relationship between growth opportunities and debt, since firms that have more opportunities have easier access to external finance, which serve

as a mechanism to reduce Agency Problem I, and to avoid the presence of external shareholders.

Most of previous studies regarding growth opportunities as a determinant of capital structure have found a positive relationship between size and debt, such as the studies made by Mazur (2007), Lisboa (2017), Chow (2019), Rao et al. (2019), among others. These studies examined both SMEs and listed companies in Europe and Asia.

4. Age

The age determinant corresponds to the number of years of activity of the firm since its creation date (Acedo-Ramírez et al., 2017; Handoo & Sharma, 2014). Older companies have more experience, better reputation, and a greater payment record, therefore, may have easier access to debt, in contrast to younger companies (Lisboa, 2019). Abor and Biekpe (2009) also concluded that age is an important factor because older firms have longer relationship with creditors and can offer a collateral to the banks if they cannot pay.

The trade-off theory proposes a positive relationship between age and debt because older firms tend to want to benefit from tax savings that can enhance their performance, thus opting for external financing (DeAngelo & Masulis, 1980). On the other hand, the pecking order theory (Myers & Majluf, 1984) posits a negative relationship since older firms generally have more internal funds, thus prefer self-financing rather than external financing.

Previous studies regarding age as a determinant of capital structure have found mixed results. Some studies such as Lisboa (2017), Palacín-Sánchez et al. (2013) and Ramalho et al. (2018) found a negative relationship, all of which were conducted on European firms, especially SMEs. While, others have found a positive relationship between age and debt, such as the studies made by Handoo and Sharma (2014), and Rao et al. (2019), which conducted their studies on Asian firms, more specifically in India. The difference in the results might be rooted in the institutional environment and firm composition of the regions studied.

5. Non-debt tax shield (NDTS)

Non-debt tax shield is another determinant of capital structure that can be measured as a ratio of depreciations divided by the total assets (Chakraborty, 2010; Daskalakis et al. 2017; Handoo & Sharma, 2014; Lisboa, 2019; Rao et al., 2019). NDTS involves tax deductions

for depreciation and investment tax credits (Chakraborty, 2010). Firms use some investments such as fixed assets that are tax-deductible and can serve as collateral (Lisboa, 2019), to provide the firm with tax benefits and less need to issue debt.

The trade-off theory by DeAngelo and Masulis (1980) proposes a negative relationship between non-debt tax shield and debt because firms can invest in fixed assets, increasing the depreciation which is also a tax deductible. On the other hand, the pecking order theory by Myers and Majluf (1984) posits a positive relationship because to make new investments, firms usually require more debt thus creating tax savings.

Previous studies regarding non-debt tax shield as a determinant of capital structure have found mixed results. Some studies such as Delcoure (2007), Chakraborty (2010) and Lisboa (2017, 2019) found a positive relationship, implying that firms with a high level of non-debt tax shield prefer more debt possibly because they can benefit from the tax shield due to interest deductibility (Chakraborty, 2010). While others have found a negative relationship such as the studies by Daskalakis et al. (2017), and Rao et al. (2019), which is the expected result according to the trade-off theory. The difference in results is consistent with the current state of the literature, since the finance literature is inconclusive whether the NDTS associated with depreciation expenses exhibits a positive relationship (e.g., Bradley et al., 1984) or a negative relationship (e.g., DeAngelo & Masulis, 1980) concerning the debt/ asset ratio.

6. Profitability

Another determinant of capital structure commonly used is profitability, which can be defined by different measures such as the ratio of earnings before interest and taxes (EBIT) to total assets (Bastos & Namakura, 2009; Céspedes et al., 2010; Lisboa, 2019; Psillaki & Daskalakis, 2009). Profitability also known as financial performance is closely related to the capital structure of a firm (Hamid et al., 2015). In fact, profitability can affect the capital structure of a firm because profitable firms have sufficient internal funds, thus not requiring external financing (Muhammad et al., 2020).

The trade-off theory by DeAngelo and Masulis (1980) suggests a positive relationship between profitability and debt because profitable firms can gain tax benefits from debt. The same relationship is proposed by the principal-agent theory (Jensen & Meckling, 1976) since

firms with higher profitability, have more access to external debt, thus reducing their agency problem I.

On the other hand, the pecking order theory suggests the opposite effect with a negative relationship between profitability and debt, because firms with higher profitability have more internal funds, so they will prefer self-financing rather than using debt (Myers & Majluf, 1984).

Previous studies regarding profitability and debt have found a negative relationship, supporting the pecking order theory (see for example Daskalakis et al., 2017; Handoo & Sharma, 2014; Mazur, 2007; Lisboa, 2017; Psillaki & Daskalaskis, 2009).

7. Risk

Several researchers have included risk as an explanatory variable of the leverage level and an important capital structure determinant, such as Daskalakis et al. (2017), Lisboa (2017) and, Psillaki and Daskalakis (2009) because risk increases the volatility of the results and generates greater chances of insolvency or bankruptcy (Lisboa, 2019), i.e., firms with greater risk have greater volatility in results, thus are more likely to have financial problems. The literature presents different ways to measure the risk of a firm by using as proxy the solvency ratio (equity divided by the total liabilities) or the structured ratio which is non-current liabilities divided by the equity (Lisboa, 2019). Other measures of risk used are the standard deviation of earnings before interest and taxes (Daskalakis et al., 2017) or the squared deviation of each year's earnings before taxes from the period average (Psillaki and Daskalakis, 2009).

Based on the trade-off theory by DeAngelo and Masulis (1980), the pecking order by Myers and Majluf (1984) and the principal-agent theory by Jensen and Meckling (1976), risk has a negative impact on debt. The negative relationship between risk and debt is due to the fact the volatile firms have more difficulty to obtain external financing and creates higher chances of bankruptcy (DeAngelo & Masulis, 1980; Myers, 1984). Consequently, their leverage capacity is lower (Guillen et al., 2019).

Most of the previous studies regarding risk and debt have found a negative relationship such as the studies by Daskalakis et al. (2017) and Lisboa (2017). While few studies have found a positive relationship such as Bastos and Nakamura (2009). The difference in the results

might come from the researchers' sample, Daskalakis et al. (2017) and Lisboa (2017) found negative results in developed economies such as Greece and Portugal, while Bastos and Nakamura (2009) positive results came from firms in Latin American countries such as Chile and Mexico, inferring those emerging economies might have different behaviours than developed economies. Their results found that riskier companies have greater levels of indebtedness in the short-term.

8. Liquidity

Another important capital structure determinant is liquidity, which can be defined as the firm's ability to easily convert its assets into cash (Handoo & Sharma, 2014), and it can be calculated by dividing the total current assets by the total current liabilities (Handoo & Sharma, 2014; Rao et al., 2019).

The trade-off theory by DeAngelo and Masulis (1980) proposes a positive relationship between liquidity and debt since more liquid firms have easier access to external financing, thus tend to acquire more debt to acquire tax savings benefits. On the other hand, the pecking order theory by Myers and Majluf (1984) suggests a negative relationship since more liquidity usually means that firms acquire less debt because they have more internal funds to self-finance, and thus prefer to use internal funding rather than acquire debt. Also, firms that maintain higher liquidity levels face fewer financing constraints (Rao et al., 2019).

Previous studies regarding liquidity and debt have found a negative relationship in line with the pecking order theory (Handoo & Sharma; 2014; Lisboa, 2017; Ramalho et al.,2018).

9. Other determinants

A large amount of financial literature tries to understand the impact of other determinants (not mentioned above) in the capital structure decisions of firms such as macroeconomic factors (Bernardo et al., 2018) and even culture differences (Kayo & Kimura, 2011). Antonio, Guney and Paudyal (2008) argued that the capital structure of a firm is very influenced by the economic environment, financial policies and systems, and its institutions, thus firms might behave differently with respect to their capital structure decisions in different institutional settings. Therefore, environmental changes and institutional policies affect the proportions of financing decisions of firms since firms must react and make decisions considering the state of the country economy and its collateral effects (Mouton &

Smith, 2016). Macroeconomic and institutional factors are significant because they play a role in the relationship between firms and its creditors, impacting to certain degree their financial structure (Santos, 2013), and affecting firms' adjustments to their optimal capital structure (Bernardo et al., 2018).

Financial policies and macroeconomic factors can vary from country to country, specially between developed and emerging economies. Emerging economies might realize more policies changes (both investment and financing) and have more variations in their macroeconomic factors due to their instabilities and inefficient markets (Mouton & Smith, 2016). Booth et al. (2001) suggests that despite institutional differences among countries, the variables that explain capital structures in developed economies could also be able to explain those in emerging countries. However, the variables might have different expected results due to the differences in institutional development and conditions (Bernardo et al., 2018).

The main macroeconomic factors or conditions that are presented in the literature are:

1. *Gross domestic product (GDP)*: the greater the GDP growth, the more resources are available in the country, thus easier access to external financing and to the maintenance of profits. Thus, a negative relationship is expected between GDP and debt (Bastos, Nakamura, & Basso, 2009; Bernardo et al., 2018; Kayo & Kimura, 2011). However, Lisboa (2019) found a positive relationship between GDP growth and debt, contrary to the expected, suggesting that GDP growth not only impacts all the economy but also banks and their loan policies. Therefore, as the economy grows and more resources are available, the banks also can modify their loan policies since they have more resources to lend money to firms.
2. *Inflation:* high inflation rates reduce the economic growth and increases the levels of uncertainty in the economy, thus making access to external financing scarcer and limiting the access to resources (Fan, Titman & Twite, 2012; Martins & Terra, 2014). Consequently, the incentive of creditors to finance firms is reduced (Martins & Terra, 2014). Fan et al. (2012) and Lisboa (2019) found a negative relationship between inflation and debt. However, Bastos et al. (2009) suggests a positive relationship because inflation depreciates the current value of debts, making them more interesting to the borrower, which was confirmed by Bernardo et al. (2018) that found a positive relationship. Inflation creates an economic retraction, thus limiting the

ability of firms to generate resources, which then leads higher level of indebtedness (Bernardo et al., 2018).

3. *Interest rate:* higher levels of interest rate suggest greater levels of uncertainty in the economy and greater financing cost. High interest rate levels not only create uncertainty in the economy in general, but also in the savings and internal funds supply of firms (Fan et al., 2012; Martins & Terra, 2014). Thus, suggesting a negative relationship between debt and interest rate (Martins & Terra, 2014).
4. *Stock market development:* a country's stock market development can impact the capital structure of firms. More developed stock markets represent lower levels of leverage because there is a broader supply of funds and presents an alternative to finance investments, decreasing the cost of equity (De Jong et al., 2008; Kayo & Kimura, 2011). Thus, a negative relationship between debt and stock market development is expected. Kayo and Kimura (2011) found a negative relationship since as firms have an alternative to finance investments and growth through a more flexible source of capital (i.e., equity), they prefer to have less debt.
5. *Bond market development:* a country's bond market structure (private and public bond market capitalization over GDP) might affect firms' capital structures. De Jong et al. (2008) posits that the development of bond market facilitates access to financing, thus firm leverage tends to be higher. Therefore, a positive relationship is expected. Nonetheless, Kayo and Kimura (2011) found a negative relationship contrary to what it was expected. This is because when the bond market is developed, debt holders are expected to be protected by the legal system, thus collateral requirements are no necessary.

As mentioned before, the determinants of a firm's capital structure might vary depending on the aim and context of research. Thus, Table 1 represents previous studies conducted and the expected results of the determinants of capital structure based on the most referenced theory effects.

Table 1 - Previous studies and determinants of capital structure

Determinant	Relationship with debt	Measure	Previous studies
Asset structure or asset tangibility	Positive (+): TOT, POT, AT, MT	• The ratio of tangible assets to total assets (Molly et al., 2010; Acedo-Ramírez et al., 2017).	Bastos and Namakura (2009); Chow (2019); Gómez et al. (2014); Guillen et al. (2019); Mateev et al. (2013); Lisboa (2017); Psillaki and Daskalaskis (2009).
Firm size	Positive (+): TOT, MT	• Natural logarithm of sales (Psillaki & Daskalakis, 2009; Céspedes et al., 2010). • Natural logarithm of total assets (Muhammad et al., 2020). • European Union Criteria (Commission on 6 May 2003, 2003/361/EC) (Acedo-Ramírez et al., 2017)	Bastos and Namakura (2009); Chow (2019); Guillen et al. (2019); Mateev et al. (2013); Mouton and Smith, 2016; Lisboa (2017); Psillaki and Daskalaskis (2009); Rao et al. (2019).
Growth opportunities	Positive (+): POT, AT	• Annual change on earnings (Psillaki & Daskalakis, 2009). • Market-to-book ratio or the ratio of capital expenditures to fixed assets (Céspedes et al. 2010).	Chow (2019); Mazur (2007), Mateev et al. (2013); Lisboa (2017); Rao et al. (2019).
Age	Positive (+): TOT	• Number of years of activity of the firm since its creation date (Handoo & Sharma, 2014; Acedo-Ramírez et al., 2017). • Logarithm of the number of years of existence of the firm (Sardo et al., 2021).	Handoo and Sharma (2014); Rao et al. (2019)
	Negative (-): POT		Lisboa (2017); Palacín-Sánchez et al. (2013); Ramalho et al. (2018).
Non-debt tax shield	Positive (+): POT	• The ratio of depreciations divided by the total assets (Chakraborty, 2010; Handoo & Sharma, 2016; Daskalakis et al. 2017; Lisboa, 2019; Rao et al., 2019).	Bastos and Namakura (2009); Chakraborty (2010); Delcoure (2007); Lisboa (2017, 2019).
	Negative (-): TOT		Daskalakis et al. (2017); Rao et al. (2019)

Determinant	Relationship with debt	Measure	Previous studies
Profitability	Negative (-): POT	• The value of the ratio of earnings before interest and taxes to total assets (Psillaki & Daskalakis, 2009; Céspedes et al., 2010)	Daskalakis et al. (2017); Handoo and Sharma (2014); Gómez et al. (2014); Guillen et al. (2019); Mazur (2007), Mouton and Smith, (2016); Lisboa (2017); Psillaki and Daskalaskis (2009).
Risk	Negative (-): TOT, POT, AT	• Standard deviation of EBIT divided by total assets. • Proxy the solvency ratio (equity divided by the total liabilities) (Lisboa, 2019). • Structured ratio which is non-current liabilities divided by the equity (Lisboa, 2019). • The squared deviation of each year's earnings before taxes from the period average (Psillaki and Daskalakis, 2009).	Daskalakis et al. (2017); Mouton and Smith (2016); Lisboa (2017).
Liquidity	Negative (-): POT	• The firm's ability to easily convert its assets into cash (Handoo & Sharma, 2014).	Handoo and Sharma (2014); Lisboa (2017); Ramalho et al. (2018).
Macroeconomic Factors			
Gross domestic product (GDP)	Positive (+)	Annual growth of gross domestic product	Lisboa (2019).
	Negative (-)		Bastos et al. (2009); Bernardo et al. (2018); Kayo and Kimura (2011).
Inflation	Positive (+)	Annual Inflation growth	Bastos et al. (2009); Bernardo et al. (2018).
	Negative (-)		Fan et al. (2012); Lisboa (2019).
Interest rate	Negative (-)	The nominal rate, discounted for inflation.	Martins and Terra (2014).
Stock market development	Negative (-)	Ratio of stock market capitalization to GDP	Kayo and Kimura (2011).
Bond market development	Positive (+)	Ratio of private and public bond market capitalization to GDP, as suggested by de Jong et al. (2008)	DeJong et al. (2008).
	Negative (-)		Kayo and Kimura (2011).

Source: Author

Notes: AT: Agent-Theory; MT: Market timing theory; POT: Pecking-order theory; TOT: Trade-off theory.

2.3.Family firms vs. capital structure

Capital structure is one of the most researched topics in the finance field, nonetheless within the field, family firms are understudied, and empirical research is still limited (Keasey et al., 2015; Pestana et al., 2021). In the last few years authors have focused their efforts in conducting more research to examine the determinants of capital structure for family firms and how they differ for non-family firms due to their idiosyncrasies. The idea of the research on family firms is to get a better understanding of their financial behaviour, and how family governance-related factors affects them (Ampenberger et al., 2013; Gottardo & Moisello, 2014).

The results regarding capital structure are mixed since there is wide range of theories, determinants, and environmental contexts that can affect a firm's financing decision. However, there seems to be an overall assumption that family firms behave different and have different results than non-family firms, whether it is in a bank-oriented or market-oriented setting (Ramalho et al., 2018).

The main factor to differentiate family firms vs. non-family firms is the active involvement of family members in the operational activities (Mikušová et al., 2020). One of the first works to highlight the differences between family firms and non-family firms was Donnelley's (1967) seminal work that showcased that firms with family participation in the operations can create advantages over their non-family counterparts, such as personal sacrifice, reputation, employees' loyalty, social sensitivity, and perpetuity (long-term orientation). However, there can be disadvantages such as agency problems, lack of discipline, nepotism, and lack of formal controls (Pamplona et al., 2021). All factors that form part of the idiosyncrasies of family firms. Thus, the differences between family and non-family firms creates different strategies with different results and consequences to relationship with stakeholders (Debicki et al., 2020) and financial decisions such as their capital structure (Gottardo & Moisello, 2014).

Family firms are usually affected by a duality of objectives: the family's socioemotional wealth and financial success (Pestana et al., 2021). Thus, creating their own "financial logic" where ownership can impact policies and financing decisions, as well as the ability to obtain external resources (Gallo et al., 2004). A financial logic that it is not present in non-family

firms. The financing behaviour of family firms is related to the idiosyncrasies of family governance, active management involvement and insufficient independent board members (Ampenberger et al., 2013; Vieira, 2014), as well as the family firm embeddedness within their social context (Parada et al., 2016). Several studies have already been able to empirically prove certain differences between family firms and non-family firms regarding their capital structure decisions and behaviour (Pamplona et al., 2021). The high level of family involvement on management decisions and the high level of importance concerning control, power, and family socioemotional wealth (Gottardo & Moisello, 2014; Vieira, 2014) results in capital decisions more oriented towards debt or higher leverage, to avoid non-family shareholders (Gottardo & Moisello, 2014; Ramalho et al., 2018).

Some studies on capital structure decisions found that the cost of debt in family firms was lower than their non-family counterparts because family members care about their reputation (both personal and business) and their long-term relation with creditors (Anderson et al., 2003). In contrast, other studies have found that family firms use more leverage to avoid independent directors and keep control of the firm within the family (Acedo-Ramírez et al., 2017; Kayo et al., 2018; Pindado & Torre, 2008; Wahlqvist & Narul, 2014). When compared, family firms are more indebted and older (Vieira, 2014) and usually are financed with more long-term debt (Wahlqvist & Narul, 2014). All of which is consistent with the premise that family firms rely more on creditors than non-family firms (Vieira, 2014; Pindado & Torre, 2008). Thus, the type of ownership can impact the shareholder–creditors/suppliers' relationship, which have been proven to be particularly true for family firms because they represent a special case of controlling shareholders (González et al., 2013).

The capital structure choices and determinants of firms vary depending on whether they are family-owned or not. This is particularly true for firm size since there is a direct relationship between family firm size and debt level (Acedo-Ramírez et al., 2017), especially in medium and large family firms where a positive relationship is expected (Gottardo & Moisello, 2014; Ramalho et al., 2018) while small family firms might be constrained on credit availability, thus a negative relationship might be present (Gottardo & Moisello, 2014). Larger firms that are family controlled usually suffer from higher asymmetric information, agency costs (Acedo-Ramírez et al., 2017), and are more conservative and more averse to risk, operating with long-term investment horizons that their non-family counterparts. Consequently,

influencing their levels and type of investments (Anderson et al., 2012; Gómez-Mejía et al., 2007). Other studies found that family firms are more likely to use short-term debt, while non-family firms have a higher level of long-term and total leverage (Pamplona et al., 2021).

When it comes to other determinants such as growth and tangibility of assets, it seems to have more significance for non-family firms than for family firms (Acedo-Ramírez et al., 2017). Non-family firms' managers are focused on generating more value and growth, while family managers are afraid of losing control of the business, thus prefer to pass up growth if it jeopardises the SEW of the family (Le Breton-Miller & Miller, 2006), and the personal guarantees of family members which are not reflected in financial sheets. The ultimate risk for family firms is the loss of their SEW over time (Chua et al., 1999; Adbellatif et al., 2010), which therefore can influence family firms to behave differently when it is threated (Lisboa, 2015).

Other important determinants for family firms are age and NDTS. Age plays a significant role for both family and non-family firms, older firms have more experience, more credit history and easier access to debt (Lisboa, 2019), thus a positive relationship might be expected for both family and non-family firms. In the case of family firms, age have further implications since is related to the succession component of family firms (Vieira, 2017), a factor not present in non-family firms, thus the effects of succession through different generations affects the financing mix selection of family firms. When it comes to NDTS can act as debt substitutes to reduce tax burdens in family firms (DeAngelo & Masulis, 1980).

The aversion to lose control accentuates with SEW incentives and can be detrimental to the performance of the firm. That is, family firms tolerate a loss in financial performance to achieve non-financial aims, such as the preservation of family control over the firm (Gómez-Mejía et al., 2011). The capital structure literature has found that family firms combine financial and non-financial objectives more than their non-family counterparts, making family firms more focused on the succession of the business and more respectful of stakeholders than non-family firms, which are mainly interested towards its shareholders (Mikušová et al., 2020) and financial return, making them more profitable (Pamplona et al., 2021). Mahto and Khanin (2015) found that financing decisions in family businesses can also be influenced by the profitability and historic performance, as in the case of their non-family counterparts.

Jorissen et al. (2005) suggest that some studies have ignored the firm demographics (location, size, age and industry) when examining capital structures decisions. In their research, Jorissen et al. (2005) found in a sample of family and non-family firms from Belgium that some characteristics typically attributed to family firms such as long-term planning practices, the perception on the environment, networking and the use of non-financial performance indicators might not differ between family and non-family firms. However, this might be affected by their settings such as the presence of family firms in the economy and the country's cultural characteristics. For example, in the Latin American countries' family firms are heavily embedded in the economy, and their usually collectivist behaviour where close relationship are important plays a significant role on their decisions (Parada et al., 2016).

2.3.1. Family involvement and female members in the Board of Directors

The capital structure of a firm should be determined not only by market frictions such as taxes or bankruptcy costs, but also by the relationship and conflicts between manager-shareholder conflicts (Morellec et al., 2012). Therefore, it is important to examine the role of the board of directors, which serves as a monitor to ensure that the firm complies with applicable laws and regulations (Briano-Turrent & Poletti-Hughes, 2017; Carter et al., 2010). The board of directors' act as mediators of financing decisions, especially in family firms where it is important to not only protect the SEW of the family, but also the non-family shareholders (Poletti-Hughes & Martínez-Garcia, 2022). Given that the firm's financing policy is usually established at the board level (Molly et al., 2019), the board of directors serves as a vehicle to implement the owners' goals (Arzubiaga et al., 2018), but this will largely depend on the composition of the board. When the board is primarily or exclusively composed of family members, it can more easily ensure the family's interests and perpetuate SEW of the family (Gómez-Mejía et al. 2007; Li et al., 2019); in fact, De Massis et al. (2014) found that family representation on the board could be seen as a driver of SEW firm behaviour. While a board with non-family members might serve to balance family-oriented objectives (non-economic) with economic interests of non-family shareholders (Li et al., 2019). Therefore, family-centred goals and mostly family representation in the board differentiate family firms' behaviour from their non-family counterpart.

In Latin America where family business groups and family ownership are common (Watkins-Fassler et al., 2017), families typically control firms, family ties among directors are strong, and the ability to influence board decisions through directorships is quite predominant (Briano-Turrent & Poletti-Hughes, 2017; Watkins-Fassler et al., 2017). In Latin America the CEO or board member is, or is related to, one of the firm's largest controlling shareholders (Céspedes et al., 2010), eliminating the argument made by Jensen (1986) where he posits that debt could act as an effective mechanism to monitor management. However, some stakeholders such as investors or banks tend to pressure family firms to also include independent members on the board of family for them to safeguard their financial interests (Briano-Turrent & Poletti-Hughes, 2017; Fiegener et al., 2000).

The influence of the board of directors can be further enhanced by gender diversity with the presence of female members (Poletti-Hughes & Martínez-Garcia, 2022). The number of female members and directors makes a difference in terms of decision-making (Konrad et al., 2008) and particularly in financial decisions (Ahern & Dittmar 2012). A role that differs according to whether they are independent or affiliated to the family controller (Poletti-Hughes & Briano-Turrent, 2019). In family firms, independent female directors are more likely to mediate leverage decisions; whereas non-independent female directors (family-affiliated) make decisions based on the SEW of the family (Berrone et al., 2012).

External influences such as the institutional environment and cultural factors might play a prominent role in determining the impact of female directors on the board of directors of a firm (Costa et al., 2001; López-Delgado & Diéguez-Soto, 2020). A family firm dynamic that needs to be further explored (Parada et al., 2016).

Unlike for non-family firms, capital structure decision making for family firms is a complicated and ambiguous process, that requires looking beyond conventional factors (Dwaikat et al., 2014). Nonetheless, it is important to highlight that some determinants or institutional settings can change the level of importance of certain capital structure decisions. The institutional environment might be able to explain the mixed results in the finance literature regarding the determinants of capital structure on family firms because the "culture" of the region is relevant for the development of the analytical framework through the inclusion of the SEW theory, thus studies based on developed economies might not apply to all regions, research on smaller markets is vital for the advancement of knowledge where

is most needed (Poletti-Hughes & Martínez-Garcia, 2022). The differences between developed and emerging economies concerning regulations, the rule of law, and market supporting institutions, demand the study of how institutions influence firm's financial decisions such as their capital structure (Kayo & Kimura, 2011; Martins & Terra, 2014; Poletti-Hughes & Martínez-Garcia, 2022). Therefore, it is important to further take into consideration firms' institutional environment, especially since it can be a moderating factor for firms' capital structure decisions (Hansen & Block, 2020).

Even though many studies about family firms have been conducted, there is still much to be analysed. Especially since most research studies have focused on developed economies in Anglo-Saxon and European countries (Briano-Turrent & Poletti-Hughes, 2017; De Massis et al., 2012; Parada et al., 2016), thus leaving much to be analysed about a wide range of other context that can influence the way family firms behave based on cultural difference and institutional settings (Sharma & Chua, 2013). For example, in emerging economies family firms represent a significant proportion of the gross national product (Briano-Turrent & Poletti-Hughes, 2017; Claessens et al., 2002) and are characterized by controlling family owner(s) and concentrated ownership (Briano-Turrent & Poletti-Hughes, 2017). Therefore, researchers have focused their interest more and more in emerging economies with different environmental context and behaviours. Yet, most studies have focused on Asian countries (Briano-Turrent & Poletti-Hughes, 2017), especially in Southeast Asian countries (Vásquez et al., 2020). Therefore, the literature and understanding from other emerging economies such as countries from Latin America are far behind (Parada et al., 2016; Vásquez et al., 2020) and usually overlooked (Briano-Turrent & Poletti-Hughes, 2017).

3. Method

In this chapter are presented the variables that were used, the sample and data collection criteria and, finally, the statistical procedures and empirical analysis that were used to test the model and hypothesis.

3.1.1. Variables

3.1.1.1. Dependent variable

In order to understand the impact of family control on capital structure on emerging economies firms, it was considered as dependent variable the *firm's level of indebtedness (Db)*, measured as the ratio of book value of debt divided by total assets (Acedo-Ramírez et al., 2017; Camisón et al., 2022; Sardo et al., 2022); as well as the ratio of liabilities divided by total assets (Gómez et al., 2014).

The variable is differentiated between three types of levels of indebtedness (Hansen & Block, 2020; Lisboa, 2019), namely the total, short-term and medium-long-term following the literature approach of debt maturity differentiation, which allows the examination of the influences that debt maturity has across macroeconomic states (Daskalakis et al. 2017). As well as the differentiation between three types of liabilities, namely the total, current and non-current liabilities following the literature that uses liabilities instead of debt (Gómez et al., 2014; Psillaki & Daskalakis, 2009). Other ratios such as Accounts Payable (Huang et al., 2011) and Debt-to-equity ratio were also used (Ahmed, 2019). The capital structure choices and determinants of firms vary depending on the type of measure used (Gómez et al., 2014).

The *firm's level of indebtedness (Db)* is measured using accounting-based data (book value) due to its unbiased (Jermias, 2008; Vieira, 2017), and historical record availability (Guillen et al., 2019); and market-based because the sample is composed of firms in the stock market (Bastos and Namakura, 2009; Öztekin and Flannery, 2012) and influences investors' expectations (Alves, 2011).

Table 2 presents the list of firm's level of indebtedness (Db) based on the type of data used.

Table 2 - List of Level of indebtedness (Db) variables by type of data

Level of indebtedness (Db)	Variable	Measure
Accounting based data	Total Debt ratio (TD)	Total debt/Total assets
	Short-term Debt ratio (STD)	Short Term debt/Total assets
	Long-Term Debt ratio (LTD)	Long Term debt/Total assets
	Total Liabilities ratio (TL)	Total Liabilities/Total assets
	Current Liabilities ratio (CL)	Current Liabilities/Total assets
	Non-Current Liabilities (NCL)	Non-Current Liabilities/Total assets
	Accounts Payable (AP)	Accounts Payable/Total assets
	Total Debt Equity ratio (D)	Total debt/Equity
Market based data	Total debt MD (TDM)	Total debt/ (Total assets-Book Equity+Market Equity)
	Short-term debt MD (STDM)	Short Term debt/ (Total assets-Book Equity+Market Equity)
	Long-term debt MD (LTDM)	Long Term debt/ (Total assets-Book Equity+Market Equity)
	Total Liabilities MD (TLM)	Total Liabilities/ (Total assets-Book Equity+Market Equity)
	Current Liabilities MD (CLM)	Current Liabilities/ (Total assets-Book Equity+Market Equity)
	Non-Current Liabilities MD (NCLM)	Non-Current Liabilities/ (Total assets-Book Equity+Market Equity)
	Accounts Payable MD (APM)	Accounts Payable/ (Total assets-Book Equity+Market Equity)

Source: Author

3.1.1.2. Independent variables

All measures presented in Table 1 were calculated. Therefore, as independent variables, we consider the following variables:

1. *Firms' specific factors*: First, we have selected all the possible firm-specific factors usually used in the literature related to determinants of capital structure of firms (Rao et al., 2019). The data was gathered annually from the database EIKON-Datastream, and the following set of capital structure determinants were used:
   - Asset structure or asset tangibility (TANG): measured as the ratio of tangible assets to total assets (Acedo-Ramírez et al., 2017; Molly et al., 2019; La Rocca et al., 2020).
   - Firm Size (SIZE): such as the natural logarithm of sales (Céspedes et al., 2010; Psillaki & Daskalakis, 2009), natural logarithm of total assets (Muhammad et al., 2020; La Rocca et al., 2020; Sardo et al., 2022).

- Growth Opportunities (GROW): Can be measured as the annual change on earnings (Psillaki & Daskalakis, 2009), the market-to-book ratio or the ratio of capital expenditures to fixed assets (Céspedes et al. 2010), the ratio of intangible assets to total assets (Sardo et al., 2022), or measured as the percentage variation in intangible assets from year t − 1 to year t (La Rocca et al., 2020).
- Age (AGE): Can be measure as the number of years of activity since the creation date of the firm (Acedo-Ramírez et al., 2017; Handoo & Sharma, 2014), or the logarithm of the number of years of existence of the firm (Sardo et al., 2021).
- Non-debt tax shield (NDTS): can be measured as a ratio of depreciations to total assets (Chakraborty, 2010; Daskalakis et al. 2017; Handoo & Sharma, 2016; Lisboa, 2019; Rao et al., 2019; Sardo et al., 2022).
- Profitability (PROF): measured as the ratio of earnings before interest and taxes (EBIT) to total assets (Bastos & Namakura, 2009; Céspedes et al., 2010; Lisboa, 2019; Psillaki & Daskalakis, 2009).
- Risk (RISK): can be measured as the proxy the solvency ratio (equity divided by the total liabilities), the structured ratio which is non-current liabilities divided by the equity (Lisboa, 2019), or as the variation of earnings.
- Liquidity (LIQ): calculated as the ratio of total current assets by total current liabilities (Handoo & Sharma, 2014; Rao et al., 2019).

2. *Family Control (FC)*: Second, we differentiate between family and non-family firms determined by their ownership structure. Family Ownership was measured as a dummy variable that takes value of "1" when at least 20% of the shares are controlled by a family (La Porta et al., 1999) and there is at least one family member who serves on the board as director, CEO or chairman; and "0" otherwise (Poletti-Hughes & Martínez-Garcia, 2022). To comply with these two conditions, a review of each firm's shareholding structure and board of directors' composition (name and surnames of shareholders) was conducted, as well as review of first and second-degree relationships either by blood (sons, daughters, siblings, uncles, aunts, cousins, etc.) or marriage (husbands, wives, brothers-in law, sisters-in law, etc.). The data was gathered from firm's financial annual report or webpage.

3. *Governance*: certain variables could have on the impact of family control firms and their capital structure decisions, such as:
    - Board of directors (BOD): As a moderating variable relating to family control and its effects, family influence within the board is measured as the percentage of family members on the BOD to the total number of board members (Molly et al., 2019).
    - Gender Diversity (GD): can be measured as the number of women directors as a percentage of total directors on the board (García & Herrero 2021; Poletti-Hughes & Garcia, 2022; Zaid et al.; 2020) which is calculated as the number of female executives divided by the total number of executives (La Rocca et al., 2020); or as a dummy variable that assumes the value of "1" if the board of directors has at least one female member, and "0" otherwise (Saad & Belkacem, 2021). Gender diversity can also be differentiated by the type of female executive within the board of directors; thus, it can be calculated as the number of independent females to total number of directors (Poletti-Hughes & Martínez-Garcia, 2022). The data was gathered from firm's financial annual report or webpage.

4. *Macroeconomic specific factors*: various macroeconomic factors are analysed, as it can impact the level of indebtedness that firms acquire, and the relationship between the firm and its creditors/lenders (Bernardo et al., 2018; Santos, 2013). The following variables were considered:

- Gross domestic product (GDP): measured as the annual growth of gross domestic product (Kayo & Kimura, 2011). The data was gathered from the World Bank World Development Indicators.
- Inflation: Measured as the average annual inflation rate between the years of the period (Bernardo et al., 2018). The data was gathered from the World Bank World Development Indicators.
- Interest rate: calculated as the nominal rate, discounted for inflation (Martins & Terra, 2014). The data was gathered from the World Bank World Development Indicators.
- Stock market development: Measured as the ratio of stock market capitalization to GDP (Kayo & Kimura, 2011). The data was gathered from the World Bank World Development Indicators.

- Bond market development: Calculated as the ratio of private and public bond market capitalization to GDP (Kayo & Kimura, 2011). The data was gathered from the World Bank World Development Indicators.
- Corruption levels: In emerging economies with underdeveloped institutions, corruption influences the economy and plays a considerable role (Cuervo-Cazurra, 2016; Cuervo-Cazurra et al., 2018). In addition, corruption may hinder investments (Anyanwu, 2011). This variable was measured using the transparency International's Corruption Perceptions Index (Cuervo-Cazurra et al., 2018).
- Country governance: Emerging economies multinational firms usually leverage and transfer their capabilities about how to handle difficult institutional conditions to other countries (Cuervo-Cazurra & Genc, 2008). This variable can be measured by using the World Bank's World Governance Index (WGI), which reports "aggregate and individual governance indicators for six dimensions of governance: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption" (Kaufmann et al., 2009). This variable was calculated as the sum of the WGI indicators ranking and computed with the World Bank's World Governance Index indicators (WGI).
- Promarket reforms: Promarket reforms are the policies implemented to reduce government intervention in the economy to facilitate market transactions (Banalieva, et al., 2018). This variable can be measured using the Heritage Index of Economic Freedom published by the Heritage Foundation (Holmes et al., 2008), which reports on four categories of economic freedom: Rule of Law (property rights, government integrity, judicial effectiveness); Government Size (government spending, tax burden, fiscal health); Regulatory Efficiency (business freedom, labor freedom, monetary freedom) and Open Markets (trade freedom, investment freedom, financial freedom). The Heritage Index ranges from zero to one hundred, with greater values indicating a more developed scope of pro-market institutions in a given year (Banalieva et al., 2018).

Based on the main theories of Capital Structure and Table 1 in the literature review, Table 3 was created to summarize the most used determinants variables and their respective expected sign when analysing capital structure decisions on family firms.

Table 3 - Expected variables results

Group	Variable	Expected Sign
Family control	Family Control	Negative (-)
Firms' specific factors	TANG	Positive (+): TOT, POT, AT, MT
	SIZE	Positive (+): TOT, MT
	GROW	Positive (+): POT, AT
	AGE	Negative (-): POT
	NDTS	Positive (+): POT
	PROF	Negative (-): TOT, POT, AT
	RISK	Negative (-): POT
	LIQ	Negative (-): POT
Governance	Gender Diversity	Positive (+)
Macroeconomic Factors	GDP	Negative (-)
	Inflation	Positive (+)
	Interest rate	Negative (-)
	Stock market development	Negative (-)
	Bond market development	Positive (+)
	Corruption Levels	Negative (-)
	Country Governance	Negative (-)
	Promarket Reforms	Negative (-)

Source: Author

Notes: AT: Agent-Theory; MT: Market timing theory; POT: Pecking-order theory; TOT: Trade-off theory.

Firms' specific factors presented in Table 3 are the main capital structure determinants. Although, its impact may vary according with the capital structure variable used.

According to the literature review in chapter 2, these firms' specific determinants are expected to follow mainly the pecking order theory, except for size which is expected to

follow the trade-off theory. Concerning the macroeconomic factors, most studies have found the signs in Table 3, however, Bernardo et al. (2018) suggests that results may vary due to countries having different institutional development and conditions (Bernardo et al., 2018). The influence of family in the firm and board of directors is expected to be negative, yet the presence of female members might positively influence this effect (Poletti-Hughes & Martínez-Garcia, 2022).

3.1.2. Sample

The sample consisted of 85 firms from six emerging economies in Latin America from the year 2011 to 2021 (11 years). The sample is composed by public traded companies in the six largest Latin American economies: Argentina, Brazil, Chile, Colombia, Mexico and Peru. The list of firms was derived from the ranking of the 500 largest Latin American Companies published by AméricaEconomía (2021), which is based on annual net sales (Aguilera et al., 2017; Cuervo-Cazurra & Dau, 2009; Vásquez et al., 2020); and the Ranking of Multilatinas 2021 in AméricaEconomía which uses several indicators of foreign economic activity to identify the most internationalized Latin American Emerging multinational enterprises (EMNEs) firms (Aguilera et al., 2017; Cuervo-Cazurra & Dau, 2009; López-Morales & Vargas-Hernández, 2014). AméricaEconomía data has been used in previous research, such as analyses of firm internationalization (Aguilera et al., 2017; Cuervo-Cazurra, 2007, 2008; Cuervo-Cazurra & Dau, 2009), corporate governance and ownership of Latin American firms (López-Morales & Vargas-Hernández, 2014; Vásquez et al., 2020); and the annual analyses of foreign direct investment (FDI) in Latin America (Foreign investment in Latin America and the Caribbean), published by the United Nations Economic Commission for Latin America and the Caribbean.

Firms from Latin America & Caribbean (LAC) countries (see table A1 in appendix) were chosen because they are part of the emerging economies group; therefore, they usually face more volatile economic environment than developed economies (Pablo, 2009). Latin America is a region that presents a great natural laboratory (Cuervo-Cazurra & Dau, 2009; Parada et al., 2016) to delve into specific aspects that family businesses in this region may display given their embeddedness in an emerging economy. Family firms dominate the business landscape in Latin America (Müller et al., 2018; Parada et al., 2016; Vásquez et al., 2020) and about 40 percent of the largest domestic conglomerates (Grupos Económicos in

Spanish) in Latin American firms are family controlled (Vázquez, 2017). In fact, large domestic conglomerates in Latin America are families with several generations in the same company, e.g., Luksic, Matte and Solari (Chile), Romero and Brescia (Peru), Camargo and Moraes (Brazil), Slim and Bailleres (México), among others (Parada et al., 2016). The diversification of conditions across Latin American countries provides a control group that allows the comparison of firms facing different circumstances (Cuervo-Cazurra, 2016), yet sharing similar ties and history. Furthermore, Latin American markets present us with an intriguing setting to study the effect of ownership concentration on debt given the high concentration of family ownership in Latin American firms (Céspedes et al., 2010).

In order to select the sample, the following number of procedures and criteria were used. First, only public traded firms were selected, thus excluding those that are not in any stock exchange. Firms whose shares are listed on a stock exchange have a higher probability of providing more complete and accurate information than non-listed firms provide (Cuervo-Cazurra & Dau, 2009; Raffournier, 1995). Therefore, only public traded firms were selected. Second, firms that were not listed on either of the exchange's stocks of Argentina, Brazil, Chile, Colombia, Mexico and Peru, were also excluded. Third, firms that were subsidiaries or belonged to a larger domestic conglomerate "Grupos Económicos" already on the list were excluded. Fourth, I considered the list of 500 largest Latin American Companies for 2021 and the Ranking of Multilatinas 2021. Fifth, after identifying each firm, accounting, financial and market information was collected from EIKON-DataStream for the period under analysis, and firms that did not have information for the period were excluded. Finally, family and corporate governance information was collected from a secondary source of data, namely each firm's financial annual report or webpage, while macroeconomic data was gathered from the World Bank, the transparency International's Corruption Perceptions Index and the Heritage Index of Economic Freedom.

These procedures resulted in an unbalanced panel data with 85 firms, from 2011 to 2021, with a total 1020 observations. Following the work of Kayo et al. (2018) and data limitation within emerging economies, 11 years were studied, the last year being 2021 because is the last year with available data. As a result, 85 EMNEs from Latin America were identified, which are from six Latin American & Caribbean (LAC) countries: Argentina (3 firms), Brazil (36 firms), Chile (17 firms), Colombia (7 firms), Mexico (21 firms), and Peru (1 firm), which belong to 26 different industries.

Table 4 - Composition of the sample by country

Count	Country	N° Firms	Family Firms by Country	Non Family Firms by Country
1	Argentina	3	2	1
2	Brazil	36	18	18
3	Colombia	7	1	6
4	Chile	17	11	6
5	Mexico	21	21	0
6	Peru	1	1	0
Total		**85**	**54**	**31**
%			**63.53%**	**36.47%**

Source: Author

Table 4 shows the sample composition by country studied. Out of the 85 firms observed, Brazil was the country with more firms (36 in total), out of which half were family firms and half were non-family firms, representing the country that had more non-family firms in the study. In second place was Mexico with 21 firms, all of which were family firms. Peru being the country with least firms (only one). Out of all the countries in the sample, Mexico and Peru were the only ones that only had family firms.

Overall, most of the sample was composed by family firms (63.53%) suggesting that family firms are predominant among public traded EMNEs in Latin America. The sample represents the reality of Latin American firms because in Latin America, family firms represent between 65% to 90% of all registered firms (Dwaikat et al., 2014), as seen in Figure 1 below.

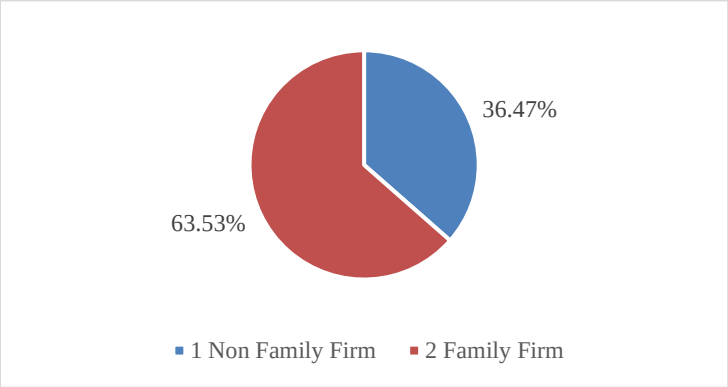

Figure 1 -Type of Firm
Source: Author

Figure 1 shows the percentages of family firms vs. non-family firms in the sample of Latin American EMNEs, which is in line with the reality in the region.

3.1.3. Methodology

The stepwise method by proxy of indebtedness was used to select the explanatory variables that had more statistical significance with the dependent variables. Then, a correlation matrix was created to verify if there were any strong correlations between some variables. In accordance with the suggested literature, all the variables with the Pearson's correlation coefficients higher than 0.7 (Marôco, 2018) in a scale from 0 to 1 , were excluded to avoid any possible multicollinearity problems when testing the model, some of the following alternative's measures will be excluded.

The statistical procedure and empirical analysis used to test the model was an unbalanced panel data methodology that combines cross-section and time-series data (Arellano, 2003). The panel data methodology has been used in several research and is often preferred by researchers because it allows the control of heterogeneity, and decreases collinearity issues (Arellano & Bover, 1990). At the same time, the panel data method eliminates potential biases in the estimates, improving the quality of the estimation between the unobservable individual effects and the explanatory variables (Mateev et al., 2013).

This method is usually used to examine the effect of capital structure on firms. For example, Granado-Peiró & López-Gracia (2017) used it to study the relationship between capital structure and corporate governance on Spanish firms. While Mateev et al. (2013) used panel data analysis to examine the determinants of capital structure in SME from Central and Eastern Europe.

This research work studies the relation between capital structure and family firms in Latin American countries. Thus, the panel data model is as follows:

Equation 1

$$\begin{aligned} \boldsymbol{level\ of\ indebtedness\ (Db)_{it}} &= \boldsymbol{\alpha} \times \boldsymbol{level\ of\ indebtedness\ (Db)_{i,t-1}} + \sum \boldsymbol{\beta_m} \times \boldsymbol{Family\ control}_{i,t} \\ &+ \sum \boldsymbol{\gamma_n} \times \boldsymbol{Firm\ specific\ factors}_{i,t} + \sum \boldsymbol{\rho_o} \times \boldsymbol{Governance}_{i,t} \\ &+ \sum \boldsymbol{\tau_p} \times \boldsymbol{Macroeconomic\ Factors}_{i,t} + \boldsymbol{\varepsilon_{i,t}} \end{aligned}$$

Where n represents the number of family control variables; n is the number of firm specific factors; o is the number of governance variables; p is the number of macroeconomic factors; $\beta, \gamma, \rho\ and\ \tau$ are the coefficient associated with each independent variable, and ε is the disturbance term, i represents the individual firms and t the year analysed.

To estimate the dynamic regression models using panels containing many firms and a small number of time periods, the two-step system generalized method of moments (GMM) of Arellano and Bover (1995), and Blundell and Bond (1998) were used.

The two-step system generalized method of moments (GMM) controls for endogeneity by using instruments (Acedo-Ramírez et al., 2017). The instruments used depend on the assumption that estimates can be obtained while controlling for unobservable and time-invariant heterogeneity, and whether the variables are endogenous or predetermined variables (Mateev et al., 2013; Sardo et al., 2022). The instruments are used in first differences for equations in levels, and instruments in levels for equations in first differences (Granado-Peiró & López-Gracia, 2017).

To follow the literature on the two-step GMM System, the following tests will be conducted: (1) Sargan's test of overidentifying restrictions (Mateev et. Al, 2013); (2) Wald's test for joint significance of the regressors or "for goodness-of-fit" (Daskalakis et al., 2017); (3) the Arellano and Bond test of absence of both first and second order autocorrelation of residuals (Acedo-Ramírez et al., 2017; Sardo et al., 2022).

The models were estimated using the Gretl program.

4. Results

This chapter refers to the presentation of the results of the empirical study.

4.1. Evolution of capital structure

As part of the examination of the characterization of the sample, a graphic examination of the evolution of the different levels of indebtedness was conducted as seen in Figure 2.

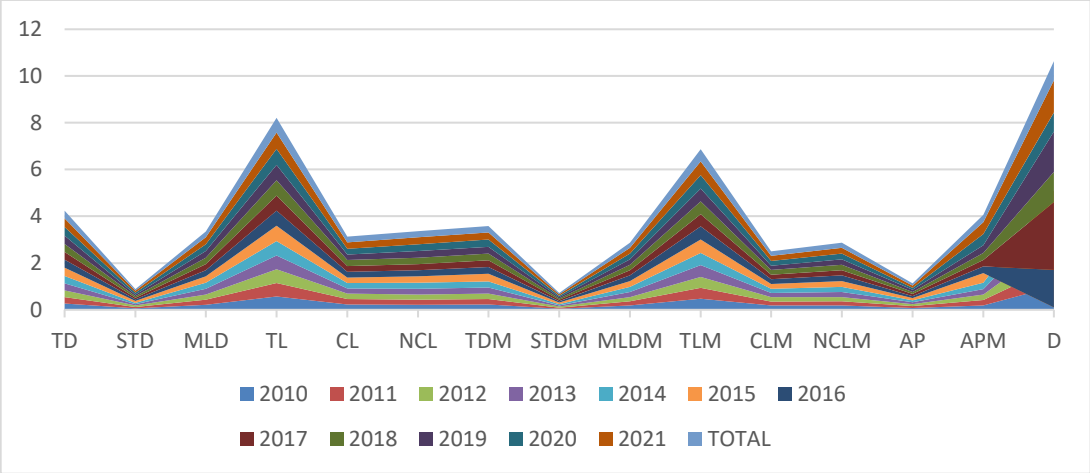

Figure 2 - Firms average level of indebtedness
Source: Author

Notes: AP: Accounts Payable; APM: Accounts Payable Market; CL: Current Liabilities; CLM: Current Liabilities Market; D: debt to equity ratio; MLD: Medium-long term debt; MLDM: Medium-long term debt Market; NCL: Non-current Liabilities; NCLM: Non-Current Liabilities Market; STD: Short-term debt; STDM: Short-term debt Market; TD: Total Debt; TDM: Total Debt Market; TL: Total Liabilities; TLM: Total Liabilities Market.

Figure 2 shows the average evolution of each level of indebtedness by year. The figure demonstrates that TL, TLM and D have the highest average levels of debt, which makes sense considering that they are comprised of all short- and long-term financial obligations.

Since the level of indebtedness might change depending on the measure used, a graphic examination of the evolution of the levels of indebtedness by accounting-based and market-based data was effectuated as it shown in Figure 3 and 4, respectively.

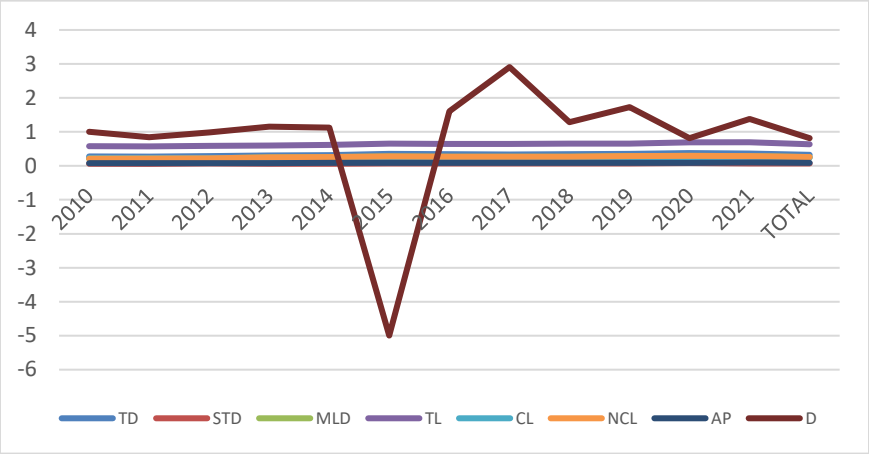

Figure 3 - Evolution of average level of indebtedness (accounting-based data)
Source: Author

Notes: AP: Accounts Payable; CL: Current Liabilities; D: debt to equity ratio; NCL: Non-current Liabilities; NCLM: Non-Current Liabilities market; STD: Short-term debt; TD: Total Debt; TL: Total Liabilities.

Figure 3 shows the average evolution of each level of indebtedness measured with accounting data by year. Most levels of debts remain consistent and relative at the same level, except for D that has a more volatile behaviour with a large decline in 2015 yet increases its levels by 2017. The decline in 2015 is product of the firm Metalfrio's lack of positive equity in the year 2015 compared to its total debt.

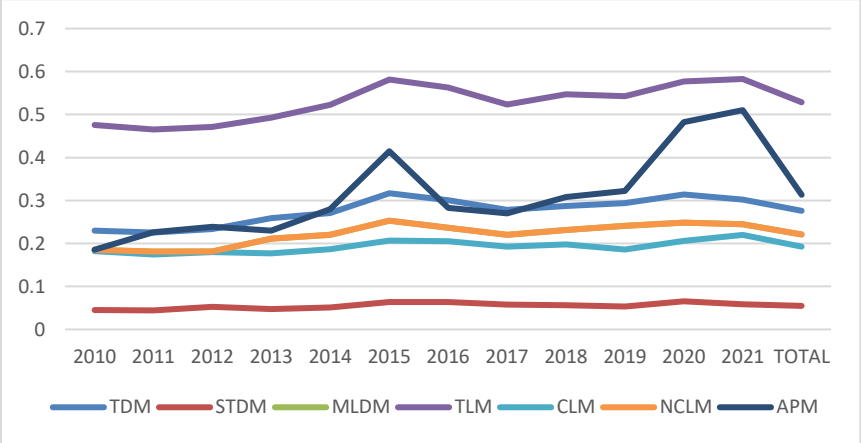

Figure 4 - Evolution of average level of indebtedness (market-based data)
Source: Author

Notes: APM: Accounts Payable Market; CLM: Current Liabilities Market; MLDM: Medium-long term debt Market; NCLM: Non-Current Liabilities Market; STDM: Short-term debt Market; TDM: Total Debt Market; TLM: Total Liabilities Market.

Figure 4 shows the average evolution of each level of indebtedness measured with market data by year is more dynamic when compared with the accounting data. TLM and APM

represent the highest average values of level of debt acquired by a firm, while STM is the lowest, which is consistent with the maturity level of debt, demonstrating that debt does behave differently.

Figure 5 shows the different levels of indebtedness by group of firms (family and non-family firm).

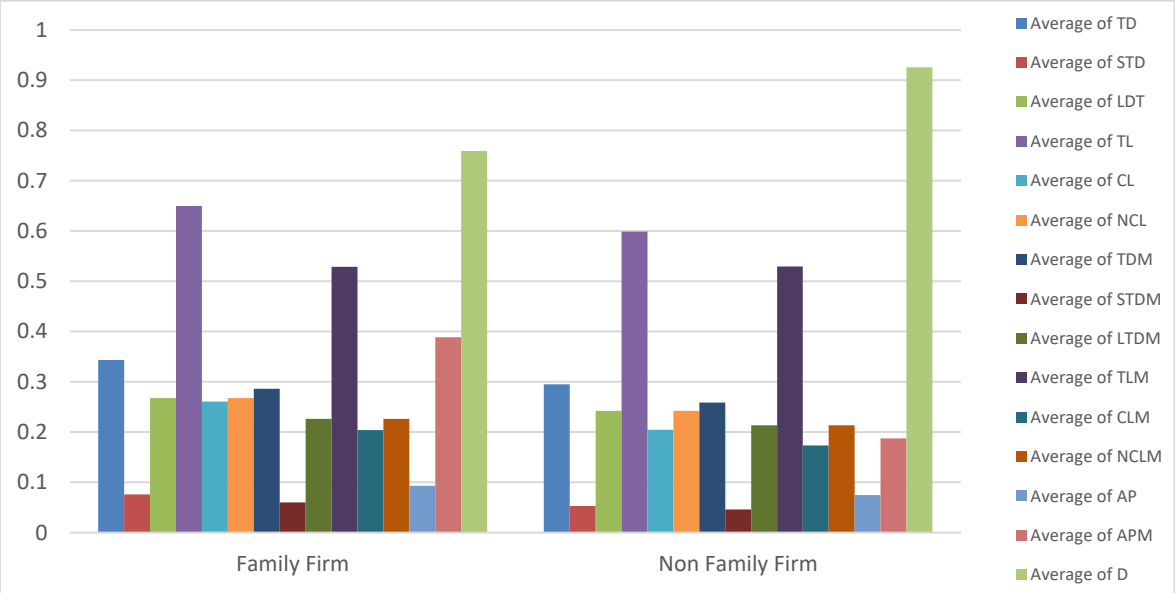

Figure 5 - Average level of indebtedness by type of firm
Source: Author

Notes: AP: Accounts Payable; APM: Accounts Payable Market; CL: Current Liabilities; CLM: Current Liabilities Market; D: debt to equity ratio; MLD: Medium-long term debt; MLDM: Medium-long term debt Market; NCL: Non-current Liabilities; NCLM: Non-Current Liabilities Market; STD: Short-term debt; STDM: Short-term debt Market; TD: Total Debt; TDM: Total Debt Market; TL: Total Liabilities; TLM: Total Liabilities Market.

Overall, family firms and non-family firms have different averages levels of indebtedness. Family firms seem to acquire more TD, TL and APM than non-family firms. On the other hand, non-family firms have higher average levels of debt when it comes to D. The rest of the levels of indebtedness appear to be relative similar on average.

4.2.Descriptive Statistics and correlations

First, the data gathered was analysed, more specifically the dependent and explanatory variables were selected using the stepwise method by level of indebtedness. Results are presented in Table 5.

The different levels of indebtedness were used because studies have shown that some determinants differ depending on the maturity of the debt (Molly et al., 2019) or the type of

data used (Bernardo et al., 2018), thus the distinction should be considered. This method was applied to understand which variables are the most relevant to explain the capital structure of EMNEs in Latin American countries.

Table 5 – Stepwise analysis by level of indebtedness

	Accounting-based data								Market-based data						
	TD	**STD**	**MLD**	**TL**	**CL**	**NCL**	**AP**	**D**	**TDM**	**STDM**	**MLDM**	**TLM**	**CLM**	**NCLM**	**APM**
TANG	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
SIZE_LnSales	x				x		x				x	x	x	x	
Size_LnAssets		x		x	x		x			x	x	x	x	x	
GROW_market			x		x	x	x	x	x	x	x	x	x	x	x
GROW_CapitalExp									x		x	x		x	
GROW_IntangibleAssets		x	x		x	x	x	x		x	x		x	x	x
GROW_IntangibleVar															
GROW_EBIT	x								x	x					
Age_years				x			x		x						x
Age_years_ln									x						
Age_years_log												x			
NDTS_DeprecIS	x	x		x	x		x						x		x
PROF	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RISK (EBIT-Média EBIT)^2															
RISK_Log				x											
RISK_ln					x								x		
RISK_solvency	x	x	x	x	x	x		x	x	x	x	x	x	x	x
RISK_Structured		x	x		x	x	x	x	x		x	x	x	x	x
LIQ		x	x	x	x	x	x		x	x	x	x	x	x	x
Family_Firm_Dummy	x		x			x			x		x	x	x	x	x
Family_Board_ratio			x	x		x	x		x		x	x	x		x
GD ratio				x											x
GD dummy		x	x		x	x				x		x	x		
GD indep. Ratio	x		x	x		x	x	x	x						
GDP Growth															
Inflation consumer prices	x		x	x		x		x	x		x	x	x	x	
Inflation GDPdeflator				x			x					x			x
Real Interest Rate	x	x	x		x	x			x	x	x	x		x	
Stock Market Dev	x		x	x		x									x
Bond Market Dev	x		x			x							x		
Corruption Levels															
Country Gover.	X		x	x	x	x									
Promarket Reforms				x											

Source: Author

Notes: AP: Accounts Payable; APM: Accounts Payable Market; CL: Current Liabilities; CLM: Current Liabilities Market; D: debt to equity ratio; GD: Gender Diversity; MLD: Medium-long term debt; MLDM: Medium-long term debt Market; NCL: Non-current Liabilities; NCLM: Non-Current Liabilities Market; STD: Short-term debt; STDM: Short-term debt Market; TD: Total Debt; TDM: Total Debt Market; TL: Total Liabilities; TLM: Total Liabilities Market; X: selected variable by the stepwise method.

Table 6 – Correlations (accounting-based data)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
1 TD	1																																				
2 STD	.543**	1																																			
3 MLD	.868**	.053	1																																		
4 TL	.823**	.414**	.734**	1																																	
5 CL	.422**	.715**	.079*	.589**	1																																
6 NCL	.868**	.053	1.000**	.733**	.078*	1																															
7 AP	-.016	.049	-.048	.187**	.517**	-.048	1																														
8 D	-.009	-.120**	.061	-.007	-.086**	.061	-.026	1																													
9 TANG	-.024	-.179**	.077*	-.071*	-.197**	.077*	-.037	.015	1																												
10 SIZE_S	.001	-.140**	.085**	.026	-.116**	.085**	-.013	.077*	.203**	1																											
11 SIZE_A	.009	-.154**	.102**	.007	-.277**	.101**	-.261**	.077*	.202**	.874**	1																										
12 GROW_M	-.037	-.008	-.040	-.013	.119**	-.040	.192**	.417**	-.056	.026	-.078*	1																									
13 GROW_CE	-.071*	-.021	-.073*	-.064*	0.020	-.072*	.058	-.009	.203**	.060	.039	.042	1																								
14 GROW_IA	.088**	-.071*	.147**	.102**	-.104**	.146**	-.166**	-.002	-.452**	-.059	.029	-.095**	-.319**	1																							
15 GROW_E	.032	.042	.013	-.012	.020	.013	.004	.006	-.057	-.023	-.046	.005	.000	-0.03	1																						
16 AGE	-.135**	-.066*	-.121**	-.168**	-.158**	-.121**	.031	-.006	-.055	.078*	.081**	-.096**	.012	-.090**	.037	1																					
17 AGE_LN	-.104**	-.015	-.115**	-.175**	-.157**	-.114**	.006	-.016	-.111**	.028	.051	-.105**	-.013	-.079*	.055	.884**	1																				
18 AGE_LOG	-.104**	-.015	-.115**	-.175**	-.157**	-.114**	.006	-.016	-.111**	.028	.051	-.105**	-.013	-.079*	.055	.884**	1.000**	1																			
19 NDTS	.102**	.101**	.061	.158**	.276**	.060	.269**	.018	.134**	.029	-.001	.114**	.031	-.069*	-.034	-.125**	-.128**	-.128**	1																		
20 PROF	-.231**	-.181**	-.167**	-.231**	-.130**	-.166**	-.002	.023	.065*	.072*	-.058	.372**	.002	-.057	.081*	-.055	-.035	-.035	-.056	1																	
21 RISK_LOG	.090**	-.094**	.162**	.118**	-.114**	.162**	-.148**	.051	.217**	.612**	.673**	-.015	.035	.022	-.065*	-.100**	-.110**	-.110**	.034	.093**	1																
22 RISK_LN	.090**	-.094**	.162**	.118**	-.114**	.162**	-.148**	.051	.217**	.612**	.673**	-.015	.035	.022	-.065*	-.100**	-.110**	-.110**	.034	.093**	1.000**	1															
23 RISK SOL	-.701**	-.306**	-.652**	-.849**	-.420**	-.652**	-.152**	-.010	.093**	-.109**	-.109**	-.023	.064*	-.132**	.019	.092**	.100**	.100**	-.101**	.134**	-.144**	-.144**	1														
24 RISK STR	.059	-.105**	.132**	.052	-.067*	.132**	-.014	.955**	.011	.077*	.070*	.506**	-.014	.009	.009	-.021	-.031	-.031	.025	.020	.052	.052	-.062*	1												
25 LIQ	-.277**	-.255**	-.178**	-.408**	-.454**	-.178**	-.267**	.013	.011	-.219**	-.186**	.020	.073*	-.230**	.071*	.204**	.245**	.245**	-.225**	.086**	-.147**	-.147**	.392**	.000	1											
26 FF	.088**	.084**	.054	.073*	.146**	.055	.106**	-.006	-.001	-.123**	-.281**	.073*	.094**	-.246**	.033	-.046	-.123**	-.123**	.058	-.057	-.206**	-.206**	-.011	.013	.139**	1										
27 FB	-.066*	.045	-.105**	-.080*	.039	-.105**	.027	-.006	-.037	-.039	-.189**	.057	.081*	-.186**	.011	.075*	-.020	-.020	-.013	-.042	-.169**	-.169**	.177**	-.016	.138**	.771**	1									
28 GD_R	-.023	-.048	.001	.012	-.013	.001	.105**	.024	-.045	.054	.076*	.099**	.025	.000	-.028	.060	.047	.047	.037	-.051	-.013	-.013	.000	.019	-.064*	-.052	.013	1								
29 GD	.037	-.102**	.104**	.080*	-.031	.105**	.106**	.035	.041	.175**	.168**	.064*	-.008	.006	-.042	.005	-.062*	-.062*	.027	-.037	.105**	.105**	-.098**	.036	-.105**	-.050	-.016	.751**	1							
30 GD_IR	.011	-.025	.028	.075*	.066*	.029	.159**	.013	.019	-.014	.027	.120**	.009	-0.04	-.017	.064*	.092**	.092**	.113**	.007	.003	.003	-.123**	.009	-.070*	-.135**	-.158**	.619**	.416**	1						
31 ICP	.160**	.094**	.135**	.102**	.076*	.135**	-.015	-.054	-.261**	.093**	.052	-.020	-.057	.152**	.068*	-.057	.010	.010	-.050	.071*	.124**	.124**	-.068*	-.032	.020	-.088**	-.046	.018	-.035	.011	1					
32 IGDP	.051	-.017	.070*	.119**	.038	.070*	.102**	-.002	.173**	.005	-.017	.014	-.003	-.052	-.055	-.161**	-.205**	-.205**	-.058	-.010	.064*	.064*	-.125**	.004	-.104**	-.009	-.040	.072*	.121**	.008	-.109**	1				
33 IR	.245**	.145**	.205**	.166**	.119**	.204**	.005	-.008	-.308**	.093**	.070*	.096**	-.105**	.208**	.041	-.159**	-.068*	-.068*	-.132**	.062*	.165**	.165**	-.124**	.023	-.066*	-.248**	-.192**	.086**	-.009	.123**	.534**	-.081**	1			
34 SMD	-.101**	-.050	-.090**	-.156**	-.098**	-.091**	-.095**	.010	.071*	-.092**	-.045	-.010	.019	-.042	-.022	.066*	.091**	.091**	.005	-.039	-.100**	-.100**	.106**	-.007	.088**	-.062	-.060	-.121**	-.191**	-.091**	-.358**	-.338**	-.048	1		
35 BMD	.045	.060	.018	-.015	.021	.017	-.039	-.012	-.146**	.047	-.004	.047	.014	.117**	.029	-.139**	-.094**	-.094**	-.102**	.057	.057	.057	.008	.009	.028	-.076*	-.039	-.157**	-.179**	-.165**	.444**	-.017	.561**	.078*	1	
36 CG	-.101**	-.045	-.093**	-.154**	-.112**	-.095**	-.085**	-.009	.132**	-.084**	-.060	-.049	.056	-.040	-.044	.022	.022	.022	-.022	-.083**	-.116**	-.116**	.073*	-.023	.079*	-.030	-.029	-.184**	-.212**	-.191**	-.299**	-.201**	-.065*	.848**	.245**	1
37 PR	-.217**	-.110**	-.193**	-.226**	-.158**	-.193**	-.104**	-.005	.212**	-.121**	-.055	-.146**	.115**	-.149**	-.016	.226**	.190**	.190**	.113**	-.100**	-.196**	-.196**	.161**	-.031	.129**	.100**	.087**	-.121**	-.130**	-.147**	-.314**	-.405**	-.674**	.493**	-.243**	.477**	1

Source: Author

** Correlation is significant at the 0.01 level (2-tailed).; * Correlation is significant at the 0.05 level (2-tailed).

Table 7. Correlations (market-based data).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1 TD	1																																			
2 STD	.537**	1																																		
3 MLD	.911**	.141**	1																																	
4 TL	.860**	.402**	.813**	1																																
5 CL	.538**	.710**	.284**	.660**	1																															
6 NCL	.911**	.141**	1.000**	.813**	.284**	1																														
7 AP	.390**	.319**	.302**	.473**	.505**	.302**	1																													
8 D	.002	-.179**	.090**	-.015	-.169**	.090**	.044	1																												
9 TANG	.055	-.141**	.133**	.076*	-.085**	.133**	.012	.203**	1																											
10 SIZE_S	.119**	-.134**	.204**	.159**	-.165**	.204**	-.002	.202**	.874**	1																										
11 SIZE_A	-.333**	-.174**	-.306**	-.454**	-.294**	-.306**	-.240**	-.056	.026	-.078*	1																									
12 GROW_M	-.107**	-.044	-.103**	-.101**	-.020	-.103**	-.016	.203**	.060	.039	.042	1																								
13 GROW_CE	.134**	-.026	.169**	.162**	-.006	.169**	-.024	-.452**	-.059	.029	-.095**	-.319**	1																							
14 GROW_IA	.037	.064	.011	-.015	.031	.011	.031	-.057	-.023	-.046	.005	.000	-.030	1																						
15 GROW_E	-.065*	-.053	-.050	-.049	-.097**	-.050	.067*	-.055	.078*	.081**	-.096**	.012	-.090**	.037	1																					
16 AGE	-.028	.002	-.033	-.025	-.073*	-.033	.050	-.111**	.028	.051	-.105**	-.013	-.079*	.055	.884**	1																				
17 AGE_LN	-.028	.002	-.033	-.025	-.073*	-.033	.050	-.111**	.028	.051	-.105**	-.013	-.079*	.055	.884**	1.000**	1																			
18 AGE_LOG	.032	.040	.017	.026	.157**	.017	.123**	.134**	.029	-.001	.114**	.031	-.069*	-.034	-.125**	-.128**	-.128**	1																		
19 NDTS	-.370**	-.259**	-.306**	-.433**	-.337**	-.306**	-.225**	.065*	.072*	-.058	.372**	.002	-.057	.081*	-.055	-.035	-.035	-.056	1																	
20 PROF	.112**	-.089**	.175**	.144**	-.078*	.175**	.022	.217**	.612**	.673**	-.015	.035	.022	-.065*	-.100**	-.110**	-.110**	.034	.093**	1																
21 RISK_LOG	.112**	-.089**	.175**	.144**	-.078*	.175**	.022	.217**	.612**	.673**	-.015	.035	.022	-.065*	-.100**	-.110**	-.110**	.034	.093**	1.000**	1															
22 RISK_LN	-.596**	-.318**	-.543**	-.621**	-.438**	-.543**	-.238**	.093**	-.109**	-.109**	-.023	.064*	-.132**	.019	.092**	.100**	.100**	-.101**	.134**	-.144**	-.144**	1														
23 RISK SOL	.051	-.123**	.119**	.042	-.065*	.119**	-.177**	.011	.077*	.070*	.506**	-.014	.009	.009	-.021	-.031	-.031	.025	.020	.052	.052	-.062*	1													
24 RISK STR	-.249**	-.259**	-.164**	-.309**	-.439**	-.164**	-.221**	.011	-.219**	-.186**	.020	.073*	-.230**	.071*	.204**	.245**	.245**	-.225**	.086**	-.147**	-.147**	.392**	.000	1												
25 LIQ	.048	.060	.027	-.028	.079*	.027	.072*	-.001	-.123**	-.281**	.073*	.094**	-.246**	.033	-.046	-.123**	-.123**	.058	-.057	-.206**	-.206**	-.011	.013	.139**	1											
26 FF	-.132**	-.005	-.152**	-.189**	-.068*	-.152**	-.033	-.037	-.039	-.189**	.057	.081*	-.186**	.011	.075*	-.020	-.020	-.013	-.042	-.169**	-.169**	.177**	-.016	.138**	.771**	1										
27 FB	-.055	-.056	-.037	-.041	-.065*	-.037	-.058	-.045	.054	.076*	.099**	.025	.000	-.028	.060	.047	.047	.037	-.051	-.013	-.013	.000	.019	-.064*	-.052	.013	1								
28 GD_R	-.008	-.100**	.040	.008	-.053	.040	-.013	.041	.175**	.168**	.064*	-.008	.006	-.042	.005	-.062*	-.062*	.027	-.037	.105**	.105**	-.098**	.036	-.105**	-.050	-.016	.751**	1							
29 GD	-.019	-.057	.006	.029	-.002	.006	-.009	.019	-.014	.027	.120**	.009	-.040	-.017	.064*	.092**	.092**	.113**	.007	.003	.003	-.123**	.009	-.070*	-.135**	-.158**	.619**	.416**	1						
30 GD_IR	.172**	.108**	.149**	.122**	.097**	.149**	.053	-.261**	.093**	.052	-.020	-.057	.152**	.068*	-.057	.010	.010	-.050	.071*	.124**	.124**	-.068*	-.032	.020	-.088**	-.046	.018	-.035	.011	1					
31 ICP	.055	-.001	.065*	.101**	.047	.065*	.003	.173**	.005	-.017	.014	-.003	-.052	-.055	-.161**	-.205**	-.205**	-.058	-0.01	.064*	.064*	-.125**	.004	-.104**	-.009	-.040	.072*	.121**	.008	-.109**	1				
32 IGDP	.205**	.145**	.169**	.111**	.073*	.169**	-.043	-.308**	.093**	.070*	.096**	-.105**	.208**	.041	-.159**	-.068*	-.068*	-.132**	.062*	.165**	.165**	-.124**	.023	-.066*	-.248**	-.192**	.086**	-.009	.123**	.534**	-.081**	1				
33 IR	-.085**	-.042	-.080*	-.108**	-.092**	-.080*	-.132**	.071*	-.092**	-.045	-.010	.019	-.042	-.022	.066*	.091**	.091**	.005	-.039	-.100**	-.100**	.106**	-.007	.088**	-.062	-.060	-.121**	-.191**	-.091**	-.358**	-.338**	-.048	1			
34 SMD	.075*	.077*	.050	.026	.029	.050	-.045	-.146**	.047	-.004	.047	.014	.117**	.029	-.139**	-.094**	-.094**	-.102**	.057	.057	.057	.008	.009	.028	-.076*	-.039	-.157**	-.179**	-.165**	.444**	-.017	.561**	.078*	1		
35 BMD	-.042	-.012	-.044	-.051	-.063*	-.044	-.115**	.132**	-.084**	-.060	-.049	.056	-.040	-.044	.022	.022	.022	-.022	-.083**	-.116**	-.116**	.073*	-.023	.079*	-0.03	-.029	-.184**	-.212**	-.191**	-.299**	-.201**	-.065*	.848**	.245**	1	
36 CG	-.132**	-.081**	-.114**	-.084**	-.064*	-.114**	.001	.212**	-.121**	-.055	-.146**	.115**	-.149**	-.016	.226**	.190**	.190**	.113**	-.100**	-.196**	-.196**	.161**	-.031	.129**	.100**	.087**	-.121**	-.130**	-.147**	-.314**	-.405**	-.674**	.493**	-.243**	.477**	1

Source: Author

** Correlation is significant at the 0.01 level (2-tailed).; * Correlation is significant at the 0.05 level (2-tailed).

Notes
AGE: years of activity; AGE_LN: ln of age; AGE_LOG: Log of Age; AP: Accounts Payable; APM: Accounts Payable Market; BMD: Bond Market Development; CG: Country Governance; CL: Current Liabilities; CLM: Current Liabilities Market; D: debt to equity ratio; FB: Family board members; FF: Family Firm; GD: Gender Diversity; GD_IR: Gender Diversity Independent female; GD_R: Gender Diversity ratio; GROW_CE: Grow as capital expenditures to fixed assets ratio; GROW_E: as annual change on EBIT ratio; GROW_IA: as intangible assets to total assets ratio; GROW_M: as grow market to book; ICP: Inflation consumer prices; IGDP: Inflation GDP deflactor; IR: Real Interest Rate; MLD: Medium-long term debt; MLDM: Medium-long term debt Market; LIQ: Liquidity; NCL: Non-current Liabilities; NCLM: Non-Current Liabilities Market; NDTS: Non-debt tax shield; PR: Promarket Reforms; PROF: Profitability; RISK_LOG: Log (EBIT-mean EBIT)^2; RISK_LN: ln (EBIT-Média EBIT)^2; RISK SOL: solvency ratio ; RISK STR: structure ratio; SIZE_A: Size as ln Assets; SIZE_S: Size as lnsales; SMD: Stock Market Development; STD: Short-term debt; STDM: Short-term debt market; TANG: Asset Tangiability; TD: Total Debt; TDM: Total Debt market; TL: Total Liabilities; TLM: Total Liabilities Market.

Table 5 presents which explanatory variables the Stepwise method considered were more significant and better suited to explain each variable of level of indebtedness. Some variables such as GROW_IntangibleVar, Risk (EBIT-Média EBIT) ^2, GDP Growth and Corruption Levels were excluded from the analysis since they were not considered significant to the analysis of the levels of indebtedness. The variable Inflation GDP deflator was also excluded because it measures the same thing as the variable Inflation consumer prices, yet it is significantly present in less variables of indebtedness.

When analysing Tables 6 and 7, it demonstrates that most of the explanatory variables are statistically significant to explain the level of indebtedness of Latin American firms, whether it's by the type of data (accounting-based or market-based), or by the levels of maturity of the indebtedness of firms. However, after examining the correlation between the variables, it is possible to observe some strong correlations between some variables. In terms of the Pearson's correlation coefficients, those variables have coefficients higher than 0.7 in a scale from 0 to 1, which is the suggested in the literature (Marôco, 2018), particularly this was the case of the different measures of Size (0.874), Age (0.884 and 1.00), Risk log and Risk ln (1.00), Risk Solvency with Total Liabilities (-0.849), Risk Structure with Debt-equity ratio (0.955), Family Board and Family Firm (0.771), Gender Diversity ratio and Gender Diversity Dummy (0.751), and Country Governance with Stock Market Dev (0.848).

To eliminate any possible multicollinearity problems when testing the model, some of the following alternative's measures will be excluded: the alternative measure of size (ln Sales); the alternatives measures of Age (ln and log) because they have similar coefficients yet age (in years) has more significance with the indebtedness variables; the alternatives measures of Risk (ln) because is very similar and correlated to Risk (log), Risk (Solvency, Structure) because they are significantly correlated to TL and D respectively; Family Board ratio since its part of the Family Firm variable which already encompasses the ratio of family members within the board of directors, but also includes the ratio of level of stock ownership, thus, it

will be used to test the model; Gender Diversity ratio since is part of the Gender Diversity dummy which considers the role of female members as a whole and is a more statistically significant variable; and Country Governance because is significantly correlated with Stock Market Dev. and has less significant presence in the different levels of indebtedness.

The descriptive statistics (minimum, maximum, median, means and standard deviations) of the variables used in the model are presented to total sample and by type of firms – family and non-family firms, on Table 8.

Table 8 - Descriptive statistics by type of firm

Group	Variable	Type of Firms	N	Min.	Max.	Mean	Std. Dev.	Median	MW Test
Accounting Data - Level of indebtedness (Db)	Db_Total Debt ratio	Family	618	0.000	1.574	0.338	0.183	0.317	0.020
		Non Family	392	0.000	0.916	0.308	0.142	0.307	
		Total	1017	0.000	1.574	0.326	0.169	0.313	
	Db_Short-term Debt ratio	Family	618	0.000	0.562	0.073	0.093	0.045	0.947
		Non Family	392	0.000	0.789	0.059	0.067	0.047	
		Total	1017	0.000	0.789	0.068	0.084	0.046	
	Db_Long-Term Debt ratio	Family	618	0.000	1.387	0.265	0.155	0.255	0.154
		Non Family	392	0.000	0.583	0.249	0.118	0.241	
		Total	1017	0.000	1.387	0.258	0.142	0.248	
	Db_Total Liabilities ratio	Family	619	0.180	2.462	0.643	0.215	0.649	0.024
		Non Family	392	0.171	1.628	0.614	0.155	0.618	
		Total	1018	0.171	2.462	0.631	0.195	0.637	
	Db_Current Liabilities ratio	Family	619	0.038	0.927	0.255	0.132	0.235	0.000
		Non Family	392	0.036	1.214	0.216	0.123	0.192	
		Total	1018	0.036	1.214	0.240	0.130	0.217	
	Db_Non-Current Liabilities ratio	Family	619	0.000	1.387	0.265	0.155	0.255	0.144
		Non Family	392	0.000	0.583	0.249	0.118	0.241	
		Total	1018	0.000	1.387	0.258	0.142	0.249	
	Db_AccountsPayable	Family	619	0.000	0.467	0.092	0.069	0.077	0.002
		Non Family	392	0.000	0.293	0.078	0.054	0.066	
		Total	1018	0.000	0.467	0.087	0.065	0.073	
	Db__TotalDebtEquity ratio	Family	619	-546.000	134.912	0.743	23.014	0.857	0.041
		Non Family	392	-25.991	12.328	0.949	1.870	0.770	
		Total	1018	-546.000	134.912	0.817	17.979	0.820	

Group	Variable	Type of Firms	N	Min.	Max.	Mean	Std. Dev.	Median	MW Test
Market Data - Level of indebtedness (Db)	Db_Total debt ratio_MD	Family	620	0.000	0.731	0.282	0.180	0.263	0.591
		Non Family	392	0.000	0.767	0.266	0.133	0.275	
		Total	1019	0.000	0.767	0.276	0.163	0.269	
	Db_Short-term debt ratio_MD	Family	620	0.000	0.486	0.058	0.076	0.035	0.139
		Non Family	392	0.000	0.612	0.050	0.053	0.275	
		Total	1019	0.000	0.612	0.055	0.068	0.038	
	Db_Long-term debt ratio_MD	Family	620	0.000	0.691	0.224	0.154	0.211	0.767
		Non Family	392	0.000	0.612	0.216	0.112	0.223	
		Total	1019	0.000	0.691	0.221	0.140	0.217	
	Db_Total Liabilities ratio_MD	Family	620	0.000	1.000	0.523	0.242	0.508	0.261
		Non Family	392	0.104	1.000	0.536	0.204	0.552	
		Total	1019	0.000	1.000	0.529	0.230	0.534	
	Db_Current Liabilities ratio_MD	Family	620	0.000	0.699	0.199	0.116	0.171	0.023
		Non Family	392	0.029	0.824	0.181	0.104	0.156	
		Total	1019	0.000	0.824	0.193	0.113	0.165	
	Db_Non-Current Liabilities ratio_MD	Family	620	0.000	0.691	0.224	0.154	0.211	0.767
		Non Family	392	0.000	0.612	0.216	0.112	0.223	
		Total	1019	0.000	0.691	0.221	0.140	0.217	
	Db_AccountsPayable_MD	Family	615	0.000	8.599	0.357	0.826	0.114	0.706
		Non Family	391	0.000	7.852	0.246	0.627	0.121	
		Total	1009	0.000	8.599	0.313	0.755	0.117	
Asset tangibility	TANG	Family	619	0.005	0.831	0.338	0.183	0.317	0.738
		Non Family	392	-0.398	0.799	0.338	0.222	0.315	
		Total	1018	-0.398	0.831	0.338	0.199	0.317	
Firm size	SIZE_LnAssets	Family	619	5.718	11.370	8.573	1.042	8.470	0.000

Group	Variable	Type of Firms	N	Min.	Max.	Mean	Std. Dev.	Median	MW Test
		Non Family	392	7.163	12.697	9.231	1.179	9.229	
		Total	1018	5.718	12.697	8.822	1.144	8.759	
Growth opportunities	GROW_market	Family	618	-20.702	29.290	2.243	2.926	1.792	0.001
		Non Family	392	-7.301	14.038	1.862	1.749	1.415	
		Total	1016	-20.702	29.290	2.090	2.537	1.624	
	GROW_CapitalExp	Family	619	-13.171	-0.003	-0.306	1.037	-0.152	0.596
		Non Family	383	-62.433	0.138	-0.980	5.450	-0.144	
		Total	1009	-62.433	0.138	-0.561	3.467	-0.151	
	GROW_IntangibleAssets	Family	619	0.000	0.488	0.068	0.087	0.033	0.000
		Non Family	392	0.000	0.856	0.131	0.161	0.072	
		Total	1018	0.000	0.856	0.092	0.125	0.048	
	GROW_EBIT	Family	570	-45.444	74.000	0.208	4.003	0.027	0.106
		Non Family	363	-24.667	23.200	-0.025	2.227	-0.001	
		Total	934	-45.444	74.000	0.118	3.422	0.017	
Age	Age_years	Family	617	0.000	174.000	62.854	38.512	59.000	0.008
		Non Family	393	10.000	132.000	66.196	29.105	65.000	
		Total	1016	0.000	174.000	64.100	35.172	61.000	
Non-debt tax shield (NDTS)	NDTS_DeprecIS	Family	619	0.000	0.186	0.011	0.022	0.001	0.305
		Non Family	392	0.000	0.180	0.008	0.019	0.001	
		Total	1018	0.000	0.186	0.010	0.021	0.001	
Profitability	PROF	Family	619	-0.274	0.387	0.083	0.053	0.076	0.915
		Non Family	392	-0.205	0.410	0.090	0.070	0.076	
		Total	1018	-0.274	0.410	0.085	0.060	0.076	
Risk	RISK_Log	Family	620	-2.352	7.207	3.900	1.248	3.928	0.000
		Non Family	393	-0.760	8.339	4.504	1.607	4.586	

Group	Variable	Type of Firms	N	Min.	Max.	Mean	Std. Dev.	Median	MW Test
		Total	1020	-2.352	8.340	4.132	1.425	4.173	
Liquidity	LIQ	Family	619	0.214	6.207	1.752	0.925	1.577	0.000
		Non Family	392	0.142	5.568	1.509	0.702	1.390	
		Total	1018	0.142	6.207	1.657	0.852	1.481	
Board of Directors	Gender_Diversity_Dummy	Family	620	0.000	1.000	0.542	0.499	1.000	0.112
		Non Family	393	0.000	1.000	0.593	0.492	1.000	
		Total	1013	0.000	1.000	0.560	0.496	1.000	
	Gender_Independent_ratio	Family	620	0.000	0.333	0.026	0.062	0.000	0.000
		Non Family	393	0.000	0.429	0.045	0.081	0.000	
		Total	1013	0.000	4.000	0.310	0.633	0.000	
Macroeconomic factors	Inflation Consumer Prices	Total	1020	0.000	0.090	0.044	0.021	0.038	0.071
	Real Interest Rate	Total	1020	-0.120	0.417	0.136	0.147	0.081	0.000
	Stock Market Dev	Total	1020	0.000	1.574	0.494	0.300	0.430	0.001
	Bond Market Dev	Total	1020	0.000	1.135	0.380	0.370	0.397	0.026
	Promarket Reforms	Total	1020	43.800	79.000	63.235	9.065	64.750	0.005

Source: Author

Notes: *Max.: Maximum; Min.: Minimum; MW Test: Mann-Whitney test; N: number of valid observations; Std. Dev.: Standard Deviation.*

The normal distribution of the data was examined through the Kolmogorov-Smirnov and Shapiro-Wilk test of normality and results show that data deviated from normal distribution. Furthermore, the skewness and kurtosis coefficients showed that the data is mostly positive skewed and leptokurtic. Thus, the dataset is not normally distributed, and therefore the median should be evaluated. Also, to verify whether there are significant differences between family and non-family firms, the Mann-Whitney test was performed.

Main results (to total sample) show that Total Debt and Total liabilities play a more significant role and have higher maximums. This might product of the fact that short-term debt, accounts payable and current liabilities (Short maturity) just finance a small part of a firm. In fact, Psillaki and Daskalaskis (2009) suggest that the total values are more important since they consider all short and long-term credits such as accounts receivables, loans, etc.

Analysing the capital structure determinants, asset's tangibility is (in median) 0.317 of total assets, size is similar among firms considering that the median and media are similar. As for growth, it can be observed that there is a big difference in growth between firms. The median of the firms age is 61, with the oldest being at 174 years and the youngest firm at less than a year old. NDTS is quite insignificant, showing that depreciations have a small weight over total asset. Firms are profitable, but also with some risk. For liquidity, a median of 1.481 was found, which means that, about half the firms in Latin America have current assets greater than current liabilities. Regarding gender implications, the board of directors has a median of 0 independent female directors and as much as 4 female independent members within the board of directors. Finally, the medians of macroeconomic factors show that they are significant, thus they do have an importance to study.

Per group of firms, only the statistical median significances between family and non-family firms will be analysed. For the rest of the variables, the results of the medians between family firms and non-family firms are similar as confirmed by the Mann-Whitney test.

Family firms present higher indebtedness (accounting based) regarding Debt (total), Liabilities (Total and current), accounts payable and debt to equity ratio than non-family firms. The median level of indebtedness between family firms and non-family firms is different, suggesting that the type of firm (whether family controlled or not) does have an impact of the firm's capital structure in some indebtedness ratios. The results are consistent with the studies of Gottardo and Moisello (2014) and Ramalho et al. (2018) which found

evidence that family involvement results in capital decisions more oriented towards debt or higher leverage.

Considering market-based variables, the median of current liabilities of family firms (0.171) is higher when compared to the median of non-family firms (0.156). This means that the levels of current liabilities are different and higher in the family firms' group. In regard to capital structure determinants, the median of firms' size of family firms (0.8.470) is lower when compared to the median of non-family firms (9.229), suggesting that family firms are smaller and have less assets than non-family firms. When comparing the growth opportunities determinant (GROW_market) and (GROW_IntangibleAssets), family firms have lower median than non-family firms, suggesting that the firms are different and, that family firms might have lower growth opportunities when compared to non-family firms, which might be related to the fact that family firms seem to have less assets than its counterpart.

Family firms have lower medians of age than non-family firms, which means the firms age is lower in the family firms' group i.e., family firms are younger than non-family firms. Non-family firms have higher risk when compared to family firms, as suggested by the lower risk median of family firms. The median of Liquidity for Family Firms (1.577) is higher when compared to the median of non-family firms (1.390), which means that family firms and non-family firms are different when it comes to the availability of liquid assets, suggesting that family firms have more cash available and less tangible assets.

Gender diversity also plays a different role between family and non-family firms, especially when it comes to the presence of independent female directors. This suggest that family control does have an impact on the board of directors' composition.

4.3.Model Results

The results for each model to be tested are shown in the following tables. The analysis in Gretl resulted in a total of 15 models using the different levels of indebtedness (8 accounting based + 7 market based), out of which 8 studied total or long-term debt and 7 studied short-term debt (according to debt maturity).

Accounting based data

Table 9 - Models' levels of indebtedness accounting based

	Model 1. TD		Model 2. STD		Model 3. MLD		Model 4. TL		Model 5. CL		Model 6. NCL		Model 7. AP		Model 8. D	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
t-1	0.3006	<0.0001 ***	0.2507	<0.0001 ***	0.5775	<0.0001 ***	0.9938	<0.0001 ***	0.4437	<0.0001 ***	0.5895	<0.0001 ***	0.5689	<0.0001 ***	-0.0297	<0.0001 ***
const	0.1341	<0.0001 ***	0.2285	<0.0001 ***	0.0333	0.0001 ***	0.0722	<0.0001 ***	0.4252	<0.0001 ***	0.0729	<0.0001 ***	0.1168	<0.0001 ***	-7.6227	<0.0001 ***
FF	0.0044	0.0192 **	0.0010	0.7153	0.0253	<0.0001 ***	0.0020	0.1513	0.0194	<0.0001 ***	0.0123	0.0104 **	0.0021	0.0857 *	-2.3358	<0.0001 ***
TANG	-0.0142	0.0049 **	-0.0594	<0.0001 ***	0.1061	<0.0001 ***	0.0298	<0.0001 ***	-0.0406	0.0002 ***	0.0443	<0.0001 ***	-0.0177	0.0005 ***	6.1330	<0.0001 ***
SIZE_A	-0.0093	<0.0001 ***	-0.0108	<0.0001 ***			-0.0040	0.0001 ***	-0.0260	<0.0001 ***			-0.0081	<0.0001 ***		
GROW_M					0.0015	<0.0001 ***			0.0008	<0.0001 ***	0.0018	<0.0001 ***	0.0012	<0.0001 ***	4.9981	<0.0001 ***
GROW_CE					0.1743	<0.0001 ***										
GROW_IA			-0.1458	<0.0001 ***	-0.2366	<0.0001 ***							-0.0562	<0.0001 ***	7.1398	<0.0001 ***
GROW_E	-0.0004	<0.0001 ***														
AGE							-0.00004	0.0684 *					0.00012	<0.0001 ***		
NDTS	0.6179	<0.0001 ***	0.4170	<0.0001 ***			0.2659	<0.0001 ***	0.7150	<0.0001 ***			0.2509	<0.0001 ***		
PROF	-0.2095	<0.0001 ***	-0.1972	<0.0001 ***			-0.3298	<0.0001 ***	-0.1643	<0.0001 ***	-0.2400	<0.0001 ***	-0.0151	0.0190 **	-50.1362	<0.0001 ***
RISK_LOG	0.00116	0.0896 *	0.00147	0.0207 **	0.00315	<0.0001 ***	-0.00001	0.9910	0.00496	<0.0001 ***	0.00413	<0.0001 ***	0.00148	<0.0001 ***	0.56596	<0.0001 ***
LIQ			-0.0277	<0.0001 ***	0.0103	0.0004 ***	-0.0109	<0.0001 ***	-0.0499	<0.0001 ***	0.0042	0.1546	-0.0108	<0.0001 ***		
GD			-0.0075	<0.0001 ***	0.0038	0.1928	-0.0010	0.4789	0.0008	0.5597	0.0051	0.1071				
GD IR	-0.0270	0.0004 ***			-0.0596	0.0028 ***	-0.0200	0.0544 *			-0.0504	0.0025 ***	0.0400	<0.0001 ***	-16.8681	<0.0001 ***
ICP							0.1624	<0.0001 ***			0.3091	<0.0001 ***	0.0339	<0.0001 ***	-17.1579	<0.0001 ***
IR	0.0807	<0.0001 ***	0.0649	<0.0001 ***	0.1223	<0.0001 ***	-0.0183	<0.0001 ***	0.0442	<0.0001 ***						
SMD	-0.0132	<0.0001 ***			-0.0201	<0.0001 ***					-0.0098	0.0168 **				
BMD	-0.0041	0.0063 ***			-0.0254	<0.0001 ***					-0.0121	<0.0001 ***				
PR							0.0002	0.0427 **								

	Model 1. TD		Model 2. STD		Model 3. MLD		Model 4. TL		Model 5. CL		Model 6. NCL		Model 7. AP		Model 8. D	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Sargan	68.0346	0.3416	69.4585	0.2988	70.5490	0.2681	73.1699	0.2024]	75.0213	0.1632	74.7809	0.1680	73.8698	0.1869	76.7555	0.1317
Waldan	11033	0	9747	0.0000	44262	0.0000	281327	0.0000	7067	0.0000	13842	0.0000	29434	0.0000	374827000	0.0000
AR(1)	-3.6410	0.0003	-3.0805	0.0021	-4.2971	0.0000	-4.1031	0.0000	-3.5215	0.0004	-4.3350	0.0000	-3.7054	0.0002	-1.0777	0.2812
AR(2)	2.0450	0.0409	1.6841	0.0922	1.5819	0.1137	0.7262	0.4677	2.4291	0.0151	1.5177	0.1291	0.7165	0.4737	-0.9184	0.3584

Source: Author

Notes: AGE: years of activity; AP: Accounts Payable; MD: Bond Market Dev; CL: Current Liabilities; D: debt to equity ratio; FF: Family Firm; GD: Gender Diversity; GD_IR: Gender Diversity Independent female; GROW_CE as Grow as capital expenditures to fixed assets ratio; GROW_E: as annual change on EBIT; ratio; GROW_IA: as intangible assets to total assets ratio; GROW_M: as grow market to book; ICP: Inflation consumer prices; IR: Real Interest Rate; MLD: Medium-long term debt; LIQ: Liquidity; NCL: Non-current Liabilities; NDTS: Non-debt tax shield; PR: Promarket Reforms; PROF: Profitability; RISK_LOG: Log (EBIT-mean EBIT)^2; SIZE_A: Size as ln Assets; STD: Short-term debt; TANG: Asset Tangibility; TD: Total Debt; TL: Total Liabilities.

AR: Arellano-Bond test.

*, **, *** represent a level of 10%, 5% and 1%, respectively.

Table 9 presents the different models tested for capital structure measured using accounting-based data, according to the stepwise analysis of variables. The analysis resulted on 8 different models based on different levels of indebtedness maturity.

Following the literature on the two-step GMM System, the significance of the models was tested. The Sargan test has a p-value > 5% on all the models, showing that the instruments are valid and there is no significant correlation between them; and the Wald test has p-value < 5% on all the models, meaning that the joint significance and the coefficients are significant asymptotically distributed, and is a good fit. However, models 1. TD and 5. CL had Auto-2 (Arellano-Bond test) p-value < 5% confirming the presence of second-order autocorrelation on those cases. The rest of the models had p-value >5% on all the models which confirms the absence of second-order autocorrelation.

By analysing the information on Table 9, it is possible to observe that family control is significant across almost all the models, with the exceptions of model 2 and 4. The results are mostly contradictory to the expected effect. The influence of family ownership and involvement on the board of directors seems to have a positive impact in almost all the models (TD, MLD, CL, NCL and AP), and has high significance in all the long-term levels of indebtedness, yet it does not in all the short-term measures. These results confirm the studies by Gottardo and Moisello (2014) and Ramalho et al. (2018) that found that family firms tend to acquire more debt to avoid losing control and keep away of non-family shareholders. Poletti-Hughes and Martínez-Garcia (2022) also found evidence that support the proposition that the family firms increase their levels of indebtedness when they are in low levels of ownership. The only exception was the model 8. D, where family control had a significant negative effect, meaning when debt increases a lot compared to equity the results are different. External equity represents greater risks (Ahmed, 2019), and represents the loss of family control and their SEW which is family firms biggest fear (Chua et al., 1999; Adbellatif et al., 2010), thus family firms avoid the usage of equity as an option of financing.

Asset Tangibility (TANG) had mixed results. It had positive effects as expected on the levels of indebtedness MLD, TL, NCL, and D, which are mostly long-term levels of debt. These results are consistent with the expected signs and in accordance with the trade-off theory (Kraus & Litzenberger, 1973), the pecking-order theory (Myers & Majluf, 1984), principal-

agent theory (Jensen & Meckling, 1976) and the market timing theory (Baker & Wurgler, 2002). Results suggest that the more tangible assets a firm has, the more likely it is for them to acquire debt because they can use it as collateral, thus corroborating the works of Mateev et al. (2013), Lisboa (2017), Chow (2019) and Guillen et al. (2019). However, the determinant showed mostly a negative effect in the models where it was measured with debt, and mostly in the short-term maturity as it is in its relationship with STD, CL, and AP, all of which contemplate short-term indebtedness. The results indicate that the level of maturity does have some impact of the effects debt, which is consistent with the findings of Bastos & Namakura (2009), Gómez et al. (2014) and, Psillaki and Daskalaskis (2009). The studies found that in the long-term TANG has a positive relationship, and a negative one in the short-term.

The determinant size (SIZE_A) has a negative and significant relationship with the level of indebtedness of Latin American firms regarding TD, STD, TL, CL, and AP. The results are contradictory to the expected results and the trade-off theory. However, the negative impact that the size has on debt corroborates the pecking-order theory (Myers & Majluf, 1984) and the agency theory (Jensen & Meckling, 1976) suggesting that larger firms might have more funds and prefer self-financing or have larger principal-agent problems which might be consistent with the sample.

Regarding Growth Opportunities, the results were dependent on the way it is measured. Overall, Growth Opportunities measured by market to book ratio and capital expenditures to fixed assets ratio (GROW_M and GROW_CE) have a positive and significant effect. The results are consistent with the expected signed and in accordance with the pecking order theory (Myers & Majluf, 1984) and principal-agent theory (Jensen & Meckling, 1976), suggesting that, with greater growth opportunities, firms obtain more external financing as corroborated in the studies of Mazur (2007), Lisboa (2017), Chow (2019) and Rao et al. (2019). However, the results have a different behaviour with Growth Opportunities measured using intangible assets to total assets ratio and annual variation of EBIT (GROW_IA and GROW_E) presenting a contrary negative result. This negative relationship is in accordance with the trade-off theory (DeAngelo & Masulis, 1980) that suggests a negative relationship between growth opportunities and debt because higher levels of growth lead to more uncertainties, especially with regards to intangible assets that cannot be used as

collateral in case of the firm's failure, thus more volatility, and risks, which is also a result of high variation of profits.

The determinant AGE had mixed results and was only significant on models 4. TL and 7. AP. On model 4, it had a negative effect on the level of total liabilities of firms consistent with the pecking-order and confirming the works of Palacín-Sánchez et al. (2013) and Ramalho et al. (2018). Older firms have more retained earnings and so less need of liabilities. On model 7, age positively impacts Accounts Payable (AP), suggesting that the older the firm, the more credit from suppliers a firm is willing to obtain due to long-term relationships. The results are consistent with previous studies such as Handoo and Sharma (2014), and Rao et al. (2019), which conducted their studies on firms from emerging economies in Asia. Thus, suggesting that emerging economies firms might behave differently.

The models showed that the NDTS and Profitability (PROF) behaved as expected with a positive and negative effect, respectively. Firms might be more likely to acquire debt to benefit from tax shield as found in previous studies such as Delcoure (2007), Chakraborty (2010) and Lisboa (2017, 2019). While, according to the pecking-order, the higher the levels of profitability the less likely is for firms to prefer external debt, thus having a negative relationship with debt, in accordance with the work of Daskalakis et al. (2017), Handoo and Sharma (2014) and Bernardo et al. (2018).

Inconsistent with the literature, Risk has a mostly positive relationship with total debt (TD), Medium-long term debt (MLD), Current liabilities (CL), Non-current Liabilities (NCL) and Debt-equity (D), confirming the results of Bastos and Namakura (2009) that also found positive results related to risk and capital structure in EMNEs from Latin America.

Liquidity had contradictory results in the long-term time frame with MLD, where it had a positive effect on the level of indebtedness of firms. The results suggest that the maturity of debt does have an impact on the determinants, and that firms acquire more long-term debt when they have more liquid assets, all of which is consistent with the trade-off theory by DeAngelo and Masulis (1980). Latin American EMNEs with higher liquidity levels, have fewer financial constraints and can access higher levels of long-term debt such as bank loans.

Analyzing Gender Diversity (GD), it is only relevant to explain STD, suggesting that female members on the BOD lowers the levels of short-term debt of firms in Latin America as

consistent with the works of López-Delgado and Diéguez-Soto (2020), García and Herrero (2021) and La Rocca et al. (2020).

Overall, the macroeconomic variables confirm the proposition that the economic environment, financial policies and systems, and its institutions do have an impact on the capital structure of a firm (Bernardo et al., 2018; Santos, 2013). Yet, most of the results have an unexpected sign which supports the premises of Booth et al. (2001) and Mouton and Smith (2016) that suggest that macroeconomic factors vary, and emerging economies might behave differently than developed economies, which might explain why most of the results were not as expected. Inflation (ICP) did have a positive and expected result because high levels of inflation depreciate the value of debts, thus making debt more appealing for firms. Interest rate (IR) had mainly a contradictory effect on Latin American EMNEs, and previous studies found a negative relationship because higher inflation, creates uncertainty in the economy thus financing has greater costs (Martins & Terra, 2014). The difference in results might be because Latin American firms are already established in volatile and uncertain institutional environments (Céspedes et al., 2010), thus uncertainty its part of their idiosyncrasies. Stock Market Development (SMD) had negative effects across the models in accordance with the expected result, suggesting that the stock market is developed, and firms have a broader pool of financial options. Bond Market Development (BMD) had a negative effect on total and long-term levels of indebtedness, suggesting that for long-term financial obligations, the market is not develop enough. Promarket reforms (PR) had positive results contrary to the expected result, suggesting that the Latin American markets are not as developed, thus higher levels of indebtedness are necessary for firms.

The level of indebtedness of the previous period also had an impact on the results.

Market based data

Table 10 - Models' levels of indebtedness market based

	Model 9. TDM		Model 10. STDM		Model 11. MLDM		Model 12. TLM		Model 13. CLM		Model 14. NCLM		Model 15. APM	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
t-1	0.4535	<0.0001 ***	0.3693	<0.0001 ***	0.4180	<0.0001 ***	0.3091	<0.0001 ***	0.2729	<0.0001 ***	0.4180	<0.0001 ***	0.7062	<0.0001 ***
const	0.1437	<0.0001 ***	0.1168	<0.0001 ***	-0.0821	<0.0001 ***	0.2863	<0.0001 ***	0.4274	<0.0001 ***	-0.0821	<0.0001 ***	0.4333	<0.0001 ***
FF	0.0195	0.0029 ***	0.0038	0.1083	0.0300	<0.0001 ***	0.0292	0.0072 ***	0.0037	0.3863	0.0300	<0.0001 ***	-0.0123	0.0724 *
TANG	0.0732	<0.0001 ***	-0.0485	<0.0001 ***	0.1268	<0.0001 ***	0.0187	0.4038	-0.1051	<0.0001 ***	0.1268	<0.0001 ***	-0.0309	<0.0001 ***
SIZE_A					0.0141	<0.0001 ***	0.0141	<0.0001 ***	-0.0161	<0.0001 ***	0.0141	<0.0001 ***		
GROW_M	-0.0053	<0.0001 ***	-0.0027	<0.0001 ***	-0.0035	<0.0001 ***	-0.0120	<0.0001 ***	-0.0064	<0.0001 ***	-0.0035	<0.0001 ***		
GROW_CE	-0.0021	<0.0001 ***	-0.0003	0.0639 *	-0.0014	<0.0001 ***	-0.0045	<0.0001 ***			-0.0014	<0.0001 ***		
GROW_IA			-0.1121	<0.0001 ***	0.1859	<0.0001 ***			-0.1832	<0.0001 ***	0.1859	<0.0001 ***		
GROW_E	0.0018	<0.0001 ***	-0.0001	0.3730										
AGE	0.00002	0.8445					0.00034	0.0605 *					0.00066	<0.0001 ***
NDTS									0.2364	0.0002 ***			4.2765	<0.0001 ***
PROF	-0.4785	<0.0001 ***	-0.1440	<0.0001 ***	-0.3425	<0.0001 ***	-0.8965	<0.0001 ***	-0.3405	<0.0001 ***	-0.3425	<0.0001 ***	-1.3614	<0.0001 ***
RISK_LOG	0.00470	<0.0001 ***	-0.00175	<0.0001 ***	0.00073	0.3123	0.00731	<0.0001 ***	0.00381	<0.0001 ***	0.00073	0.3123	0.02237	<0.0001 ***
LIQ	-0.0188	<0.0001 ***	-0.0221	<0.0001 ***	0.0047	0.1045	-0.0408	<0.0001 ***	-0.0540	<0.0001 ***	0.0047	0.1045	-0.0654	<0.0001 ***
GD			-0.0045	<0.0001 ***			-0.0074	0.191	-0.0042	0.0942 *			-0.0715	<0.0001 ***
GD IR	0.0014	0.9457												
ICP	0.4442	<0.0001 ***	0.0419	<0.0001 ***	0.4252	<0.0001 ***	0.9136	<0.0001 ***	0.4232	<0.0001 ***	0.4252	<0.0001 ***	-0.6957	<0.0001 ***
IR	0.0777	<0.0001 ***			0.0664	<0.0001 ***	0.0343	0.0116 **			0.0664	<0.0001 ***		
SMD													-0.2611	<0.0001 ***
BMD									-0.0018	0.4033				
PR														
Sargan	73.7907	0.1886	72.7279	0.2127	72.8309	0.2102	70.6220	0.2661	69.0924	0.3095	72.8309	0.2102	77.1946	0.1245

	Model 9. TDM		Model 10. STDM		Model 11. MLDM		Model 12. TLM		Model 13. CLM		Model 14. NCLM		Model 15. APM	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Waldan	10337	0.0000	30353	0.0000	12328	0.0000	15843	0.0000	7280	0.0000	12328	0.0000	7063340	0.0000
AR(1)	-2.9932	0.0028	-3.1544	0.0016	-3.6618	0.0003	-2.1325	0.0330	-3.6748	0.0002	-3.6618	0.0003	-1.6788	0.0932
AR(2)	-0.8782	0.3798	0.8316	0.4056	0.5808	0.5614	-2.0895	0.0367	-1.8628	0.0625	0.5808	0.5614	-1.2569	0.2088

Source: Author

Notes: AGE: years of activity; APM: Accounts Payable market; AR: Arellano-Bond test; BMD: Bond Market Dev; CLM: Current Liabilities Market; FF: Family Firm; GD: Gender Diversity; GD_IR: Gender Diversity Independent female; GROW_CE as Grow as capital expenditures to fixed assets ratio; GROW_E: as annual change on EBIT; ratio; GROW_IA: as intangible assets to total assets ratio; GROW_M: as grow market to book; ICP: Inflation consumer prices; IR: Real Interest Rate; MLDM: Medium-long term debt market; LIQ: Liquidity; NCLM: Non-Current Liabilities market; NDTS: Non-debt tax shield; PR: Promarket Reforms; PROF: Profitability; RISK_LOG: Log (EBIT-mean EBIT)^2; SIZE_A: Size as ln Assets; SMD: Stock Market Dev.; STDM: Short-term debt market; TANG: Asset Tangiability; TDM: Total Debt market; TLM: Total Liabilities market.

AR: Arellano-Bond test.

*, **, *** represent a level of 10%, 5% and 1%, respectively.

Table 10 presents the different models tested for capital structure measured using market-based data, according to the stepwise analysis of variables.

The Sargan test has a p-value > 5% on all the models, showing that the instruments are valid and there is no significant correlation between them; and the Wald test has p-value < 5% on all the models, meaning that hat the joint significance and the coefficients are significant asymptotically distributed, and is a good fit. However, models 12. TLM had Auto-2 (Arellano-Bond test) p-value < 5% confirming the presence of second-order autocorrelation on that model. The rest of the models had p-value >5% on all the models which confirms the absence of second-order autocorrelation.

By analysing the information on Table 10, the impact of family control is consistent in both sets of models, is means, cause a positive impact on TDM, MLDM, TLM, NCLM, as the results presented on Table 9. The only exception is model 15. APM, where it has a negatively significant relationship, suggesting that Latin American family firms prefer not to acquire debt through its sellers/suppliers when examined with market values, possibly to avoid damaging their SEW and reputation which is a very important issue for family firms as found by Anderson et al. (2003) and Molly et al. (2019).

The determinant Asset Tangibility (TANG) presents similar results than those presented on Table 9, with exception for total debt (TDM). It is interesting to note that with market-based data the maturity aspect has an impact on the effect of assets tangibility. There is a significant negative effect on short-term debt, current liabilities and accounts payable proposing that tangible assets do not have a positive influence when firms acquire short-term commercial credit and other non-financial liabilities, as found by Gómez et al. (2014).

The determinant Size (SIZE_A) has mixed results. Differently than in the account-based models, the determinant Size appears to have a mostly positive effect on total and long-term levels of indebtedness, suggesting that the bigger the firm, the easier it is to access financing options, which is consisted with the trade-off theory and most research work on the subject, as well as the market timing theory, which only affects public traded firms. However, the effect is negative only on model 13. CLM suggesting that for quick and short debt commitments, larger firms prefer self-financing as the pecking-order theory (Myers & Majluf, 1984) and the agency theory (Jensen & Meckling, 1976) propose.

The results of Growth Opportunities are very mixed. Both Growth_Market and Grow_CE have a negative effect on the level of indebtedness across the models, contrary to the behaviour on the accounting-based models. The results are contradictory to the expected behaviour, suggesting that market values are more susceptible to volatility, therefore, growth is viewed with more uncertainty which is consistent with the trade-off theory (DeAngelo & Masulis, 1980), and the work of Bernardo et al. (2018). Growth Opportunities (GROW_IA and GROW_E) present mixed results with positive effect on the long-term and negative effects on the short-term levels of indebtedness, suggesting that these determinants are susceptible to debt maturity.

The determinant AGE has a significant positive effect on total liabilities and accounts payable, suggesting that the older the firm, the more total levels of indebtedness a firm is willing to obtain through external financing. The results are consistent with the trade-off theory, and the studies made by Handoo and Sharma (2014), and Rao et al. (2019), which also found that Age had a positive effect on capital structure for Asian EMNEs. Yet, different than the negative effect obtained on the accounting-based model for total liabilities, suggesting that age is affected by the type of data used.

As in Table 9, NDTS has positive effect on capital structure and profitability a negative effect. Consistent with the results on the models with accounting-based data, Risk has a mostly positive effect, further confirming the findings of Bastos and Namakura (2009). The only exception was model 10. STDM, where risk had a negative effect on firms' levels of indebtedness for short-term levels measured with debt, suggesting that in this case riskier Latin American EMNEs are viewed unfavourably and considered to have higher chances to not fulfil their obligations, so their leverage capacity is lower (Guillen et al., 2019).

Liquidity (LIQ) is also consistent with the results on the models of Table 10, except for Model 3. MLD, where liquidity had contradictory results. These suggest that when liquidity is measured with accounting-based data, the maturity of debt does have an impact on its effects.

Gender Diversity showed, like in Table 9, a negative impact, consistent with López-Delgado and Diéguez-Soto (2020), García and Herrero (2021) and La Rocca et al. (2020) which found that higher amount of female members, lowers the indebtedness of family firms because

female directors usually offer greater monitoring and are more risk averse than their male counterparts.

Overall, these models also confirm that macroeconomic factors do influence the capital structure of a firm (Bernardo et al., 2018; Santos, 2013) as also demonstrated in Table 9. In comparison with Table 9, Inflation, Interest Rate and Stock Market Development presented the same effects, thus suggesting the same conclusions. The only difference being that Inflation had a negative effect with Accounts Payable Market (APM) suggesting that sellers/supplier are also affected by inflation, and thus it might limit their availability to grant credit to firms. On the other hand, Bond Market Development and Promarket Reforms did not have any statistical significance on the market-based models, differing from the accounting-based models.

In general, it is possible to view that the significance of the determinants of a firms' capital structure vary according to the dependent variable used, as demonstrated by Bernardo et al. (2018) and Gómez et al. (2014). From the results, it can be seen that the determinants that are more relevant to explain capital structure vary depending on the type of data used (accounting or market), and the level of maturity.

The level of indebtedness of the previous period also had an impact on the results.

Table 11 presents a summary of the results of the models compared with the main expected results presented in Table 3.

Table 11 - Results of the variables.

Variable	Expected Result	Accounting-based results	Market-based results
FF	Negative (-)	Positive (+). Except in D	Positive (+). Except in APM
TANG	Positive (+): TOT, POT, AT, MT	Negative (-): in mostly short-term levels	Negative (-): in mostly short-term levels
		Positive (+): TOT, POT, AT, MT. Mostly in long-term levels	Positive (+): TOT, POT, AT, MT. Mostly long-term levels
SIZE_A	Positive (+): TOT, MT	Negative (-): POT, AT	Positive (+): TOT, MT. Except in CLM
GROW_M	Positive (+): POT, AT	Positive (+): POT, AT	Negative (-): TOT
GROW_CE			
GROW_IA		Negative (-): TOT	Negative (-): TOT, in short-term levels / Positive (+): POT, AT. Mostly in long-term levels
GROW_E			
AGE	Negative (-): POT	Mixed	Positive (+): TOT
NDTS	Positive (+): POT	Positive (+): POT	Positive (+): POT
PROF	Negative (-): TOT, POT, AT	Negative (-): TOT, POT, AT	Negative (-): TOT, POT, AT
RISK_LOG	Negative (-): POT	Mostly Positive (+). Except in TL	Mostly Positive (+). Except in STDM
LIQ	Negative (-): POT	Negative (-): POT mostly in short-term levels / Positive (+): TOT, long-term levels	Negative (-): POT mostly short-term levels / Positive (+): TOT, long-term levels
GD	Positive (+)	Mostly negative	Negative (-)
GD IR	Positive (+)		Not significant
ICP	Positive (+)	Positive (+). Except in D	Positive (+). Except in APM
IR	Negative (-)	Positive (+). Except in TL	Positive (+)
SMD	Negative (-)	Negative (-)	Negative (-)
BMD	Positive (+)	Negative (-)	Not significant
PR	Negative (-)	Negative (-)	Not significant

Source: Author.

Notes: AGE: years of activity; APM: Accounts Payable market; AT: Agent-Theory; BMD: Bond Market Dev; CLM: Current Liabilities Market; D: debt to equity ratio; FF: Family Firm; GD: Gender Diversity; GD_IR: Gender Diversity Independent female; ICP: Inflation consumer prices; IR: Real Interest Rate; LIQ: Liquidity; MT: Market timing theory; NDTS: Non-debt tax shield; POT: Pecking-order theory; PR: Promarket Reforms; PROF: Profitability; RISK_LOG: Log (EBIT-mean EBIT)^2; SIZE_A: Size as ln Assets; SMD: Stock Market Dev.; STDM: Short-term debt market; TOT: Trade-off theory.

Overall, the results showed that the determinants mainly follow the pecking-order theory (POT), suggesting that Latin American EMNEs prefer using internal funds as their first choice of financing. Some determinants were consistent with the trade-off theory (TOT) inferring that in some cases firms seek debt to gain tax benefits.

5. Conclusion

The study of the impact of family control on capital structures on emerging economies, the role of gender diversity and macroeconomic variables involving capital structure of firms is relatively recent and limited within the corporate finance literature. Thus, the main objective is to examine the relationship between these factors in 85 EMNEs from Latin American & Caribbean (LAC) countries in the period 2011-2021 using an unbalanced panel data model using the Generalized Method of Moments (GMM) system.

Institutional environments can influence firms' business transactions, making processes more challenging or more effortless (Meyer, 2001). Most research studies have greatly focused on developed economies in North America and Europe (Parada et al., 2016). However, firms from emerging economies have different institutional environment, or different operational behaviours than developed economies (Cuervo-Cazurra, 2012; Fleury & Fleury, 2012), and are heavily represented by family firms (Claessens et al., 2002). The studies about family firms and emerging economies have mainly concentrated in East Asia (Parada et al., 2016) with Latin American firms often overlooked (Briano-Turrent and Poletti-Hughes, 2017), even though family firm are the dominant form of organization in Latin America (Vasquez et al. 2020) and most listed firms are controlled by family groups (Briano-Turrent and Poletti-Hughes, 2017).

This study proposes that capital structure decisions are affected by family control, and that most determinants go in line with the pecking-order theory (Myers & Majluf, 1984) that suggest that firms prefer using internal funds as their first choice. To confirm if this also happens to be a fact for EMNEs in Latin America, the level of indebtedness by type of data and maturity was used to examine the assumptions, because it has been established that how indebtedness is measured affects the behaviour of the capital structure determinants as evidence by Bernardo et al. (2018) and La Rocca et al. (2020).

Results show that family firm control showed a positive effect on mostly total and long-term levels of indebtedness confirming the need for Latin American family firms to avoid the inclusion of non-family shareholder, and the preference for acquiring more debt (Gottardo & Moisello, 2014; Ramalho et al., 2018). The only exception being Debt-Equity (D) and Accounts Payable Market (APM), suggesting that Latin American family firms prefer not to acquire debt through its sellers/suppliers as a ratio of market value of assets plus liabilities,

possibly to avoid damaging their SEW and reputation which is a very important issue for family firms as found by Anderson et al. (2003) and Molly et al. (2019). Molly et al. (2019) found that family-centred goals and SEW are exploited through family control on the board of directors, and thus affecting decisions on the firm's debt rate. Gender Diversity negatively impact firm's capital structure, but it is not relevant to all proxies. Results demonstrate that a more diverse board of director, reduces the indebtedness of firms because female directors usually offer greater monitoring and are more risk averse than male directors (López-Delgado & Diéguez-Soto, 2020; La Rocca et al., 2020). An effect that was more present in independent female directors of the accounting-based models as in line with García and Herrero (2021).

Consistent with the literature on capital structure, the analysis shows mixed results (i.e., both positive and negative effects), however, the results mostly support the pecking-order theory. The results of EMNEs in Latin America suggest that firms with more tangible assets have higher levels of indebtedness because they can use it as guarantee, especially for acquiring long-term debts. The size of firms behaves differently with accounting-based and market-based data, for example, with book values the larger the firm, the less likely is for them to acquire debt contrary to the expected results confirming that larger firms prefer using internal funds, and have issues separating the goals between the principal and the owner which is also consistent with the fact that over 60% of the sample was composed by family firms that generally suffer from agency problems. EMNEs in Latin America had mixed behaviours regarding their growth opportunities and are particularly susceptible to the market, showing opposite results when comparing both sets of models. As part of a region with more volatile and less developed financial markets (Céspedes et al., 2010), the greater the growth, the more volatile firms are considered.

Latin American EMNEs go against the general assumption that Age has a negative impact on the levels of indebtedness, a premise that supports previous studies of EMNEs in Asia such as Handoo and Sharma (2014) and Rao et al. (2019). However, the more profitable Latin American firms are, the less likely is for them to acquire external debt. The results are in accordance with the pecking-order theory, and the study of Bernardo et al. (2018) which also found that profitability is negatively related to levels of indebtedness at both book and market values.

An interesting result encountered was that EMNEs from Latin America have a different behaviour than the expected in relation to risk, confirming the results of Bastos and Namakura (2009) who found that EMNEs from Latin America with higher levels of risk were more inclined to have higher leverage. Because of their underdeveloped institutional environment, Latin American firms are accustomed to higher risks and unexpected changes, whether they are family firms or non-family firms. Macroeconomic factors were shown to influence the capital structure of a firm (Bernardo et al., 2018; Santos, 2013). The results showed mostly contradictory results confirming the works of Booth et al. (2001) and Mouton and Smith (2016) that suggest that macroeconomic might be different between emerging economies and developed economies. In fact, Latin American EMNEs do not seem to especially fit the conventional mold with regards of Age and Risk determinants. There is still much more to know about the impact of family control on capital structure decisions, namely regarding EMNEs since they operate under very volatile, dynamic and distinctive institutional environments.

The research had some limitations worth noticing. These limitations can lead to future research directions and could provide different effects and results. First, the study is limited to Latin American & Caribbean (LAC) countries, which might not represent the conditions of other EMNEs from other emerging regions such as Asia, the Middle East or Africa. Further studies can be done to examine if the results change when applying this research to a sample of another region or across region examination. Second, the sample is composed of only large publicly-traded EMNEs because data availability in emerging markets is limited. Thus, future studies with a database including small and medium-sized (SMEs) firms might contribute to a better understanding of family control on capital structure decisions. Third, the research did not control or differentiate by the industry that firms operate. Some industries may be more sensitive to some of the capital structure determinants as found by Bastos et al. (2009).

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Appendices

Table A1 - List of Latin American & Caribbean countries

North and Central America	
1	Belize
2	Costa Rica
3	El Salvador
4	Guatemala
5	Honduras
6	Mexico
7	Nicaragua
8	Panama
South America	
9	Argentina
10	Bolivia
11	Brazil
12	Chile
13	Colombia
14	Ecuador
15	French Guiana
16	Paraguay
17	Peru
18	Uruguay
19	Venezuela
Caribbean	
20	Cuba
21	Dominican Republic
22	Haiti
23	Guadeloupe
24	Martinique
25	Puerto Rico
26	Saint-Barthélemy
27	Saint-Martin

Source: Author based on United Nations Industrial Development Organization (UNIDO) in Latin America and the Caribbean (2019) and Cuervo-Cazurra (2010).