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FINANCING DECISIONS IN FAMILY BUSINESSES

THE PORTUGUESE EXAMPLE

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"A business is a family business when it is an enterprise growing out of the family's needs, built on the family's abilities, worked by its hands and minds, and guided by its moral and spiritual values; when it is sustained by the family's commitment, and passed down to its sons and daughters as a legacy as precious as the family's name"

(Lea, 1998, cited in Astrachan, Klein, & Smyrnios, 2002, p. 46)

Acknowledges

Abstract

Num contexto de extrema significância das empresas familiares no tecido empresarial português e da sua representatividade em termos de PIB e empregabilidade, torna-se essencial aferir as opções de financiamento e recursos de que dispõem, bem como as determinantes por detrás do processo de tomada de decisão destas empresas. Este estudo pretende aferir a adequação da *Pecking Order Theory* e da *Trade-Off Theory* numa amostra de 460 empresas familiares portuguesas. Os pressupostos comprovados dizem respeito à existência de uma relação negativa entre a idade e a dívida e, ainda, entre o ROA e o rácio de dívida, o que prova a adequação de duas premissas inerentes à *Pecking Order Theory* para a nossa amostra. De acordo com a literatura, esta relação negativa entre as variáveis pode ser consequência de uma preferência por parte deste tipo de empresas em recorrer a recursos internos, enquanto primeira opção na hora de considerar o financiamento, a fim de preservar a reputação, controlo e propriedade famíliar, bem como a perpetuação do seu património.

In a context of extreme significance of family businesses in the Portuguese business fabric and their representativeness in terms of GDP and employability, it is essential to assess the financing options and resources availability, as well as the determinants behind these firms' decision making process. This study aims to prove the suitability of the Pecking Order Theory and Trade-Off Theory to a sample of 460 Portuguese family businesses. Proven assumptions concern the existance of a negative relationship between age and debt and also between profitability (ROA) and debt ratio, which proves the adequacy of two premisses inherent to the Pecking Order Theory for our sample. According to the literature, this negative relationship between variables might be consequence of a preference for this kind of businesses to resort to internal financing as the first option when considering financing options, in order to preserve family reputation, control and ownership and also heritage perpetuation.

Keywords

Pecking Order Theory, financing decisions, capital structure, family businesses

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1.Introduction

Back in 1998, family businesses were already

> among the most effective locomotives of the economies in which they were located: they created jobs; they were among the few enterprises that were successful enough to pay taxes; and they displayed the agility and flexibility necessary to maneuver successfully in the troubled economic waters of their national economies (Neubauer & Lank, 1998, cited in Bird, Welsch, Astrachan, & Pistrui, 2002, p.14).

Two decades later, studies carried out by the Portuguese Family Businesses association confirm the current veracity of the previous statement as the family businesses represent nowadays more than 70% of the Portuguese companies and 60% of all companies in Europe (European Commission), contributing 65% to the national GDP, with great significance in terms of employability (50% of total employment in Portugal) (Associação das Empresas Familiares).

In an attempt to quantify the impact of family businesses on the Portuguese business fabric, we turned to Orbis[1] in order to understand which is the representativeness of our sample of 460 companies in the universe of companies currently operating in Portugal. From the 736,538 existing companies to date (September, 2019) in Portugal, 534,058 are public and private limited companies, of which 529,194 are currently active. From these 529,194 active companies, if by default we assume that 70% are family businesses, this translates into a number of 370,435 Portuguese family businesses. Our sample of 460 companies out of 370,435 corresponds to about 0.12% of the total family businesses operating in Portugal. As we can see, the universe of family businesses is really large, and a robust sample of 460 companies represents only 0.12% of the total existing family businesses in Portugal.

The perception of the importance of family businesses in the economic context of several countries has been growing and indeed research on family business finances is becoming increasingly relevant (López-Gracia & Sánchez-Andújar, 2007). In this sense, our purpose is to understand what are the premises that guide the financing decisions of this family business sample and how it fits into two theories regarding the debt issuance: the Pecking Order

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[1] Orbis is a database which is managed by Grupo Informa S.A. and BvD and gathers accounting information from companies around the world

Theroy and the Trade-Off Theory. As you can see below, the financing decisions are of utmost importance in a family business context and family-owned firms tend to follow idiosyncratic behaviors, which go beyond the decisions regarding the most appropriate type of financing, making them susceptible to adopt significantly different policies (Gallo, 1995, cited in López-Gracia & Sánchez-Andújar, 2007). These policies may cover factors such as the firm and family reputational image and the willing to maintain the family legacy within the firm through keeping family control and ownership over the generations.

For this study, we used a panel mostly of small and medium sized Portuguese family businesses. The data used was identified on the Orbis platform as being the latest available at the time of collection (August 2019), which span a year encompassed between the period 2016 – 2019. Our main findings show that the Pecking Order Theory is the one that suits our sample, meaning that those Portuguese family businesses tend to follow a hierarchy regarding financing decisions, with preference over the internal financing option, followed by debt issuance or borrowing and leaving external financing through equities for last because of the higher information costs associated and other issues regarding the preservation of family control and ownership.

The dissertation is organized as follows: firstly we will frame the definition of family business, since the concept haven't found a common ground yet and it is necessary to understand in some way the kind of firm that we proposed ourselves to study. Secondly, we will adress the importance of financing decisions in a family business context, as they are guided by some specificities and have been the subject of various literary approaches in recent years. Subsequently we will approach two theories regarding financing decisions of companies, using hypothesis formulation and testing them for our sample. Besides that, we will ascertain the existence of statistically significant differences and correlations between financial variables and ratios, as well as broadly characterize our sample in order to meet its distinctive character. Finally, we summarize the most important conclusions drawn from the research.

2. The difficulty to define a family business

Back in the late 80s, Handler (1989) had already stated that the primary difficult for researchers in family business field is defining a family firm (Handler, 1989, cited in Steiger, Duller, & Hiebl, 2015). Three decades later, the main reason why family business definition continues to be so ambiguous and difficult to gather consensus (Litz, Pearson, & Litchfield, 2012 , cited in Steiger, *et al.*, 2015) is because scholars who study this field have their own study methodology and epistemology due to their distinct backgrounds and also because the definition has been framed according to different socio-political national contexts, cultures and religions (Hernández-Linares, Sarkar, & Cobo, 2018). Thus, for example, according to the authors, in Asian or African countries the notion of extended family is widespread, while in North-America and West-Europe, the family concept has a more "nuclear character" (Hernández-Linares *et al.*, 2018).

Although a long path has been covered over the past years, scholars usually agree that family business research still lacks a common definition of what constitutes a family owned firm (Bird *et al.,* 2002, cited in Steiger *et al.,* 2015). However, there seems to have been a narrowing of the multiple definitions towards two streams of thought: firstly, the components of involvement approach, which brings together the definitions based on components of family involvement in the business, measured by its influence through ownership, management and control (Chrisman, Chua, & Sharma, 2005, cited in Mazzi, 2011); secondly, the definitions based on the essence of family businesses, also named intention-based approach (Chua, Chrisman, & Sharma, 1999, cited in Mazzi, 2011) which focus on the family behaviors and "synergistic resources and capabilities" (Zellweger, Eddleston, & Kellermanns, 2010, p.56).

Chrisman *et al.* (2005) consider the components of family involvement approach deficient on a theoretical basis as it is based on family involvement as the sufficient premise to classify a firm as family business. The essence approach, on the other hand, is based on the belief that family involvement is only an unavoidable condition; in order to be considered as family business, it must produce idiosyncratic behaviors and outcomes. In such a way, two firms with the same extent of family involvement may not both be considered family businesses "if either lacks the intention, vision, familiness, and/or behavior that constitute the essence of a family business." (Chrisman *et al.*, 2005, p.557).

Indeed, what really defines a family business goes beyond the components of involvement, since the attribute of family designation is intrinsic to the unique and distinctive character of a firm. In order to deeper address this issue regarding the lack of unanimity defining a family firm, Chrisman, Kellermanns, Chan and Liano (2010) (cited in Dawson & Mussolino, 2014) developed a recently influential scholarly work on family business which grouped articles into three categories:

- Articles exploring a concept derived from the agency theory, named **socioemotional wealth (SEW)** (Gomez-Mejia, Haynes, Nunez-Nickel, Jacobson, & Moyano-Fuentes, 2007, cited in Dawson & Mussolino, 2014), which explains the singularity of family businesses through non-economic objectives. SEW is the "family's stock of affect-related value" invested in the family firm (Berrone, Gomez-Mejia, & Larraza-Kintana, 2010, cited in Dawson & Mussolino, 2014, p.175), meaning the non-economic and affective values that arises from family firm ownership. This may include family affective needs of identity, the family's capability to exert influence over the business and the preservation of family succession (Gomez-Mejia *et al.,* 2007, cited in Dawson & Mussolino, 2014);

- Articles analyzing the **essence-of-family-business approach** (Chrisman *et al.*, 2005, cited in Dawson & Mussolino, 2014), labeled particularism (Carney, 2005, cited in Dawson & Mussolino, 2014), described as the way the family outlines the firm's vision in the long-term - across generations - and establishes its mission (Chua *et al.,* 1999, cited in Dawson & Mussolino, 2014) ;

- Articles stand on the resource-based view, explaining the singularities of family business resources and capabilities through the concept of **familiness** (Habbershon & Williams, 1999; Sirmon & Hitt, 2003 , cited in Dawson & Mussolino, 2014). Familiness is defined as the sum of idiosyncratic resources and capabilities, resulting from the family and business systems' interactions: Familiness $= \sum$ (resources$f$ and capabilities$f$) (Habbershon, Williams, & MacMillan, 2003, cited in Dawson & Mussolino, 2014).

However, the imminent danger of fading the boundaries of these three constructs and overlap its dimensions (Dawson & Mussolino, 2014) leads to the need of operationalize the definitions of a family-owned firm. "To be functional, a definition must be unambiguous and transparent in such a way that it can be quantified. Perhaps most important, a definition

should be modular, and its operationalization should lead to reliable and valid results."
(Astrachan *et al.*, 2002, p.46). In such a way, we rely on Dawson and Mussolino's (2014)
framework and present in the table below some of the most prominent empirical approaches
that have been developed over time and have contributed to the operationalization of the
definition.

Variable	Authors (year)	Study design	Approach	Key findings
The essence of family business	Chua *et al.* (1999)	Survey of 453 FFs	Theoretical framework	The attributes of a family business must overstep its components in terms of family involvement in ownership and management, adding the essence and vision that distinguishes family businesses from all other firms
	Basco and Perez Rodriguez (2011)	732 privately owned Spanish family firms	Typological model, based on the configurative approach	What differentiates family business is the fit of different decisions (family and business oriented) in four areas (the board of directors, human resources, succession and strategic process)
	Chrisman, Chua, Pearson, and Barnett (2012)	Survey of 1060 small FFs	Theoretical explanation and empirical evidence	The essence of family influence mediates, in part, the relationship between family involvement and family-centered non-economic (FCNE) goals. The results suggest that the significance of the relationship between family involvement and the adoption of FCNE goals is reduced after family essence is added into the analysis.
	Basco (2013)	567 Spanish	Theoretical framework	Model that enable a direct comparison between demographic and essence

		firms		approaches, exploring the effect of family management involvement (demographic variable) on family firm performance throughout family-oriented strategic decision making (essence variable). The main conclusion is that the demographic and essence approaches complement each other.
Socioemotional wealth (SEW)	Gomez-Meija, Makri, and Larraza-Kintana (2010)	360 firms, 160 of which are FFs	Theoretical framework in line with the behavioural agency model (BAM)	Family firms tend to diversify less both domestically and internationally than non-family firms as a way to protect their socioemotional endowment (SEW). The willing to diversify grows as business risk increases, and when they choose to do so, family firms tend to opt for domestic rather than international diversification, or to choose far away regions but with similar cultures.
	Chrisman and Patel (2012)	964 S&P firms (FFs and non-FFs)	Behavioral agency model (BAM) and myopic loss aversion logic	To preserve socioemotional wealth, loss-averse family firms usually invest less in R&D than nonfamily firms. However, two factors appear to mitigate this general tendency: when performance falls below aspirations, the framing of the effects of R&D investments on the ability to achieve family goals shifts from a gain to a loss perspective, causing family firms to increase R&D investments to a greater extent than nonfamily firms; and when family goals are long term in nature, strategic time horizons

				lengthen, decision makers become less risk averse, and R&D investments increase.
	Deephouse and Jaskiewicz (2013)	197 firms from 8 countries	Theoretical framework	Family members identify more strongly with a family firm than non-family members do with either a family or non-family firm. As a result, family members are more motivated to pursue a favourable corporate reputation because it contributes to their socioemotional wealth. Having the family's name as part of the firm's name, the level of family ownership, and family board presence were all associated with more favourable corporate reputations.
Familiness	Irava and Moores (2010)	4 cases	Resource-based theoretical approach	Familiness is composed of a unique bundle of six resources comprised of human resources (reputation and experience), organisational resources (decision-making and learning), and process resources (relationships and networks). The influence of the family through these six resource dimensions provides a clear theoretical frame for assessing the impact of familiness in firms.
	Ensley and Pearson (2005)	196 managers from 88 firms	Upper echelon perspective	The unique dynamics created by the social aspects of the family owned firm result in higher cohesion, potency, task conflict, and shared strategic consensus

	Minichilli, Corbetta, and MacMillan (2010)	113 top management teams (TMTs)	Agency theory, RBV, upper echelon, social capital	Results indicate that while the presence of a family CEO is beneficial for firm performance, the coexistence of "factions" in family and non-family managers has the potential to hurt firm performance. Also, the article found support for a hypothesized U-shaped relationship between the ratio of family members in the top management teams and firm performance, providing empirical evidence supporting the construct of familiness' as a potential determinant of family firms' resource-building and value creation.

Figure 1 Collection of family business definitions

As we have seen above, the definition of family businesses has been studied over the years from different conceptual perspectives. Since our dissertation will go through an empirical study, we will rely on the definition provided by the Portuguese Family Businesses association as a filter for our analysis, since the association already does so when integrating the companies as members.

Once the beacons of the family business concept are defined, we will move forward on the grounds of the financial decisions importance in a family business context.

3. Financing decisions - the importance in a family business context

Access to funding (Michiels & Molly, 2017, cited in Ramalho, Rita, & da Silva, 2018) and the lack of availability of sufficient financial resources are some of the main causes affecting the opportunities of growth and long-term survival of family businesses (Romano, Tanewski, & Smyrnios, 2000, cited in Blanco-Mazagatos, Quevedo-Puente, & Castrillo, 2007).

Indeed, financing decisions are particularly relevant for family business as has been demonstrated through EU initiatives, which consider policies regarding access to finance as one of the main actual challenges facing family firms (European Commission Website, 2019) since it may compromise the firm's value. In this sense, the European Commission has been promoting some programmes in order to raise equity and debt financing for family firms, some of which with an horizon until 2020.

As such, the literature has been focusing on studying the effect of family management within the firm's financing decisions and as Figure 2 demonstrates, financial management (7.2%) has been one of the most prevalent research area in literature on family firms, even though the evidences from different studies yields inconsistent results. Thus, according to the literature, future studies are needed to perform other comparisons regarding differences among sectoral and international

Topics	Number of articles	Articles, % of total
Succession planning/protocols/continuity	123	17.4
Professionalization (incentivising non-family executives)	5	0.7
Management and organizational theory	81	11.5
Strategy management and organizational change	55	7.8
Entrepreneurship/innovation	33	4.7
Human resource management	25	3.5
Gender and ethnicity	26	3.6
Internationalization and globalization	18	2.5
Distinctiveness/resource/competitive advantage	9	1.3
Culture	9	1.3
Corporate social responsibility and ethics	9	1.3
Marketing	4	0.5
Production management	2	0.2
Governance (board, directors)	70	9.9
Business performance and growth	45	6.4
Interpersonal family dynamics	55	7.8
Conflict	18	2.5
Financial management/capital market/liquidity and fiscal issues	51	7.2
Macro systems (economics, policy)	21	2.9
Estate and tax planning	11	1.5
Family business education and consulting	18	2.5
Business history	15	2.1
Total	703	100

Figure 2 *Primary topics covered regarding family businesses, 1961-2008*

Source: Benavides-Velasco, Quintana-García, and Guzmán-Parra (2013)

contexts within different institutional frames (Benavides-Velasco, Quintana-García, & Guzmán-Parra, 2013).

In order to fill this gap, we perform an analysis over some financial indicators and ratios within a Portuguese sample of family businesses with the aim of understanding the main differences among distinct types of entities and legal forms, statistical classification of economic activities (NACE), ages and different sized companies, so we can capture insights from different contexts and institutional frames existing in Portugal.

4. Firm's value - a choice between financing internally, with debt or equity

Modigliani and Miller (1958) stated financing decisions related to capital structure to be irrelevant to determine a firm's value in a perfect capital market. As such, taking into account certain assumptions - the absence of taxes, issuance costs from raising external financing, costs deriving from bankrupcy and agency costs - there would be no difference between a firm financing itself with debt or equity, which means that the firm's value would not be affected by its leverage (Damodaran, 2014). The Modigliani and Miller Theorem stated that, in a world without tax benefits from debt, the valuation of a firm depended on its total cash flow and, as such, the price an investor would pay for two different firms had to be the same if the total cash flow generated by each firm was the same. In this sense, companies could have different policies regarding dividends distribution, operations financing or investment decisions, without making any impact on their value, regardless of the mix between debt and equity, as long as the cash flow generated was the same for both. This suggested that debt had neither benefits nor costs, creating a neutral effect (Damodaran, 2014), and thus the capital structure decisions would be irrelevant.

However, since a perfect capital market is an utopian scenario considering the existence of costs associated to debt, financing decisions are relevant. In fact, the Modigliani and Miller Theorem served to demonstrate that the introduction of both taxes and bankrupcy costs into the model creates a trade-off, where the financing mix of a firm affects its value. (Damodaran, 2014). A company that uses some amount of debt financing would be more valuable than its otherwise equal counterpart that finances itself completely with equity because of the tax advantage of deducting the interest payments on the debt. Notice that the more interests the firm deducts, the lower will be the earnings before taxes (EBT) hence the lower will be the taxes paid by the company, since the taxes are a percentage of the EBT. To sum up, in a market with taxes, the more debt the firm has, the more interests it will pay, so the less taxes will be deducted, meaning more cash flow left over, which in turn results in more value of the firm.

Also, firms that issue debt make managers more disciplined and improve efficiency in the utilization of their free cash-flows since "borrowing creates the commitment to make interest and principal payments, increasing the risk of default on projects with substandard returns" (Jensen, 1980, cited in Damodaran, 2014, p.312). Although the payment of interests represent

expenses for the company, in a unlevered company the payment of dividends to shareholders (Return On Equity) would represent a higher cost than the cost of debt (Damodaran, 2014), and this expense would not be tax-deductible, losing the tax shield effect.

However, the limitation of this approach is that it considers only the tax benefit from borrowing and none of the additional costs incurred from issuing debt - bankruptcy costs, agency costs and the reduction of financial flexibility (Damodaran, 2014). Thereby, Modigliani and Miller Theorem is used by financial and economic advisors to determine the optimal level of debt a company should leverage in order to maximize its value.

Nonetheless, if the Modigliani and Miller Theorem suggested that in a perfect capital market there would be no difference between financing a business with debt or equity in order to valuate a company, we will see that the Pecking Order Theory acknowledge that there is indeed a difference between a firm financing itself with debt or equity in a family business context.

4.1 Financing behavior theories and hypotheses

4.1.1 Pecking Order Theory

According to this theory, firms follow a hierarchy regarding financing decisions, with preference over options that do not entail information costs (López-Gracia & Sánchez-Andújar, 2007). These costs are incurred from the expenses related to the investigation of the profitability of doing an investment or financial activity and its respective issuance costs (López-Gracia & Sánchez-Andújar, 2007). As such, the first resource for firms when searching for a source of financing is to turn to internal financing, which is even more glaring in family businesses (Blanco-Mazagatos *et al.*, 2007). In a family business context, only when internal financing option is insufficient or unavailable, firms appeal for debt issuance or borrowing, leaving external financing through equities for last because of the higher information costs associated (López-Gracia & Sánchez-Andújar, 2007) and other issues regarding reputation, family control and heritage preservation.

Some hypotheses were taken from López-Gracia and Sánchez-Andújar (2007) research paper comparing non-family and family businesses regarding the Pecking Order and Trade-Off theories suitability. We will test some of the hypothesis for our Portuguese family businesses sample in order to meet some of its heterogeneity and results will be compared.

We expect to prove if the hypothesis regarding the Pecking Order approach also best fit the financial behavior of our Portuguese family firms sample and the following hypotheses to be confirmed or rejected. The hypotheses are presented below, together with the explanatory variables that aim to figure out what are the determinants of debt.

Hypothesis 1. "Companies with high internal resources have a lower level of debt" (Myers & Majluf, 1984, cited in López-Gracia & Sánchez-Andújar, 2007, p.274)

According to López-Gracia and Sánchez-Andújar (2007, p.274), internal resources referred to the operating cash flow which "captures the liquid capital each business generates as a result of its main activity on a yearly basis". According to the data available in Orbis, in the absence of the finacial indicator named operating cash flow, we chose the Cash flow/Operating revenue ratio (%) to represent the internal resources, which translates into the firm's ability to turn revenue into profits and net cash flow.

According to the Pecking Order Theory, a business which generates high operating cash flows will use it instead of recurring to debt, as its cost is lower and, therefore, the relationship between the two variables is expected to be negative (López-Gracia & Sánchez-Andújar, 2007).

Hypothesis 2. "Business maturity or age is negatively related to debt" (Petersen & Rajan, 1994; Weston & Brigham, 1981, cited in López-Gracia & Sánchez-Andújar, 2007, p.274).

The age of a business, referred to as Date of incorporation, "which is measured by the number of years that have passed since the business was founded, is also considered an important determinant of debt" (Berger & Udell, 1998; Coleman & Carski, 1999; Romano, Tanewski, & Smyrnios, 2000, cited in López-Gracia & Sánchez-Andújar 2007, p.275).

As a result, according to the Pecking Order Theory debt is expected to be negatively related to business age, due to the fact that businesses accumulate sufficient resources over time to be

able to finance their investment requirements internally and do not need to resort to debt (Petersen & Rajan, 1994; Weston & Brigham, 1981, cited in López-Gracia & Sánchez-Andújar, 2007).

4.1.2 Trade-Off Theory

Therefore, the main question within family businesses financing decisions does not seem to rest within the choice between issuing debt or financing with equity, which the choice appears clear according to the Pecking Order Theory, but rather on the willing or not to establish an amount of debt that is reasonable to maintain an optimal capital structure.

In opposition to the Pecking Order Theory, which states that variations in debt derives from external financing needs and do not seek to reach an optimal level of debt (Ramalho *et al.*, 2018), the Trade-Off Theory argues that businesses seek to achieve an optimal debt ratio which influence their financial decisions (López-Gracia & Sánchez-Andújar, 2007).

The Trade-Off Theory estimates that the amount of existing debt in a firm rises over a particular period of time and "depends on the difference between the optimal level of debt for each business during this period and the debt from the previous period, and a factor that determines the speed a business adjusts to its optimal level of debt" (López-Gracia & Sánchez-Andújar, 2007, p.272).

At this optimal level of debt, "the tax savings would not compensate the corresponding increase in the likelihood of financial distress" (López-Gracia & Sánchez-Andújar, 2007, p.272), which implies balancing the benefits and costs of debt. This means that firms should achieve a level of debt that maximizes the advantages of the tax shield effect while minimizing the possibility of bankruptcy (Serrasqueiro & Caetano, 2015). The Trade-Off Theory falls flat the Modigliani and Miller Theorem as it entails a limit to which tax savings offsets.

Just like in the Pecking Order Theory, we also stem from some hypotheses set by the authors in order to understand how our sample fits or not the conclusions drawn in the study carried out by López-Gracia and Sánchez-Andújar (2007) regarding the Trade-Off Theory assumptions.

Hypothesis 3. "Business profitability is positively related to debt" (Jensen, 1986; Fama & French, 2002 , cited in López-Gracia & Sánchez-Andújar, 2007, p.273).

Business profitability is quantified by the variable ROA, which measures the return on assets of a firm. According to the trade-off theory, a profitable business is expected to have a higher level of debt in order to offset corporate tax (Jensen, 1986; Fama & French, 2002, cited in López-Gracia & Sánchez-Andújar, 2007).

Hypothesis 4. "Business size maintains a positive relationship with financial leverage" (Ang, 1992; Titman & Wessels, 1988, cited in López-Gracia & Sánchez-Andújar, 2007, p.273).

The variable representing business size, named Size, is defined by the Orbis criteria, which determines that the size of a company depends on its operating revenue. In this sense, companies with an operating revenue >= 100 million euros are classified as very large; >= 10 million euros and < 100 million euros are large; >= 1 million euros and < 10 million euros are medium and the rest is considered to be small companies.

"The largest businesses frequently offer less risk and larger collateral guarantees. As a result, they have a better reputation on financial markets and reach higher levels of debt" (Ang, 1992; Titman & Wessels, 1988 , cited in López-Gracia & Sánchez-Andújar, 2007, p.273).

Hypothesis	Expected relationship	Underlying theory
Hypothesis 1. Companies with high internal resources have a lower level of debt	Negative relationship between operating cash flow and debt	Pecking Order Theory
Hypothesis 2. Business maturity or age is negatively related to debt	Negative relationship between age and debt	Pecking Order Theory
Hypothesis 3. Business profitability is positively related to debt	Positive relationship between profitability (ROA) and debt	Trade-Off Theory

Hypothesis 4. Business size maintains a positive relationship with financial leverage	Positive relationship between size and debt	Trade-Off Theory

Figure 3 *Summary of Hypothesis formulation*

4.2 Non-financial determinants of debt

The firm's ability to create value depends on the quantity and quality of its financial resources, but also on the way the ties within the family are linked and the resources are managed (Blanco-Mazagatos *et al.*, 2007). This creates a trade-off (Casson, 1999; Chrisman, Chua, & Litz, 2003 , cited in Blanco-Mazagatos *et al.,* 2007) between maintaining control within the family and the spectrum of potential financial resources available, limiting the firm's entire resource structure (Galve & Salas, 2005; Habbershon & Williams, 1999; Sirmon & Hitt, 2003 , cited in Blanco-Mazagatos *et al.*, 2007). This trade-off uncovers a very important question regarding the importance of non-financial determinants of debt.

Particularly in family-owned firms, in the eminence of the need to appeal for external financial sources, family firms prefer to resort to debt rather than external equity, as a way of protecting family ownership and control over the business, which justifies the reluctance to acquire external financing (Mazagatos, Puentes, & García, 2009). The willing to perpetuate family control leads family members to a greater capacity for sacrifice which translates into a specific financial logic matching the hierarchy scale of preference presented in the Pecking Order Theory (Romano, Tanewski & Smyrnios, 2009; Poutziouris, 2001, cited in Mazagatos *et al.*, 2009). In this sense, family owners may claim lower dividends (Gallo, Tàpies, & Cappuyns, 2004 , cited in Mazagatos *et al.,* 2009) to avoid drawing on sources of financing outside the family and thereby increase the possibilities of maintaining the business as long as they can in family control.

Moreover, the issue regarding reputational image is another factor differentiating the financial behavior of family firms. According to Gallo and Vilaseca (1996), the close relationship between the family and the business "leads family-business owners to perceive a business bankruptcy as the same as a personal one" (Gallo & Vilaseca, 1996, p.392). The perception of

the idea of losing the company and all implied warranties represent personal and social costs that family members try to avoid by issuing the less debt possible, since resort to external financing "can limit their aggressiveness regarding capital structure policies" (Gallo & Vilaseca, 1996, p.392).

Nonetheless, over the generations, the progressive blur of emotional ties reduces the family members' ability to sacrifice and produces changes in the financing decisions of family businesses (Gersick, Davis, McCollom & Lansberg, 1997, cited in Mazagatos *et al.*, 2009), increasing the preference for individual interests. This happens due to a decrease in the intensity of both transversal affective ties (between family members of the company) and longitudinal ones (between members from different generations), which will raise "the rate with which family managers discount the income that descendants will enjoy" (Mazagatos *et al.*, 2009, p.60). As consequence it will boost debt as a recourse to internal financing since the sacrificial capacity of family owners will decrease along the time whilst the liquidity requirements will increase. In fact, there was found evidence of a U-shaped relation between ownership dispersion and debt in private family businesses (Bjuggren, Duggal, & Giang 2012, cited in Michiels & Molly, 2017) which means that the risk attitude of private family firms changes due to the ownership dispersion in family businesses. "Especially sibling partnerships were found to use less debt, and thus willing to bear less risk, compared with controlling owners and cousin consortiums, since they are characterized by increased levels of loss aversion and misalignment among family members" (Bjuggren *et al.*, 2012 , cited in Michiels & Molly, 2017, p.374).

Taking into account this generational changes with preference for present income, which may be enjoyed by their closest family members in a generational line, along with the premise of maintaining family control in the company which prohibit the opening of capital to external shareholders (Galve & Salas, 2005; Habbershon & Williams, 1999; Sirmon & Hitt, 2003 , cited in Mazagatos *et al.,* 2009), the family will have to assume the risk involved in using debt in order to meet their investment needs (Matthews, Vasudevan, Barton, & Apana, 1994; Hamilton & Fox, 1998, cited in Mazagatos *et al.*, 2009).

In fact, financial institutions also play an important role in meeting investment needs of family firms. Gallo and Vilaseca (1996) suggested that bank's credit underwriting policies concentrate on ownership wealth instead of analyzing the repayment capability of the family

businesses, which may influence creditworthiness. They argue that the financial institutions' decision making of borrowing should be based on the business profitability.

Some studies find that banks generally have a positive feeling towards family businesses, reducing potential shareholder–bondholder agency problems. They are considered to be better borrowers with less "moral hazard problems" (Bopaiah, 1998, cited in Michiels & Molly, 2017, p.375). This higher trust of banks in family firms results in easier access to credit in general (Bopaiah, 1998, cited in Michiels & Molly, 2017), and more long-term debt in particular (Croci, Doukas, & Gonenc, 2011, cited in Michiels & Molly, 2017).

Also, the level of debt of a firm should be related to the equity or with the future cash flows that the business will generate (Gallo & Vilaseca, 1996). In this sense, it is suggested that on financial issues, family businesses need to distinguish the family from the business and banks should give greater importance to the future cash flows of the business instead of to the personal wealth of the family owner (Gallo & Vilaseca, 1996) in order to enable the creation of a win-win situation and strengthen commercial relations.

4.3 Data

4.3.1 Sample

Our sample is constituted by 460 family firms, members of the Portuguese Family Businesses association. No conceptual definition has been applied to filter the sample as a family firm, since the Portuguese association already does so when integrating the companies as members. Also, the sample was used to test some hypotheses which were taken from López-Gracia and Sánchez-Andújar (2007) research paper comparing non-family and family businesses regarding the Pecking Order and Trade-Off theories suitability. Yet, the heterogeneous nature within family businesses is often neglected. Indeed, the differences inside the family firms may potentially be even larger than the differences between family and nonfamily firms (Chua, Chrisman, Steier, & Rau, 2012, cited in Michiels & Molly, 2017), that's why researchers have been calling attention to the heterogeneity of family businesses (Chua *et al.,* 2012; Nordqvist, Sharma, & Chirico, 2014, cited in Michiels & Molly, 2017). In this sense, we tested the hypothesis only for our Portuguese family businesses sample in order to meet some of its heterogeneity and results will be compared.

Of the 460 existing associates at the date of data collection (May 2019), one was removed from the sample, as it was a financial institution with some specificities that did not meet the standards of the other companies regarding the headings used for the ratios formulation. The financial data about the companies was collected from Orbis, a database which is managed by Grupo Informa S.A. and BvD and gathers accounting information from companies around the world.

The data used was identified on the platform as being the latest available at the time of collection (August 2019), which span a year encompassed between the period 2016 – 2019.

4.4 Empirical study

4.4.1 Methodology

To support the theories and hypothesis formulation described above, we resorted to the quantitative method as we considered it more complete since statistical analyses based on good data allow clear inferences of cause and effect and provide accurate measures of a phenomenon (Gambardella, Helfat, & Mitchell, 2014).

We used Microsoft Excel to filter and analyze the data collected from Orbis and to formulate the financial ratios used for inferential statistics. Then we entered the variables and ratios into the IBM SPSS® 24.0 software platform which offers advanced statistical analysis.

To verify the existence of statistically significant differences between the variables and the selected ratios, the normality assumptions for independent samples and the homogeneity of variances were investigated.

Thus, and because the normality assumption was not fulfilled, we resorted to the nonparametric tests, accompanied by the main descriptive statistics data (mean and standard deviation). Kruskal-Wallis test was used to verify the existence of statistically significant differences between qualitative and quantitative variables (Table 6, 7, 8 and 9).

Still within inferential statistics, we also resorted to correlations between qualitative variables (Table 13), between qualitative and quantitative variables (Table 10, 11, 14, 15 and 19) through the Spearman test, and also between quantitative variables through the Pearson test (Table 12, 16,17 and 18).

For the decision regarding the significance level (alpha) of a statistical test, it will be used the assumption that if the p-value is less than our significance level (0.05), we will reject the null hypothesis and conclude that the effect is statistically significant. For correlation tests it will be used the same assumption with a significance level of 0.01 and 0.05 (meaning that the significance of the test is bilateral in both cases).

In a row we will proceed in the first place to the descriptive analysis of the variables used, in order to deeply characterize the sample.

4.4.2 Descriptive analysis of the variables

From Table 1 we can characterize the sample in relation to the variables Type of Entity and Standardized Legal Form, in which we can verify that 94.1% (n=432) of the companies are Corporate type, and only 5.0% (n = 23) are Financial Companies and 0.9% (n = 4) are Mutual and Pension Fund. Regarding the Standardized Legal Form, we observe that 48.6% (n=223) correspond to Private Limited Companies, and 50.8% (n = 233) to Public Limited Companies. There are only 0.4% (n= 2) of Non-Profit Organizations and 0.2% (n=1) of Foreign Companies.

Table 1 Characterization of the variables Type of Entity and Standardized Legal Form

Variables	Categories	N	%	M ± SD
Type of Entity	Corporate	432	94.1	
	Financial Company	23	5.0	
	Mutual and Pension Fund	4	0.9	2.07 ± 0.284
	Total	459	100.0	
Standardized Legal Form	Foreign Companies	1	0.2	
	Non Profit Organizations	2	0.4	
	Private Limited Companies	223	48.6	3.50 ± 0.522
	Public Limited Companies	233	50.8	
	Total	459	100.0	

Source: Own Elaboration

We use the Orbis' categorisation regarding the size of the companies according to its operating revenue, grouping them into four categories (Table 2). The small companies (with less than 1 million euros of operating revenue) are in larger number corresponding to 38.3% (n=176), followed by medium-sized companies (with 1 million or more euros of operating revenue), corresponding to 34.2% (n=157) of the sample. Large companies represent 17.4% (n=80) of the sample (with 10 million or more of operating revenue) and very large

companies (with 100 million euros or more in operating revenue) represent 9.2% (n=42) of the total companies in our sample.

Table 2 Characterization of the variable Size of the company

Variables	Categories	N	%	M ± SD
	Small Company (< 1M€)	176	38.3	
	Medium Company (>= 1M€)	157	34.2	
	Large Company (>= 10M€)	80	17.4	
Size	Very Large Company (>= 100M€)	42	9.2	2 ± 1.002
	n.a.	4	0.9	
	Total	459	100.0	

Source: Own Elaboration

Considering the distribution of the sample by district (Table 3), we observe that the district of Lisbon concentrates 51.7% (n=237) of the total companies, followed by the district of Porto with 12.2% (n=56) and Aveiro with 4.1% (n=19).

Table 3 Characterization of the variable District

Variables	Categories	N	%	M ± SD
	Aveiro	19	4.1	
	Beja	8	1.7	
	Braga	12	2.6	
	Castelo Branco	6	1.3	
	Coimbra	15	3.3	
	Évora	13	2.8	
	Faro	18	3.9	
	Guarda	1	0.3	
	Leiria	12	2.6	
District	Lisboa	237	51.7	9.52 ± 3.208
	Portalegre	17	3.7	
	Porto	56	12.2	
	Santarém	13	2.8	
	Setúbal	18	3.9	
	Viseu	1	0.3	
	Madeira	8	1.7	
	Açores	5	1.1	
	Total	459	100.0	

Source: Own Elaboration

Regarding the Economic Activity Classification (NACE revision 2) of companies, we find that NACE G - Wholesale and retail trade; repair of motor vehicles and motorcycles represents 19.0% (n=87) of the sample and C - Manufacturing corresponds to 17% (n=78), followed by NACE M - Professional, scientific and technical activities with a percentage of 16.8 (n=77) (Table 4).

Table 4 Characterization of the variable NACE

Variables	Categories	N	%	M ± SD
	A – Agriculture, forestry and fishing	31	6.8	
	B – Mining and quarrying	2	0.3	
	C – Manufacturing	78	17.0	
	D – Electricity, gas, steam and air conditioning supply	5	1.1	
	F - Construction	24	5.2	
	G – Wholesale and retail trade; repair of motor vehicles and motorcycles	87	19.0	
	H – transportation and storage	14	3.1	
	I – Accommodation and food service activities	28	6.1	
NACE	J – Information and communication	10	2.2	7.57 ± 3.939
	K – Financial and insurance activities	39	8.5	
	L – real estate activities	23	5.0	
	M – Professional, scientific and technical activities	77	16.8	
	N – Administrative and support service activities	25	5.4	
	P – Education	4	0.9	
	Q – Human health and social work activities	10	2.2	
	R – Arts, entertainment and recreation	2	0.4	
	Total	459	100.0	

Source: Own Elaboration

The age of the companies were calculated from the difference between the current year (2019) and the year of companies' date of incorporation. The age of the companies range from 2 to 117 years, with an mean of 29.69 years with a standard deviation of 20.482 years and a mode age of 30 years (Table 5).

Table 5 Characterization of the variable Age of the company

Variable	M	SD	Mod	Min	Max
Age	29.69	20.482	30.00	2.00	117.00

Source: Own Elaboration

4.4.3 Inferential statistics

In this section we will go through the Kruskal-Wallis test to verify the existence of statistically significant differences between the variables (Table 6, 7, 8 and 9). For the remain Tables we also resorted to correlations through the Spearman test (Table 10, 11, 13, 14, 15 and 19) and through the Pearson test (Table 12, 16,17 and 18).

Table 6 and 7 were presented to prove the existence of statistically significant differences between qualitative and quantitative variables, as well as Table 8 and 9 but this time between qualitative variables and quantitative ratios.

Table 6 demonstrates that there are statistically significant differences in the Type of Entity variable with respect to the variables Number of Employees ($x^2 = 9.495$, $\rho < 0.05$), Cash Flow / Operating Revenues ($x^2 = 14.803$, $\rho < 0.05$), EBITDA Margin ($x^2 = 13.747$, $\rho < 0.05$) and Profit Margin ($x^2 = 11.219$, $\rho < 0.05$).

Regarding the Standardized Legal Form variable, we also found statistically significant differences in the variables Number of Employees ($x^2 = 47.289$, $\rho < 0.05$), Cash Flow / Operating Revenues ($x^2 = 16.169$, $\rho < 0.05$) , EBITDA Margin ($x^2 = 17.945$, $\rho < 0.05$) and Profit Margin ($x^2 = 12.071$, $\rho < 0.05$).

Table 6 Kruskal-Wallis nonparametric test for independent samples to ascertain the existence of statistically significant differences between qualitative and quantitative variables

Variables	M ± SD	Type of Entity		Standardized Legal Form	
		χ^2	ρ	χ^2	ρ
Number of Employees	400.50 ± 2479.343	9.495	**0.009**	47.289	**0.000**
Cash Flow / Operating Revenue	14.20 ± 25.183	14.803	**0.001**	16.169	**0.001**
EBITDA Margin	17.18 ± 28.066	13.747	**0.001**	17.945	**0.000**
ROE	-0.01 ± 89.234	1.757	0.415	2.011	0.570
ROA	3.10 ± 14.668	0.708	0.702	1.655	0.647
Profit Margin	10.64 ± 26.128	11.219	**0.004**	12.071	**0.007**

Source: Own Elaboration

Table 7 also shows that there are statistically significant differences in the Number of Employees regarding the Size ($x^2 = 272.757, p < 0.05$), District ($x^2 = 29.170, p < 0.05$), NACE ($x^2 = 64.649, p < 0.05$) and Age ($x^2 = 46.604, p < 0.05$) variables.

In relation to the variable Cash Flow / Operating Revenue ratio, there are statistically significant differences in the District ($x^2 = 27.616, p < 0.05$) and Nace ($x^2 = 66.774, p < 0.05$) variables. The same happens for EBITDA Margin and Profit Margin, for which both present statistically significant differences regarding the District ($x^2 = 28.157, p < 0.05$; $x^2 = 35.074, p < 0.05$), respectively, and NACE ($x^2 = 70.789, p < 0.05$; $x^2 = 38.419, p < 0.05$), respectively, while Size and Age variables don't.

There are also statistically significant differences in ROE regarding company Size ($x^2 = 27.985, p < 0.05$), District ($x^2 = 38.730, p < 0.05$), and NACE ($x^2 = 32.322, p < 0.05$).

Finally, in the ROA variable, statistically significant differences were identified regarding company Size ($x^2 = 26.675, p < 0.05$) and District ($x^2 = 34.425, p < 0.05$).

Table 7 Kruskal-Wallis nonparametric test for independent samples to ascertain the existence of statistically significant differences between qualitative and quantitative variables (continuation of Table 6)

Variables	Size		District		NACE		Age	
	χ^2	ρ	χ^2	ρ	χ^2	ρ	χ^2	ρ
Number of Employees	272.757	**0.000**	29.170	**0.023**	64.649	**0.000**	46.604	**0.000**
Cash Flow / Operating Revenue	2.169	0.538	27.616	**0.035**	66.774	**0.000**	2.006	0.735
EBITDA Margin	3.215	0.360	28.157	**0.030**	70.789	**0.000**	2.563	0.633
ROE	27.985	**0.000**	38.730	**0.001**	32.322	**0.006**	4.883	0.300
ROA	26.675	**0.000**	34.425	**0.005**	21.601	0.119	2.747	0.601
Profit Margin	1.716	0.633	35.074	**0.004**	38.419	**0.001**	3.921	0.417

Source: Own Elaboration

From Table 8, we conclude that there are no statistically significant differences in the 4 ratios analyzed, regarding the variables Type of Entity and Standardized Legal Form.

Table 8 Kruskal-Wallis nonparametric test for independent samples to ascertain the existence of statistically significant differences between qualitative variables and ratios

Variables	M ± SD	Type of Entity		Standardized Legal Form	
		χ^2	ρ	χ^2	ρ
Debt Ratio	0.74 ± 1.686	1.332	0.249	7.100	0.069
Debt Structure Ratio	0.69 ± 0.299	3.298	0.070	6.927	0.074
Solvency Ratio	27.41 ± 347.351	1.383	0.240	7.567	0.056
Financial Autonomy Ratio	-8.38 ± 185.217	1.320	0.251	7.008	0.072

Source: Own Elaboration

Table 9 presents statistically significant differences in the Debt Ratio regarding age ($\chi^2 = 18.946, p < 0.05$). The Debt Structure ratio also shows differences regarding the NACE variable ($\chi^2 = 50.146, p < 0.05$)

Differences were also observed between the Solvency Ratio variable regarding Age ($\chi^2 = 18.791, p < 0.05$), as well as the Financial Autonomy Ratio variable also regarding Age ($\chi^2 = 19.030, p < 0.05$).

Table 9 Kruskal-Wallis nonparametric test for independent samples to ascertain the existence of statistically significant differences between qualitative variables and ratios (continuation of Table 8)

Variables	Size		District		NACE		Age	
	χ^2	ρ	χ^2	ρ	χ^2	ρ	χ^2	ρ
Debt Ratio	6.061	0.195	21.771	0.151	24.849	0.052	**18.946**	**0.001**
Debt Structure Ratio	7.558	0.109	12.138	0.734	**50.146**	**0.000**	5.422	0.247
Solvency Ratio	6.858	0.144	21.133	0.173	24.810	0.053	**18.791**	**0.001**
Financial Autonomy Ratio	6.227	0.183	21.269	0.168	24.527	0.057	**19.030**	**0.001**

Source: Own Elaboration

Spearman's correlation coefficient (Table 10) was used to observe the existence of an association between the Type of Entity and Number of Employees (rho (406) = -0,132, $\rho <$ 0.01, Cash Flow / Operating Revenue (rho (434) = 0.174, $\rho < 0.01$), EBITDA Margin (rho (435) = 0.166, $\rho < 0.01$) and Profit Margin (rho (433) = 0.154, $\rho < 0.01$).

Also the Standardized Legal Form variable correlated positively with the variables Number of Employees (rho (406) = 0.341, $\rho < 0.01$), Cash Flow / Operating Revenue (rho (434) = 0.172, $\rho < 0.01$), EBITDA Margin (rho (435) = 0.190, $\rho < 0.01$) and Profit Margin (rho (433) = 0.137, $\rho < 0.01$).

Table 10 Spearman correlation coefficient between qualitative and quantitative variables

Variables		Type of Entity	Standardized Legal Form
Number of Employees	rho	-0.132**	0.341**
	p-value	0.008	0.000
	n	406	406
Cash Flow / Operating Revenue	rho	0.174**	0.172**
	p-value	0.000	0.000
	n	434	434
EBITDA Margin	rho	0.166**	0.190**
	p-value	0.001	0.000
	n	435	435
ROE	rho	-0.016	0.036
	p-value	0.747	0,459
	n	423	423
ROA	rho	0.024	0.035
	p-value	0.617	0.459
	n	452	452
Profit Margin	rho	0.154**	0.137**
	p-value	0.001	0.004
	n	433	433

Source: Own elaboration

(**) Significance level at 0.01 (Bilateral)

Other correlations (Table 11) were drawn between the number of employees and the company Size, NACE and Age, with the following values respectively (rho (406) = 0.795, p < 0.01), (rho (406) = -0.189, p < 0.01) and (rho (406) = 0.345, p < 0.01). Notice that the correlation between number of employees and NACE is negative.

The ROE variable correlates with the variable Size (rho (423) = 0.193, p < 0.01), as does the ROA variable (rho (452) = 0.179, p < 0.01). Finally, between Profit Margin and NACE variables there is a positive correlation (rho (433) = 0.103, p < 0.05).

Table 11 Spearman correlation coefficient between qualitative and quantitative variables

Variables		Size	District	NACE	Age
Number of Employees	rho	0.795**	0.030	-0.189**	0.345**
	p-value	**0.000**	0.552	**0.000**	**0.000**
	n	406	406	406	406
Cash Flow / Operating Revenue	rho	-0.155	-0.055	0.088	0.012
	p-value	0.254	0.250	0.068	0.804
	n	434	434	434	434
EBITDA Margin	rho	-0.044	-0.069	0.098*	-0.022
	p-value	0.359	0.148	0.040	0.647
	n	435	435	435	435
ROE	rho	0.193**	0.017	0.060	-0.076
	p-value	**0.000**	0.735	0.222	0.120
	n	423	423	423	423
ROA	rho	0.179**	0.017	0.060	-0.013
	p-value	**0.000**	0.719	0.203	0.785
	n	452	452	452	452
Profit Margin	rho	-0.019	-0.009	0.103*	-0.016
	p-value	0.687	0.854	**0.032**	0.733
	n	433	433	433	433

Source: Own elaboration

(*) Significance level at 0.05 (Bilateral)

(**) Significance level at 0.01 (Bilateral)

Regarding quantitative variables, we found a significant bilateral positive correlation (p-value < 0.01) between all variables except the Number of Employees which do not correlates itself with any other variable (Table 12).

Table 12 Pearson correlation coefficient between quantitative variables

Variables	Cash Flow / Operating Revenue	EBITDA Margin	ROE	ROA	Profit Margin
Number of Employees	-0.028	-0.22	0.019	-0.002	-0.021
	0.582	0,.669	0.712	0.974	0.685
	392	392	377	403	391
Cash Flow / Operating Revenue		0.958**	0.269**	0.454**	0.893**
		0.000	0.000	0.000	0.000
		431	403	431	432
EBITDA Margin			0.267**	0.416**	0.856**
			0.000	0.000	0.000
			404	432	429
ROE				0.461**	0.261**
				0.000	0.000
				421	402
ROA					0.519**
					0.000
					430

Source: Own elaboration

(**) Significance level at 0.01 (Bilateral)

Table 13 identifies Spearman correlations among the 6 characterized variables. Thus, the Type of Entity and NACE variables have a positive and bilateral significant level of correlation (rho (459) = 0.166, $p < 0.01$), as such as the correlation between Standardized Legal Form variable and company Size (rho (459) = 0.396, $p < 0.01$) and with the Age variable (rho (459) = 0.178, $p < 0.01$).

The Company Size variable correlates negatively with the NACE variable (rho (459) = - 0.123, $p < 0.01$) and positively with Age (rho (459) = 0.215, $p < 0.01$). Finally, the NACE and Age variables are also negatively significantly correlated (rho (459) = - 0.279, $p < 0.01$).

Table 13 Spearman correlation coefficient between qualitative variables

Variables		Standardized Legal Form	Sized Company	District	NACE	Age
Type of Entity	rho	0.088	-0.054	-0.029	0.166**	-0.074
	p-value	0.059	0.251	0.529	**0.000**	0.113
	n	459	459	459	459	459
Standardized Legal Form	rho		0.396**	-0.082	-0.069	0.178**
	p-value		**0.000**	0.078	0.140	**0.000**
	n		459	459	459	459
Sized Company	rho			0.002	-0.123**	0.215**
	p-value			0.958	**0.009**	**0.000**
	n			459	459	459
District	rho				0.032	0.053
	p-value				0.494	0.254
	n				459	459
NACE	rho					-0.279**
	p-value					**0.000**
	n					459

Source: Own elaboration

(**) Significance level at 0.01 (Bilateral)

The Type of Entity variable (Table 14) correlates negatively with the Debt Ratio variable (rho (459) = - 0.110, $p < 0.05$) and positively with the Solvency Ratio variables (rho (459) = 0.111, $p < 0.05$) and Financial Autonomy Ratio (rho (459) = 0.110, $p < 0.05$). Regarding the Standardized Legal Form variable, we found a negative statistically significant association with the Debt Structure Ratio variable (rho (458) = - 0.093, $p < 0.05$).

Table 14 Spearman correlation coefficient between qualitative variables and ratios

Variables		Type of Entity	Standardized Legal Form
Debt Ratio	rho	-0.110*	-0.059
	p-value	**0.018**	0.208
	n	459	459
Debt Structure Ratio	rho	-0.027	-0.093*
	p-value	0.563	**0.047**
	n	458	458
Solvency Ratio	rho	0.111*	0.065
	p-value	**0.017**	0.166
	n	459	459
Financial Autonomy Ratio	rho	0.110*	0.057
	p-value	**0.019**	0.219
	n	459	459

Source: Own elaboration

(*) Significance level at 0.05 (Bilateral)

Table 15 shows that the Age is the only variable that correlates itself with the ratios. There is a negative correlation between the Age variable and the Debt Ratio variables (rho (459) = -0.201, $p < 0.01$), and positive between the Age variable and the Solvency Ratio variable (rho (459) = 0.200, $p < 0.01$) and Financial Autonomy Ratio (rho (459) = 0.201, $p < 0.01$).

Table 15 Spearman correlation coefficient between qualitative variables and ratios

Variables		Sized Company	District	NACE	Age
Debt Ratio	rho	-0.041	0.016	0.064	-0.201**
	p-value	0.376	0.731	0.172	**0.000**
	n	459	459	459	459
Debt Structure Ratio	rho	-0.013	0.080	-0.058	0.056
	p-value	0.783	0.087	0.216	0.233
	n	458	458	458	458
Solvency Ratio	rho	0.050	-0.025	0.062	0.200**
	p-value	0.286	0.593	0.183	**0.000**
	n	459	459	459	459
Financial Autonomy Ratio	rho	0.042	-0.014	-0.064	0.201**
	p-value	0.374	0.759	0.172	**0.000**
	n	459	459	459	459

Source: Own elaboration

(**) Significance level at 0.01 (Bilateral)

4.5 Results from hypothesis formulation

Hypothesis 1. Companies with high internal resources have a lower level of debt (Myers & Majluf, 1984, cited in López-Gracia & Sánchez-Andújar, 2007)

The results of the study carried out by López-Gracia and Sánchez-Andújar (2007) revealed that the first hypothesis regarding the statistically significance between internal resources (represented by the financial indicator operating cash flow) and levels of debt was "fulfilled satisfactorily" for family firms.

According to their results, operating cash flow is negatively related to debt in both groups of businesses (family and non family firms). In this sense, this hypothesis predicts that firms tend to finance their investment needs with internal funds.

Regarding our sample, since Orbis does not provide any value for operating cash flow, we appealed to the correlation between the Cash Flow / Operating Revenue ratio and Debt ratio, and found no correlation between them, so hypothesis 1 is not verified (Table 16).

For our sample, this hypothesis falls flat one of the Pecking Order Theory assumptions which antecipates that the more liquid capital the business generates, the less it needs to resort to borrowing.

Table 16 Pearson correlation coefficient between CF_OR and Debt Ratio

Variables		Cash Flow / Operating Revenue
	rho	0.085
Debt Ratio	p-value	0.076
	n	434

Source: Own elaboration

Hypothesis 2. Business maturity or age is negatively related to debt (Petersen & Rajan, 1994; Weston & Brigham, 1981, cited in López-Gracia & Sánchez-Andújar, 2007).

From López-Gracia and Sánchez-Andújar (2007) results, the hypothesis related to the existence of a negative relationship between business maturity and debt was "approximately confirmed" for family firms, which corroborates the research pursued by other researchers in the field of family firms (e.g., Coleman & Carsky, 1999, cited in López-Gracia & Sánchez-Andújar, 2007).

From Table 17 we observe that there is a negative correlation between the Age and Debt Ratio variables (r (459) = - 0.092; p < 0.05), so hypothesis 2 is also verified for our sample. In this sense, it can be broadly assumed that "the more mature a business is, the more time it has had to accumulate funds, thus reducing its borrowing requirements" (López-Gracia & Sánchez-Andújar, 2007, p. 280) which substantiates one of the premises from the Pecking Order Theory.

Table 17 Pearson correlation coefficient between Age and Debt Ratio

Variables		Age
Debt Ratio	rho	-0.092
	p-value	0.048
	n	459

Source: Own elaboration

Hypothesis 3. Business profitability is positively related to debt (Jensen, 1986; Fama & French, 2002, cited in López-Gracia & Sánchez-Andújar, 2007).

Hypothesis 3, referring to profitability, was not confirmed for the López-Gracia and Sánchez-Andújar sample, as the significant estimated relationship between ROA and Debt proved to be negative instead of positive.

However, the results seems consistent with our sample (Table 18), validating another assumption regarding the Pecking Order Theory which predicts a negative relationship between profit and debt ratio. (r (452) = - 0.412; p < 0.01), Indeed, similar results have been

obtained by numerous authors in their research (e.g., Coleman & Carski, 1999; Fama & French, 2002; Ozkan, 2001, cited in López-Gracia & Sánchez-Andújar, 2007).

Table 18 Pearson correlation coefficient between ROA and Debt Ratio

Variables		ROA
	rho	-0.412
Debt Ratio	p-value	0.000
	n	452

Source: Own elaboration

Hypothesis 4. Business size maintains a positive relationship with financial leverage (Ang, 1992; Titman & Wessels, 1988, cited in López-Gracia & Sánchez-Andújar, 2007)

The hypothesis concerning the effect of size on capital structure, Hypothesis 4, is also confirmed for the authors sample in both groups, as the variable Size was positive and highly significant.

The authors understand as financial leverage "the capacity of largest businesses of frequently offer less risk and larger collateral guarantees. As a result, they have a better reputation on financial markets and reach higher levels of debt" (López-Gracia & Sánchez-Andújar, 2007, p.273).

However, regarding our sample, Table 19 shows that there is no correlation between the Size and Debt Ratio.

Table 19 Spearman correlation coefficient between the variables Size and Debt Ratio

Variables		Size
	rho	-0.041
Debt Ratio	p-value	0.376
	n	459

Source: Own elaboration

Hypothesis	Assumption	Results
Hypothesis 1. Companies with high internal resources have a lower level of debt	The more liquid capital the business generates, the less it needs to resort to borrowing	No correlation
Hypothesis 2. Business maturity or age is negatively related to debt	The more mature a business is, the more time it had to accumulate funds, thus reducing its borrowing requirements	Negative correlation (proving the suitability of the Pecking Order Theory)
Hypothesis 3. Business profitability is positively related to debt	A profitable business is expected to have a higher level of debt in order to offset corporate tax	Negative correlation instead of positive (proving the suitability of the Pecking Order Theory)
Hypothesis 4. Business size maintains a positive relationship with financial leverage	The capacity of largest businesses of frequently offer less risk and larger collateral guarantees results in better reputation on financial markets and higher levels of debt	No correlation

Figure 4 *Summary of results from Hypothesis formulation*

5. Conclusions and limitations

As we saw previously, it can be argued that in most cases the firm value can be maximized by defining an optimal capital structure. Under most circumstances, the trade-off between the benefits of debt (tax benefits and added discipline) and the costs of debt (bankrupcy costs, agency costs and lost of flexibility) entails two options: the marginal benefits will either exceed the marginal costs or fall short of marginal costs (Damodaran, 2014). Accordingly, firms should choose the mix of debt and equity that optimizes debt advantages and this decision is based on theree alternative views: depending on firm's position in the growth life cycle, by looking at competitors average debt ratio operating in their industry and according to a hierachy of preference regarding sources of financing (Damodaran, 2014).

Among these three alternative views regarding the decision making of the capital structure to be adopted, it is possible to conclude that our sample of family businesses tend to prefer to opt for the third view.

In line with the first view, "debt ratios typically peak when firms are in mature growth" (Damodaran, 2014, p.28), which according to Hypothesis 1 confirmed for our sample (business maturity or age is negatively related to debt) falls flat this view.
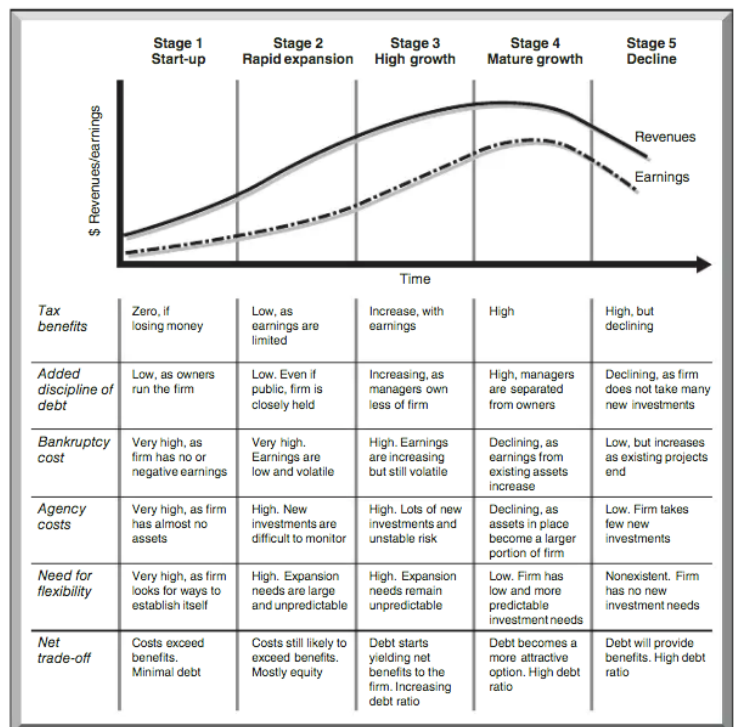

Figure 5 *The Debt-Equity Trade-off and Life Cycle*

Source: Damodaran (2014)

In addition, "the empirical evidence looking at how firms choose their debt ratios strongly supports the hypothesis that they tend not to stray too far from their sector averages" (Damodaran, 2014, p.28), however this is a dangerous point of comparison. Since the growth potential and risks across companies within the same sector suffer from a wide variation and their characteristics differ, it might occur a situation where firms in a sector collectively have too much or too little debt given their features. (Damodaran, 2014).

The third alternative view predicts the existence of a hierachy of preference regarding sources of financing, which seems to match the Pecking Order Theory and best fit our sample. Such as the Pecking Order Theory, firms tend to prefer to resort to internal financing as the first option, followed by the issuance of debt and leaving external financing through equities for last. Because managers value flexibility and control, particularly in family firms as we saw above, they prefer retained earning as a source of capital. Also, this kind of financing resource do not have issuance costs associated, whereas it costs more to use external debt and even more to use external equity (Damodaran, 2014).

In this sense, this study presents evidences from the suitability of the Pecking Order Theory regarding financing decisions with two hypotheses confirmed for our sample of 460 Portuguese family businesses, to the detriment of Trade-Off Theory for which was not possible to validate any hypothesis for our sample. The hypothesis validated correspond to the existence of a negative relationship between business maturity/age and debt and also between business profitability and debt, with proven great statistically significance for the second (p-value $= 0.000$).

Finally, it is worth noting that our findings remain limited, as the sample was constituted only by family businesses, constructed according to the availability of data presented in Orbis for a year comprised between 2016 and 2019, and filtered as being family companies according to their membership in the Portuguese Family Business association. Future studies are needed in order to deeper understand this issue and comparisons should be made cautiously.

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