

INFLUENCE OF OWNERSHIP STRUCTURE AND FAMILY MANAGEMENT ON THE DEBT FINANCING COST OF BRAZILIAN PUBLICLY TRADED COMPANIES

Influência da estrutura de propriedade e da gestão familiar no custo de financiamento da dívida de companhias abertas brasileiras

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Abstract

The objective of this study was to verify the influence of the structure of ownership and family management in the cost of debt financing of publicly traded companies listed in B3. For this, a descriptive, quantitative research was carried out by means of documentary analysis, with consultation to Reference Forms, Economatica database and B3 website. The sample was composed of 211 companies in 2012, 214 in 2013, 225 in 2014, 220 in 2015 and 223 in 2016. The results showed that the average cost of debt financing, in most years, was not lower in the group of companies that had a family-owned structure. However, when comparing the cost of debt financing between companies that had family and non-family management, it was noticed that, in most years, the cost was lower in the group of family-run companies. Therefore, it was found that only the family management influenced to reduce the cost of debt financing. It is concluded that companies with ownership structure and family management enjoy greater alignment of interests between the controller and the manager, in accordance with the principal-agent perspective of Agency Theory. The research contributes to strengthen the understanding of the theme in the Brazilian scenario and expands the existing discussion in the literature by addressing a factor that influences the cost of debt still little explored in Brazil. It also increases the literature in the area with empirical evidence related to the Brazilian scenario, which still lacks research of this nature.

Keywords: Family ownership structure. Family management. Cost of debt financing. Brazilian publicly traded companies.

Resumo

O objetivo do estudo foi verificar a influência da estrutura de propriedade e da gestão familiar no custo do financiamento da dívida de companhias abertas listadas na B3. Para isso, foi realizada pesquisa quantitativa e descritiva, por meio de análise documental e com consulta aos Formulários de Referência, banco de dados Economatica e site da B3. A amostra foi composta por 211 companhias abertas em 2012, 214 em 2013, 225 em 2014, 220 em 2015 e 223 em 2016. Os resultados mostraram que o custo médio do financiamento da dívida, na maioria dos anos, não foi menor no grupo de empresas que tinha uma estrutura familiar. No entanto, ao comparar o custo do financiamento da dívida entre empresas que possuíam gestão familiar e não familiar, percebeu-se que, na maioria dos anos, o custo era menor no grupo de empresas familiares. Portanto, verificou-se que apenas a gestão familiar influenciou a redução do custo do financiamento da dívida. Conclui-se que as empresas com estrutura acionária e gestão familiar desfrutam de maior alinhamento de interesses entre o controlador e o gestor, de acordo com a perspectiva principal-agente da Teoria da Agência. A pesquisa contribui para fortalecer a compreensão do tema no cenário brasileiro e expande a discussão existente na literatura, abordando um fator que influencia o custo da dívida e que ainda é pouco explorado no Brasil. Também contribui para a literatura da área com evidências empíricas relacionadas ao cenário brasileiro, que ainda carece de pesquisas dessa natureza.

Palavras-chave: Estrutura de propriedade familiar. Gestão familiar. Custo do financiamento da dívida. Companhias abertas brasileiras.

1 INTRODUCTION

Given the importance of debt for companies, researchers have sought to identify the factors that influence the cost of debt financing (Ghouma, 2017). However, despite the

investigation of factors being an increasingly developed topic and published in international journals, in national literature, as pointed out by Fernandes (2013), Guimarães (2016), Konraht, Camargo, and Vicente (2016), Moura, Macêdo, Mazzioni, and Kruger (2016), Palmieri and Ambrozini (2016) and Peixoto, Pains, Araújo, and Guimarães (2016), and, gaps still exist, given that the number of studies and the evidences on the subject, are still reduced.

In national literature as an example of factors already investigated, which influence the cost of indebtedness, are the ownership concentration (Konraht et al., 2016), level of information disclosure (Angonese, Fank, Oliveira, & Bezerra, 2013; Lima, 2009), quality of information (Castro & Martinez, 2009; Moura et al., 2016; Nardi & Nakao, 2009), socioenvironmental responsibility (Fernandes, 2013; Peixoto et al., 2016) and corporate governance (Barros, Silva & Voese, 2015; Caroprezo, 2011; Fonseca & Silveira, 2016).

The influence of ownership structure and family management in the cost of debt financing, is a subject that deserves attention and lacks research. In international literature, the results are still controversial. In relation to the ownership structure, while Anderson, Mansi, and Reeb (2003), Khan, Kaleem, Nazir, and Saeed (2013) and Ma, Ma, and Tian (2017) verified that the family structure had reduced the cost of debt, otherwise, Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin, Malatesta, and Xuan (2011) and Tanaka (2014) found that the family structure influenced the increase in the cost of debt.

Regarding the management, Anderson et al. (2003) and Lin et al. (2011) demonstrated that the family management influenced the increase in the debt cost, but, on the other hand, Ma et al. (2017) observed that the family management influence on debt cost reduction. Nevertheless, Boubakri and Ghouma (2010) and Tanaka (2014) found that the family management did not have any influence on the debt cost.

Thus, this issue still presents shortcomings which require investigation. In addition, the research question guiding this study is: What is the influence of the ownership structure and family management on the debt financing cost of public companies listed in B3? Therefore, the study aimed to verify the influence of ownership structure and family management on the cost of debt financing of public companies listed in B3.

The research contributes to expand the existing knowledge about the cost of debt, besides collaborating in the identification of its possible interrelationship with factors still little investigated in the literature. It also contributes, due to the investigation of the factors that can influence to reduce or increase the cost of debt financing, to still figure as a gap in the Brazilian scenario. In addition, when verifying the existence of a relationship between these variables, besides contributing theoretically the study also contributes for the literature empirically.

2 FAMILY COMPANIES AND THE COST OF DEBT FINANCING

Ownership structure can be defined as being the corporate structure of the company, i.e., it is the distribution of shares among the different types of shareholders that a company has (Ma et al., 2017; Richter & Weiss, 2013). The shares are distributed among the shareholders and provide them with control rights and rights over the cash flow. It is important to emphasize that, the greater the control rights and rights on the cash flow, the greater will be the influence on corporate decisions (Boubakri & Ghouma, 2010).

In this sense, shareholders can be families or individuals, financial institutions, state, numerous small shareholders (dispersed ownership structure), or another company with dispersed capital, for example (Hautz, Mayer, & Stadler, 2013; La Porta, Lopez-de-Silanes, & Shleifer, 1999). Among the main types of shareholders, according to Moura (2014), families have received more attention in the literature, especially after Claessens, Djankov, and Lang (2000), Faccio and Lang (2002) and La Porta et al. (1999) studies.

The ownership structure can be defined as familiar, as described by La Porta et al. (1999), when an individual or a family is the controlling shareholder, with direct or indirect participation. La Porta et al. (1999) study it is pointed out by Claessens et al. (2000) as being the first to investigate the type of ownership structure considering the final control, i.e., the first to trace the chain of ownership to discover who possessed the majority of voting rights.

When the ownership structure is familiar, many times, the family itself is responsible for the management, that is, members of the controlling family act in the main management positions. However, this does not always occur. Families can also opt for a non-familiar management, which occurs through the hiring of professionals who are not part of the family (Masri & Martani, 2014; Miller, Le Breton-Miller, Lester, & Cannella, 2007; Tanaka, 2014).

According to authors such as Andres (2008) and Villalonga and Amit (2006), analyzing family management separately is important because of different objectives and policies that are peculiar to families. From the agency theory, from the perspective of effect-alignment, when management is also familiar, conflicts can be attenuated, as the interests between ownership and management will be highly aligned (Anderson et al., 2003; Cai, Luo, & Wan, 2012; Liu, Yang, & Zhang, 2012). In addition, agency costs from the principal-agent conflict will be lower (Villalonga & Amit, 2006; Cai et al., 2012).

On the other hand, a family management can aggravate the conflict principal-principal. From the perspective of the entrenchment effect, conflicts occur between families and minority shareholders. In this case, family management can help family owners (majoritarian) to expropriate minorities and other stakeholders (Liu et al., 2012; Peng & Jiang, 2010; Villagonga & Amit, 2006).

Therefore, the conflicts arising from the relationship between principal and agent can vary depending on the type of ownership structure and the type of company management and impact directly on capital structure and the cost of debt financing (Anderson et al., 2003; Boubakri & Ghouma, 2010; Lin et al., 2011; Ma et al., 2017).

In this sense, the families, aiming at the transfer of the business to other family members or to the descendants in the future, they tend to act the correct way to improve performance and increase the value of the company. Considering that debt lenders also benefit from increased company value, this exclusive incentive of the family business could help mitigate agency disputes with debt lenders (Tanaka, 2014).

In addition, families are more concerned about reputation vis-à-vis third parties, they have infrequent turnover of managers and directors and strong relationships with their stakeholders. The long-term relationship established through the family reputation is highly desirable for debt suppliers because families continue to maintain the company's performance in the long term (Anderson et al., 2003; Tanaka, 2014).

Families also have a greater incentive to monitor and regulate the management. These monitoring activities benefit debtors and therefore help mitigate the conflict between the shareholder and the holders of debt securities, resulting in a reduction in the risk of default. Thus, if debt securities holders provide for such incentives, family companies tend to enjoy lower debt costs (Lin et al., 2011, Tanaka, 2014).

However, family firms can also extract the private benefits of control at the expense of other stakeholders, including debt suppliers (Boubakri & Ghouma, 2010). Opportunistic behavior could aggravate the conflict between shareholders and debt creditors, leading to an increase in the risk of default. When holders of securities recognize this risk, family companies tend to have a higher cost of debt (Anderson et al., 2003; Tanaka, 2014).

Family companies generally avoid raising funds through the stock market, because this type of operation involves risk of control loss, since they can reduce the controlling shareholder concentration. For this reason, they can prioritize bank financing, which would lead to greater financial leverage and, consequently, higher risk and cost of debt (Boubakri & Ghouma, 2010). However, in literature, the results about the influence of families on the debt cost are still quite divergent, as will be shown in the next section.

3 PREVIOUS STUDIES ABOUT THE INFLUENCE OF OWNERSHIP STRUCTURE AND FAMILY MANAGEMENT ON THE DEBT COST

In this section, some similar studies are presented, which analyzed questions about family structure and management and debt cost. It begins by the survey of Anderson et al. (2003) who investigated the impact of the family ownership structure on the agency cost of

debt in a sample of 252 American public companies, which had available data in the period from 1993 to 1998. The results showed that the structure of family ownership reduced the cost of debt. However, they realized that when family members occupied the position of CEO, the cost of debt financing was greater in relation to family businesses with external CEOs.

Steijvers and Voordeckers (2009) investigated whether the costs of debt in family businesses were smaller in comparison with the non-family ones. For this reason, they analyzed a sample of 443 American companies. They found that family-owned enterprises had higher debt costs and also pointed out that debt costs appeared to be reflected in households' need for personal guarantees and that such guarantees were an excellent tool for financial institutions to circumvent self-control problems and the negative effects of altruism on family businesses.

Boubakri and Ghouma (2010) analyzed the influence of the identity of the controlling shareholder and the excesses of voting rights on the cost of debt financing and on the classification of rating agencies. The sample was composed of a set of multinational companies in developed and in developing countries of East Asia and Western Europe. The analysis occurred in the period from 1994 to 2002. They found that the excessive voting rights of controllers raised the cost of debt financing. They also found that family control was perceived by debt holders and rating agencies as a potential risk of expropriation.

Lin et al. (2011) verified the influence of family control, family management, and excess of controllers' voting rights on the cost of debt financing. The analysis was carried out in a group of companies from 22 East Asian and Western European countries that had data from 1996 to 2008. The results indicated that the cost of debt was higher in companies with greater divergence between voting rights and rights over cash flow. They were also higher in companies that had family controlling shareholders and in family-controlled companies that also had the position of CEO held by some member of the controlling family.

Khan et al. (2013) investigated the influence of family ownership on the debt financing cost of publicly traded companies in Pakistan. The analysis was carried out with data from the period of 2006 to 2010. The results showed that family ownership influenced debt cost reduction and that a higher percentage of households held by the families also reduced the cost of debt financing. They concluded that creditors regarded family ownership as an organizational structure that best protected their interests.

Tanaka (2014) explored the relationship between corporate governance mechanisms and the cost of debt financing. The author's focus was the CEO's shareholding, ownership and family management, and the stockholding of large shareholders. He investigated a sample composed of 196 Japanese companies with data available in the period from 2005 to 2008. Empirical analysis revealed that CEO shareholding, as well as family ownership, was positively correlated with the cost of debt. Influence of family management on the

cost of debt was not identified. Finally, it was found that companies with large corporate shareholders had lower debt costs.

Hashim and Amrah (2016) examined whether there was any difference in the association between board independence, audit committee effectiveness, and debt cost between family and non-family owned companies in the Sultanate of Oman, a country in the Arabian Peninsula. The analysis occurred in a set of 68 companies with data from 2005 to 2011. The results showed that the debt cost in family companies was higher in comparison with non-family ones. They also revealed that the association between the independence of the board and the debt cost was negative when the analysis occurred in the total sample and in the sample of non-family companies. In addition, they found that the audit committee effectiveness had a significant effect on the cost of debt based on the total sample and sample of family companies, but it was not significant for non-family ones.

Ma et al. (2017) analyzed the impact of the absence of corporate transparency on the relationship between the family control and the cost of debt in a sample composed of 705 Chinese companies in the period from 2004 to 2010. Initially, the results revealed that the companies of family control, on average, paid a significantly lower cost of debt. In addition, they found that family control companies were significantly more transparent than the non-family ones. They also verified that the effect of family control on debt cost of companies was significantly weaker when transparency was lower. In addition, they also investigated the impact of the CEO type on debt cost and found that only companies with family CEOs had lower debt costs.

Divergent results in the studies described were found, since, while some authors identified a higher cost of debt in family companies, others found the opposite. Thus, this issue still presents shortcomings which require investigation. It should be noted, even in the studies presented, that investigations occurred in American, European and Asian companies. In this way, this issue deserves attention in other countries, such as in the case of Brazil.

4 METHODOLOGICAL PROCEDURES

To meet the proposed objective, a descriptive, documentary and quantitative approach research was carried out. To define the sample, initially, due to the peculiarities of the sector, in each year, companies that exerted financial activities were excluded. Companies that did not have the information necessary for the calculation of all the variables used in the research were also excluded. Then, after these procedures, the sample was composed of 211 companies in 2012, 214 in 2013, 225 in 2014, 220 in 2015 and 223 in 2016. Therefore, the research was carried out with data from a period of 5 years.

In order to identify the type of property structure, a categorical variable called a family structure (Fam_Struct) was created, which received value "1" in the cases where the last controlling shareholder was a family or an individual (in terms of voting rights), with a minimum participation of 10%, as well as in the study by La Porta et al. (1999), and the value "0" otherwise. The adoption of this criterion is similar to that adopted in other previous studies of the same nature, such as those of Anderson et al. (2003); Steijvers and Voordeckers (2009); Boubakri and Ghouma (2010), Lin et al. (2011); Tanaka (2014); Hashim e Amrah (2016); Ma et al. (2017) and the data were collected in the Reference Forms: Section 6.3–Brief History; Section 8.1–Description of the economic group; Section 15.2–Shareholding position; Section 15.4–Organization chart of the shareholders; Section 15.5–Shareholders' Agreement.

To identify the type of management, a methodology similar to that of Villalonga and Amit (2006) was adopted, which investigated the participation of families in the executive board and in the board of directors. Thus, three dummy variables were created, which received value "1" in the cases in which the "CEO (Fam_CEO)", "Chairman of the Board (Fam_Chairman)" and even when the "CEO and Chairman of the Board (Fam_CEO&Chairman)" were the founders of the company, or members by blood or marriage, belonging to the controlling family, or the value "0" otherwise. The data were collected in the Reference Forms: Section 12.6–Composition and professional experience of the administration and the Fiscal Council; Section 12.9–Family Relationships.

It should be emphasized that the data on ownership structure and management are for the year t_{-1} in relation to the cost of debt, as well as in previous studies by Anderson et al. (2003), Boubakri and Ghouma (2010), Lin et al. (2011) and Tanaka (2014). The justification is based on the fact that the decisions of the past impact on the business operations of the present.

The cost of debt financing, in line with previous studies (Barros et al., 2015; Fonseca & Silveira, 2016; Hashim & Amrah, 2016; Lima, 2009; Lin et al., 2011; Ma et al., 2017; Tanaka, 2014), was calculated each year, for each company, as the ratio of financial expenses and the average onerous liability of the year. The onerous liabilities were represented by loans and short and long term financing, including the issued debentures and the data were collected from Economatica database. The control variables used were:

- a) Age of the company (years which have elapsed since the foundation date): companies that have been in the market for the longest time have better management mechanisms that help them achieve competitive advantage. In addition, usually, they establish favorable reputations and good relations with

- the various *stakeholders*. Thus, older companies tend to have lower debt costs (Steijvers & Voordeckers, 2009; Tanaka, 2014).
- b) Corporate Governance (listed at some differentiated level of B3 governance): good governance practices contribute to the reduction of agency problems, of information asymmetry and help to protect the interests of the various *stakeholders*. In this way, companies that have better corporate governance practices tend to have lower costs of debt (Barros et al., 2015; Fonseca & Silveira, 2016).
 - c) Indebtedness ($\text{Current liabilities} + \text{Non-current liabilities} / \text{Total assets}$): companies that have higher levels of indebtedness increase the probability of bankruptcy and, therefore, tend to pay higher interest rates because they are seen as riskier (Boubakri & Ghouma, 2010; Hashim & Amrah, 2016; Lin et al., 2011; Ma et al., 2017).
 - d) Size of the company (Natural logarithm of total assets): Larger companies generally benefit from economies of scale and stable performance. They also have greater capacity to withstand negative shocks in the cash flows and, therefore, are less prone to default. Therefore, they are seen as less risky by lenders and tend to have lower costs of debt (Anderson et al., 2003; Boubakri & Ghouma, 2010; Hashim & Amrah, 2016; Lin et al., 2011; Ma et al., 2017; Tanaka, 2014).
 - e) ROA ($\text{Ebitda} / \text{Total assets}$): More profitable companies will have fewer difficulties to pay their debts and, therefore, usually have lower costs of debt (Anderson et al., 2003; Hashim & Amrah, 2016; Lin et al., 2011; Tanaka, 2014).
 - f) Growth (growth rate of assets): companies in constant growth may also be subject to a higher risk and, therefore, tend to have higher costs of indebtedness (Ma et al., 2017; Shailer & Wang, 2015; Tanaka, 2014).

The data on “Indebtedness”, “Size”, “ROA” and “Growth” were collected from Economatica database. The data on “Governance” were collected manually at the site of B3 and data regarding the age of the companies were collected manually in the Reference Forms, for each of the years.

In order to verify the influence of the property structure and the family management on the cost of debt financing, an analysis of ordinary least squares regression was performed. Presuppositions of normality were observed by means of Kolmogorov-Smirnov test; multicollinearity, by means of variance inflation factor–VIF and tolerance; and absence of serial autocorrelation, through Durbin-Watson test.

In order to examine the existence of homoscedasticity in the behavior of residues, Pesarán-Pesarán test was applied. The performance of this test implied in regressing the square of the standardized residues (Zre_2) as a function of the square of the standardized estimated residues (Zpr_2). The test rejected the null hypothesis of homoscedasticity of

waste. For this reason regression was estimated by Ordinary Least Squares (OLS) with robust standard error. Table 1 shows the dependent variable of the equation, the independent variables and the control ones.

Table 1

Variables for analysis of the influence of ownership structure and family management on the cost of debt financing

	VARIABLES	METRICS	BASIC AUTHORS
Dependent	Cost of debt financing (Cost_Debt)	Cost_Debt: Ratio of financial expenses and the average onerous liability of the year	Barros et al. (2015), Fonseca and Silveira (2016), Hashim and Amrah (2016), Lima (2009), Lin et al. (2011), Ma et al. (2017) and Tanaka (2014).
Independents	Type of property structure (Fam_Struct)	Fam_Struct: Family = 1 Non-family = 0	Anderson et al. (2003), Boubakri and Ghouma (2010), Hashim and Amrah (2016), La Porta et al. (1999), Lin et al. (2011), Ma et al. (2017), Steijvers and Voordeckers (2009) and Tanaka (2014).
	Chief executive officer (Fam_CEO)	Fam_CEO: Family = 1 Non-family = 0	
	Chairman of the board of directors (PresCA_Fam)	Fam_Chairman: Family = 1 Non-family = 0	Anderson et al. (2003), Boubakri and Ghouma (2010), Lin et al. (2011), Ma et al. (2017), Tanaka (2014) e Villalonga and Amit (2006).
	CEO and Chairman of the Board (Fam_CEO&Chairman)	Fam_CEO&Chairman: Family = 1 Non-family = 0	
Control	Age of the company (Age_Cia)	Age_Cia: Years which have elapsed since the foundation date in the CVM registry	Steijvers and Voordeckers (2009) and Tanaka (2014).
	Corporate Governance (Governance)	Differentiated level of B3 governance: Yes = 1 Not = 0	Barros et al. (2015) and Fonseca and Silveira (2016).
	Indebtedness (Indebtedness)	Indebtedness: (Current liabilities + Non-current liabilities) / Total assets	Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin et al. (2011) and Ma et al. (2017).
	Size of the company (Size)	Size: Natural logarithm of total assets	Anderson et al. (2003), Boubakri and Ghouma (2010), Hashim & Amrah (2016), Lin et al. (2011), Ma et al. (2017) and Tanaka (2014).
	Return on assets (ROA)	ROA: Ebitda/Total assets	Anderson et al. (2003), Hashim and Amrah (2016), Lin et al. (2011) and Tanaka (2014).
	Company growth (Growth)	Growth: Growth rate of assets	Ma et al. (2017), Shailer & Wang (2015) and Tanaka (2014).

It can be seen in Table 1 that the debt cost variable was classified as dependent. The ownership and management structure variables, as well as the control variables, were classified as independent, since the purpose, in this case, was to verify the influence of ownership structure and family management on the debt cost.

5 DESCRIPTION AND ANALYSIS OF THE DATA

This section contains a description and analysis of the data collected. First, the Student's t-Test results are described, which allow to compare the indebtedness cost average between companies with family and non-family ownership structure. The results of the Student's T-test are presented below, which allow us to compare the averages of indebtedness cost between companies with family and non-family management. Finally, the coefficients of the regressions that allow analyzing the influence of the property structure and the family management on the debt cost of the sample companies are presented.

5.1 COST OF DEBT FINANCING AND OWNERSHIP STRUCTURE

Table 2 presents the T-test results, related to the debt cost of companies with family and non-family ownership structure.

Table 2

Test of average of the debt cost between companies with family and non-family structure in the period from 2012 to 2016

Cost of Debt	Family		Non-family		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	125	0.64	98	0.54	3.12	0.08	0.74	0.05
2015	123	0.65	97	0.51	5.52	0.02	1.13	0.03
2014	123	0.39	102	0.44	0.29	0.59	-0.57	0.57
2013	116	0.39	98	0.36	4.04	0.05	0.54	0.59
2012	113	0.34	98	0.32	1.37	0.24	0.37	0.71
2012-2016	600	0.49	493	0.43	9.74	0.00	1.21	0.23

It can be seen in Table 2 that over most of the period from 2012 to 2016, the average cost of debt was higher in the group of companies that have a family-owned structure. It should be noted that in the year 2014 alone the average was higher in non-family companies. However, T-test results indicate that the differences in the cost of debt are statistically different only in the years 2015 and 2016.

In the period from 2012 to 2014 it was found that the average cost of debt between the two groups is not statistically different. Although the t-test shows a statistically significant

difference only in the years 2015 and 2016, when analyzing the data for the entire period from 2012 to 2016, the average cost of family company debt, equivalent to 0.49, is higher than the average cost of 0.43 of non-family companies. These results provide evidence that companies with family structure may be subject to greater agency problems.

Overall, the average cost of debt financing increased in the period from 2012 to 2016. In the case of companies with non-family ownership structure, the average indicator increased from 0.32 in 2012 to 0.54 in 2016. In the group of companies with family structure, the average cost of debt financing increased from 0.34 in 2012 to 0.64 in 2016.

5.2 COST OF DEBT FINANCING AND MANAGEMENT

Table 3 presents the T-test results related to the debt cost of the companies with: a) ownership structure and family CEO; b) family-owned structure and non-family CEO; c) ownership structure and non-family CEO.

Table 3

Test of average cost of debt for the period from 2012 to 2016 between companies with family structure and CEO, family structure and non-family CEO, non-family structure and CEO

PANEL A—MEDIUM TEST 1								
Cost of Debt	Fam_Struct and Fam_CEO		Fam_Struct and Non-fam_CEO		Levene test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	69	0.52	56	0.77	3.34	0.07	-1,04	0.09
2015	67	0.50	56	0.83	6.48	0.01	-1,53	0.03
2014	67	0.29	56	0.51	14.51	0.00	-2,18	0.03
2013	65	0.29	51	0.52	10.12	0.00	-1,89	0.06
2012	65	0.28	48	0.43	5.99	0.02	-1.45	0.05
2012-2016	333	0.38	267	0.62	24.96	0.00	-3.15	0.00
PANEL B—AVERAGE TEST 2								
Cost of Debt	Fam_Struct and Fam_CEO		Non-fam_Struct Non-fam_CEO		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	69	0.52	98	0.54	0.18	0.67	-0.10	0.92
2015	67	0.50	97	0.51	0.21	0.65	-0.06	0.95
2014	67	0.29	102	0.44	4.88	0.03	-1,88	0.06
2013	65	0.29	98	0.36	0.21	0.65	-1,07	0.10
2012	65	0.28	98	0.32	0.62	0.43	-0.87	0.38
2012-2016	333	0.38	493	0.43	0.21	0.65	-1,19	0.24

PANEL C – AVERAGE TEST 3									
Cost of Debt	Fam_Struct and Non-Fam_CEO		Non-Fam_Struct and Non-Fam_CEO		Levene Test		T-test		
	No.	Average	No.	Average	F	Sig	t	Sig	
2016	56	0.77	98	0.54	8.79	0.00	1.13	0.03	
2015	56	0.83	97	0.51	15.16	0.00	1.68	0.05	
2014	56	0.51	102	0.44	1.52	0.22	0.67	0.10	
2013	51	0.52	98	0.36	13.89	0.00	1.43	0.07	
2012	48	0.43	98	0.32	6.92	0.01	1.09	0.08	
2012-2016	267	0.62	493	0.43	38.27	0.00	2.69	0.01	

It can be seen in Table 3, when comparing the three groups: a) family-owned structure and family CEO; b) family-owned structure and non-family CEO; c) non-family property structure and non-family CEO; that the averages of the cost of debt were higher and statistically significant in the group of companies that have family ownership structure and non-family CEO.

These results indicate that companies with a family owned structure that does not have a family director may be subject to greater agency problems. That is, it can be seen that the possibility of agency conflicts between principal-agent is higher in the group that has family ownership structure and non-family CEO.

In Table 4 presents T-test results related to the cost of debt of companies with: a) the structure of family ownership and family chairman of the board; (b) family ownership structure and non-family chairman of the board; (c) non-family ownership structure and chairman of the board.

Table 4

Test of the average cost of debt in the period from 2012 to 2016 between companies with family structure and chairman of the board, family structure and non-family chairman of the board, and non-family structure and chairman of the board

PANEL A – AVERAGE TEST 1									
Cost of Debt	Fam_Struct and Fam_Chairman		Fam_Struct and Non-Fam_Chairman		Levene Test		T-test		
	No.	Average	No.	Average	F	Sig	t	Sig	
2016	85	0.61	40	0.72	0.34	0.56	-1.35	0.07	
2015	83	0.58	40	0.95	4.15	0.04	-1.32	0.05	
2014	85	0.35	38	0.55	3.83	0.05	-1,21	0.07	
2013	87	0.32	29	0.95	22.75	0.00	-3,74	0.00	
2012	83	0.29	30	0.70	20.62	0.00	-3,08	0.00	
2012-2016	423	0.43	177	0.77	19.66	0.00	-2,80	0.01	

PANEL B—AVERAGE TEST 2								
Cost of Debt	Fam_Struct and Fam_Chairman		Non-fam_Struct and Non-fam_Chairman		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	85	0.61	98	0.54	2.27	0.13	0.54	0.59
2015	83	0.58	97	0.51	2.02	0.16	0.48	0.63
2014	85	0.35	102	0.44	1.34	0.25	-1.01	0.32
2013	87	0.32	98	0.36	0.15	0.70	-0.66	0.51
2012	83	0.29	98	0.32	0.17	0.69	-0.75	0.45
2012-2016	423	0.43	493	0.43	2.09	0.15	0.07	0.95

PANEL C—AVERAGE TEST 3								
Cost of Debt	Fam Struct and Non- -fam_Chairman		Non-fam Struct and Non-fam Chairman		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	40	0.72	98	0.54	4.91	0.03	0.95	0.05
2015	40	0.95	97	0.51	17.99	0.00	2.35	0.02
2014	38	0.55	102	0.44	0.77	0.38	0.72	0.07
2013	29	0.95	98	0.36	37.15	0.00	3.94	0.00
2012	30	0.70	98	0.32	24.25	0.00	2.98	0.00
2012-2016	177	0.77	493	0.43	51.52	0.00	4.41	0.00

Table 4 shows that the averages of the cost of debt were higher and statistically significant in the group of companies with family ownership structure that did not present family members in the position of chairman of the board. These results demonstrate, once again, that family-owned companies that do not have family management may be subject to greater agency problems. Therefore, just as occurred in relation to the CEO's analysis, it is believed that the alignment effect outweighs the entrenched effect on family companies.

Table 5 presents T-Test results related to the debt cost of the companies with: a) family property structure, CEO and chairman of the board also familiar; b) structure of family property, but with non-family CEO and chairman of the board; c) non-family ownership structure, CEO and chairman of the board.

Table 5

Average test of debt cost for the period from 2012 to 2016 between companies with family ownership structure, president and chairman of the board; family structure, non-family CEO and chairman; and non-family structure, CEO and chairman of the board

PANEL A—AVERAGE TEST 1								
Cost of Debt	Fam Struct, Fam- CEO and Fam- Chairman		Fam Struct, Non- -fam-CEO and Non- -fam- Chairman		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	59	0.52	66	0.72	1.66	0.20	-1,78	0.04
2015	57	0.51	66	0.77	3.81	0.05	-1.28	0.10
2014	57	0.30	66	0.47	8.71	0.00	-1,89	0.06
2013	61	0.30	55	0.50	7.46	0.01	-1,72	0.08
2012	63	0.28	50	0.42	5.12	0.03	-1,48	0.09
2012-2016	297	0.38	303	0.59	16.77	0.00	-2,81	0.01

PANEL B—AVERAGE TEST 2								
Cost of Debt	Fam-Struct, Fam- CEO and Fam- Chairman		Non-fam- Struct, Non-fam-CEO and Non-fam- Chairman		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	59	0.52	98	0.54	0.41	0.52	0.01	0.99
2015	57	0.51	97	0.51	0.38	0.54	-0.01	0.99
2014	57	0.30	102	0.44	3.66	0.06	-1,72	0.09
2013	61	0.30	98	0.36	0.05	0.83	-0,94	0.35
2012	63	0.28	98	0.32	0.46	0.50	-0.81	0.42
2012-2016	297	0.38	493	0.43	0.03	0.86	-1,06	0.29

PANEL C—AVERAGE TEST 3								
Cost of Debt	Fam-Struct, Non-fam CEO and Non-fam- Chairman		Non-fam Struct, Non-fam-CEO and Non-fam- Chairman		Levene Test		T-test	
	No.	Average	No.	Average	F	Sig	t	Sig
2016	66	0.72	98	0.54	6.62	0.01	1.14	0.06
2015	66	0.77	97	0.51	12.12	0.00	1.75	0.08
2014	66	0.47	102	0.44	0.61	0.44	0.34	0.73
2013	55	0.50	98	0.36	11.65	0.00	1.30	0.08
2012	50	0.42	98	0.32	6.20	0.01	1.03	0.10
2012-2016	303	0.59	493	0.43	29.98	0.00	2.46	0.01

It is possible to observe in Table 5 that the average cost of debt, once more, was higher and statistically significant in group of companies that do not have family members in management positions. Again, the results indicate that companies with family structure that

does not have a family management may be subject to greater agency problems. Therefore, in the period from 2012 to 2016, in a general way, when the CEO and Chairman of the board were familiar, the debt cost in the companies analyzed was lower, thus, the results indicate that the alignment effect overcomes the entrenchment effect in family companies.

Generally speaking, considering the cost of debt financing for companies with a family CEO, those with family chairman of the board, and those with a combined family CEO and chairman of board, it was possible to verify that the companies that have family management presented, in most of the analyzed years, a lower cost of debt, mainly when compared with companies of family structure and non-family management.

Therefore, the results indicate that in the research sample the approach of principal-agent theory of agency prevails, in which a greater alignment between control and management (family control and family management) results in benefits, since the cost to reduce information asymmetries and moral risk becomes lower and thus there is influence for reducing the cost of debt financing, as evidenced by Ma et al. (2017).

5.3 INFLUENCE OF OWNERSHIP STRUCTURE AND FAMILY MANAGEMENT IN THE COST OF DEBT FINANCING

Table 6 shows the regression coefficients of the influence of ownership structure and family management on the cost of debt.

Table 6

Regression coefficients of influence of ownership structure and family management in the cost of debt of the sample composed of all the companies

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
(Constant)	1.32***	1.48***	1.44***	1.45***	1.39***
Fam_Struct	0.35				0.35
Fam_CEO		-0.19***			-0.41***
Fam_Chairman			-0.14***		-0.34***
Fam_CEO&Chairman				-0.17***	-0.25***
Age_Cia	-0.02	-0.04	-0.06	-0.05	-0.03
Governance	-0.16***	-0.17***	-0.18***	-0.16***	-0.19***
Indebtedness	0.06	0.05	0.05	0.06	0.05
Size	-0.14***	-0.17***	-0.16***	-0.16***	-0.15***
ROA	-0.03**	-0.02*	-0.03**	-0.02*	-0.02*
Growth	0.08*	0.08*	0.07*	0.08*	0.07*

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
R-square adjusted	0.29	0.25	0.24	0.25	0.26
F-Anova	5.72***	7.50***	7.30***	6.99***	6.26***
VIF/Tolerance	<10	<10	<10	<10	<10
Durbin Watson	1.93	1.94	1.97	1.95	1.92

Note. *** Significant at 1%; ** Significant at 5%; * Significant at 10%.

It should be noted that the regressions shown in Table 6 were generated from the data of all sample companies. It can be seen from Table 6 that the adjusted R^2 were between 24% and 29%. These adjusted R^2 are similar to those recorded in previous similar studies, such as Boubakri and Ghouma (2010), who had R^2 of 24 and 25%, from Lin et al. (2011) with R^2 between 20% and 30% Hashim and Amrah (2016) with R^2 of 21% and 35% and Ma et al. (2017) having R^2 of 20% and 30%. In this way, the percentage explained by the independent variables can be considered acceptable.

It is verified that F-ANOVA tests were significant (0.01), that is, the set of independent variables exert influence on the dependent variables in all models. The results of Durbin-Watson statistics (between 1.92 and 1.97) showed that there are no autocorrelation problems of residues, since the values were close to two. It is also verified that variance inflation factor–VIF and Tolerance presented low values. Therefore, in this case there is no problem of multicollinearity among the independent variables of the model.

It is possible to notice, still in Table 5, that the variable “Fam_Struct”, which captures the existence of family property structure in companies, presented a positive coefficient of 0.35 in model 1, when analyzed individually and also in the model 5, when analyzed in conjunction with the management variables, however, coefficients are not statistically significant. However, despite the lack of significance, the positive coefficients give evidence of the family control influence to a higher cost of debt.

This result is aligned to the arguments of authors such as Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin et al. (2011), Steijvers and Voordeckers (2009) and Tanaka (2014), that debt creditors may act more cautious when dealing with companies with family structure due to the possibility of greater agency conflict in this type of business.

Among the variables related to the type of management Fam_CEO, Fam_Chairman and Fam_CEO & Chairman, which capture the presence of a family member occupying the position of CEO, the position of chairman of the board, or when both positions are under the family domain, respectively, we can observe that the three variables were statistically significant and with negative coefficients, either when analyzed individually or when analyzed jointly with the ownership structure variable. These results indicate that the family

management influences for reducing the cost of debt financing, especially when the CEO is familiar, since the coefficients were higher for this variable.

These results reinforce the findings of the univariate analysis of this study and are in line with the results of Ma et al. (2017), which also pointed the influence of family management for a lower cost of debt in Chinese public companies. The results are also aligned with the principal-agent perspective of agency theory, i.e., it is assumed that in companies located in Brazil, with ownership structure and family management, there is a greater alignment of interests between the controller and the manager. Then, when the alignment effect becomes dominant the cost of debt financing tends to be lower.

It is also noted in Table 5 that among the control variables, four were statistically significant. These are the variables "Governance", "Size" and "ROA" that presented positive coefficients and the variable "Growth" with negative coefficients. Otherwise the variables "Age_Cia" and "Indebtedness" did not present statistically significant coefficients.

In relation to corporate governance, the results confirm that good governance practices can contribute to the reduction of agency problems, of information asymmetry and help to protect the interests of creditors. Therefore, companies that have better corporate governance practices tend to have lower costs of debt, as Barros et al. (2015) and Fonseca and Silveira (2016) describe.

Regarding the size of the companies, it was confirmed that larger companies, because they benefit from economies of scale and stable performance, because they have superior capacity to withstand negative cash flow shocks, are seen as less risky by creditors and tend to have lower costs of debt financing, as argued by authors such as Anderson et al. (2003), Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin et al. (2011), Ma et al. (2017) and Tanaka (2014),

As the ROA, the results also confirmed that more profitable companies, because they have fewer difficulties to pay their debts usually have lower costs of indebtedness, as highlighted Anderson et al. (2003), Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin et al. (2011) and Tanaka (2014).

In the case of the variable "Growth", which presented positive coefficients, the justification lies in the fact that companies that are in constant growth may also be subject to a higher risk and, therefore, tend to present higher indebtedness costs, according to Ma et al. (2017), Shailer and Wang (2015) and Tanaka (2014).

6 FINAL CONSIDERATIONS

The objective of the study was to verify the influence of ownership structure and family management on the debt financing cost of public companies listed in B3. In this sense, initially, it was found that throughout almost the entire period from 2012 to 2016 the average cost of debt was higher in the group of companies that had a family-owned structure. It was also found, considering the cost of debt financing of companies with family CEO, those who have family chairman of the board and, still, those who have both combined, family CEO and chairman, that companies that had family management showed in most years a lower cost of debt.

Thus, the descriptive statistics indicated that in the research sample the principal-agent approach from theory of agency prevails, in which a greater alignment between control and management (family control and family management) results in benefits, since the cost to reduce information asymmetries and moral risk becomes lower and, thus, there is influence to reduce the debt cost, as evidenced by Ma et al. (2017).

Regarding the influence of ownership structure and management in the cost of debt of public companies listed on the B3, initially it was found that the positive coefficient for the variable "Fam_Struct", which captured the existence of family structure in companies, gave evidence of influence to a higher cost of debt. However, it should be noted that the lack of statistical significance for this variable does not allow to state that the result was reliable.

However, the result showed to be aligned to the arguments of authors such as Steijvers and Boubakri and Ghouma (2010), Hashim and Amrah (2016), Lin et al. (2011), Tanaka (2014) and Voordeckers (2009), that the creditors of debt may act more cautious when dealing with companies with family structure due to the possibility of greater agency conflict in this type of business.

In relation to family management, it was observed that the three variables that captured the existence of family management were statistically significant and with negative coefficients. Thus, the results indicated that the family management influenced to reduce the cost of debt financing.

These results have strengthened the findings from the study univariate analysis and are in line with the results of Ma et al. (2017), which also pointed the influence of family management for a lower cost of debt. The results are also in line with the principal-agent perspective of the Agency Theory, that is, it is assumed that companies located in Brazil, with ownership structure and family management, enjoy greater alignment of interests between the controller and the manager. When the alignment effect becomes dominant, the cost of debt financing tends to be lower.

Thus, regarding the overall goal, the results showed that only the family management influence in reducing the cost of debt financing. Therefore, this research contributes to strengthen the understanding of this issue in the Brazilian scenario and expands the discussion existing in the literature when approaching a factor influencing the cost of debt still little explored in Brazil. It also increases the literature with empirical evidence regarding the Brazilian scenario, still lacking in research of this nature.

For future research, it is suggested to increase the number of surveyed companies, including those with private equity. Also to use other time periods, in order to identify trends in the cost of debt financing of national family and non-family companies. It would also be interesting to conduct comparative studies between sectors and levels of corporate governance.

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