The influence of board interlocking on debt capital cost

A influência do board interlocking *no custo de capital de terceiros*

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Abstract

The objective of this research is to analyze the impact of board interlocking on debt capital cost of non-financial publicly traded Brazilian companies, listed on B3 (Brazil Stock Exchange) between 2010 and 2019. The motivation for this research arose from the Resource Dependence Theory, which states that companies need external resources, including financial capital, which can explain board interlocking. I collected data from Economática © database and the Securities and Exchange Commission (CVM) website. The results showed that companies that share counselors with other firms have a lower cost of debt capital; and when analyzing only companies that practice board interlocking, I found that sharing counselors with companies in the financial sector reduces debt capital cost. In practice, the research may be relevant for companies that have difficulties in their indebtedness structures, as there is evidence that sharing counselors with other companies can minimize transaction costs and facilitate access to credit on better terms.

Resumo

O objetivo desta pesquisa é analisar o impacto da formação de board interlocking no custo de capital de terceiros, em empresas brasileiras não financeiras de capital aberto listadas na B3, no período entre 2010 e 2019. A motivação para esta pesquisa surgiu a partir da Teoria da Dependência de Recursos, que afirma que as empresas necessitam de recursos externos, inclusive capital financeiro, e que ela pode explicar a formação de board interlocking. Os dados para esta pesquisa foram retirados da base de dados Economática© e do site da Comissão de Valores Mobiliários (CVM). Os resultados mostram que empresas que compartilham conselheiros com outras empresas possuem menor custo de capital de terceiros, e, quando analisadas apenas as empresas que praticam board interlocking, ficou constatado que o fato de compartilhar conselheiros com empresas do setor financeiro reduz o custo de capital de terceiros. Na prática, a pesquisa pode ser relevante para as empresas que possuem dificuldades em suas estruturas de endividamento, pois há evidências de que compartilhar conselheiros com outras empresas pode minimizar os custos de transações e facilitar o acesso a crédito em melhores condições.

Practical Implications

This research can lead companies to realize that sharing members of the Board of Directors with other firms can facilitate achieving debt capital, in larger amounts and in quality, and this result is better when sharing counselors with companies of the financial sector.

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1 INTRODUCTION

Research on boards of directors usually rely on the Agency Theory (Fama & Jensen, 1983) and on the Resource Dependence Theory (Pfeffer, 1972). The first seeks to show how the Board of Directors can perform its function of mitigating conflicting interests between Agent and Principal, by controlling and monitoring managers' decision-making process (Fama & Jensen, 1983). The second seeks to understand how the Board of Directors can help access external resources, mainly financial, for companies (Johnson, Daily, & Ellstrand, 1996).

When forming their boards of directors, companies end up sharing board members, which the literature defines as 'board interlocking' (Mendes-da-Silva, 2010; Connelly & Slyke, 2012; Mindzak, 2013). Among other functions, board interlocking is a means of reducing information asymmetry between companies and the corporate environment, especially by disseminating Corporate Governance practices (Cunha & Piccoli, 2017). For Hashim and Rahman (2011), board interlocking can spread management practices throughout the whole network of firms that are connected by the counselors, and the dissemination of such practices can lead these firms to a better corporate performance (Shi, Dharwadkar, & Harris, 2013).

The formation of interconnected councils is a way to facilitate access to external financial resources for companies (Ribeiro & Colauto, 2015; Braun, Briones, & Islas, 2019). Thus, firms appoint counselors who are part of other firms with the intention of maximizing the sources of debt capital they can count on (Wang, Lu, Kweh, Nourani, & Hong, 2019). Companies choose their counselors in order to obtain resources that assist in building their financial structure, which would be one of the functions expected from board interlocking: to get financial resources (Mazzotta, Bronzetti, & Baldini, 2017).

According to the logic of the Resource Dependence Theory, which considers financial capital as the main resource, the Bank Control Theory (Mintz & Schwartz, 1983) states that non-financial companies are subject to the decisions of financial institutions, especially banks and insurers. Thus, there is a tendency for firms that are more dependent on debt capital to put on their boards of directors counselors who are also in the boards of financial institutions (Ong, Wan, & Ong, 2003); therefore, these firms are able to get debt capital at lower costs and better conditions (Braun, Briones & Islas, 2018).

In Brazil, Ribeiro, Colauto and Clemente (2016) observed that the creation of economic groups, government control, the formation of pension funds, and the presence of professionals with recognized market experience are determining factors for board interlocking. However, international studies (Pfeffer & Salancik, 1978; Jackling & Johl, 2009; Zona, Gomez-Mejia, & Withers, 2015; Braun et al., 2018), based on the Resource Dependence Theory, showed that the search for better debt capital costs is one of the reasons for companies adhering to board interlocking. Hence, this research seeks to answer the following question: what is the impact of board interlocking on debt capital cost of Brazilian companies listed on "Brazil, Bolsa, Balcão" (B3 –Brazil Stock Exchange)? The objective is to examine the relationship between the formation of board interlocking and the cost of debt capital in Brazilian companies listed on B3.

The study contributes to the discussions on the determinants of board interlocking in Brazil, and that the need for debt capital can be a reason for companies sharing counselors with other firms, thus showing that such practice relates to the Resource Dependence Theory. In effect, sharing counselors can be a means for companies to improve their capital structure, by providing better conditions for raising debt capital.

Research results show that sharing counselors can affect debt capital cost for companies. The first analysis showed that the impact of board interlocking is widespread, regarding a company's ability to get debt capital. However, analyzing only ties with firms in the financial sector might indicate that companies reduce the cost of debt capital by sharing counselors who serve on the boards of these financial firms, since they share information that can reduce contingent uncertainties in credit operations.

2 THEORETICAL BACKGROUND

2.1 Board of Directors and board interlocking

In a corporate environment where managers and shareholders have different interests, the Board of Directors plays an essential role in Corporate Governance in controlling managers' individual interests (Cunha & Piccoli, 2017). The board of directors is a collegiate body whose function is to make strategic decisions for the company, in addition to monitoring the executive board in order to safeguard the interests of shareholders (IBGC, 2015).

The independence of the board of directors can influence the monitoring activity (Brandão, Vasconcelos, Luca, & Crisóstomo, 2019). According to Fama and Jensen (1983), corporate governance can be affected by this independence, as it is a good instrument for solving conflicts within companies. Thus, the board of directors' independence is essential for performing its duties impartially and skillfully, always acting in defense of the organization, by monitoring the executive board and connecting it with the shareholders (Ribeiro et al. 2016).

However, given the independence of the boards of directors, some companies decide to share counselors, giving rise to the practice known as board interlocking (Hashim & Rahman, 2011). The concept of board interlocking refers to the practice of sharing members of boards of directors (Mendes-da-Silva, 2010; Connelly & Slyke, 2012). Board interlocking can be an important channel for the dissemination of management and corporate practices, through the knowledge and experience of the counselors (Hashim & Rahman, 2011). The practice of sharing board members rests on companies' need to interact with the corporate environment, mainly by requiring external resources (Pfeffer & Salancik, 1978). Board interlocking is an important way for companies to get resources, especially financial, which will make up the company's indebtedness on better conditions and at lower costs (Ribeiro et al., 2016).

These authors showed that board interlocking in Brazil has as determinants the creation of economic groups, government control, the formation of pension funds, and the presence of professionals with high experience in the market. Hence, the reasons for board interlocking may be intrinsic to the interests, or even needs of the companies and their managers (Barros, 2017).

2.2 Debt capital cost

In the existing literature, there is not a single theory that fully explains how companies set up their indebtedness structures, as there are several options to consider before making funding decisions (Albanez, Valle & Corrar, 2012). Studies by Huang, Oehmke and Zhong (2019), Rauh and Sufi (2010), and De la Fuente and Velasco (2020) sought to explain how companies make up the financing structures of their investments, and all studies diverge, because they seek such explanations by taking into account distinct aspects that show the benefits and costs of the different forms of funding.

Among the most important theories on the subject, Myers and Majluf's (1984) and Myers's (1984) Pecking Order Theory explains that companies use financing decisions to mitigate informational asymmetry problems. On the other hand, the Traditional Theory of Capital Structure (Durand, 1952), which analyzes the indebtedness structure of companies, argues that debt capital must remain stable until a certain point, where it would reach an optimum level, taking into consideration the risk of bankruptcy.

In Brazil, some studies (Brito, Corrar & Battistela, 2007; Lima, 2009; Fonseca & Silveira, 2016; Martinez & Silva, 2017) have analyzed debt capital cost in view of the country's peculiarities. For Brito et al. (2007), some aspects make the debt capital cost have different characteristics from those in developed economies, such as restricted capital market, high concentration in the stock market, and constraints on long-term sources of debt capital.

Martinez and Silva (2017) showed that the level of tax aggressiveness is decisive for debt capital cost in Brazil. In companies with a lower tax aggressiveness, creditors require costs proportional to the anticipated risk, and in view of potential tax contingencies, they would require a higher cost of capital, making less aggressive firms bear higher debt costs.

Lima (2009) analyzed the relationship between debt capital cost and the level of disclosure of accounting information of Brazilian companies, between 2000 and 2004. According to the author, the increase in disclosure should decrease the level of informational asymmetry of companies, making the risks and costs of financial transactions decrease.

Fonseca and Silveira (2016) examined the relationship between the adoption of best practices of Corporate Governance and debt capital cost of non-financial Brazilian public companies, for the period 2010-2014. The presence of asymmetric information and agency conflicts caused rationing and increased debt capital cost. The results showed that the adoption of best practices of corporate governance could reduce this cost.

2.3 Board interlocking and debt capital cost

Board interlocking, based on the Resource Dependence Theory, refers to one of the board's functions, which is precisely to promote a closer proximity of the company to the external environment, in order to get resources (Zald, 1969). In this regard, Hillman, Cannella and Paetzold (2000) argue that board interlocking is a means of facilitating access to external financial resources, and companies tend to seek counselors who already hold managerial positions in companies that are sources of debt capital.

Dicko and El Ibrami (2013) examined if the practice of sharing counselors could add value to the company with regard to fundraising. By analyzing three aspects (economic, financial, and relational), they found that economic and political connections have a significant and positive impact on companies' fundraising, and that each type of connection (economic, political, and social) affects their financial performance.

Sánchez and Barroso-Castro (2015) studied the effect of board interlocking under the Resource Dependence Theory and concluded that board interlocking can affect the profitability and financial performance of companies by helping them to achieve a solid formation of financial capital and access to credit, thus reducing the cost of debt capital.

Also considering the Resource Dependence Theory, Ribeiro et al. (2016) observed that board interlocking acts as a facilitator for reaching funding sources. As for raising debt capital, Hillman et al. (2000) suggest that one of companies' intentions when forming interconnected boards is to increase these sources and improve financing conditions with third parties, thus reducing the costs of debt capital. Thus, I suggest the first research hypothesis.

Hypothesis 1: Companies that practice board interlocking obtain a lower cost of debt capital.

Supported by the Bank Control Theory, companies with higher capital keep a strong influence over the others, especially those in the financial sector that provide resources for other firms (Ong et al., 2003). According to Pfeffer and Salancik (1978), this dependence on financial resources makes companies wish to have professionals from financial institutions on their boards, for getting easier access to lower-cost credit.

In building economic strategies, non-financial companies tend to strengthen ties with financial firms in order to get better sources of credit (Dicko & El Ibrami, 2013). Therefore, companies seek members for their boards that can contribute to the company's credit policy, mainly for reducing transaction costs and searching better conditions (Jackling & Johl, 2009). Given these arguments, I suggest the second research hypothesis:

Hypothesis 2: Companies that have members of financial institutions on their Boards of Directors get a lower debt capital cost.

3 METHODOLOGY

3.1 Sample

This is a quantitative research, which sought to collect evidence from empirical analyses. To this end, the sample was composed of all Brazilian non-financial publicly traded companies listed on B3, between 2010 and 2019. The chosen period is because Brazilian publicly held companies only adhered to the International Financial Reporting Standards (IFRS) as of the year 2010, and the reference forms used for elaborating the variables were only available at the website of the Brazilian Securities and Exchange Commission (CVM) from that same year. Table 1 summarizes the research sample.

Table 1. Sample description

Companies listed between 2010 and 2019	350
Companies excluded from the Financial sector and Insurance	31
Companies excluded for lack of information between 2010 and 2019	103
Final Sample	216

Source: elaborated by the author

I collected data from Economática© database and CVM website. To correct for potential outliers, used the process of two-tailed winsorization at 1%, but without excluding the treated observations.

3.2 Description of variables

3.2.1 Dependent variable

Debt capital cost measures the cost of companies, regarding their onerous debt capital (Assaf, 2003). In this research, I measured this cost by the ratio between financial expenses and short-term and long-term debt capital (Sengupta, 1998). The expression below shows how the variable was built.

$$Kd = \frac{DF}{EmFinCP + EmFinLP + DbCP + DbLP}$$

where:

Kd = Debt capital;

DF = Financial expenses;

EmFinCP = Loans and short-term funding;

EmFinLP = Loans and long-term funding;

DbCP = Short-term debentures;

DbLP = Long-term debentures.

3.2.2 Independent variables

Based on Fich and White (2005) and Barros and Colauto (2019) studies, I measured board interlocking in companies by checking the sharing or not of counselors among firms. Thus, to check hypothesis 1, I used a dummy variable that assumed a value of 1 if the company practiced board interlocking, and a value of 0 otherwise. To test hypothesis 2, I limited the sample to the companies that effectively practiced board interlocking; in this case, the dummy variable assumed a value of 1 if the company shared counselors with financial companies, and zero otherwise.

3.2.3 Control variables

The Pecking Order Theory (Myers, 1984) states that companies should initially finance themselves with retained earnings, indebtedness, and, last of all, by issuing shares. Thus, companies with high profitability are expected to be less indebted, thus having a lower cost of debt (Blanco, Garcia-Lara & Tribo, 2015). Therefore, a negative relationship between profitability and debt capital cost is expected. Likewise, Perobelli and Famá (2003) argue that a large part of companies 'operating margin should turn into profit, and consequently reduce the companies' cost of capital, thus leading to a negative relationship between the operating margin and debt capital cost.

The composition of companies' indebtedness may be a sign that they do not have good liquidity for paying their obligations, given the large number of investments financed through debt capital (Brito et al. 2007; Fonseca & Silveira, 2016). Thus, a positive relationship between the company's indebtedness and its debt capital cost would be expected. Yet, firms with better growth expectations show the market that they have credit capacity, because in the near future they will have good possibilities of profitability, which reduces the credit risk (García-Sánchez & Noguera-Gámez, 2017). Thus, a negative relationship between growth expectations measured by Market-to-book and debt capital cost would be expected.

According to Rajan and Zingales (1995) and Blanco et al. (2015), the larger the company, the better its credit history and reputation in the market, resulting in a lower debt cost. Thus, a negative relationship between debt capital cost and companies' size would be expected. Finally, Miller (1977) observes that tax payment decreases the benefit generated by financial leverage in loss compensation for tax authorities. Therefore, tax payment on their results would require from creditors higher interest rates on credit operations (Salmasi & Martelanc, 2009). Hence, a positive relationship between financial leverage and debt capital cost would be expected. Table 2 summarizes the research variables.

Table 2. Description of variables

Variable	Source	Description	Reference
Debt capital cost	Economática	Ratio between the financial debt and the sum of onerous debt capital	Sengupta (1998); Nardi & Nakao (2009)
Board interlocking	CVM	Dummy variable, with value 1 if the company practices board interlocking, and 0 if not	Fich & White (2005); Barros & Colauto (2019)
Size	Economática	Natural logarithm of companies' assets	Rajan & Zingales (1995); Blanco et al. (2015)
Return on assets	Economática	Ratio between companies' net profit and assets	Blanco et al. (2015); Martínez-Ferrero (2014)
Growth	Economática	Ratio between sales on year *t* and year *t-1*	Salmasi & Martelanc (2009)
Operating margin	Economática	Ratio between operating result and net revenue	Perobelli & Famá (2003)
Indebtedness	Economática	Ratio between debt capital and total assets	Alencar (2005); Fonseca & Silveira (2016)
Leverage	Economática	(net profit x asset) / (net equity) / ((net profit – interests on net equity))	Salmasi & Martelanc (2009)
Market-to-book	Economática	Ratio between market value and net equity	García-Sánchez & Noguera-Gámez (2017)

Source: elaborated by the author

3.3 Econometric models

The results, achieved through the econometric equations below, are the data output of Stata software, by using the Ordinary Least Squares (OLS) and fixed effects methods; in both models, I used multiple regressions with panel data. Model 1 should confirm or not the first hypothesis.

$$Kd_{it} = \beta_0 + \beta_1 BI_{it} + \Sigma_{k=7}^n \beta_k CONTROLES_{kit} + \varepsilon_{it}$$

The β_1 coefficient captures the relationship between the variables "debt capital cost" and "board interlocking" (BI), and a significant and negative relationship between them was expected. The β_k coefficient represents the model's control variables. Model 2 should confirm or not the second research hypothesis.

$$Kd_{it} = \beta_0 + \beta_1 BIEF_{it} + \Sigma_{k=7}^n \beta_k CONTROLES_{kit} + \varepsilon_{it}$$

The β_1 coefficient captures the relationship between the variables "debt capital cost" and "board interlocking with financial firms" (BIEF), and a significant and negative relationship between them was expected. The β_k coefficient represents the model's control variables.

4 RESULT ANALYSIS

4.1 Descriptive statistics

Initially, I carried out a data descriptive analysis in order to observe the behavior of information on the variables. Descriptive analysis reported the mean, standard deviation, the 25th, 50th and 75th percentiles, as well as the maximum and minimum values of each variable. Debt capital cost showed a mean of 0.32692, representing approximately 32% of the amount of third-party debts. However, this value does not express faithfully the sample data, since the 75th percentile is below this value, showing that 75% of the companies have financial expenses below 25%, regarding loans, funding, and debentures. Table 3 summarizes the values for each variable.

Table 3. Descriptive statistics

Variables	Mean	SD	P25	P50	P75	Min.	Max.
Cost of capital	0.326	1.004	0.106	0.157	0.256	0	11.92
Size	15.14	1.648	14.07	15.17	16.14	9.638	20.49
Return on assets	0.034	0.080	0.004	0.037	0.071	-1.236	0.356
Growth	1.128	0.338	0.999	1.096	1.195	0.091	4.067
Operating margin	0.067	1.385	0.009	0.065	0.132	20.615	21.84
Indebtedness	1.162	2.287	0.294	0.577	1.036	0.013	18.95
Leverage	2.089	9.186	1.072	1.612	2.333	-50.27	78.83
Market-to-book	2.246	2.433	0.825	1.500	2.666	0.043	15.37

Source: elaborated by the author

For the variables board interlocking (BI) and board interlocking with financial firms (BIEF), Tables 4 and 5 present their distribution, by showing the behavior of the sample companies regarding the formation of interconnected boards.

Table 4. Frequency distribution of Board interlocking

Firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
With Board interlocking	55%	57%	57%	59%	58%	59%	60%	64%	67%	69%
Without Board interlocking	45%	43%	43%	41%	42%	41%	40%	36%	33%	31%

Source: elaborated by the author

Table 4 shows the percentage of companies that practiced board interlocking in the chosen period. Between 2010 and 2015, those that shared counselors represented between 55% and 59% of the analyzed companies, and between 2016 and 2019, they were between 60% and 69%. Table 5 shows the values for companies that practiced board interlocking with companies in the financial sector.

Table 5. Frequency distribution of Board interlocking with financial companies

Firms	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
With Board interlocking	20%	21%	17%	18%	18%	19%	17%	16%	17%	19%
Without Board interlocking	80%	79%	83%	82%	82%	81%	83%	84%	83%	81%

Source: elaborated by the author

Table 5 shows that the percentage of companies that practiced board interlocking with companies in the financial sector between 2010 and 2019 varies between 16% and 21%. According to the Bank Control Theory (Mintz & Schwartz, 1985), these firms share counselors with companies in the financial sector because they depend heavily on debt capital.

4.2 Regression results' analysis

The regressions were of the multiple type and carried out with data grouped in panels. To choose the models used, I did Hausmam, Breusch-Pagan LM, and Chow tests, in order to check which model would better adjust to the regressions. Table 6 shows the results.

Table 6. Statistical tests

	Model 1		Model 2	
Tests	F-statistic	Prob(statistic)	F-statistic	Prob(statisitc)
Chow test	18.75	0.000	15.42	0.000
Breusch-Pagan LM test	4,409.23	0.000	3,453.10	0.000
Hausman test	252.03	0.000	165.99	0.000

Source: elaborated by the author

The prob (statistic) value of 0.000 in Chow test indicates that, between the Pooled and the fixed effects methods, the latter should be used because it rejects the null hypothesis. The prob (statistic) value of 0.000 in the Breusch-Pagan LM test indicates that, between the Pooled and the random effects methods, the latter should be used because it rejects the null hypothesis. Moreover, the prob (statistic) value of 0.000 in the Hausman test indicates that, between the random effects and the fixed effects methods, the latter should be used because it rejects the null hypothesis.

Test results indicated that for both models I should use the Fixed effect method. The tests were done by using Stata Robust correction, to minimize problems of heteroscedasticity in the regressions. Table 7 shows the results of Model 1.

Table 7. Regression result

Model 1 ($Kd_{it} = \beta_0 + \beta_1 BI_{it} + \Sigma^n_{k=7} \beta_k CONTROLES_{kit} + \varepsilon_{it}$)				
Dependent variable – Debt capital cost				
Independent variables	**Expected sign**	**Coefficient**	**t-statistic**	**p-value**
Board Interlocking	(-)	-0.104543	-2.8	0.042**
Size	(-)	-0.025811	-0.49	0.627
Return on assets	(-)	2.122495	6.8	0.000***
Growth	(+)	-0.196439	-3.21	0.001***
Operating margin	(-)	-0.064463	-2.79	0.005**
Indebtedness	(+)	0.0164696	1.32	0.187
Leverage	(+)	0.0000283	0.01	0.989
Market-to-book	(+)	-0.029406	-2.07	0.039**
Constant		0.9974817	1.23	0.22
Observations: 1770	R- Sq Within: 0.1351		R- Sq Between: 0.1227	
R- Sq Within: 0.1351	R- Sq overall: 0.1519		Prob > F = 0.0000	

Source: elaborated by the author

Note: ***, ** and * represent, respectively, 1%, 5%, and 10% statistical significance

The results indicate that there is a statistically significant and negative relationship between the variables "debt capital cost" (Kd) and board interlocking (BI); therefore, there is evidence that the practice of sharing counselors with other companies can reduce the debt capital cost. In effect, these results are in line with the Resource Dependence Theory (Pfeffer, 1972) and, more specifically, confirm the studies by Ribeiro et al. (2016), Sánchez and Barroso-Castro (2015), and Jackling and Johl (2009), who concluded that the practice of board interlocking can minimize companies' difficulties for getting external resources.

Together with the facts that determine the practice of board interlocking in Brazil, mentioned by Ribeiro et al. (2016), I can add the reduction in debt capital cost as a potential determinant for this practice. Barros (2017) observed that, among other aspects, board interlocking results from the fact that companies need external resources, including financial. Thus, our findings agree with this author, since they bring evidence that board interlocking can reduce the risks of operations with third parties and minimize uncertainties of the economic environment. With these results, hypothesis 1 of this research was confirmed, since there is evidence that companies that practice board interlocking have a lower debt capital cost.

For hypothesis 2, the sample was limited to those companies that showed board interlocking with financial firms. Table 8 presents the test results.

Table 8. Regression result

Model 2 ($Kd_{it} = \beta_0 + \beta_1 BIEF_{it} + \Sigma^n_{k=7} \beta_k CONTROLES_{kit} + \varepsilon_{it}$)				
Dependent variable – Debt capital cost				
Independent variables	**Expected sign**	**Coefficient**	**t-statistic**	**p-value**
Board Interlocking	(-)	-0.211488	-2.7	0.007***
Size	(-)	-0.102758	-1.83	0.068*
Return on assets	(-)	0.4468079	-1.07	0.285
Growth	(+)	0.059882	2.39	0.061*
Operating margin	(-)	0.038566	1.18	0.375
Indebtedness	(+)	0.0111807	0.85	0.087*
Leverage	(+)	0.0004639	2.2	0.289
Market-to-book	(+)	-0.001514	-2.03	0.173
Constant		1.830769	2.04	0.235
Observations: 1350	R- Sq Within: 0.1351		R- Sq Between: 0.1225	
R- Sq Within: 0.1114	R- Sq overall: 0.1633		Prob > F = 0.0000	

Source: elaborated by the author

Note: ***, ** and * represent, respectively, 1%, 5%, and 10% statistical significance

The results show that there is a statistically significant and negative relationship between the variables BIEF and Kd. Previous research has shown that one of the reasons for companies to use board interlocking is to raise external resources, especially financial. Therefore, our results show that companies that share counselors with financial firms have a lower debt capital cost, thus confirming the results achieved in Model 1.

According to the Resource Dependence Theory, companies have distinct needs for external resources, especially financial. Previous studies have shown that firms choose counselors who work in other firms, or even are part of the boards of directors of financial companies, in order to get better conditions in credit operations. Our research confirms these results and shows that, when I examine only companies that practice board interlocking, and the effect of the participation of counselors that work in financial companies, debt capital cost tends to decrease. Thus, hypothesis 2 of this research was confirmed, since there is evidence that companies that share counselors with financial firms have a lower cost of debt capital.

5 FINAL REMARKS

The objective of this paper was to analyze the impact of board interlocking practice on debt capital cost of Brazilian non-financial publicly traded companies listed on B3, between 2010 and 2019. For this purpose, I extracted data from the Economática © database and CVM website.

Research results showed that there is a significant statistical relationship between debt capital cost and board interlocking. Hence, companies that share counselors with other firms have a lower debt capital cost. These results may be due to the fact that companies that share counselors expand their relationship networks, as well as share experiences and governance practices.

Another relevant result shows that companies that share counselors with firms of the financial sector have a lower cost of debt capital. The simple fact of sharing counselors already reduces that cost; however, there is evidence that companies that do it with counselors linked to financial companies get credit on even better terms.

In general, our results may be of interest to those companies that intend to diversify their boards of directors, and draw specific benefits, such as the reduction of debt capital. However, sharing counselors with financial firms will not end the difficulties in getting credit; but establishing ties with these companies and the wider dissemination of information that reduces asymmetry may provide better conditions for companies' indebtedness.

Other determinants of board interlocking should be addressed, by studying the reasons that lead companies to practice such sharing. When I analyze debt capital cost, it only takes into account the part of the debt capital that causes financial expenses, and does not consider those credits that have implicit costs. Thus, I suggest that future research should examine the impact of board interlocking on other types of capital, such as commercial credit, for example, as well as investigate the relationship of other attributes of Boards of Directors with the debt capital cost.

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