

Debt structure and its determinants: an analysis of large Brazilian manufacturing companies

Estrutura de dívida e seus determinantes: uma análise das grandes indústrias brasileiras


Estructura de la deuda y sus determinantes: un análisis de las grandes industrias brasileñas

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Abstract

This study analyzes the determinants of financing sources of the largest Brazilian manufacturing companies, focusing on privately held companies. We conduct the analysis considering a single sample of 153 companies, 64 publicly traded and 89 privately held. Moreover, we classify the corporate debt into five categories, namely: a) bank debt; b) subsidized debt; c) capital market debt; d) leasing debt; and e) others. According to the results, the determinants of financing sources vary depending on the source and the type of company analyzed (listed or privately held). In addition, our results also show that most of the variables identified in the literature as determinants of the capital structure cannot explain the variation in the financing sources of the privately held companies.

Keywords: Debt structure; Heterogeneity; Financing source; Manufacturing Companies

Resumo

O objetivo deste estudo é analisar os determinantes das fontes de financiamento das maiores empresas brasileiras do setor industrial, tendo como foco as empresas de capital fechado. A análise foi feita considerando uma amostra única de 153 empresas, sendo 64 de capital aberto e 89 de capital fechado. As dívidas foram classificadas em cinco categorias, a saber: a) dívida bancária; b) dívida subsidiada; c) dívida de mercado de capitais; d) arrendamento mercantil; e e) outros. De acordo com os resultados encontrados, os determinantes das fontes de financiamento variam a depender da fonte analisada e do tipo de empresa analisada (de capital aberto ou capital fechado). Além disso, o estudo também mostra que a maior parte das variáveis apontadas pela literatura como determinantes da estrutura de capital não são capazes de explicar a variação das fontes de financiamento dessas empresas de capital fechado.

Palavras-chave: Estrutura da dívida; Heterogeneidade; Fontes de Financiamento; Indústrias

Resumen

El objetivo de este estudio es analizar los determinantes de las fuentes de financiamiento de las mayores empresas brasileñas del sector industrial, centrándose en las empresas privadas. El análisis se realizó considerando una sola muestra de 153 empresas, 64 públicas y 89 privadas. Las deudas se clasificaron en cinco categorías, a saber: a) deuda bancaria; b) deuda subvencionada; c) deuda del mercado de capitales; d) arrendamiento; y e) otros. Según los resultados encontrados, los determinantes de las fuentes de financiación varían según la fuente analizada y el tipo de empresa analizada (cotizada o privada). Además, el estudio también muestra que la mayoría de las variables identificadas en la literatura como determinantes

de la estructura de capital no son capaces de explicar la variación en las fuentes de financiamiento de estas empresas privadas.

Palabras clave: Estructura de la deuda; heterogeneidad; Fuente de financiamiento; Industria

1 Introduction

The process of choosing a company's capital structure has aroused the interest of researchers since at least the 1950s. According to Rauh and Sufi (2010), there is a common point among most studies that address aspects concerning the capital structure: corporate debt is treated as uniform. Further according to them, this assumption is problematic since it does not find support in theoretical research or in the real world. The authors reported that a simple analysis of companies' balance sheets is enough to notice the presence of different financing sources in a firm's debt structure. Investment horizons, relationships with the borrower, and even cash flow rights are examples indicated in the literature as characteristics that differ among the types of firms' debt (Lou & Otto, 2020).

When analyzing U.S. companies, Rauh and Sufi (2010) identified that a large part of their sample had a significant share of more than two types of debt. Furthermore, the authors found that, despite no significant changes in total indebtedness from one year to the next, there were significant changes in the debt composition. In a later study, Colla, Ippolito and Li (2013) identified that debt heterogeneity, i.e., the parallel use of different financing sources, is a characteristic present in companies with high credit ratings.

Therefore, according to these authors, debt heterogeneity among firms is a phenomenon that should be considered. According to Jadyappa, Hickman, Jyothi, Vunyale and Sireesha (2020), one of the reasons why companies opt for a more heterogeneous debt structure is the need to finance investments that demand a large volume of resources, beyond the capacity or credit concentration policy of a single lender, leading companies to seek access to different sources of financing.

More specifically in Brazil, studies of debt structure are still scarce. Albanez and Valle (2009) and Valle and Albanez (2012), based on a sample of Brazilian sugar/ethanol producers and publicly traded manufacturing firms, respectively, segregated the debt structure into four groups: i) national subsidized line; ii) international subsidized line; iii) domestic market line; and iv) international market line. The period of analysis by Albanez and Valle (2009) covered the years 2001 to 2006, while Valle and Albanez (2012) analyzed the period from 1997 to 2006, both of which were marked by unfavorable macroeconomic conditions. In general, the results indicated that Brazilian companies, given the high interest rate environment, turned to subsidized sources and foreign currency loans, whose interest rate differential was more favorable given the existing context.

In a later study, Tarantin Jr. and Valle (2015) also recognized the presence of different financing sources in the debt structure of Brazilian companies. The authors identified relevant shares of the bank, subsidized and capital market debt in a study that considered only publicly traded companies. Their results revealed the importance of capital market debt in increasing the leverage of Brazilian companies.

Another related study was Póvoa and Nakamura (2014), where the authors also analyzed the different debt sources of publicly traded companies from 2007 to 2011. The authors classified the sources into: i) bank debt; ii) non-bank debt; iii) subsidized debt; iv) capital market debt; v) financial leasing; and vi) external funding. According to the results, the diversification of financing sources tended to be greater in larger companies, those with higher market-to-book value and high credit ratings.

Therefore, since empirical evidence points to the existence of different financing sources in companies' debt structure, the following question arises: which factors can determine each financing source's participation in firms' debt structure? The relevance of this issue lies in the fact that each funding source has unique characteristics. Thus, it is also likely that the determining factors are different depending on the funding source.

The studies by Póvoa and Nakamura (2015) and Marshall, McCann and McColgan (2019) investigated the determining factors of funding sources. Póvoa and Nakamura (2015) focused on the analysis of Brazilian publicly traded companies while Marshall et al. (2019) analyzed United

Kingdom listed companies. Roughly speaking, the results of Póvoa and Nakamura (2015) and Marshall et al. (2019) pointed to different determinants among the financing sources used by firms.

Despite the importance of these studies, there is a lack of empirical evidence regarding the determinants of financing sources for privately held companies. These companies tend to have more significant information asymmetry, which consequently generates greater credit constraints. For this reason, we expect the existence of a difference between the determinants of financing sources between publicly held and privately held companies.

Therefore, this study analyzes the determinants of financing sources for the largest Brazilian manufacturing companies, focusing on privately held companies. We chose manufacturing firms because they tend to be more reliant on outside capital to finance their activities than firms in other industry, as pointed out by Khieu, Chen and Pyles (2015). This characteristic makes manufacturing a suitable sector for studies that seek to investigate firms' financing decisions, as here.

For this analysis, we considered a single sample of 153 companies, 64 publicly held and 89 privately held. We classified the debt into five categories, namely: a) bank debt; b) subsidized debt; c) capital market debt; d) leasing debt; and e) others. We collected information about companies' debt structure manually. In this collection process, we analyzed more than 1,300 explanatory notes in annual reports/financial statements. The analysis covers the years 2009 to 2018.

As a result, the research revealed that, on average, there is relevant participation of three financing sources, a) bank debt, b) subsidized debt and c) capital market debt. In addition, subsidized debt represents, on average, the largest share of the debt of privately held companies, while bank debt is the leading source of publicly held companies. The results also showed that the determining factors vary depending on the financing source analyzed and depending on the type of company (publicly traded or privately held). As an example, the results showed that the variable size tends to be a determining factor of bank debt for privately held companies, while for publicly traded firms it was not statistically significant. On the other hand, this same variable proved to be a determinant for the capital market debt of publicly traded companies, while for privately held ones, there was no significance.

This study contributes to support firms' decisions regarding their financing. More specifically, we believe that managers can maximize the elements identified in this study as determinants of the funding sources of interest. Thus, there may be an increase in the possibility of obtaining credit, with the desired financing sources satisfying emerging investment needs.

Furthermore, this study seeks to contribute to the literature in three ways. The first is by expanding the knowledge about how privately held companies choose their financing structure. Despite still being little explored in national studies, the understanding of the financing structure of privately held companies is highly relevant, given that only a small portion of Brazilian companies are listed on the stock exchange. Second, we seek to understand the changes in corporate debt structure over the years in light of recent changes in the Brazilian credit market. Finally, we expect the results to contribute to the development of strategies used by credit market agents to satisfy the demand for credit by Brazilian manufacturing firms.

2 Theoretical Framework

2.1 Capital structure

How do companies choose their capital structure? This is an issue that has been explored in the literature since at least the 1950s. A large part of the studies dealing with the determinants of capital structure have referenced the seminal study of Modigliani and Miller (1958). In this study, the authors pointed out that the choice between equity and debt does not determine a company's value. Therefore, it is irrelevant. According to them, the determination of the company's value depends on considering its expected return by the cost of capital. In general, the analyses carried out by Modigliani and Miller (1958) were based on the assumption of the existence of a world free from bankruptcy costs, agency costs, information asymmetry between agents and taxes.

Specifically about taxation, Modigliani and Miller (1958) considered its effects briefly and in more detail in a later paper from 1963. They recognized that as a result of the tax benefit of debt financing, there would be an increase in the company's value given the growth in the proportion of third-party capital (Modigliani & Miller, 1958, 1963).

Since the seminal works of Modigliani and Miller, many others have been published seeking to offer a better explanation of the choice of firms' capital structure. Within this context, the so-called capital structure tradeoff theory emerged, advocating the idea that firms tend to increase their proportion of debt capital to the point where the marginal value of the tax benefits is offset by the increase in the costs of financial distress. For this reason, firms should have an optimal level of indebtedness (Myers, 1984).

The tradeoff theory has received several critiques in the literature. Studies such as Myers (1984, 2001), for example, criticized the theory's low explanatory power concerning the financing strategies used by companies. In other words, although it is possible to find examples of companies whose financing decisions are supported by the tax benefits, there is no systematic effect (Myers, 2001).

The criticisms of the tradeoff theory led to the development of the pecking order theory or "preference order", advocated by Myers and Majluf (1984) and Myers (1984). Given the harmful effects of information asymmetry, the authors argued that companies tend to establish an order of preference in their capital structure. Thus, internal capital should be preferable to any other type of capital, so only if this is not sufficient to meet investment needs should the firm resort to debt financing (Myers & Majluf, 1984; Myers, 1984). For these authors, the issuance of shares is a last resort, i.e., it should be used only when the possibilities mentioned above are exhausted.

With the establishment of these two theoretical strands, many empirical studies were carried out to understand the explanatory power of these theories and how companies make their financing decisions. However, more recently, some studies have questioned the treatment given to corporate debt in capital structure studies in general. According to Rauh and Sufi (2010), corporate debt is treated as something uniform in most of these studies. According to the authors, this uniform treatment occurs despite debt heterogeneity being a common feature in theoretical and empirical research.

The results presented by Rauh and Sufi (2010) supported their argument. The authors found that most U.S. companies from their sample had significant shares of more than two types of debt. In addition, the results also showed that these companies had a significant change in debt composition from one year to the next, despite not showing changes in leverage as a whole.

Afterward, Colla et al. (2013) developed a study with a sample of American firms that, unlike Rauh and Sufi (2010), incorporated companies without a credit rating. The authors identified debt heterogeneity to be a characteristic present in companies with a high credit rating, while others seek debt homogeneity.

In Brazil, the diversification of funding sources has been addressed in studies such as those by Albanez and Valle (2009), Valle and Albanez (2012), Póvoa and Nakamura (2014 and 2015) and Tarantin Jr. and Valle (2015).

Albanez and Valle (2009) and Valle and Albanez (2012), based on a sample of sugar/ethanol producers and publicly traded Brazilian manufacturing firms, respectively, segregated the debt structure into four groups: i) national subsidized line; ii) international subsidized line; iii) domestic market line; and iv) international market line. The analysis period of Albanez and Valle (2009) covered 2001 to 2006, while Valle and Albanez (2012) analyzed the period from 1997 to 2006. According to the authors, Brazilian companies turned to subsidized sources of financing and foreign currency loans to face the high interest rate environment in Brazil, given that the interest rate differential was favorable for these two types of loans.

Tarantin Jr. and Valle (2015) classified debt into five categories, namely: a) bank debt; b) subsidized debt; c) capital market debt; d) leasing debt; and e) others. The authors found that financing sources can impact the capital structure of companies, more specifically concerning leverage and debt maturity.

Póvoa and Nakamura (2014) classified the sources into: i) bank debt; ii) non-bank debt; iii) subsidized debt; iv) capital market debt; v) financial leasing; and vi) external funding. Considering the period from 2007 to 2011, the authors found that the financing source diversification tended to be more intensive in larger companies, those with high market-to-book ratios and high credit ratings.

In summary, the studies mentioned have revealed that companies use different financing sources. So, what are the singularities present in each source that makes them different from each other?

Bank debt, for example, offers companies a significant advantage due to the banks' ability

to access private information (Fama, 1985; James, 1987). In other words, banks reduce information asymmetry costs by establishing closer monitoring of firms' cash flows, thus benefiting small companies (i.e., those that cannot produce the volume of information desired by the capital market).

Still regarding bank debt, another important aspect concerns the ease of renegotiation in case of financial distress of the firm. For Berlin and Loyes (1988) and Chemmanur and Fulghieri (1994), in view of greater access to company information, banks are expected to be more efficient in their choice of whether or not to settle the debt.

On the other hand, the capital market does not have a monitoring capacity as comprehensive as the banking market. For this reason, Diamond (1991) argued that companies with little reputation tend to use bank credit, while companies with good reputations resort to capital market debt. For the author, initially banks' monitoring is necessary when there is sparse public information about a firm and absence of a good reputation in the market. However, the track record built over time allows other capital providers to assess the company's future actions. As a result, the higher monitoring cost charged by the financial intermediary tends no longer to be necessary (Diamond, 1991).

Still concerning capital market debt, Ma, Stice and Williams (2019) and Marshall, McCann and McCangan (2016) also pointed out two essential characteristics, the first quantitative in nature. More specifically, according to Ma et al. (2019), one of the main characteristics of capital market debt is the possibility of accessing large amounts of resources from a global group of investors. The second aspect is related to the cost of capital. In other words, a larger number of creditors should mean greater competition among them, thus reducing the cost of capital in comparison with the private credit market, such as from banks (Marshall, McCann & Mccolgan, 2016).

Subsidized debt has fundamental importance for companies in emerging economies. Due to the more intense presence of market failures¹ in emerging economies, companies tend to suffer more significant restrictions on external financing, which besides limiting these firms' growth opportunities, impairs the country's economic development. For this reason, developing country governments tend to act to reduce market imperfections and facilitate companies' access to credit (Favro & Alves, 2021). As a result, development banks are used to grant long-term subsidized credit to companies that could not otherwise finance their projects (Favro & Alves, 2021).

For Behr, Norden and Noth (2013), the government's role in the credit market aims, among other factors, to guarantee the supply of credit to smaller companies that, in general, are not served by private banks.

Finally, according to international accounting standards (IFRS - International Financial Reporting Standards), a lease is a contract that transmits the right to control the use of an asset during some time frame in exchange for consideration. Therefore, through the lease, the company uses an asset and may or may not acquire it at the end of the contract. Thus, leasing is a form of external financing, allowing companies to invest more in property, plant and equipment (Cosci, Guida & Meliciani, 2015).

In their study, Stulz and Johnson (1985) pointed to the importance of the so-called "insured debts", which include leases. Stulz and Johnson (1985) highlight insured debt as a way to reduce potential agency costs. In other words, the use of insured debt reduces the possibility of risky behavior on the part of companies, consequently reducing monitoring costs by creditors. Figure 1 summarizes the main characteristics of the four funding sources presented so far.

In summary, from the studies by Rauh and Sufi (2010) and Colla et al. (2013), it is clear that the presence of different financing sources is common in firms' debt structure. Furthermore, based on the studies by Fama (1985), Stulz and Johnson (1985), James (1987), Berlin and Loyes (1988), Chemmanur and Fulghieri (1994), Behr et al. (2013), Cosci et al. (2015), Marshall et al. (2016), Ma et al. (2019) and Favro and Alves (2021), one can argue that funding sources have unique characteristics that differentiate them from one another. Therefore, given the different characteristics among the funding sources, would it be possible for each source to have different determining factors?

Despite the theoretical and empirical importance of this issue, this type of analysis is still incipient in the financial literature. As far as we know, only Póvoa and Nakamura (2015) and Marshall, McCann and McColgan (2019) have analyzed the determining factors of different funding sources. While Póvoa and Nakamura (2015) focused on publicly traded Brazilian companies, Marshall et al. (2019) focused on publicly traded companies in the United Kingdom. Both studies

presented interesting results regarding funding sources.

Source	Characteristic	Theoretical framework
Banking (unsubsidized)	- Lower cost of information asymmetry. - Greater ease of renegotiation.	Fama (1985); James (1987); Berlin and Loyes (1988); Chemmanur and Fulghieri (1994)
Capital market	- Less monitoring; - Greater volume of resources; - Lower cost of capital.	Marshall et al. (2016); Ma et al. (2019).
Subsidized debt	- Debt with subsidized interest rates and long maturities; - Covers companies not served by the "traditional" credit market.	Behr et al. (2013); Favro and Alves (2021).
Leasing	- Company has the right to use the asset and may or may not acquire it ex-post; - Reduction of agency costs due to the greater ease of exercising the guarantee on the leased asset.	Stulz and Johnson (1985); Cosci et al. (2015).

Figure 1 – Main characteristics of funding sources

Source: Elaborated by the authors.

Regarding bank credit, the results of Póvoa and Nakamura (2015) and Marshall et al. (2019) showed that the smaller a company's size, the greater the share of bank debt in the debt structure. This result is in line with the observations of Fama (1985), James (1987) and Diamond (1991). In other words, smaller companies with greater information asymmetry tend to benefit more from the banks' monitoring capacity, and consequently from the lower costs of information asymmetry.

With respect to capital market debt, the results from Póvoa and Nakamura (2015) and Marshall et al. (2019) showed that the larger the size of the company, the greater the share of this type of debt tends to be. These results are consistent with those of Diamond (1991), who found that larger companies, which have less information asymmetry and a good reputation, tend to have greater access to capital market debt.

Regarding subsidized debt, explored in Póvoa and Nakamura (2015), the results showed that variables such as size, tangibility and profitability do not have statistical significance and therefore cannot be considered determinants of this financing source. According to the authors, these results can signal the economic and social role played by the government in granting companies greater access to credit. In other words, considering the objective of reducing financial restrictions, there would be no relationship between the granting of subsidized credit and factors such as size, tangibility and profitability.

Although leasing was explored in the study by Póvoa and Nakamura (2015), given its small participation in firms' debt structure, none of the explanatory variables analyzed in their study were statistically significant.

A common point between the studies by Póvoa and Nakamura (2015) and Marshall et al. (2019) is that both addressed only publicly traded companies. As far as we know, no studies have sought to explore the determinants of different financing sources considering privately held companies. This type of company tends to have greater information asymmetry and more significant restrictions tap into certain financing sources. For this reason, one could argue that the determinants of funding sources are different depending on whether or not the company has shares traded on exchanges. This fact constitutes an empirical gap explored in this study.

3 Methodology

3.1 Data and Sample

We selected a sample of 269 companies. This sample represents all companies in the manufacturing industryⁱⁱ positioned among the 500 companies in the "Melhores e Maiores" ("Best and Largest") ranking of *Exame* magazine (2017).

Altogether, we excluded 116 companies from the 269 present in the initial sample. Most of the eliminations (110) were due to lack of information necessary to calculate the variables in this

study (defined in the following sections). In addition, four firms were eliminated for not having had any debt during the period analyzed; another two were excluded because they had debt that could not be classified in any of the categories during the period analyzed (banking, subsidized, capital market and leasing). As a result, 153 companies remained, 64 publicly held and 89 privately held, which were analyzed for 10 years (2009-2018).

About data sources, in general, data from the balance sheet, income statement and cash flow statement were extracted from the FIPECAFI database (Melhores e Maiores). On the other hand, the data concerning the financing sources - available only in the financial statement footnotes - were obtained from three different sources, namely: i) the Brazil, Bolsa, Balcão (B3) website for publicly traded companies; ii) the Valor Econômico database (Valor Pro) for most privately held companies; and iii) FIPECAFI (Melhores e Maiores) for privately held companies whose financial statement footnotes were not available in the Valor Pro database.

The data regarding funding sources were collected manually. Overall, more than 1,300 financial statement notes were analyzed for this study.

3.2 Corporate debt structure

The choice of debt categories, as well as the method used to categorize them, is based on the studies by Albanez and Valle (2009), Rauh and Sufi (2010), Valle and Albanez (2012), Colla et al. (2013), Póvoa and Nakamura (2015) and Valle and Tarantin Jr. (2015).

The types of debt covered in this study are:

- a) Bank Debt (Banc): Defined as funds raised through national and international banking institutions. Examples of resources classified as “bank debt” are: working capital loans (linked to the overnight rate - CDI), overdraft account, factoring of invoices, vendor and comprador transactions, and advances on foreign exchange contracts, among others.
- b) Capital Market Debt (Capt): We considered domestic and international resources from corporate debt securities for this category. Most of the resources classified as Capital Market Debt are bonds, commercial paper, and securitized receivables.
- c) Subsidized Debt (Subs): This category includes resources whose interest rate is subsidized by the government. As an example, we can cite resources from Finep (Financiadora de Estudos e Projetos), BNDES FINAME (financing of machinery and equipment), BNB FNE (Constitutional Fund for Financing in the Northeast) and BB FCO (Fund for Financing in the Midwest).
- d) Commercial Leasing (Lease): We classified all resources arising from leasing contracts in this category.
- e) Others: Debts not belonging to the previous categories were allocated in this last category.

Each variable (bank, subs, capt, lease and others) represented the share (in percentage) of the debt category in the company's total loans and financing. Thus, for each company and year, the sum of the five categories equaled 1 (100%). Thus, the larger the variable, the greater the debt share of total loans and financing.

3.3 Determinants of funding sources

To fulfill the study's aim, variables identified in the literature as determinants of the capital structure were selected to verify if they can also explain the variation of specific financing sources.

In addition to the characteristics related to companies, we included a variable (dummy) to capture the potential effects of the recent Brazilian political and financial crisis on sources of financing. In crisis times, when there are adverse shocks on the credit supply, certain sources of financing can be significantly impacted. Franzotti and Valle (2020) did not find empirical evidence that the 2015 crisis affected companies' leverage. However, a possible negative effect of the crisis was identified by analyzing the financing sources separately.

Therefore, we estimated one regression model for each financing source (bank, subsidized and capital market debt)ⁱⁱⁱ.

$$\begin{aligned}
 Capt_{i,t} &= \beta_0 + \beta_1 Tang_{i,t} + \beta_2 Size_{i,t} + \beta_3 Risk_{i,t} + \beta_4 LC_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Crisis_{i,t} \\
 &\quad + \sum_i \beta_i firm + e_{i,t} \\
 Subs_{i,t} &= \beta_0 + \beta_1 Tang_{i,t} + \beta_2 Size_{i,t} + \beta_3 Risk_{i,t} + \beta_4 LC_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Crisis_{i,t} \\
 &\quad + \sum_i \beta_i firm + e_{i,t} \\
 Bank_{i,t} &= \beta_0 + \beta_1 Tang_{i,t} + \beta_2 Size_{i,t} + \beta_3 Risk_{i,t} + \beta_4 LC_{i,t} + \beta_5 Profit_{i,t} + \beta_6 Crisis_{i,t} \\
 &\quad + \sum_i \beta_i firm + e_{i,t}
 \end{aligned}$$

Where: Capt is capital market debt; Bank is bank debt; Subs is subsidized debt; Tang is tangibility; Size is firm size; CL is current liquidity; Profit is profitability; and Crisis is a dummy that assumes the value 1 for the year 2015 (Brazilian financial and political crisis), and 0 otherwise.

Finally, we included dummies to control the firm fixed effects. Table 1 shows all the variables that formed the models.

Table 1:
Model variables

Dependent Variable	Initials	Description	Baseline Studies
Capital Market	<i>Capt</i>	Percentage of Capital Market Debt in relation to Total Debt	Póvoa and Nakamura (2015); Tarantin Jr. and Valle (2015).
Subsidized Debt	<i>Subs</i>	Percentage of Subsidized Debt in relation to Total Debt	Póvoa and Nakamura (2015); Tarantin Jr. and Valle (2015).
Bank Debt	<i>Bank</i>	Percentage of Bank Debt in relation to Total Debt	Póvoa and Nakamura (2015); Tarantin Jr. and Valle (2015).
Explanatory Variables			
Tangibility	Tang	Property, Plant and Equipment over Total Assets	Albanez (2015); Araújo, Confessor, Santos, Oliveira and Prazeres (2017).
Size	Size	Logarithm of Sales	Brito, Batisttela and Corrar (2007); Albanez (2015).
Risk	Risk	Interest-bearing Liabilities over Total Assets	Póvoa and Nakamura (2015).
Current Liquidity	CL	Current Assets over Current Liabilities	Albanez (2015); Póvoa and Nakamura (2015).
Profitability	Profit	Net Income over Equity	Brito, Batisttela e Corrar (2007).
Crisis	Crisis	Dummy 1 for the year 2015 (Brazilian financial and political crisis), 0 otherwise	Franzotti and Valle (2020).

We chose the fixed effects model because of its ability to control for the effect of omitted variables in the equation, which can affect firms' financing decisions. The Fixed Effect estimation is important considering that the specificities present in companies' financial decisions can make the estimators endogenous when omitted from the model.

We estimated each of the four models three times, once for the general sample, once for the subsample of publicly traded companies, and finally another for the subsample of privately held companies.

Finally, we emphasize that the variables in the models did not show multicollinearity (all variables showed variance inflation factor less than 5). Nevertheless, White's test identified the presence of heteroscedasticity (p-value ≤ 0.000), so we estimated the regression models using the robust regression technique (Huber-White Standard Errors).

4 Analysis and Discussion of Results

4.1 Analysis of the debt structure of companies

The first analysis of this study concerns the descriptive statistics of the financing sources that make up the debt structure of the firms, as shown in Table 2, where we present results for the general sample and the subsamples of publicly and privately held companies.

We verified a predominance of bank credit in the debt structure (37.02%). Although it was the source with greatest participation in the debt structure of the general sample, the average bank debt was close to subsidized debt (36.82%). Therefore, considering bank and subsidized debt together, there was, on average, participation of more than 73% in the companies' financing structure. On the other hand, leasing had a negligible share (2.5%).

When analyzing the results from the sample in segregation, there were considerable differences in the funding sources of publicly held and privately held companies. Although publicly traded companies' bank debt had the largest share, they also had a relevant percentage of subsidized debt and capital market debt. The difference between the average participation of these three financing sources for publicly traded companies did not exceed 1.5 percentage points.

Table 2:
Descriptive statistics (general and segregated sample into publicly and privately held companies)

Sample Total					
Variables	Bank	Capt	Subs	Lease	Others
Obs	1209	1209	1209	1209	1209
Mean	37.02%	21.59%	36.82%	2.50%	2.08%
St. Deviation	32.37%	28.89%	32.78%	11.66%	8.70%
Min	0.00%	0.00%	0.00%	0.00%	0.00%
Max	100.00%	100.00%	100.00%	100.00%	99.05%
Privately Held Companies					
Variables	Bank	Capt	Subs	Lease	Others
Obs	597	597	597	597	597
Mean	33.49%	32.09%	32.03%	0.70%	1.72%
St. Deviation	26.33%	28.68%	26.59%	4.85%	7.29%
Min	0.00%	0.00%	0.00%	0.00%	0.00%
Max	100.00%	100.00%	100.00%	100.00%	78.29%
Publicly Held Companies					
Variables	Bank	Capt	Subs	Lease	Others
Obs	612	612	612	612	612
Mean	40.47%	11.34%	41.50%	4.25%	2.42%
St. Deviation	37.03%	25.19%	37.28%	15.48%	9.88%
Min	0.00%	0.00%	0.00%	0.00%	0.00%
Max	100.00%	100.00%	100.00%	100.00%	99.05%
Mann-Whitney (Prob > z)	0.181	0.000***	0.020**	0.007**	0.000***

Note: Bank: percentage of bank loans (not subsidized) in relation to total debt; Capital: percentage of capital market debt in relation to total debt; Subs: percentage of subsidized loans in relation to total debt; Lease: percentage of leasing obligations in relation to total debt. *** significant coefficient at the 1% level; ** significant coefficient at the 5% level; * significant coefficient at the 10% level.

On the other hand, privately held companies had two particularities worth mentioning. The first concerns subsidized credit, which is the most representative source of financing for these firms, accounting on average for more than 40% of total loans and financing. The other particularity is the lower share of the capital market debt. Only 11.34% of total debt came from the capital market, representing a difference around 17 percentage points in relation to publicly traded companies.

In general terms, privately held companies, compared to publicly held ones, were less financed by the capital market and had a greater share of subsidized debt and leasing debt. These differences were statistically significant, as shown by the Mann-Whitney test results.

In order to understand the variation in the share of funding sources over the past few years, Table 3 presents the average share for a 10-year time window (2009-2018). This table presents the percentage shares of each financing source considering, in addition to the general sample, the groups of publicly held and privately held companies. In order to verify whether the difference in the percentage shares between the publicly held and privately held groups is statistically significant, we present in Table 3 the mean test results (Mann-Whitney).

When analyzing the results for the general sample presented in Table 3, two aspects stand out. The first is the consistent increase in the capital market debt share. In 2009, the average participation of companies was 18%, while in 2018 it was 31%, an increase of just over 72% compared to 2009. The other highlight refers to the fall in the participation of subsidized credit in the companies' debt structure. This share was 42% in 2009 but reached only 28% in 2018, representing a drop of 33.3%.

Table 3:
Participation of financing sources in the debt structure of companies by year (total and segregated sample in publicly held and privately held companies).

	Bank	Capt	Subs	Lease
2009				
Total Sample	35.00%	18.00%	42.00%	1.00%
Publicly held	35.00%	25.00%	35.00%	1.00%
Privately held	36.00%	8.00%	54.00%	1.00%
Mann-Whitney (Prob > z)	0.9539	0.003**	0.0232**	0.104
2010				
Total Sample	33.00%	19.00%	45.00%	2.00%
Publicly held	31.00%	29.00%	37.00%	1.00%
Privately held	35.00%	6.00%	54.00%	3.00%
Mann-Whitney (Prob > z)	0.628	0.000***	0.0288**	0.001**
2011				
Total Sample	36.00%	18.00%	43.00%	2.00%
Publicly held	35.00%	27.00%	36.00%	0.00%
Privately held	37.00%	8.00%	50.00%	4.00%
Mann-Whitney (Prob > z)	0.4298	0.000***	0.0961*	0.030**
2012				
Total Sample	37.00%	20.00%	39.00%	2.00%
Publicly held	34.00%	29.00%	34.00%	0.00%
Privately held	39.00%	12.00%	44.00%	4.00%
Mann-Whitney (Prob > z)	0.9385	0.000***	0.3794	0.710
2013				
Total Sample	38.00%	20.00%	39.00%	2.00%
Publicly held	34.00%	30.00%	34.00%	1.00%
Privately held	41.00%	10.00%	43.00%	3.00%
Mann-Whitney (Prob > z)	0.5551	0.000***	0.3287	0.4563
2014				
Total Sample	37.00%	21.00%	37.00%	3.00%
Publicly held	33.00%	32.00%	31.00%	2.00%
Privately held	40.00%	11.00%	41.00%	5.00%
Mann-Whitney (Prob > z)	0.574	0.000***	0.3041	0.4149
2015				
Total Sample	40.00%	20.00%	34.00%	3.00%
Publicly held	38.00%	31.00%	30.00%	1.00%
Privately held	42.00%	12.00%	38.00%	5.00%
Mann-Whitney (Prob > z)	0.5952	0.000***	0.7500	0.7851
2016				
Total Sample	40.00%	21.00%	35.00%	3.00%
Publicly held	34.00%	32.00%	33.00%	1.00%
Privately held	46.00%	11.00%	37.00%	5.00%
Mann-Whitney (Prob > z)	0.1511	0.000***	0.6464	0.7599
2017				
Total Sample	37.00%	27.00%	31.00%	2.00%
Publicly held	30.00%	40.00%	29.00%	0.00%
Privately held	44.00%	15.00%	33.00%	4.00%
Mann-Whitney (Prob > z)	0.0718*	0.000***	0.4997	0.5791
2018				
Total Sample	35.00%	31.00%	28.00%	3.00%
Publicly held	33.00%	43.00%	22.00%	0.00%
Privately held	38.00%	17.00%	36.00%	6.00%
Mann-Whitney (Prob > z)	0.9613	0.000***	0.5830	0.9476

Note: Bank: percentage of bank loans (not subsidized) in relation to total debt; Capital: percentage of capital market debt in relation to total debt; Subsid: percentage of subsidized loans in relation to total debt; Lease: percentage of leasing obligations in relation to total debt. *** significant coefficient at the 1% level; ** significant coefficient at the 5% level; *

significant coefficient at the 10% level.

Despite its small share throughout the sample period, lease debt grew over the years, from 1% in 2009 to 3% in 2018. Bank debt, however, did not show significant changes. Although it varied over the years, its percentage in 2018 was the same as in 2009.

Some changes in the Brazilian credit market can explain the considerable variations in subsidized and capital markets debt. One of the reasons why subsidized credit declined in the debt structure was the reduction in loans from the BNDES (National Bank for Economic and Social Development), the main supplier of subsidized credit in the country. According to Barboza, Furtado and Gabrielli (2019), the period from 2010 to 2014 marked a historic phase for the BNDES, in which there was a considerable increase in the bank's lending. The Bank's data show that in 2013 alone it lent more than R\$^{iv} 190 billion. This financing declined in ensuing years (Barboza et al., 2019). According to the authors, the BNDES loan portfolio shrank, reaching a size close to that presented in the mid-1990s. For example, in 2018, the BNDES' total lending was just over R\$ 69 billion, a reduction of approximately 63% compared to 2013.

Regarding the capital market, the increase in its share of companies' financing structure may have been one of the results of the issuance of Instruction 476 by the Brazilian Securities Commission (CVM) on January 16, 2009. The objective was to simplify and streamline the process for companies to access the capital market.

With Instruction 476, it was no longer necessary to register the issuance of debt securities with the CVM. Besides that, the distribution a prospectus was no longer mandatory. In short, Instruction 476 reduced the costs of issuing securities and facilitated companies' access to the capital market. Tarantin Júnior and Valle (2015) recognized the possible impact of Instruction 476 on the Brazilian capital market, causing a change in firms' capital structure. Another likely factor was firms' shifting to the capital market when faced with reduced access to subsidized credit (due to the reduction in BNDES lending).

Table 3 also shows the variation in the participation of financing sources for the publicly held and privately held companies separately. The considerable increase in capital market debt over the years mainly affected publicly traded companies. The average went from 25% in 2009 to 43% in 2018 for this group of companies. Although privately held companies ended 2018 with a 17% share of capital market debt, this represented considerable growth, considering that in 2010 the average participation was only 6%.

In the first three years of analysis, the subsidized debt reached average participation for privately held companies above 50%. In 2009, for example, the average for privately held companies was 19 percentage points more than their publicly traded peers. Nevertheless, from 2014 the mean test result indicated that differences between groups are not statistically significant.

Finally, in almost every year, bank debt was not statistically different between groups. The same was true for financial leasing.

4.2 Analysis of the determinants of funding sources

In order to identify the possible determinants of specific funding sources, we estimated three regression models, considering the general sample and subsamples. Table 4 presents the results of capital market debt (Capt) as the dependent variable.

Table 4 shows that for the general sample, the variables size, risk and current liquidity had a positive and significant relationship with capital market debt. Regarding the publicly traded companies, in addition to the significance of the size, risk and liquidity variables, the dummy crisis was also significant. In general, as in the studies by Póvoa and Nakamura (2015) and Marshall et al. (2019), the results show that larger companies tended to have a greater share of capital market debt in their debt structure. This result corroborates the argument presented by Diamond (1991). He suggested that companies with a greater volume of public information and a good reputation in the market tend to finance themselves through capital market debt.

Furthermore, it is logical for larger companies, which have a greater demand for resources, to be more attracted by capital market debt, given the possibility of obtaining a large volume of resources (Ma et al., 2019).

Table 4:
Panel data regressions with firm fixed effects (capital market debt - Capt)

Variables	(1)	(2)	(3)
	Total	Publicly held	Privately held
Size	0.037* (0.022)	0.127*** (0.0446)	-0.009 (0.024)
Tang	-0.003 (0.119)	-0.034 (0.344)	0.053 (0.067)
Profit	-0.002 (0.011)	-0.004 (0.0317)	0.006 (0.010)
Risk	0.243** (0.099)	0.434** (0.212)	0.066 (0.080)
CL	0.024** (0.012)	0.0281* (0.015)	0.019 (0.016)
Crisis	-0.015 (0.012)	-0.052*** (0.017)	0.008 (0.015)
Constant	-0.448 (0.341)	-1.798** (0.721)	0.184 (0.356)
Observations	1.206	596	610
R2	0.035	0.114	0.011
Adjusted R2	0.030	0.104	0.001

Note: Dependent variable - Capt: percentage of capital market debt in relation to total debt; Tang: Tangibility, equal to fixed assets over total assets; Size: size, equal to the natural logarithm of sales; CL: Current Liquidity, equal to current assets over current liabilities; Profit: Profitability, equal to net income over equity; Risk equals interest-bearing liabilities over total assets; Crisis is a dummy which assumes value 1 for the year 2015, 0 otherwise. *** significant coefficient at the 1% level; ** significant coefficient at the 5% level; * significant coefficient at the 10% level.

Unlike in Póvoa and Nakamura (2015), the variable risk was negatively correlated with capital market debt. In other words, for the publicly traded sample, companies with higher risk tended to have a higher share of capital market debt.

We also observed that the crisis variable had a negative and significant relationship with capital market debt for the sample of publicly traded companies. This result may signal possible difficulty for companies, in times of crisis, to raise funds in the capital market, either because of a higher cost imposed by investors or a reduction in the supply of resources.

There was no significance for any of the model's variables for privately held companies. This result can be explained by the low participation of capital market resources in these companies. As we found in previous analyses, there were periods in which the average participation in total debt was only 6%.

Table 5 presents the results of the regressions for the subsidized credit variable (Subs). Different from Póvoa and Nakamura (2015), the variable size presented a negative and significant relationship with subsidized debt. More specifically, smaller companies tended to have a larger share of subsidized debt in their debt structure. The financial literature supports this result. For Behr et al. (2013), one of the objectives of government intervention in the credit market is to guarantee the supply of financial resources to smaller companies, which in general are not served by private banks. In addition, Ambrozio et al. (2017) and Maffioli et al. (2017) pointed out that subsidized credit should be aimed mainly at smaller companies, not listed on the stock exchange and without export earnings.

Although the variable Risk did not show statistical significance for the subsample of privately held companies, it was negatively significant for publicly traded companies. This result indicates that publicly traded companies with greater risk are less likely to be financed with subsidized credit.

As in Póvoa and Nakamura (2015), the Tangibility and Profitability variables were not statistically significant. According to the authors, this result can indicate the economic and social role of the government in the credit market. In other words, the result may indicate that, despite not showing high levels of profitability or tangibility of assets, companies can obtain subsidized credit to finance their investments.

Table 5:
Panel data regressions with firm fixed effects (subsidized debt - Subs)

Variable	(1)	(2)	(3)
	Total	Publicly held	Privately held
Size	-0.112*** (0.025)	-0.101* (0.051)	-0.105*** (0.029)
Tang	-0.033 (0.142)	0.289 (0.346)	-0.170 (0.127)
Profit	0.037* (0.020)	0.006 (0.031)	0.0392 (0.024)
Risk	-0.271** (0.122)	-0.542*** (0.172)	-0.128 (0.148)
CL	0.004 (0.015)	0.008 (0.019)	0.0043 (0.023)
Crisis	-0.011 (0.014)	0.010 (0.019)	-0.027 (0.022)
Constant	2.111*** (0.407)	1.965** (0.831)	2.020*** (0.464)
Observation	1.206	596	610
R2	0.081	0.128	0.069
Adjusted R2	0.076	0.119	0.059

Note: Dependent variable - Subs: percentage of subsidized debt in relation to total debt; Tang: Tangibility, equal to fixed assets over total assets; Size: Size, equal to the natural logarithm of sales; CL: Current Liquidity, equal to current assets over current liabilities; Profit: Profitability, equal to net income over equity; Risk equals interest-bearing liabilities over total assets; Crisis is a Dummy which assumes value 1 for the year 2015, 0 otherwise. *** significant coefficient at the 1% level; ** significant coefficient at the 5% level; * significant coefficient at the 10% level.

Finally, we present in Table 6 the results of the regressions for the variable bank credit (Bank) for the different samples. Among the results presented in Table 6, the statistical significance of the crisis variable for publicly traded companies stands out. Two factors can explain this result. The first is that there may be a greater tendency for publicly traded companies to resort to bank debt in times of crisis. This result is complementary to that presented for capital market credit. In other words, companies may prefer bank debt to capital market debt in times of crisis. According to Fama (1985), banks have access to private information not available to other investors due to an advantage from monitoring loan contracts. This advantage may be important at a time of crisis when the level of uncertainty regarding company finances is high.

Furthermore, another characteristic of bank debt should be highlighted: the efficiency of liquidation and renegotiation processes in times of financial difficulty, as pointed out by Gertner and Scharfstein (1991) and Chemmanur and Fulghieri (1994). For those authors, banks are more likely to be assertive in the choice between liquidating and renegotiating debts of companies facing financial distress due to their interest in building a good reputation in the market. So, bank debt tends to minimize the risk of inefficient liquidation, thus being a preferable financing source for companies that are more likely to face financial difficulties (Chemmanur & Fulghieri, 1994). This characteristic can lead to a greater preference for bank credit in times of crisis, since during such times, the risks of financial difficulties tend to be greater.

Table 6:
Regressions with panel data with firm fixed effects (Bank Debt - Bank)

Variable	(1)	(2)	(3)
	Total	Publicly held	Privately held
Size	0.067** (0.026)	0.004 (0.038)	0.0912*** (0.033)
Tang	0.001 (0.117)	-0.176 (0.177)	0.041 (0.137)
Profit	-0.026	0.007	-0.037

	(0.021)	(0.035)	(0.027)
Risk	-0.079 (0.133)	0.062 (0.163)	-0.118 (0.193)
CL	-0.035* (0.018)	-0.025 (0.018)	-0.045 (0.029)
Crisis	0.037*** (0.014)	0.049*** (0.017)	0.027 (0.020)
Constant	-0.565 (0.420)	0.323 (0.606)	-0.827 (0.524)
Observation	1.206	596	610
R2	0.038	0.021	0.064
Adjusted R2	0.033	0.011	0.055

Note: Dependent variable - Bank: percentage of bank debt in relation to total debt; Tang: Tangibility, equal to fixed assets over total assets; Size: Size, equal to the natural logarithm of sales; CL: Current Liquidity, equal to current assets over current liabilities; Profit: Profitability, equal to net income over equity; Risk equals interest-bearing liabilities over total assets; Crisis is a dummy which assumes value 1 for the year 2015, 0 otherwise. *** significant coefficient at the 1% level; ** significant coefficient at the 5% level; * significant coefficient at the 10% level.

On the other hand, another factor that could explain the positive relationship between the crisis variable and the bank debt of publicly traded companies concerns the participation of foreign currency in corporate financing. More specifically, as Franzotti and Valle (2020) pointed out, the exchange rate tends to weaken in crisis moments, causing an increase in the share of foreign currency debts in the composition of companies' total debt. Therefore, the foreign currency bank debt present in the debt structure of publicly traded companies may influence this result.

The size variable was not statistically significant for the sample of publicly traded companies. As for privately held companies, the variable was positively significant. In other words, for this group of companies, the larger the size, the greater the bank debt share tended to be. This result is also complementary to that presented for subsidized credit. In other words, there is a greater tendency for bank financing by larger privately held companies, while for smaller privately held companies, the tendency is to have a higher percentage of subsidized credit. In addition, smaller and younger companies have greater information asymmetry in relation to the market and tend to have a greater dependence on supplier credit (trade credit) (Ma & Ma, 2019). This can also explain the significant relationship between size and bank credit for private companies.

Collectively, we expect the results presented in this study to contribute to improving companies' decision-making. Based on a better understanding of factors capable of determining the financing sources, managers can formulate more robust strategies to obtain credit.

However, the results also showed that, among the variables presented in the literature as determinants of capital structure, few explain the debt structure of privately held companies. This result reinforces the need for further studies to investigate the specificities of privately held firms' debt determinants.

Furthermore, we verified differences between the results presented in this study for the group of publicly held companies and those presented by Póvoa and Nakamura (2015). We found that the characteristics of the samples can explain this difference. More specifically, while the sample of Póvoa and Nakamura (2015) consisted of Brazilian companies from different sectors, our study focused on the manufacturing sector. Thus, the determinants of funding sources may have different behavior depending on the industry. Therefore, research that seeks to investigate aspects of firms' financing sources should pay attention to the idiosyncrasies present in different sectors.

5 Final Remarks

We analyzed the determinants of the main financing sources of the largest Brazilian companies in the manufacturing industry, focusing on privately held firms. We sought to fill a gap in the national literature: few studies have analyzed the composition of the debt in samples that also include privately held companies.

Preliminary analyses showed that the sources with greatest share in the sampled firms' debt structure were bank credit, subsidized credit and capital market credit. Subsidized credit

represented, on average, the largest share of the debt of privately held companies. This result was expected because the government tends to act in the credit market to reduce the financial constraints of companies less served by the private credit market. On the other hand, the results showed that publicly traded companies have a relevant share of the three main debt categories.

Concerning the variation of these sources during the period studied, the analyses showed a downward trend in the share of subsidized debt, especially by publicly traded companies. On the other hand, the share of capital market debt grew. These results may reflect the changes perceived in the credit market over the past few years. More specifically, the reduction in BNDES lending as of 2015 and the introduction of CVM Instruction 476 may also have contributed to the variations in the debt structure.

Regarding the determining factors, we found that as the size of privately held companies increased, there was an increase in the share of bank credit. On the other hand, the smaller the size of privately held companies, the greater the participation of subsidized credit tended to be. In general, these results indicate that smaller privately held companies tend to be more constrained, with greater dependence on subsidized sources. However, as they grow, they become less risky for private banking institutions, increasing the supply of this type of resource.

Despite these results, we showed that most of the variables identified in the literature as determinants of capital structure could not explain the variation in the financing sources of these privately held companies. A possible explanation for this result is the dependence of privately held companies on subsidized loans. More specifically, given that the objective of government intervention in the credit market is to provide resources for companies that traditionally are not served by the private market, institutions such as the BNDES may not rely on the same variables used by the private market as criteria for granting credit.

Concerning publicly traded companies, the negative relationship between size and subsidized credit was noteworthy. In other words, the larger the company, the smaller the proportion of subsidized credit in the debt structure tended to be. Furthermore, on average, the proportion of capital market debt was reduced in the 2015 crisis, likely as a reflection of higher cost and/or reduction in the capital market debt supply, given investors' greater conservatism.

It is also important to mention that the results for the sample of publicly traded companies were different than those presented by Póvoa and Nakamura (2015), whose sample comprised Brazilian companies from a range of sectors. This difference can indicate that idiosyncrasies present in the sectors can affect the relationship between financing sources and the firms' characteristics.

Generally speaking, since managers seek to develop strategies to improve their financing decisions, the results of this study can benefit them. More specifically, we expect that managers, based on this study, will be better able to maximize the elements identified as determinants of desired funding sources. Thus, we expect that managers can increase the possibility of obtaining credit from the desired financing sources and therefore satisfy the emerging investment needs more efficiently. This study can also contribute to the development of public policies aiming to improve access to credit by privately held companies, which can be considered more financially restricted than publicly traded companies.

To sum up, the results of this study shed light on the factors that influence the debt structure of companies, especially privately held ones, thus expanding the knowledge about this phenomenon. The focus on privately held firms is an important aspect, considering that while only a small portion of Brazilian companies have shares traded on the stock exchange, most of the national financial literature has focused on publicly traded companies. Therefore, besides offering an important contribution to the literature, this study serves as a base for new studies, to improve understanding of the financing of these privately held companies. We recommend that further studies expand the scope of explanatory variables in order to identify other determinants of financing sources for privately held companies.

Another potential contribution to the literature is related to the possible consequences of reducing subsidized credit to the companies. Our results showed that privately held companies are more dependent on subsidized lines of credit. However, we also showed that the participation of this type of financing declined considerably in companies' debt structure during the period studied. Therefore, the question that arises concerns the possible consequences that the reduction of subsidized credit can have on the financial decisions of companies, especially privately held ones.

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ⁱ For example, transaction costs or bankruptcy expenses and the presence of information asymmetry.

ⁱⁱ Autoindustry, Capital Goods, Consumer Goods, Electronics, Energy, Pharmaceuticals, Construction Industry, Digital Industry, Mining, Pulp and Paper, Chemicals and Petrochemicals, Steel and Metallurgy and Textiles.

ⁱⁱⁱ We did not estimate a regression model for leasing due to their low participation in the corporate debt structure, as analyzed in the results section of this study.

^{iv} R\$ designates Brazil's currency, the Real (plural Reais). We have not converted any amounts in Brazilian currency to U.S. dollars because the exchange rate varied greatly in the period.