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ESCOLA DE ADMINISTRAÇÃO DE EMPRESAS DE SÃO PAULO

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**THE ROLE OF BOND COVENANTS AND SHORT-TERM DEBT:
Evidence from Brazil**

SÃO PAULO

2011

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Dissertação apresentada à Escola de Administração de Empresas da Fundação Getúlio Vargas, como requisito para obtenção do título de Mestre em Administração de Empresas

Campo de Conhecimento:
Mercados Financeiros e Finanças Corporativas

Orientador: Prof. Dr. Richard Saito

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À minha mãe, Maria da Graça de Jesus.

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I'll believe it when I see it, for myself!
I don't need no one to tell me about heaven,
I look at my daughter, and I believe.
I don't need no proof when it comes to God and truth,
I can see the sunset and I perceive.
(Live – Heaven).

RESUMO

Esta dissertação tem como objetivo analisar a relação entre *covenants* e alavancagem financeira no curto e longo prazo com oportunidades de crescimento. A partir de uma amostra de 159 debêntures, encontramos evidência de que: 1) *Covenants* e dívida de curto-prazo podem ser considerados substitutos na atenuação do conflito de agência, uma vez que apresentaram relação negativa e significativa e; 2) A relação negativa existente entre dívida de curto prazo e oportunidades de crescimento pode ser reduzida através da utilização de *covenants*.

Palavras-Chave: *Covenants*, conflito de agência, dívida de curto-prazo, oportunidades de crescimento e alavancagem.

ABSTRACT

This paper examines the relationship between covenants, short-term and long-term debt with companies which face growth opportunities. Using a sample of 159 Brazilian corporate bonds, we found evidence that: 1) Covenants and short-term debt are substitute tools to minimize agency conflict, since they presented a negative and significant relation and; 2) The negative relation between short-term debt and growth opportunities might be attenuated in the presence of covenants.

Keywords: Covenants, agency conflict, short-term debt, growth opportunities and leverage.

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1. INTRODUCTION

The choice to become leveraged involves a tradeoff between costs and benefits of debt involving the potential conflicts between stockholders and bondholders over the investment and financing decisions. However, suboptimal incentive effects (underinvestment) of debt financing can be controlled by some contracting mechanisms, including short-term debt and restrictive covenants. Myers (1977) showed that the use of contractual mechanisms appear to have greater importance to high growth companies, since under these conditions companies are more likely to present agency conflict.

In this paper we study how Brazilian companies use covenants to reduce agency problems considering growth opportunities. The main purpose of this analysis focuses on the study of relationship between covenants, leverage, short-term debt and companies with growth opportunities presented by Billet, King and Mauer (2007). In other words, this paper intends to identify whether short-term debt and covenants can be used as replacement tools addressing to the agency conflict between owners and creditors. Moreover, several studies have demonstrated that companies with growth opportunities face difficulties to obtain debt financing. We also checked if covenant protection may attenuate the negative effect of growth opportunities on leverage.

Previous works have demonstrated the importance of the use of covenants in raising long term financing by contributing to minimize agency conflicts between creditors, shareholders and managers. According to Billet, King and Mauer (2007) it is possible to make a joint analysis of key elements of corporate financial policy including the choice of debt level, the maturity structure of debt and the types of restrictive covenants in the indentures.

The relevance of this study is identifying the role played by the covenants in fund raising for Brazilian companies with the aim of reducing agency conflicts between shareholders and creditors. Few studies in Brazil discussed the importance of covenants for the debt of companies and this is the first one to investigate the relationship between joint covenants and financial characteristics, as long-term and short-term leverage.

The structure of this study proceeds as follows: Section 2 discusses the related literature. Section 3 describes our data set, variables and empirical model. Section 4 provides the empirical results and considerations. Section 5 concludes the paper.

2. LITERATURE REVIEW

In this section, we present a brief review of studies focusing on the use of covenants. We look for an overview of academic contributions on the study of covenants and then explain the relations between these study variables and their contributions to minimize the agency conflict. Section 2.1 shows a brief review while section 2.2 focuses on the literature about relations between leverage and growth opportunities, restrictive covenants and contributions of short-term debt to reduce the agency conflict. Finally, section 2.3 describes Brazilian Corporate Bond markets and its characteristics.

2.1 Covenants: An overview

Bazzana and Broccardo (2009) explain covenants as particular clauses in debt contract of firms that restrict business policy and provide criteria to avoid problems of financial nature. The analysis of the use of covenants in debt contracts that restrict certain business activities has been studied by researchers through different research approaches that seek to evaluate the evidence from this instrument as a tool to minimize conflicts related to capital structure of companies, pricing of bonds and impacts of covenant's violation.

A considerable group of researchers examined why firms choose their debt based on priority, type and maturity of debt (Diamond, 1991; Kanata and Besanko, 1993; Park, 2000; DeMarzo and Fishman, 2007; DeMarzo and Sannikov, 2006). Within this panorama, the use of covenants becomes important not only due to its help in mitigating the agency problem but also to a possible relationship that it has with maturity, cost of debt and leverage. Thus, there would be an increased use of debt covenants in the loan in accordance with the deterioration of credit quality of companies.

Chen and Wei (1993) found in a sample of 128 violations of covenants that only 4 were made by public debt and according to Beneish and Press (1994) companies can get into default without violating restrictive covenants prior to the occurrence of insolvency. Therefore, covenants cannot cover all contingencies.

Leland (1994) wanted to identify an optimal level of leverage considering the company's risk, taxes, bankruptcy costs, risk-free rate, payout rates and covenants of bonds. The researcher identified that directly bond covenants may limit the opportunities that a firm has to change its activities risk and replacement assets. Study results showed that although optimal levels of leverage and maximization of gains from leverage are smaller when debt is protected by covenants, the use of these tools helps minimizing agency problems between creditors and shareholders. Thus, the preference between using protected (with covenants) or unprotected debt will depend on the benefits and disadvantages of considering the maximization of leverage gain arising from this strategy and reduction of costs and risks from reduction of agency conflict. This way, it is easy to see the importance of collateral with similar specifications. Rajan and Winton (1995) argued that covenants and collateral can be understood as contractual devices that increase the incentive of lenders to control. Scholars have indicated that the need to promote incentives to monitor the lender and the ability to control the debtors may partly explain the characteristics of loans.

De Angelo and Wruck (2001) showed that the use of covenants in debt can work as a mechanism of discipline for different interests in cash payments under conditions of financial stress. Chava, Kumar and Warga (2004), Reisel (2004) and Goyal (2005) examined the issue of public debt while Bradely and Roberts (2004) also showed a positive relation between covenants and growth opportunities and covenants and leverage. In public issuance, Chava *et al* (2004) and Goyal (2005) concluded that firms with growth opportunities include fewer covenants in their debt structure.

Garleanu and Zwiebel (2004) analyzed the design and renegotiation of covenants in particular contractual assignment of property rights under asymmetric information. In this context, the part labeled as uninformed on a debt contract has a considerable chance of having some important ex-ante investments to proceed with the informed part. Frankel and Litov (2006) examined the relationship between characteristics of financial accounting and debt covenants based on accounting indicators. These covenants are more likely to be used when the information asymmetry is greater and accounting discretion is reduced, since covenants may reduce agency costs on this occasion with greater efficiency.

Billet, King and Mauer (2007) showed that the use of covenants as a means of protection increases the opportunities for business growth, debt maturity and leverage. The study also

showed that covenants mitigate the relationship between growth opportunities and leverage. This relationship exists when companies have issued debt with considerable risk and when managers try to maximize shareholder value instead of firm value. In this case, managers have incentives to make undervaluated or overvaluated investments considering growth opportunities. Thus, an important feature of this work was endogenously analyzing the particularities of debt with the use of covenants.

Guay (2008) discussed the importance of debt covenants and financial reporting conservatism in controlling agency conflicts. The results of such work states that company's choice for conservatism in financial reporting and the decision for adjustments in debt covenants are made to minimize the agency conflict. It was found that the lender may prefer the conservatism in financial reporting because of the need to quickly get bad information about the company that lends money.

2.2 Contributions of the restrictive covenants and short-term debt to reduce the agency conflict

Since the work of Jensen and Mecling (1976), Myers (1977) and Smith and Warner (1979) it has been possible to distinguish costs of value transfer and costs related to agreement mechanisms to mitigate conflicts between shareholders and creditors. Regarding the transfer of value, when managers seek to maximize the shareholder value rather than to maximize value for the company, there is the possibility of overinvestment or underinvestment in future growth opportunities. Thus, the loss of value to the company resulting from this attitude is characterized as an agency cost. Moreover, mechanisms that help reduce the conflict of interests and possible reductions of cost of capital also have costs related to its accession. After studies by Jensen and Mecling (1976) and Myers (1977), Smith and Warners (1979) realized that the choice of covenants in a contract may indirectly affect other activities of an enterprise such as investment decisions, payout policy and leverage simultaneously.

As mentioned by Billet, King and Mauer (2007), it is possible to reduce such conflicts without changing the existing level of debt through the use of mechanisms by managers of the firm: Short-term debt and restrictive covenants. However, in a growth opportunity scenario, the use of covenants in debt agreements may limit the opportunities perceived in the future and the use of short-term debt can bring problems of liquidity risk for the company. As these instruments may limit future investments by firms, the logical solution is to decrease the current level of indebtedness or to use less debt to raise funds in need of funding. Therefore, the expected prediction is that firms with greater growth opportunities are less leveraged.

Myers (1977) found that if the debt matures before the option exercise growth, maximizing value to the business can be conducted. Then, it is possible to reduce the incentive for the achievement of underinvestment. According to Barclay (1995), in the event named contracting-cost, investors tend to refuse investment when there is possibility of transferring wealth to creditors. One way to alleviate the problem presented in the contracting-cost hypothesis would be reducing the maturity of debt owned and using short-term debt in next issues. Guedes (1996) presented a similar argument and found that companies have incentives to raise short-term debt in response to problems of underinvestment and asset replacement.

Although the above arguments demonstrate that the use of short-term debt plays a role similar to the use of covenants in addressing the problem of agency, Diamond (1991) presented the liquidity problem arising from the use of short-term debt and mentioned that the option of borrowing short-term would be used only by companies with high quality and low quality.

Billet, King and Mauer (2007) followed the results of the work of Johnson (2003) and Childs *et al* (2005) and tested the benefit of short-term debt as possibly reducing the negative relationship between leverage and growth opportunities. The result was favorable to the hypothesis of a positive relationship between the tested variables.

Even with such features, Bazzana and Broccardo (2009) argue that the lender will examine the trade-off between problems and costs associated with the use of covenants and benefits arising from their use and decide to include them in debt issuance since the benefits are higher.

Dmerjian (2007) studied the choice of financial ratio covenants in debt agreements and found that borrowers with positive earnings, high profitability and low volatility earnings are likely to include covenants in debt agreements related to earnings, such as coverage of the debt to cash flow. On the other hand, borrowers with losses, low profitability and high volatility earnings are likely to use covenants relating to shareholder's equity. Besides, Dmerjian (2007) also showed that covenants related to leverage are attributed to deals with revolving lines of credit and current ratio covenants are directed to borrowers with a high level of working capital.

The use of restrictive covenants can help reduce the negative relationship between leverage and growth opportunities, according to Billet, King and Mauer (2007). To verify this premise, they constructed indexes of covenant protection to check both the relationship between growth opportunities and covenants as the relationship between covenants, short-term debt and leverage. Companies with high growth opportunities faced higher agency conflicts and it is possible to infer that benefits resulting from the use of covenants are higher for this type of company. However, companies with these characteristics are also interested in preserving financial flexibility and future financing requirements, which do not allow the inclusion of certain restrictive clauses. Following the argument of the authors, this article also predicts a positive relationship between leverage covenant and protection, as the risk of issuing new debt is higher in the presence of increased leverage.

2.3 Brazilian Corporate Bond Market

This section aims to present the specific nature of Corporate Bond contracts of Brazilian companies. Basically, these companies can raise funds in the local market by issuing Corporate Bonds, commercial papers, private bank loans, stocks and using the support of *Banco Nacional de Desenvolvimento Econômico e Social* (BNDES), the Brazilian Development Bank. Ness (2008) showed different kinds of funding as a percentage of the Brazilian GDP. Considering the period from 1995 to 2006, corporate bonds had a considerable growth, starting with 0.97% of the GDP in 1995 and being responsible for 2.99% of the GDP in the end of 2006. Other resources of funding such as commercial papers, leasing, BNDES financing and the issue of stocks in public offerings reached 0.23%, 1.31%,

2.21% and 0.71% of the GDP in 2006, respectively. Therefore, it is possible to identify that the Brazilian Corporate Bonds market has been seen as an important resource of funds for companies, especially in the last years.

Anderson (1999) analyzed 50 Brazilian indenture agreements and found specific characteristics for its corporate bonds as a possibility to mitigate inflation risk for investors, contingent-maturity mechanisms with periodic opportunities for exit or renegotiation, a paucity of covenants that restrict the debtor's investment, financing and dividend decisions and self-enforcement mechanisms with the purpose of avoiding reliance on inefficient institutions.

Corporate Bonds can be structured with flexibility by their issuer. For example, it may promise a payment according to fixed interest or floating interest (by using some kind of indexation). They can be convertible or nonconvertible in stocks and also bring some collateral specifications. Filgueira and Leal (2001) stated that covenants suffered changes in Brazilian corporate bonds since 1994 and the main explanation supports the attempt of inflation control, which was started in 1994 by the Brazilian government. Sanvicente (2002) presented a study which showed that corporate bonds are an important resource of funding not only for public companies, but also for companies that do not have their stocks traded in the Brazilian stock market.

Saito, Sheng and Bandeira (2007) studied how covenants have been used to mitigate agency costs between stockholders and bondholders. They corroborate the work done by Filgueira and Leal mentioned above and also found empirical evidence of looser covenants and showed the purpose of corporate bonds issuance, *i.e.* the destinations of the raised funding and reasons of the issuance; for instance, increased working capital, investments in operation and debt term.

Finally, Silva (2008) applied the hypothesis of optimal contractual covenants in the choice of accounting practices. Results demonstrated that the use of covenants has grown in recent years, especially coverage of debt covenants and debt level. He also showed that there is no positive association between covenants and the existence and use of less conservative accounting practice.

3. DATA, VARIABLE MEASURES AND MODEL

We analyzed two databases in order to create our sample. Firstly, it was necessary to collect all available corporate bonds indentures from *debentures.com.br*, a website maintained by *Associação Brasileira das Entidades dos Mercados Financeiros e de Capitais (ANBIMA)*[®] which contains detailed information about all corporate bonds issued from 2000 to 2009. After excluding corporate bonds issued by financial firms and finance subsidiaries, we obtained an initial sample of 265 indentures. Nevertheless, many companies that issued corporate bonds during such period are not listed on São Paulo Stock Exchange (BM&FBovespa), which is a necessary condition to obtain public database of companies in Brazil. We thus ended up with a sample composed of 159 corporate bonds which correspond to 82 Brazilian companies. Accounting data of companies, such as annual balance sheets and income statements were collected from *Economática*[®] database. The table below shows the main features of the corporate bonds analyzed in this study.

Table 1 - Characteristics of the used sample of Bonds (from 2000 to 2009)

Table 1 shows the characteristics of the used sample of Bonds according to the security. Unsecured corporate bonds are those that do not provide any rights against the assets of the issuer. Subordinated corporate bonds offer payment preference on claims of shareholder in a bankruptcy case. Floating guarantees present the general privilege of issuer assets in a bankruptcy case. Real guarantees provide the assets of the issuer or third party.

	unsecured	subordinated	floating guarantees	real guarantees	Total
Number of Issues	102	20	20	17	159
% of Total Number	64.15	12.58	12.58	10.69	100
Total offering value	50,810,901,500	7,925,000,000	3,490,000,000	9,510,448,294	71,736,349,794
Convertible	5	2	0	0	7
Maturity \leq 5 years	54	12	19	14	99
Maturity $>$ 5 years	48	8	1	3	60

Source: own elaboration.

3.1 Variable Measures

For each issued corporate bond, the prospects showed the incidence of many bond-holder protective and issuer restrictive covenants. Covenants were grouped in major categories according to Billet, King and Mauer (2007), once there are multiple covenants for each type

of restricted activity. We grouped the covenants into 10 categories and named each one as follows:

Number	Description
1	Accounting-based restrictions
2	Dividend restrictions
3	Reduction of capital
4	Liquidation, dissolution or bankruptcy
5	Change in core business
6	Change in company's structure
7	Transfer of or change in issuer's control
8	Sale, disposal or transfer of assets
9	Default
10	Problems with legal obligations and environmental permits

Picture 1 - Covenants

Source: own elaboration.

Detailed explanation of each covenant can be found in the appendix A of this work. We also check the incidence of each covenant in the corporate bonds according to its classification, secured corporate bonds with real guarantees, floating guarantees, unsecured and subordinated corporate bonds. It is easy to see that covenants 4 (Liquidation, dissolution or bankruptcy) and 9 (default) have large incidence in all indentures. Covenant 7 (Transfer or change in issuer's control) also have large use between the indentures. Indeed, the main used covenants are related to financial concerns in the analysis of risk prevention by the investor in the loan agreement.

One important observation is highlighted in the transfer of control (covenant 7) and also in the possibilities of mergers and acquisitions (covenant 6 – Changing in companies' structure). These covenants are often used together in the indentures. So, the next cash flow rights and decisions of investment and financing seem to be relevant to investors.

Another interesting analysis that we should check is the correlation measure. Investors can be worried not only about the covenants used in each corporate bond classification, but also about the linear relation between these covenants.

According to the covenants correlation matrix, financial covenants (Accounting Based Restrictions) have significant and strong correlation with dividend restrictions, reduction of capital, change in core business and transfer or change in issuers' control. Moreover, dividend

restriction has positive and significant relation with most covenants analyzed. We can also identify by the correlation matrix that covenant 7 (transfer or change in issuers' control) has significant and considerable relation to issues encompassing control rights and change in companies' structure, as merger and acquisition, for example.

Covenant 9 (default) shows a significant presence together with covenants 4 (Liquidation, dissolution or bankruptcy) and 8 (sale, disposal or transfer of assets). It makes perfect sense, since covenant 8 shows the collateral capacity of a company to face its obligations and covenant 4 has strong relation with default conditions.

Table 2 - Covenants in each corporate bond

The table shows covenants in each corporate Bond Classification. Unsecured corporate bonds are those that do not provide any rights against the assets of the issuer. Subordinated corporate bonds offer payment preference on claims of shareholder in a bankruptcy case. Floating guarantees present the general privilege of issuer assets in a bankruptcy case. Real guarantees provide the assets of the issuer or third party.

Classification	Unsecured			Subordinated		
	Yes	No	% of total (102)	Yes	No	% of total (20)
Accounting-based restrictions	80	22	78.4	20	0	100
Dividend restrictions	67	35	65.7	12	8	60
Reduction of capital	34	68	33.3	8	12	40
Liquidation, dissolution or bankruptcy	96	6	94.1	18	2	90
Change in core business	38	64	37.3	4	16	20
Company's structure restriction	59	43	58	12	8	60
Transfer of or change in issuer's control	60	42	58.8	15	5	75
Sale, disposal or transfer of assets	20	82	19.6	7	13	35
Default	100	0	100	20	0	100
Problems with legal obligations and environmental permits	11	91	10.8	2	18	10

Classification	Floating guarantees			Real Guarantees		
	Yes	No	% of total (20)	Yes	No	% of total (17)
Accounting-based restrictions	18	2	90	16	1	94.1
Dividend restrictions	8	12	40	9	8	53
Reduction of capital	4	16	20	2	15	11.8
Liquidation, dissolution or bankruptcy	18	2	90	17	0	100
Change in core business	9	11	45	4	13	23.5
Company's structure restriction	14	6	60	10	7	58.8
Transfer of or change in issuer's control	7	13	35	12	5	70.6
Sale, disposal or transfer of assets	6	14	30	3	14	17.6
Default	20	0	100	17	0	100
Problems with legal obligations and environmental permits	1	19	5	1	16	5.9

Source: Own elaboration.

Table 3 - Covenants Correlation Matrix

This table shows Pearson correlation coefficients between covenant indicator variables. We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level respectively

Correlation Coefficients					
COVENANT	1	2	3	4	5
1. Accounting-based restrictions	1				
2. Dividend restrictions	0.3610*	1			
3. Reduction of capital	0.2113*	0.1789*	1		
4. Liquidation, dissolution or bankruptcy	0.0056	-0.0153	0.0324	1	
5. Change in core business	0.2521*	0.2712*	0.0419	-0.1349	1
6. Change in company's structure	0.1547	0.2502*	0.2497*	-0.0089	0.1098
7. Transfer of or change in issuer's control	0.2021*	0.1987*	0.2081*	0.1055	-0.1263
8. Sale, disposal or transfer of assets	0.1255	0.2321*	0.0691	-0.1497	0.2187*
9. Default	-0.0105	-0.152	-0.0109	0.1899*	0.0106
10. Problems with legal obligations and environmental permits	0.0833	0.095	0.3018*	0.0791	0.079
COVENANT	6	7	8	9	10
1. Accounting-based restrictions					
2. Dividend restrictions					
3. Reduction of capital					
4. Liquidation, dissolution or bankruptcy					
5. Change in core business					
6. Change in company's structure	1				
7. Transfer of or change in issuer's control	0.2502*	1			
8. Sale, disposal or transfer of assets	0.0893	-0.0246	1		
9. Default	-0.031	-0.0949	-0.2588*	1	
10. Problems with legal obligations and environmental permits	0.0864	-0.1764*	-0.1314	-0.0094	1

Source: Own elaboration.

The analysis of corporate bond clauses and its correlation is important firstly to see how corporate bond investors try to choose and combine ways of protecting themselves against default, uncertainty regarding future cash flows, transfer of control, transfer of obligations, change in core business and other risks. Therefore, we do not have a significant and strong relation between most part of covenants and it is clear that covenants are usually combined with other business features. In this paper, we mix variables presented by Billet, King and Mauer (2007) and specific Brazilian considerations to control the possible internal impacts in the choice of covenants.

The variables jointly used with covenant index in our analysis are leverage, short-term debt and growth opportunities. Leverage was measured as the book value of total debt (short-term

+ long-term debt) divided by the market value of the assets, in which the market value is the book value of assets minus the book value of equity plus the market value of the equity. Since we are focusing on the use of short-term debt as a tool with the same purpose of agency problems reduction as covenant index, we measure short-term debt in relation to total debt in a company balance sheet. According to previous works, we use the market-to-book asset ratio as a proxy for firm growth opportunities.

3.2 Descriptive Statistics

In accordance to Billet, King and Mauer (2007), we start the analysis by using fixed assets, profitability, firm size and volatility as control variables. Nevertheless, volatility was a problem in our estimation due to its insignificance of results and its interference in the results of other variables. Therefore, volatility was not used in our estimation. A proxy used here for fixed assets is the ratio of long-term assets to the book value of total assets. Profitability was specified by the ratio of EBITDA to the book value of total assets. We also put dummies – year to control for crises moments (2001, 2002, 2007, 2008 and 2009). By crises moments we mean difficulties in the Brazilian economy and its stock market due to internet, World Trade Center, Argentina's crisis and uncertainties regarding the presidential election in years 2001 and 2002. Years 2007, 2008 and 2009 represent the recent economic global crises. The amount of issuance was also used as a control variable. Table 4 shows the descriptive statistics of the main variables.

Table 4 - Descriptive Statistics

The table reports descriptive statistics from 2000 to 2009. Each variable is measured at the fiscal year-end prior to the year in which leverage, short-term debt and covenant index are measured. Leverage is the book value of total debt divided by market value of assets (book value of assets minus the book value of equity plus the market value of the equity) and leverage is the leverage logarithm. Short-term debt is a ratio of current liabilities to total debt and lshort-term is its logarithm. Covenant Index (Total_indcov) is the sum of the firm's 10 covenant indicator variables divided by 10. The next covenant index (Indcov) represents the sum of the 3 significant covenants in the first test, covenants five, six and eight divided by 3. The last covenant index (weighted-Indcov) is the sum of covenants five, six and eight multiplied by their coefficient β in the first analysis, as a proportion of all three covenants β . The variable growth is the market-to-book ratio (market value of assets divided by the book value of assets). Fixed assets are the ratio of long-term assets to the book value of total assets. Issued Amount is the total offering value for each corporate bond. Covenants 1 to 10 represent each covenant analyzed in this study. Firm size was specified by companies' sales logarithm. Profitability is the ratio of EBITDA to the book value of total assets. Log - issued amount is the logarithm of the total offering value for each corporate bond.

Variable	Obs	Mean	Std.Dev	Min	Max
fixed-asset	138	0.5195	0.2106	0	0.9
leverage	138	34.6043	12.4083	9.1	73.6
lleverage	138	3.4748	0.387	2.2082	4.2986
growth	117	0.7055	0.5178	0.01	2.21
profitability	149	0.0138	0.3511	0	0.2986
firm size	138	14.953	1.2885	11.7671	18.4122
Cov 1 – Accounting based restrictions	159	0.7672	0.4238	0	1
Cov 2 – Dividend restrictions	159	0.5974	0.4919	0	1
Cov 3 – Reduction of capital	159	0.3018	0.4605	0	1
Cov 4 – Liquidation, dissolution or bankruptcy	159	0.9433	0.2318	0	1
Cov 5 – Change in core business	159	0.3459	0.4771	0	1
Cov 6 – Change in companies' structure	159	0.5974	0.4919	0	1
Cov 7 – Transfer or change in issuer's control	159	0.0591	0.4931	0	1
Cov 8 – Sale, disposal or transfer of assets	159	0.2264	0.4198	0	1
Cov 9 - Default	159	0.9559	0.2057	0	1
Cov 10 – Problems with legal obligations	159	0.9433	0.2932	0	1
Total_indcov	159	0.5421	0.1811	0.2	0.9
indcov	159	0.5890	0.2317	0.3333	1
Weighted - incov	159	0.6470	0.2246	0.2392	1
short-term debt	138	28.2115	21.673	1	100
lshort-term	138	3.1074	0.6264	1.6486	4.6051
log - issued amount	159	19.5168	0.892	16.9935	22.3327

Source: own elaboration.

We also tried to control the influence of corporate governance in the analysis with a dummy variable. Brazil has different levels of governance attributed by BM&FBovespa for its listed companies. In this case, obligations are not the same and investors may obtain a differentiated

level of information for their evaluation. We marked with one all companies in our sample listed in “*Novo Mercado*” and “*Nível 2*”, which are corporate governance segments with higher level of obligations in Brazil and zero otherwise. In addition, we have the interaction variables *growthshort-term* and *growthcovenant-index*, to check the importance of the interactions in reducing a negative relation between short-term debt and covenants with growth.

We notice a large difference in Brazilian available sample of corporate bonds and companies listed in stock markets in comparison to developed countries, especially USA. Billet, King and Mauer (2007) had 1,410 different firms in their sample and we have only 82. However, with our sample of 82 companies we could check almost all available corporate bonds issued since 2000.

Previous authors in the US market also used a z-score with the aim to control for financial distress. We chose not to use this proxy in our Brazilian study. The main reason lies on the difference between these two markets and other variables involved in controlling our study.

Finally, we estimate simultaneous equations models considering leverage, short-term debt and the covenant index as endogenous variables. In addition to growth opportunities (market-to-book ratio), all variables mentioned above were considered exogenous. The equations were estimated according to Billet, King and Mauer (2007) with a difference in our method due to our sample. We specify bellow the method we used to try to solve the endogenous problem and the main hypothesis of this study.

An interesting point to notice before coming to the results is the correlation between covenant indexes, short-term debt, leverage and growth. Table 4 shows a correlation matrix.

Table 5 - Variables Correlation Matrix

This table reports Pearson correlation coefficients between the main variables of this study. We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level respectively.

VARIABLES	Correlation Coefficients					
	total_indcove	indcov	weighted_indcov	Lshort-term	lleverage	growth
total_indcove	1					
indcov	0.6610 ***	1				
weighted_indcov	0.6618 ***	0.9812 ***	1			
Lshort-term	-0.1209	-0.089	-0.1039	1		
lleverage	0.0439 **	-0.058	-0.0593	0.1245	1	
growth	0.2885 **	0.0239	0.0254	-0.1861	0.0542	1

Source: own elaboration

When comparing the signs with the US work, *indcov* and short-term debt have the same sign. However, Billet, King and Mauer (2007) show a negative and significant relation between *indcov* and *growth*. They argue that companies with growth opportunities chose not to use covenants in their loan agreements due to problems with flexibility. We mention this difference in the results. Short-term and *growth* have a negative sign, the same result found in Billet, King and Mauer (2007).

3.3 Estimation of the empirical model

In order to estimate the relations between leverage, short-term debt and the covenant index we use Seemingly Unrelated Equations (SURE). The SURE model was developed by Zellner (1962) and is appropriate when the endogenous variables are related: the correlation among equations could be due to unobservable firm-specific effects that influence short-term debt, leverage and covenants financing decisions. The system of equations is composed by three regressions that are related as the contemporaneous residuals associated with the dependent variables (leverage, short-term debt and the covenant index).

In the empirical analysis we first estimated SURE with short-term debt and leverage as endogenous variables. Together with the variable specified as *growth* (market-to-book ratio), we used a number of exogenous variables according to Billet, King and Mauer (2007). In the leverage and short-term debt equations we included profitability, fixed assets and firm size. In addition to the mentioned variables, we put a dummy for crisis periods and a dummy for corporate governance level (equal 1 for companies listed in *Nível 2* and *Novo Mercado*). The

purpose of this test was to identify which covenant is statistically significant in order to be part of the covenant index.

The first test can be described as the model below:

$$\mathbf{Lshort-term\ debt} = \beta_0 + \beta_1 \mathbf{lleverage} + \beta_2 \mathbf{growth} + \beta_3 \mathbf{D-crise} + \beta_4 \mathbf{profitability} + \beta_5 \mathbf{fixedasset} + \beta_6 \mathbf{firmsize} + \beta_7 \mathbf{lshort-termgrowth} + \beta_8 \mathbf{Z} + \varepsilon_1 \quad (1)$$

$$\mathbf{lleverage} = \beta_0 + \beta_1 \mathbf{lshort-term\ debt} + \beta_2 \mathbf{growth} + \beta_3 \mathbf{D-crise} + \beta_4 \mathbf{profitability} + \beta_5 \mathbf{fixedasset} + \beta_6 \mathbf{firmsize} + \beta_7 \mathbf{lshort-termgrowth} + \beta_8 \mathbf{Z} + \varepsilon_2 \quad (2)$$

in which Z means a covenant vector: $Z = (\text{covenants } 1,2,3,4,5,6,7,8,9 \text{ and } 10)$.

After the first estimation to identify which covenants can be used in the index, we estimated a SURE with $\mathbf{lleverage}$, $\mathbf{lshort-term\ debt}$ and the covenant index as endogenous variables and the variables specified above plus $\mathbf{log_issued-amount}$ as exogenous variables in the models.

In accordance with Billet, King and Mauer (2007), the model including covenant indexes can be written as:

$$\mathbf{Lshort-term\ debt} = \beta_0 + \beta_1 \mathbf{indcov} + \beta_2 \mathbf{growth} + \beta_3 \mathbf{D-crise} + \beta_4 \mathbf{lfirmsize} + \beta_5 \mathbf{lleverage} + \beta_6 \mathbf{l.issued-amount} + \varepsilon_3 \quad (3)$$

$$\mathbf{lleverage} = \beta_0 + \beta_1 \mathbf{lshort-term\ debt} + \beta_2 \mathbf{growth} + \beta_3 \mathbf{D-crise} + \beta_4 \mathbf{profitability} + \beta_5 \mathbf{fixedasset} + \beta_6 \mathbf{lfirmsize} + \beta_7 \mathbf{lshort-termgrowth} + \beta_8 \mathbf{indcov} + \beta_9 \mathbf{indcovgrowth} + \beta_{10} \mathbf{l_issued_amount} + \beta_{11} \mathbf{governance_level} + \varepsilon_4 \quad (4)$$

$$\mathbf{Indcov} = \beta_0 + \beta_1 \mathbf{lshort-term\ debt} + \beta_2 \mathbf{growth} + \beta_3 \mathbf{D-crise} + \beta_4 \mathbf{fixedasset} + \beta_5 \mathbf{lshort-termgrowth} + \beta_6 \mathbf{l_issued_amount} + \beta_7 \mathbf{governance_level} + \beta_8 \mathbf{lfirmsize} + \varepsilon_5 \quad (5)$$

In the robustness check, another index using the coefficient (β) to weight significant covenants in the first estimation was created. As we can notice in the results, covenants 4, 6 and 8 were significant and were multiplied by the proportion of their coefficients (β) to the sum of the three coefficients. This covenant index was named `wweighted_indcov`. Moreover, we also estimated SURE with an index of 10 covenants, in which we sum the covenants and divide it by 10. This covenants index was named `total_indcov`.

Based on the null hypothesis of previous tested results, there are no negative and significant differences between signs presented by leverage, growth opportunities, covenants and short-term debt. Therefore, we present our hypothesis to be tested according to the model above:

Hypothesis H1: Covenant index and short-term debt are negatively related, which is consistent with the view that they are substitutes in addressing stockholder-bondholder conflicts.

Billet, King and Mauer (2007) explained that the sign between leverage and covenant index may be unclear since covenants have more than one attributes related to leverage. For example, it is possible to use covenants in loan agreements of companies with higher leverage level in order to obtain protection and otherwise, leverage might be moderated by covenants. In this regard we want to check whether covenants and short-term debt are substitutes. In short-term and `indcov` equations we predict that these variables have a negative relation.

4. EMPIRICAL FINDINGS AND DISCUSSION OF RESULTS

Now we shall present our main results with the SURE method. We made different estimations with covenant indexes. First of all, we tried to identify which covenants were relevant in the leverage and short-term debt analysis. Therefore, we put all covenants in regressions and checked the significance of each one of them. After the first analysis, we made a covenant index with the significant covenants. As one can see, covenants 4, 6 and 8 were significant in the first analysis and were used to construct the first index (the sum of covenants 4, 6 and 8 divided by 3) according to the rational presented by Billet, King and Mauer (2007).

We adopted this method by trying to estimate only relevant covenants for leverage and short-term debt in Brazil. After that, we constructed another index with robustness purpose, *i.e.* we changed the covenant index with a weight by its coefficient (β) proportion. Finally we checked the results with an index constructed considering all covenants.

There are variables specified as important to explain short-term debt and leverage and all covenants classified from 1 to 10 in this study. In the short-term analysis, there is positive and significant relation between this variable and leverage, since short-term debt is the ratio of short-term debt to total debt. As mentioned above, short-term debt represents a considerable proportion of Brazilian companies' leverage.

The variable growth showed a significant and negative relation with short-term debt. As demonstrated by the theory shown in this paper, a possible explanation to this signal is that companies which face growth opportunities panorama have difficulties in obtaining funding. This negative relation was also shown by Johnson (2003) and Billet, King and Mauer (2007) and that fact corroborates the argument.

We also see that firm size and the interaction $lshort-termgrowth$ showed negative and positive significant coefficients, respectively. Firm size was specified as sales logarithm and $lshort-termgrowth$ was created to specify the impact of the interaction of the endogenous variable short-term debt with growth.

Table 6 - Variables estimated by SURE (Test with individual covenants)

The panel reports the first SURE analysis from 2000 to 2009. This analysis focuses on significant individual covenants to the index construction. The variables are defined in descriptive statistics (table 4). We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level, respectively. Standard errors are shown in parentheses.

Variables	(1) lshort-term	(2) lleverage
lleverage	0.248* (0.140)	
Covenant1 - Accounting based restrictions	-0.00591 (0.134)	0.105 (0.0875)
Covenant2 - Dividend restrictions	0.00141 (0.118)	-0.0264 (0.0774)
Covenant3 - Reduction of capital	0.0606 (0.146)	-0.137 (0.0950)
Covenant4 - Liquidation, dissolution or bankruptcy	0.0344 (0.235)	-0.336** (0.151)
Covenant5 - Change in core business	0.0980 (0.120)	-0.0483 (0.0789)
Covenant6 - Change in companies' structure	-0.303** (0.118)	-0.0774 (0.0795)
Covenant7 - Transfer or change in issuer's control	0.126 (0.119)	0.0604 (0.0782)
Covenant8 - Sale, disposal or transfer of assets	-0.0899 (0.144)	0.201** (0.0929)
Covenant9 - Default	0.364 (0.299)	-0.0583 (0.197)
Covenant10 - Problems with legal obligations	-0.00597 (0.190)	0.0713 (0.125)
Growth	-2.198*** (0.199)	0.260 (0.186)
dcrise	0.0685 (0.125)	0.209*** (0.0796)
profitably	2.607 (1.618)	-1.519 (1.063)
fixedasset	-0.129 (0.279)	0.184 (0.183)
governance_level	-0.0162 (0.128)	0.220*** (0.0813)
Log_firm_size	-0.129** (0.0536)	-0.0118 (0.0360)
Lshort-termgrowth	0.718*** (0.0607)	-0.0502 (0.0590)
lshort-term		0.107* (0.0602)
Constant	3.912*** (1.011)	3.374*** (0.631)
Observations	117	117
R-squared	0.607	0.234

Source: Own elaboration

Finally, we can see that only covenants 4 (Liquidation, dissolution or bankruptcy), 6 (change in companies' structure) and 8 (sale, disposal or transfer of assets) were significant to the leverage and short-term analysis.

Covenant 4 (Liquidation, dissolution or bankruptcy) has a negative relation with leverage. It might demonstrate a possible difficulty that a company can face in the attempt to borrow resources in this clauses condition. Covenant 6 (change in companies' structure) is negatively related to short-term debt. Change in companies' structure means here that companies are not allowed to be part of other companies or to let others be part of the company who issued the corporate bond (Merger, Split or Privatization, for example). This is the first indication that short-term debt and covenants act as substitutes seeking to minimize agency conflicts. Covenant 8 (sale, disposal or transfer of assets) has a positive relation with leverage; that might show the collateral importance to leverage.

However, Billet, King and Mauer (2007) mentioned that the sign between leverage and covenants can be unclear, since higher leverage may coincide with more covenant protection, or differently, leverage can be lower in the presence of covenants in outstand debt issues with future debt finance restriction. In this study, the significance of the covenants 4, 6 and 8 have more importance to create the following covenant indexes, a condition to proceed with the analysis according Billet, King and Mauer (2007). It is also a way of trying to capture only the relevant covenants in the Brazilian prospects.

Another noteworthy observation is that leverage equation also shows a positive and significant relation between leverage and the dummy variables Dcrisis and governance level. Governance level might be explained as a good condition that companies show to become leveraged. The crisis sign is still unclear for us. Somehow, the years 2001, 2002, 2007, 2008 and 2009 presented important conditions for companies in Brazil to borrow money. Although these years have been seen as a difficult period to many economies in the world, 2001 was a recent period in the Brazilian economy after its exchange definition and not too distant from its economic stabilization with the Real plan. For example, Ness (2008) showed that corporate bonds were 0.74% of the GDP in 2000 and it became 1.19% of the GDP in 2001 and finished with 0.93% of the GDP in 2002. The resources from BNDES represented 1.92%, 1.93% and 2.54% of the GDP in 2000, 2001 and 2002, respectively.

Now that the covenants that will be used in the index have been defined, we construct a covenant index which is presented in the next panel.

Table 7 - Variables estimated by SURE (Test using covenant index)

The panel also reports SURE analysis from 2000 to 2009. This table presents SURE with 3 equations, considering *indcov* (the sum of covenants 4, 6 and 8 divided by 3) as an endogenous variable. The variables are defined in descriptive statistics (table 4). We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level, respectively. Standard errors are shown in parentheses.

Variables	(1) Lshort-term	(2) lleverage	(3) indcov
Lshort-term		0.126** (0.0630)	-0.110*** (0.0376)
growth	-1.324*** (0.372)	0.354 (0.248)	-0.212* (0.115)
Profitability		-1.438 (1.081)	
Fixedasset		0.273 (0.190)	0.129 (0.117)
Indcov	-1.721*** (0.473)	0.241 (0.231)	
indcovgrowth	1.739*** (0.582)	-0.385 (0.284)	
governance_level		0.239*** (0.0838)	0.0526 (0.0523)
Log_issued_amount	-0.0320 (0.0973)	-0.0229 (0.0474)	-0.0211 (0.0291)
Log_firm_size	-0.0196 (0.0711)	-0.00456 (0.0404)	-0.0112 (0.0215)
dcrise	0.0672 (0.175)	0.180** (0.0817)	0.108** (0.0502)
Lshort-term_growth		-0.00270 (0.0618)	0.0790** (0.0371)
lleverage	0.543*** (0.186)		0.000511 (0.0561)
Constant	3.271* (1.788)	3.145*** (0.896)	1.377** (0.553)
Observations	117	117	117
R-squared	0.108	0.121	0.088

Source: Own elaboration.

In the SURE (using covenant index) panel, it is possible to notice the confirmation of the hypothesis 1 of this study: Short-term debt and the covenant index (indcov) showed a negative and significant relation; that indicates that they can be seen as substitute tools to reduce agency conflicts. This argument was mentioned by Billet, King and Mauer (2007) who explained that covenants and short-term debt help to reduce the incentive for the achievement of underinvestment and transference of value among creditors and owners.

The variable growth also showed a negative and significant relation with short-term debt in our analysis. According to Adam and Goyal (2003) and Billet, King and Mauer (2007), there is evidence that market-to-book ratio can be accepted as an excellent proxy for growth opportunities. As that short-term debt represents a great proportion of Brazilian company's indebtedness, it is possible to infer that companies in higher levels of growth opportunities face more difficulties in obtaining short-term funding.

The interaction *indcovgrowth* can be understood as responsible for minimizing the negative relation between short-term debt and growth. This result supports the prediction that covenants can help to attenuate the negative effect of growth opportunities in short-term debt. Billet, King and Mauer (2007) showed the same result for leverage and the interaction between the covenant index and growth, *i.e.* it may be considered a support for what was mentioned above.

In the same direction as the first equation, leverage explains short-term debt with a positive and significant signal. Again, the variable *governance_level* showed a positive and significant relation with leverage. As explained before, this variable seems to be relevant for companies to raise funds.

In the *indcov* equation we confirm the negative and significant relation between short-term debt and covenants; that helps to strengthen the main hypothesis of this study. The dummy variable for crises remains positive and significant in the leverage and *indcov* equations.

The interaction *lshort-term_growth* also helps to attenuate the negative relation between *indcov* and growth. It helps to strengthen the hypothesis that short-term debt and covenants are substitutes.

4.1 Robustness Check

As mentioned before, in the robustness check we estimated the same model but modifying the covenant index. Here we constructed a covenant index with different weights. A balance among covenants 4, 6 and 8 was made by their coefficient (β) proportion. We first summed each coefficient ($0.336 + 0.303 + 0.201$) in module, since we were not concerned with their sign relation, but with their ratio (proportion of the coefficient) and then divided each coefficient by the sum. After getting the proportion of each coefficient, we multiplied the proportions by covenants 4, 6 and 8 in the sample. The panel below shows the results.

Modifying the covenant index did not change the interpretation which was done before. Short-term debt and growth still show a negative and significant signal. In a module analysis, the second coefficient is still higher than the first one. The same happens with the relation between short-term debt and the covenant index. The covenant index coefficient (Weighted_indcov) is higher than the coefficient showed in indcov in a module analysis. The relation between leverage and short-term debt remains the same. The variable governance_level is still important to the leverage equation.

We also estimated these tests with other control variables. For example, prospect specificities as the possibility of convergence of debt in stocks and the classification of the corporate bonds (unsecured, subordinated, floating or real guarantees) was used in the attempt to capture more significant relations between variables. Nevertheless, they were not significant.

The weighted covenant index estimation is specified in the panel below.

Table 8 - Variables estimated by SURE (Test using weighted covenant index)

The panel also reports SURE analysis from 2000 to 2009. The variables are defined in descriptive statistics (table 4). We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level, respectively. Standard errors are shown in parentheses.

Variables	(1) Lshort-term	(2) lleverage	(3) Weighted_indcov
Lshort-term		0.114* (0.0629)	-0.105*** (0.0361)
growth	-1.387*** (0.404)	0.393 (0.261)	-0.192* (0.110)
profitability		-1.437 (1.074)	
fixedasset		0.288 (0.189)	0.126 (0.112)
Weighted_indcov	-1.807*** (0.503)	0.125 (0.244)	
Weighted_indcovgrowth	1.685*** (0.581)	-0.455 (0.280)	
Governance_level		0.246*** (0.0832)	0.0472 (0.0502)
Log_issued_amount	-0.0396 (0.0974)	-0.0233 (0.0471)	-0.0157 (0.0279)
log_firm_size	-0.0166 (0.0712)	-0.00742 (0.0402)	-0.0145 (0.0206)
dcrise	0.0870 (0.177)	0.199** (0.0816)	0.127*** (0.0482)
Lshort-term_growth		0.00876 (0.0613)	0.0737** (0.0356)
lleverage	0.532*** (0.186)		-0.0630 (0.0537)
Constant	3.563** (1.806)	3.275*** (0.898)	1.578*** (0.530)
Observations	117	117	117
R-squared	0.105	0.127	0.091

Source: Own elaboration.

In order to check if an index constructed with all covenants has the same relations presented above, we made an index that is the sum of 10 covenants divided by 10. Here we sum from covenant 1 to covenant 10 independently of their significance in the first equation, according to Billet, King and Mauer (2007). The results can be seen in the panel below.

Table 9 - Variables estimated by SURE (Test using a total covenant index)

The panel also reports SURE analysis from 2000 to 2009. The variables are defined in descriptive statistics (table 4). The variable total_indcov was created by the sum of the 10 covenants divided by 10. We use ***, ** and * to denote significance at the 1% level, 5% level, and 10% level, respectively. Standard errors are shown in parentheses.

Variables	(1) Lshort-term	(2) lleverage	(3) Total_indcov
Lshort-term		0.132** (0.0607)	-0.0456* (0.0274)
growth	-0.764 (0.576)	0.764** (0.322)	0.0494 (0.0834)
Profitability		-1.353 (1.072)	
Fixedasset		0.314* (0.186)	-0.00173 (0.0851)
Total_indcov	-1.372* (0.744)	0.697** (0.333)	
Total_indcovgrowth	0.910 (0.931)	-0.986** (0.413)	
Governance_level		0.243*** (0.0830)	0.0549 (0.0381)
Log_issued_amount	-0.0328 (0.101)	-0.0311 (0.0468)	-0.0132 (0.0212)
Log_firm_size	-0.0202 (0.0741)	-0.0125 (0.0398)	-0.0155 (0.0156)
dcrise	0.0753 (0.183)	0.183** (0.0809)	0.0873** (0.0365)
Lshort-term_growth		-0.0225 (0.0596)	0.0125 (0.0270)
lleverage	0.563*** (0.195)		0.0205 (0.0408)
Constant	2.906 (1.859)	3.142*** (0.872)	0.997** (0.402)
Observations	117	117	117
R-squared	0.046	0.152	0.147

Source: Own elaboration.

We confirm the negative relation between the covenant index and short-term debt with significance, as shown in the first analysis. The variable leverage remains with the same sign and is still significant in the short-term equation. The leverage equation maintains the signal of the relation with significance and the coefficient is not strong as it is in the short-term equation, the same of the previous analysis. The total_indcov equation still shows a negative relation with short-term debt with significance. Once again, the dummy for crises demonstrate a significant and positive relation with the covenant index and leverage. Another possible

explanation with a different argument for this relation that was not specified before is that in crisis period more covenants can be demanded by bondholders and so would be easier for a company to borrow money (since this meets some wishes of creditors).

Another interesting result is the role of short-term debt in our study. Since short-term debt presents an important way of raising funding in Brazil, it is possible to infer that it has a more important role than covenants in reducing agency conflicts. Moreover, short-term debt presents a positive relation with growth opportunities when covenants and growth are analyzed together.

Therefore, we could check in all analysis that the hypothesis that covenants and short-term debt are substitutes seems to be valid. The other significant results are the importance of the variable `governance_level`, dummy for crisis and the interactions between the covenant indexes and short-maturity with growth (with the purpose of minimizing the relations) is also new in Brazilian studies, for which the equations were estimated by a model that controlled the endogenous problem in the variables leverage, short-term debt and covenants.

5. CONCLUSION

The main purpose of this work was to verify whether short-term debt and restrictive covenants can be considered substitutes or as complementary in reducing the agency problem. Furthermore, we intended to investigate the relationship between financial covenants and the characteristics of the studied companies in the sample and to check whether the use of covenants can minimize the negative relationship between short-term and growth opportunities and whether short-term debt minimize the negative relation between covenants and growth opportunities, as demonstrated by Billet, King and Mauer (2007) with leverage and growth opportunities.

Two databases were used to make empirical estimations. All available corporate bonds from non-financial companies in the website debentures.com.br, which is a website maintained by *Associação Brasileira das Entidades dos Mercados Financeiros e de Capitais* (ANBIMA)[®] and financial statements provided by *Economatica*[®] were the sources of elementary information to conduct our work.

Our results may corroborate the negative relationship between covenants and short-term debt as tools to minimize agency problems. We also found some important control variables such as corporate governance level, a dummy for crisis periods in the first years after 2000 and the result of the interactions between short-term debt and covenant indexes with growth. Based on its proportion in companies' indebtedness level, short-term debt had similar results in our study about the negative relation to growth opportunities, such as leverage in the previous work. In addition to its proportion, we also argue for the importance of short-term debt for Brazilian companies as a limited way of debt funding in Brazil.

Therefore, this paper contributes to the finance literature as the first work to study the endogenous relation between the variables mentioned above and covenants in Brazil. It has also practical results specified by the way covenants are combined between prospectuses. We confirm that covenants and short-term debt can be considered substitutes in addressing stockholder-bondholder conflicts.

Future researches can be conducted to analyze whether the hypothesis can be proved empirically in other emerging countries. Other possibility to continue this study is to identify another method that may be used to treat the endogenous problem specified in this study through the same or other variables. Moreover, it is also important for future research to mention the role of BNDES in relation to companies that face growth opportunities. In this context, it would be interesting to study whether covenants play a similar role in the presence of short-term and long-term leverage.

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APPENDIX A - COVENANTS

Covenant 1: Accounting Based Restrictions. Ratio covenants.

a) (DEBT/EBITDA): Variable Debt means the sum of all consolidate debts from a company. Some companies used net debt instead of total debt. EBITDA is the earnings before interest, depreciation and amortization.

b) (Interest Coverage Index): This index is the proportion of EBITDA divided by net debt.

c) (Short-term debt / EBITDA): Another financial covenant to maintain the firm under certain conditions. Short-term debt means all debts that mature within one year or less.

d) (Debt/Equity): This covenant specifies a limit of indebtedness measured by the proportion of Debt (all debts) to Equity.

e) (Other Financial Covenants): Here we group financial covenants that do not appear often in the prospects. For example, a minimum level of net worth, limits for bank debts and bank debts divided by net worth.

f) (EBITDA/CAPEX): A covenant that specifies a measure of how a company can cover its capital needs using internal funding.

Covenant 2: Dividend Restrictions.

(Dividend Restrictions): This covenant stipulates a limit of dividends that must be paid or a prohibition of dividend payments.

Covenant 3: Reduction of Capital.

The issuer of the corporate bond must not reduce their capital/net worth in the company.

Covenant 4: Liquidation, Dissolution or Bankruptcy.

The company must not allow its own Liquidation, Dissolution or Bankruptcy.

Covenant 5: Change in Core Business.

It is not allowed to change the main purpose of a company. It has to do what is widely known that it does for clients.

Covenant 6: Company's structure restrictions;

a) Merger, Split or Privatization: Companies are not allowed to be part of other companies or to let others be part of the company who issued the corporate bond.

b) Change in legal structures: Companies must also maintain their legal structures. In Brazil, we have corporations with their capital listed on a stock market and corporations that are not listed on stock markets that can issue corporate bonds. This covenant does not allow a changing in companies' legal structures and, therefore, the corporations who are not listed on a stock market at the moment of the loan agreement cannot try to participate in the stock market while corporate bonds exist.

Covenant 7: Transfer or Change in Issuer's Control.

The company that issues a corporate bond cannot change its controller stockholders and its main directors.

Covenant 8: Sale, Disposal or Transfer of Assets.

Companies are not allowed to sell, negotiate or use the companies' assets for other purposes.

Covenant 9: Default.

a) The company must pay all its debts in time.

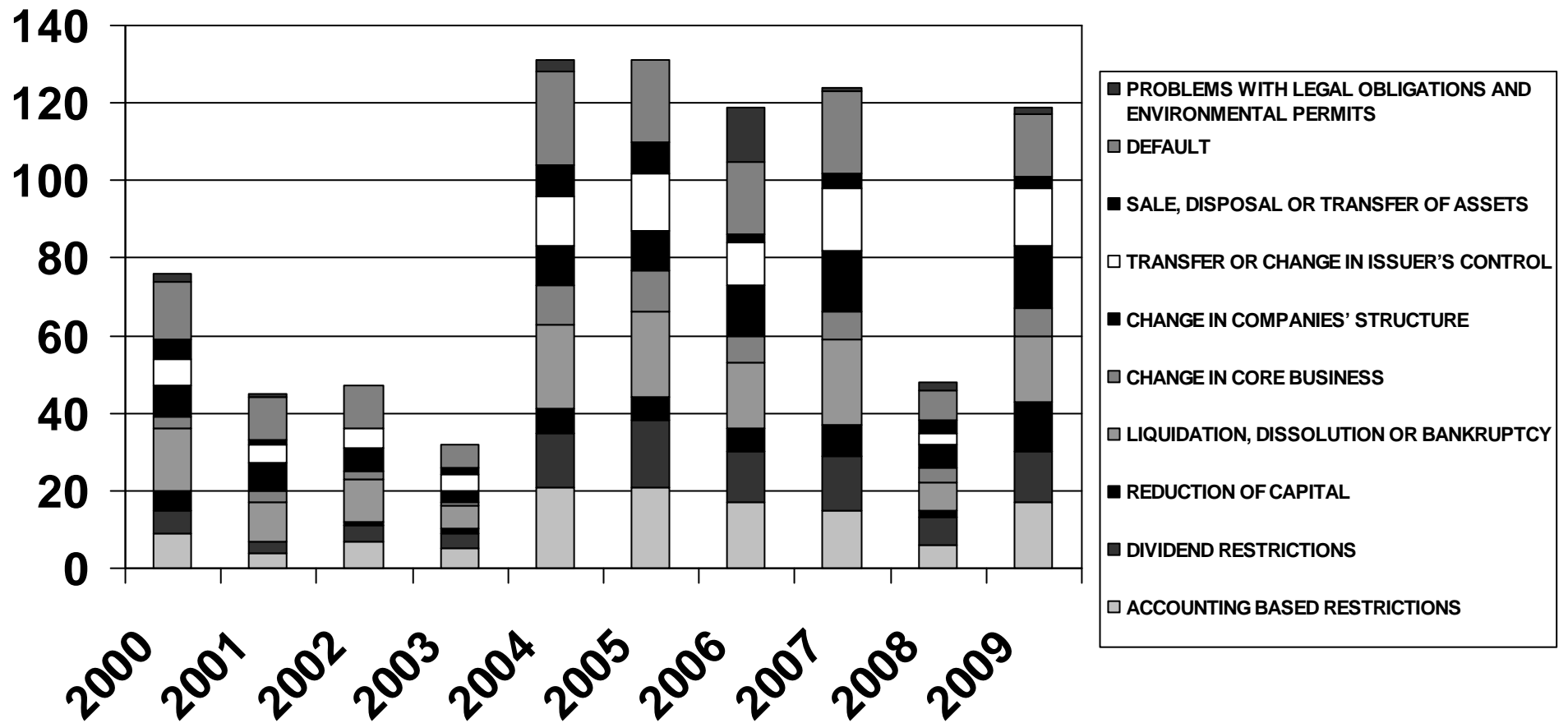
b) Lowering the credit rating: In accordance with a rating agency, companies cannot have a reduction in their risk classification.

Covenant 10: Problems with legal obligations and environmental permissions.

All licenses and work contracts that a company has must be in perfect conditions. The company cannot be part of environmental problems and must face all their legal obligations.

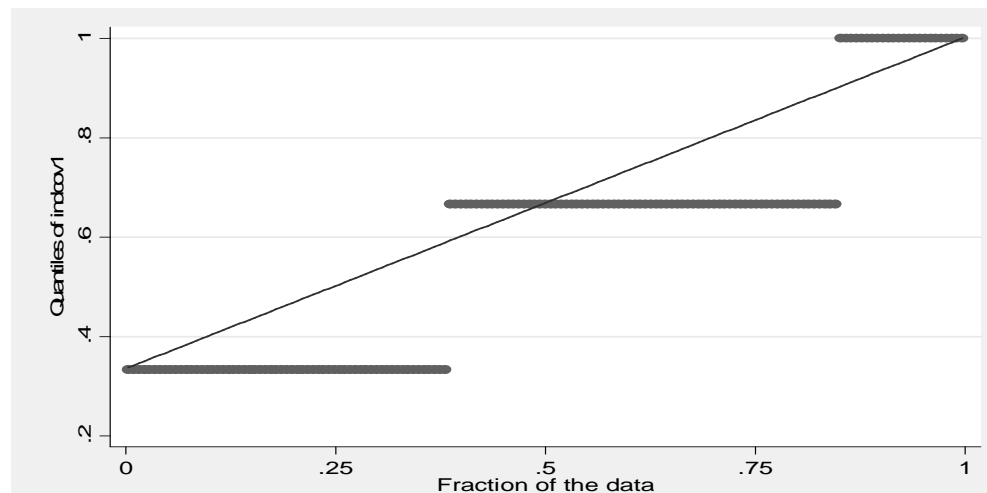
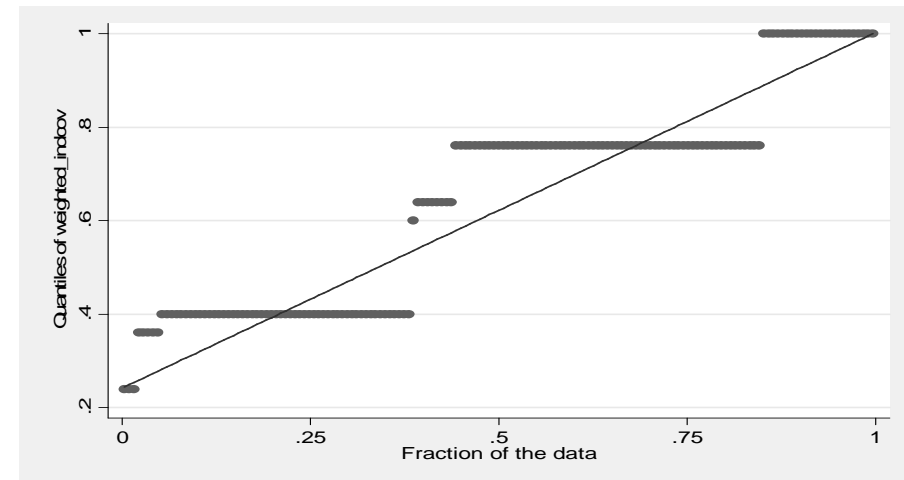
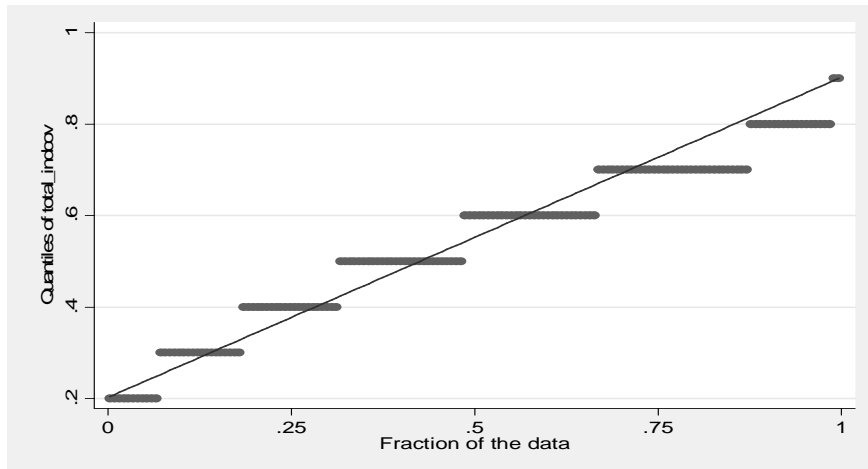
APPENDIX B – COVENANTS IN THE SAMPLE (2000 – 2009)

This graph shows the proportion of each covenant of our sample since 2000.



APPENDIX C- COVENANT INDEXES IN THE SAMPLE (DISTRIBUTION)

These graphs present covenant index quantiles with the purpose of showing the concentration of the data. For each created covenant index, we present a quantiles graph. The first one is the total_indcov quantile, the second one is the weighted_indcov quantile and the last one is the 10_indcov quantile.



APPENDIX D – BOX PLOT GRAPH OF THE MAIN VARIABLES

This graph shows the concentration of the main variables in the study (leverage, short-term debt, covenant indexes and growth opportunities).

