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TEN YEARS OF CVM NORMATIVE INSTRUCTION Nº 476:
AN OVERVIEW OF COVENANTS AND FEATURES ON BRAZILIAN BONDS

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Dissertation presented to the São Paulo School of Business Administration of the Getulio Vargas Foundation (FGV-EAESP), in candidacy for the Degree of Master of Business Administration.

Research Field: Finance

Supervisor: Prof. Richard Saito, Ph.D

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Dedico este trabalho ao meu avô Nivaldo Roberto Spagnuolo, homem de grande coração e de admirável humildade. Seu cuidado e carinho para com todos era notável. Em sua simplicidade, não media esforços para fazer os outros felizes com suas receitas deliciosas e sua incansável dedicação. As lembranças das noites de carteado e dos churrascos de domingo serão sempre doces memórias de minha juventude. Obrigado, Vô!

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“Agency costs are as real as any other costs. The level of agency costs depends, among other things, on statutory and common law and human ingenuity in devising contracts. Both the law and the sophistication of contracts relevant to the modern corporation are the products of a historical process in which there were strong incentives for individuals to minimize agency costs. Moreover, there were alternative organizational forms available, and opportunities to invent new ones. Whatever its shortcomings, the corporation has thus far survived the market test against potential alternatives.”

(JENSEN; MECKLING, 1976, p. 357)

ABSTRACT

The publication of ICVM 476 in 2009 resulted in profound changes to the Brazilian corporate bond market. The flexibility introduced in the issuing process, as well as the opening of the market to non-public companies, not only increased the total amount of capital raised per year, but also expanded the number of issuing companies in the market. Ten years after its publication, few studies have examined potential differences between ICVM 400 and ICVM 476 bonds, and no study, to the best of this author's knowledge, has examined bonds' characteristics, covenants, and features. This work explored an unprecedented and exclusive database with 1,913 bonds issued by 1,004 issuing companies, in order to investigate the evolution of the Brazilian bond market, as well as whether the ICVM 476 publication has affected the corporate governance embedded in bond indentures. The results indicated that, in the 2009-2018 period, frequencies of dividend, investment and financing covenants reached their highest levels since 1989, the first year with data available. Of the 2,491 tranches in the sample, 82% of them present restrictions on dividend payments, 84% limit other kinds of cash transfers to shareholders, and almost all bonds have at least one financing and one investment covenant. Additionally, this work evidenced that the new regulation, although widely preferred in recent years, did not fully replace the old one. ICVM 400 was used in 5.38% of the issues in the sample, and was related to a higher average face value, a longer average term, and a lower average number of covenants and features of interest per issue.

Keywords: Bond Issues, Bond Market, Corporate Finance, Corporate Governance, Financial Covenants.

RESUMO

A publicação da ICVM 476 em 2009 resultou em mudanças profundas no mercado brasileiro de debêntures corporativas. A flexibilidade introduzida nos processos de emissão, bem como a abertura do mercado para empresas de capital fechado não apenas aumentou o volume total de capital levantado por debêntures por ano, mas também expandiu o número de empresas emissoras no mercado. Dez anos após a publicação da ICVM 476, poucos trabalhos examinaram as potenciais diferenças entre as debêntures emitidas pela ICVM 400 daquelas emitidas pela ICVM 476, e nenhum estudo, no melhor entendimento desse autor, em relação às características, dispositivos contratuais e cláusulas restritivas das debêntures. Este trabalho explora uma inédita e exclusiva base de dados com 1.913 debêntures emitidas por 1.004 companhias, com a finalidade de investigar a evolução do mercado brasileiro de debêntures, bem como se a publicação da ICVM 476 afetou a governança corporativa embutida nas escrituras de emissão. Os resultados indicaram que, no período de 2009 a 2018, as frequências de cláusulas restritivas sobre dividendos, investimentos e financiamento atingiram os mais altos valores desde 1989, primeiro ano com dados disponíveis. Das 2,491 séries na amostra, 82% delas apresentam restrições no pagamento de dividendos, 84% limitam outros tipos de pagamentos aos acionistas, e quase todas as debêntures possuem pelo menos uma cláusula restritiva de financiamento e uma cláusula restritiva de investimentos. Além disso, este trabalho indicou que a nova regulação, apesar de fortemente preferida nos anos recentes, não substituiu totalmente a antiga. A ICVM 400 foi utilizada em 5,38% das emissões da amostra, e estava relacionada a um maior valor de face médio, a uma maturidade média mais longa e a um menor número médio de cláusulas restritivas e dispositivos contratuais de interesse por emissão.

Palavras-chave: Emissões de Debêntures, Mercado de Debêntures, Finanças Corporativas, Governança Corporativa, Cláusulas Financeiras Restritivas.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
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ANBIMA	<i>Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais</i> , in Portuguese. Brazilian Association of Financial and Capital Markets Entities, in English.
BNDES	<i>Banco Nacional de Desenvolvimento Econômico e Social</i> , in Portuguese. Brazilian Development Bank, in English.
CVM	<i>Comissão de Valores Mobiliários</i> , in Portuguese. Brazilian Securities and Exchange Commission, in English.
ICVM	<i>Instrução Normativa da Comissão de Valores Mobiliários</i> , in Portuguese. Brazilian Securities and Exchange Commission Normative Instruction, in English.
GMDH	General Meeting of Debenture Holders.

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1 Introduction

Throughout its history, the Brazilian capital market has been characterized by a significantly more developed public debt securities market in comparison to its corporate debt market. It is argued that this was due to the Brazilian economy's high interest rates, which, on one hand, boosted investments in Treasury bonds, considered exempt from credit risk, while, on the other, created difficulties for private securities, that had to provide even higher returns to be considered competitive.

Despite the greater stimulus provided to the public bond market, Brazil's corporate debt market development did not follow the same speed, due to the significant presence of banks as financing alternatives, high inflation, the lack of liquidity in the secondary market, high issuing costs and legal challenges to execute collaterals and contractual provisions (Pimentel et al., 2008). After the economic stabilization brought on by the July 1994 *Plano Real* (Real Plan, in English) and the consequent improvement of Brazil's key economic fundamentals, corporate debentures proved to be a more profitable alternative to government bonds, and with a lower risk to investors than that posed by the equity market, which favored their dissemination as a financing policy (Saito et al., 2005).

According to data from the 2019 *Boletim do Mercado de Capitais* (Capital Markets Report, in English) produced by *Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais* (ANBIMA, Brazilian Association of Financial and Capital Markets Entities, in English), the volume of corporate bonds issued in 2018 reached nearly R\$ 153.7 billion, representing 62.4% of the total amount raised in the capital market that year. During the first half of 2019, a sum of approximately R\$ 84.6 billion was raised, signaling a 9.3% increase compared to the previous year's same period. Since 2013, the beginning of the data contained in the report, corporate bonds represented, on average, 49.5% of overall capital market funding. The lowest percentage (44.4%) occurred in 2017 due to the unusual high volume of capital raised by Stock Funds and Credit Rights Investment Funds that year.

In Brazil, the issuance of both corporate debentures and other securities is regulated by the *Comissão de Valores Mobiliários* (CVM, Brazilian Securities and Exchange

Commission, in English) through two normative instructions: Nº 400 and Nº 476. Published in December 2003, the normative instruction of CVM (ICVM) 400 addresses public offering and distribution of securities. ICVM 476, on the other hand, was published in January 2009 and provides for securities offerings for the restricted market, in which the offer of securities is only intended for professional investors.

The distribution model for restricted markets is similar to what in international papers is called "private placement" or "private market issues", since in both models the offer and distribution is limited to a fixed number of investors who must meet minimum equity or professionalization rules before they are eligible to acquire these securities. In the United States of America, restricted distributions are controlled by the "Regulation D of the Securities Act of 1933", later changed by "Rule 144A", making the first regulation more flexible.

Although Brazilian literature on corporate bonds is comprehensive, there are, to the best of this author's knowledge, currently no papers that examine bond's characteristics and covenants after the ICVM 476 rule was published. While Anderson (1999), Filgueira and Leal (2000) and Saito et al. (2005) undertake similar analysis, these relate to periods before 2001, whereas Saito, Sheng e Bandeira (2007) extend their assessment to the time frame ranging from 2002 to 2005.

This work seeks to fill that gap, showing the evolution of selected characteristics and covenants in the ten years after ICVM 476 publication. Moreover, it makes a comparison between ICVM 400 and ICVM 476 bond characteristics and covenants, while also bringing data about the general meeting of debenture holders specified in each bond indenture. This work presents an unprecedented database including information about 1,913 bonds, corresponding to 2,491 tranches, issued in the Brazilian market between 2009 and 2018.

2 Literature Review

2.1 Corporate Bonds and Brazilian Literature

Phenomena involving corporate debentures and capital structure are widely documented in the literature. The basic framework is based on a number of landmark papers, among which the following deserve a special acknowledgment: Modigliani and Miller (1958, 1963), on the irrelevance of capital structure in frictionless markets; Stiglitz (1969), on the limitations of Modigliani and Miller's propositions; Kraus and Litzenberger (1973), on the "Trade-off Theory"; Brennan and Schwartz (1978), on the impact of capital structure and taxes upon companies' valuation; Merton (1974), on debt securities pricing; Jensen and Meckling (1976), on Agency Theory and Conflict of Interest; Miller (1977), on the taxes influence on capital structure decisions; and Myers and Majluf (1984) and Myers (1984), on the "Pecking Order Theory".

There are numerous other relevant papers on subjects like: covenant clauses in bond issues – Smith and Warner (1979), and Rajan and Winton (1995); debt maturities – Barclay and Smith (1995a), and Diamond and He (2014); risk classification and securities remuneration – Ederington, Yawitz and Roberts (1987), Fons (1994), John, Lynch and Puri (2003), and Greenwood and Hanson (2013); influence of collaterals and debt seniority levels – Stulz and Johnson (1985), and Barclay and Smith (1995b); securities liquidity effects – Amihud and Mendelson (1991), and Houweling, Mentink, and Vorst (2005); underwriting and public bond distribution – Datta, Iskandar-Datta and Patel (2000), and Narayanan, Rangan and Rangan (2006); capital structure decisions and financial flexibility – Titman and Wessels (1988), Shyam-Sunder and Myers (1999), Rauh and Sufi (2010), and Denis and McKeon (2012); taxation effects – Stiglitz (1973), and Graham (2003); and reputation – Diamond (1989).

Brazilian literature on the subject is also extensive, focused mainly on capital structure decisions made by Brazilian companies, on securities remuneration and liquidity, and on the role of corporate governance in issuing and rating processes. Table 1 lists distinguished papers that address the Brazilian market, divided by their main topics, and summarizes their conclusions.

Table 1: Brazilian literature review on corporate bonds.

Topic	Papers	Conclusions
Capital Structure	Eid Jr. (1996) Ferreira and Brazil (1997) Zonenschain (1998) Rodrigues Jr. and Melo (1999) Moreira and Puga (2000) Perobelli and Famá (2002) Brito and Lima (2005) Silveira, Perobelli and Barros (2008) Machado, Medeiros and Eid Jr. (2010) Mota, Coelho and Holanda (2014) Tarantin Jr. and do Vale (2015) Henrique et al (2018)	Brazilian companies use a predetermined hierarchy of capital sources to finance their operations, as predicted by the Pecking Order Theory. Small companies, non-public companies, and companies with low level of corporate governance are more likely to use internal funds than external sources of capital.
Remuneration and Rating	Fraletti and Eid (2005) Sheng and Saito (2005 and 2006) Martinez and Faria (2007) Silva, dos Santos and Almeida (2012)	Although bond remuneration is imperfect, it is sensitive to rating, term, issuance volume, economic sector, corporate governance and international perspective on the Brazilian economic environment.
Public and Private Placement	Lucinda and Saito (2005)	While the choice of a new debt model is strongly influenced by liquidation costs and companies' capital structures, the influence posed by information asymmetry is only minor.
Liquidity	Sheng and Saito (2008) Gonçalves and Sheng (2010) Giacomoni and Sheng (2013) Almeida and Bazilio (2015)	Unlike what takes place in foreign markets, the main liquidity proxies in the Brazilian market are, first, the size of the issue and, second, the issuing company's industry. Also, there are evidences of liquidity premium in the Brazilian debt market.
Agency Theory	Silva, Saito and Barbi (2013)	The use of covenants is an efficient tool to face agency conflicts in bonds with longer terms. Furthermore, it enables companies with growth opportunities to raise funds by issuing long-term debt.

Source: Author.

The analyzed literature shows the evolution of the Brazilian corporate bond market. The first papers on the subject examined the Brazilian companies' use of debt in an economy recently stabilized by the 1994 Real Plan, indicating that the "Pecking Order Theory" was better suited to explain funding sources, given the small size of the companies and the weak development of the Brazilian corporate debt market. Starting in the 2000s, the list of subjects expanded, and the authors began to focus on bond aspects such as remuneration, rating, liquidity, covenants, and corporate governance.

2.2 Corporate Bonds Characteristics and Covenants

According to Jensen and Meckling (1976), the segregation of ownership and control may lead to conflicts of interest between principals and agents. The same can be applied for the relationship between shareholders and debt holders, since shareholders decide what companies do with the money borrowed from creditors.

As stated by Smith and Warner (1979), some of these conflicts could be avoided by including covenants in debt contracts to restrict shareholders' actions. The authors noted that dividend and financing covenants were designed to lead shareholders to make value-maximizing decisions, whereas extensive investment restrictions were not observed, possibly due to their high monitoring costs.

Rajan and Winton (1995) examined the relationship between covenants and monitoring activities. They suggested that the presence of covenants not only reduces the risk of wealth transference from debt holders to shareholders, but also encourages debt holders, particularly financial institutions, to monitor borrowing companies. In this situation, the authors observed also that bondholders and other claimants usually free-ride banks' monitoring efforts.

The authors also argued that covenants in long-term debt could be replaced by short-term debts, which implies frequently recontracting between the borrowing companies and lenders. However, the use of short-term debts could give lenders too much power and encourage them to liquidate these debts, also potentially leading to borrower underinvestment. These hypotheses are confirmed for the Brazilian debt market by Silva, Saito and Barbi (2013).

In regard to Brazilian literature, four papers have specifically examined corporate bonds characteristics and covenants in previous years. Their results are compared to those found in the most recent database.

Anderson (1999) is one of the first papers to use corporate bond indentures issued in Brazil as its sample. Based on 50 bonds issued between 1989 and 1993, the author revealed that companies overcame that period's institutional, legal and economic frail environment using clauses that promote periodic renegotiations and permit early redemptions and payments, as well as complex clauses for inflationary adjustments.

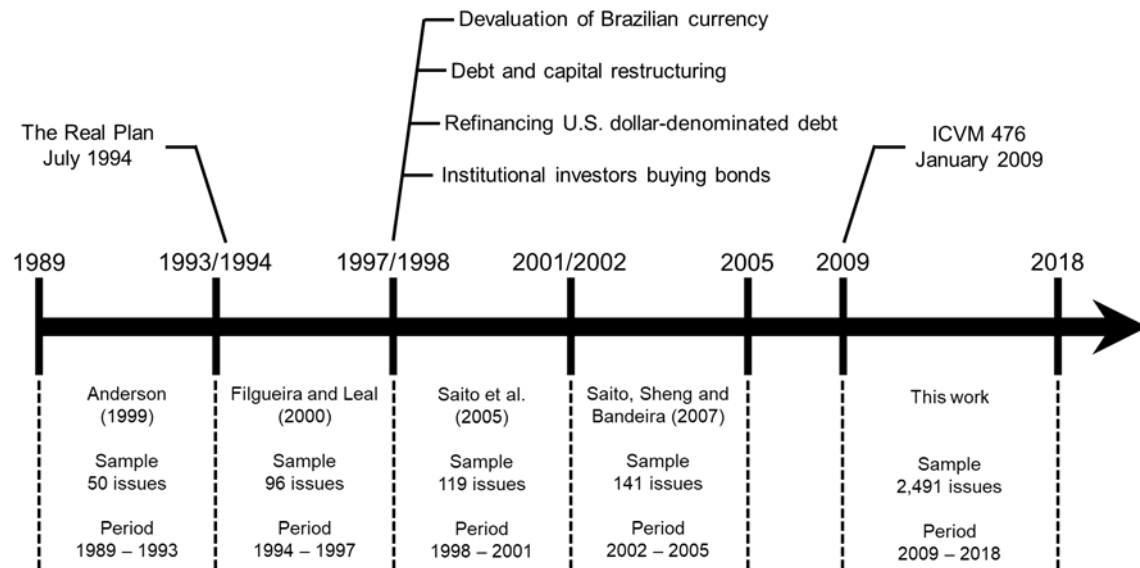
Filgueira and Leal (2000) investigated how bonds' characteristics and covenants have changed after the Brazilian economic stabilization promoted by the 1994 Real Plan. Based on a sample of 96 issues from 1994 to 1997, the results indicated that, on one hand, the use of inflation and exchange rate indexations decreased while, on the other, there was an increase in the use of remuneration based on floating interest rates plus spread. Furthermore, the frequency of scheduled renegotiation clauses curtailed as the possibility of callable clauses increased, indicating a lower uncertainty in the economic environment, particularly regarding inflation, which was out of control in previous periods.

Saito et al. (2005) analyzed 119 bonds issued between 1998 and 2001, comparing their results to the previous papers. This period was characterized by a devaluation of Brazilian currency against the U.S. dollar; several companies restructuring their debt and capital structure, as well as, refinancing their U.S. dollar-denominated debt; and institutional investors purchasing bonds to make their portfolios' average term longer. The results indicated, on one side, a lower use of inflation-adjusted remuneration and, on the other, a higher use of remuneration indexed to market interest rates, in addition to a lower number of clauses restricting managers' dividend and financing decisions, as well as a greater number of covenants regarding property and control.

Saito, Sheng and Bandeira (2007) updated the data adding a new sample of 141 indentures issued from 2002 to 2005. The results changed little, highlighting only an even smaller use of early maturity clauses or scheduled renegotiation.

These studies established the framework used in the data collection and analysis of the present work, as well as provided previous results to be compared to those obtained from the new database. Figure 1 presents a timeline with the main events and the period covered by each paper.

Figure 1: Timeline of studies.



Source: Author.

To analyze the comparison between ICVM 400 and ICVM 476 bonds, this work uses the conclusions from Khan and Carleton (2010) as its framework to understand the results found. The authors concluded that bonds present more restrictive covenants in private markets in order to face potential information asymmetry. Moreover, if a company issues in both public and private market, it chooses between markets based on minimizing the financing cost.

2.3 Brazilian Corporate Bond Market: Legal Normatives and Numbers

Published in December 2003, CVM Normative Instruction N° 400 regulates public issuances of securities within the national market, revoking the previous provisions on the subject contained in ICVMs 13 and 88 of 1980 and 1988, respectively. According to this ICVM, companies intending on issuing securities to the public must fulfill the following criteria: be registered at the CVM, subject to prior analysis by the local authority; submit to the CVM and publicly present the issuance prospectus, also subject to approval; and publicly announce both offer and start of their distribution.

In order to modernize and speed up some issuing processes, the CVM published the Normative Instruction N° 476 in January 2009, which created the possibility of issuing securities in a restricted market without the need to register at the CVM or publish an issuance prospectus. Additionally, the new rule allowed non-public companies to

access the debt market without being publicly traded. Due to this ease in documents requirement, the placement is limited to only 50 professional investors and can be traded by qualified investors only 18 months after the issuing date. Table 2 summarizes the differences between public and restricted issue.

Table 2: Differences between ICVM 400 and ICVM 476.

Subject	Securities Issue	
	Public - ICVM 400	Restricted - ICVM 476
Potential Issuers	Publicly traded companies only.	Both public and non-public companies.
Potential Investors	General public.	Professional Investors
Issuing Limitations	None.	Offering limited to 75 potential investors and placement to only 50 investors.
Trading Restrictions	None.	Restricted to professional investors up to 18 months after the issuing date and to qualified investors after that period.
Required Documents	Authorization and registration of the company at the CVM, issuing prospectus and public announcement of the offer.	Offering announcement filed only at the CVM.

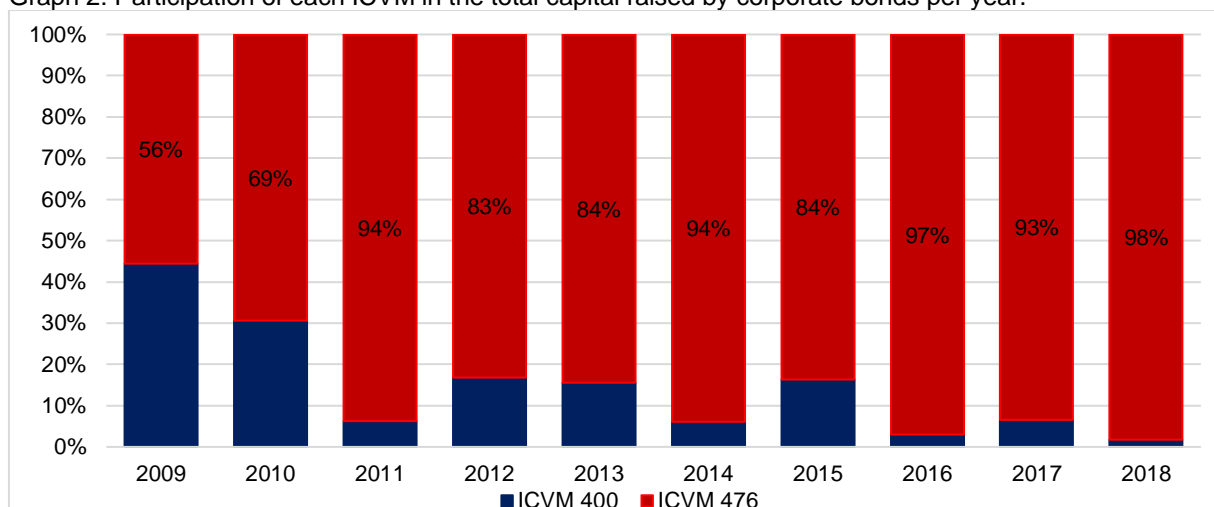
Source: Prepared by the author based on ICVM 400 and ICVM 476.

According to the regulations, a professional investor is defined as any individual or legal entity that has more than R\$ 10.0 million invested in financial assets, whereas a qualified investor is defined as any individual or legal entity that has more than R\$ 1.0 million invested in financial assets, or holds a technical capacity certification in financial investments. Financial institutions are automatically considered professional investors regardless of their asset size.

Since ICVM 476 was issued, the volume of corporate bond issues has grown rapidly, due to the issuing process flexibility and the opening of debt market for non-public companies, both introduced by the new rule. ANBIMA's (2014, 2019) data show that the annual amount of issues between 2009 and 2018 increased from R\$ 27.6 billion to R\$ 153.7 billion, representing a total growth of 456.9% in the period, equivalent to an average growth rate of 21.0% per year. In comparison, the accumulated inflation¹ in the period was 69.0%, implying a real growth rate of annual issues (in volume) equal

¹ Inflation measured by Brazilian Broad Consumer Price Index (*IPCA - Índice de Preços para o Consumidor Amplo*, in Portuguese).

Graph 2: Participation of each ICVM in the total capital raised by corporate bonds per year.



Source: Prepared by the author based on data extracted from ANBIMA (2014, 2019). Data from 2009 to 2012 were collected from the 2014 capital market report's reference tables, while data from 2013 to 2018 were collected from the 2019 capital market report.

The possibility of non-public companies to raise capital by issuing bonds, and the larger flexibility introduced by ICVM 476 transformed the Brazilian debt market. In 2009, restricted market emissions already represented 55.6% of the amount issued in the year. The adoption continued quickly, reaching 93.7% of the volume issued in 2011, and maintaining an average participation of 90.5% in the following years. ICVM 400 became restricted to large issues that needed to access a greater number of investors to complete their funding, as well as to companies widely known to the public, capable of using their reputations to sell their securities.

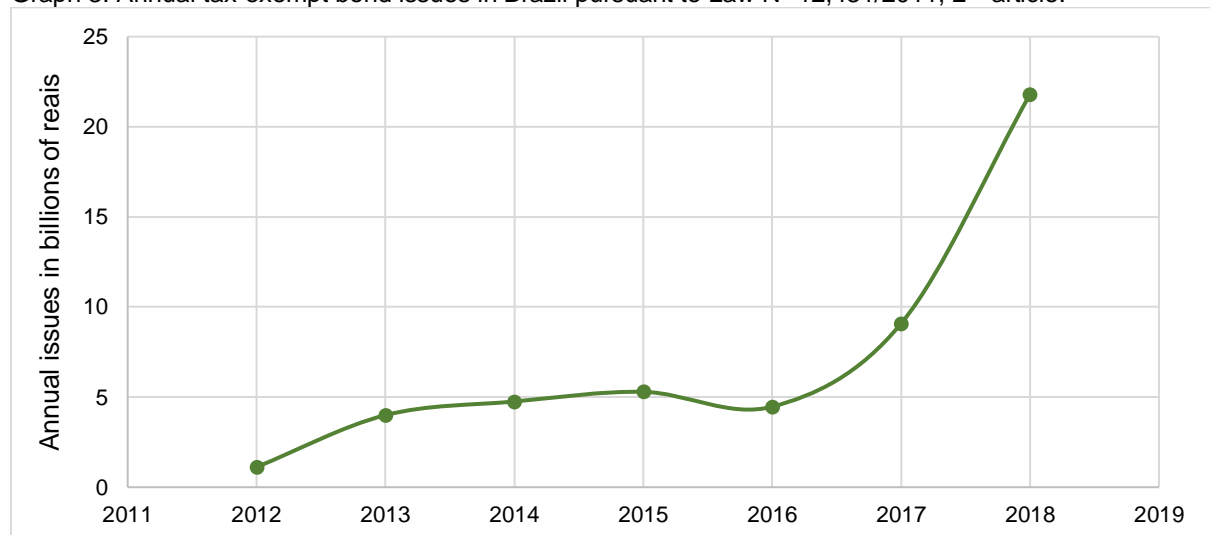
Intending to promote private investments on infrastructure and on research for innovation as well as foreign investments in the country, Brazilian Federal Government promulgated law Nº 12,431/2011 in June 2011. This regulation reduces to zero the income tax rate on compensations received by both individuals who invest in bonds issued by infrastructure companies, and foreigner investors² of any securities issued by non-financial companies.

Based on the new regulation, infrastructure companies, which generally have stable cash flows and high demands for capital, became able to finance themselves by issuing bonds with lower interest rates. This possibility also contributed to the observed increase in the volume of bond issues in the Brazilian market.

² Except for investors who reside in tax havens or in countries with income tax rates lower than 20%.

According to ANBIMA (2017, 2019), the annual volume of capital raised by infrastructure companies using tax-exempt bonds³ grew from R\$ 1.1 billion in 2012, to R\$ 9.1 billion in 2017. In 2018, annual issues reached R\$ 21.8 billion due to changes in policies practiced by the *Banco Nacional de Desenvolvimento Econômico e Social* (BNDES, Brazilian Development Bank, in English) in its operations, such as reductions in government subsidies, higher interest rates on loans, and decreased capital availability for new projects. Graph 3 presents the volume of tax-exempt corporate bonds issued annually in the Brazilian market pursuant to Law N° 12,431/2011, 2nd article.

Graph 3: Annual tax-exempt bond issues in Brazil pursuant to Law N° 12,431/2011, 2nd article.



Source: Prepared by the author based on data extracted from ANBIMA (2017, 2019). Data from 2012 were collected from the 2017 capital market report, while data from 2013 to 2018 were collected from the 2019 capital market report.

The data presented show that recent changes made to the legislation and to the economic policy have brought about deep transformations in the Brazilian debt market. The volume of annual issues has grown dramatically, not only due to greater flexibility in issuing processes, as well as to non-public companies having access to the capital market, but also as a result of rearrangements in incentives for both investors and issuers. This work investigates whether and how those changes have affected bonds' characteristics and covenants in the ten years following the ICVM 476 publication.

³ Considering only income tax-exempt bonds pursuant to the 2nd article of Law N° 12,431/2001.

3 Database and Methodology

This work follows the covenant classification proposed in Anderson (1999), with some adjustments, and the methodology from Filgueira and Leal (2000) to compare the recent sample to the results of previous studies. Appendix A presents a description of each covenant and feature collected from the bond indentures.

For each bond indenture in the sample, the trial in reading it can result in success or failure in finding a certain covenant or feature of interest. Assuming that the probability of success in finding a particular covenant in each trial is not correlated to the probability in any other trial⁴, the objective is therefore to analyze whether or not the obtained frequency of occurrence of each bond indenture condition in this sample is statistically different to those observed in previous studies, using 90%, 95% and 99% two-tailed confidence intervals.

This methodology implies the assumption that each covenant of interest follows a binomial distribution given by the number of trials in the recent sample and the probability of success in finding that covenant as indicated by the previous papers' results. If the observed frequency of a determined bond indenture condition in the new sample is higher or lower than the two-tailed confidence interval critical values, calculated from the binomial distribution, the null hypothesis that the frequency of this condition has remained the same is rejected.

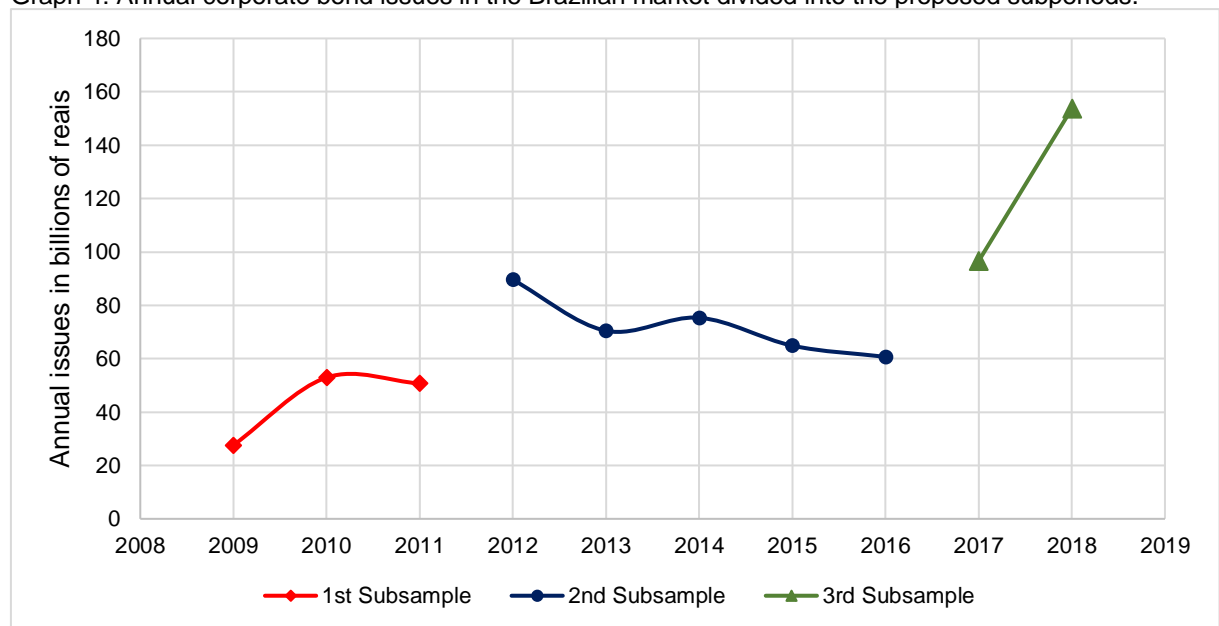
According to the ANBIMA's database available at the website "www.debentures.com.br", 2,221 corporate bonds were issued from January 2009 to December 2018. After excluding issues of leasing companies (9 issues) and issues of financial institutions (78 issues), due to the different nature of their assets and liabilities, the sample consisted of 2,134 bonds. From these, 209 issues were excluded since their indentures were not available in both of ANBIMA's data websites ("www.debentures.com.br" and "www.data.anbima.com.br") nor in their trustees' websites. Moreover, 12 other issues were excluded because they were designed to be

⁴ Although this assumption does not hold always, the results of the following sections are robust enough to be considered valid. This work does not access the potential impact of possible non-independence among observations.

When comparing results to those from previous papers, the sample was considered representative of the whole period ranging from 2009 to 2018, without any division into subperiods. For the second analysis, the sample was split into three parts: the first part ranges from the publication of ICVM 476 in 2009 to the promulgation of Law N° 12,431 in 2011; the second part ranges from the first emission pursuant to Law N° 12,431 in 2012 to 2016, when the fast cycle of interest rate reductions promoted by the government of President Michel Temer began; and the third part ranges from 2017 to 2018, a period of changes in Brazilian economic and fiscal policies.

For all subperiods, the subsample covers from January of the initial year to December of the final year. Graph 4 presents the total amount issued per year from 2009 to 2018, according to ANBIMA (2014, 2019), divided into the proposed subperiods.

Graph 4: Annual corporate bond issues in the Brazilian market divided into the proposed subperiods.



Source: Prepared by the author based on data extracted from ANBIMA (2014, 2019). Data from 2009 to 2012 were collected from the reference tables of the 2014 capital market report and data from 2013 to 2018 were collected from the 2019 capital market report.

The proposed subperiods split the sample into three distinct moments for the Brazilian corporate bond market. From 2009 to 2011, the annual issues grew in response to the ICVM 476 publication. However, due to high domestic interest rates, BNDES' subsidized interest rates, and the lack of incentives to bonds issues, bond issues did not exceed the sum of R\$ 60.0 billion per year.

After the promulgation of Law N° 12,431/2011 and the first income tax-exempt bonds were issued, the bond market almost reached R\$ 90.0 billion in 2012. However, the Brazilian economic recession, which lasted from the end of 2013 to 2016, in addition to BNDES' subsidized interest policy, not only prevented the market from maintaining its growth, but also led to a sharp decline in the amount of capital raised by bonds per year.

In late 2016, Brazil faced a huge shift on its economic and fiscal policies due to the impeachment of President Dilma Rousseff, and the subsequent inauguration of the President Michel Temer's government. The new administration promoted a tight fiscal policy, limiting public expenditures, reduced the Brazilian interest rate and put an end to BNDES' subsidized interest policy. These changes restricted the financing options available to companies and promoted tax-exempt bonds as a cheaper capital source for infrastructure investments, which resulted in the bond market recording nearly R\$ 100.0 billion in annual issues in 2017, in addition to over R\$ 150.0 billion in 2018.

For some of the following analysis, these three subsample contexts were used to explain outcomes found.

The sample was then split in accordance with the bonds' issuing procedure, whether ICVM 400 or ICVM 476, in order to verify whether ICVM 476 bonds have different features or covenant frequencies, thereby resulting in a new type of bond; or whether they are simply substitutes for ICVM 400 bonds. In this analysis, frequencies of occurrences of each feature or covenant in both subsamples were compared using a test for two unknown proportions, as described by Sweeney, Williams and Anderson (2013, pp. 463-470).

Furthermore, this work adopts the classification of issuing companies proposed by Kwan and Carleton (2010), to investigate whether there is any relationship between issuing companies' behaviours and their bonds' characteristics, features, and covenants.

4 Results and Discussion

First, this session presents a brief analysis of the microstructure of the Brazilian bond market, regarding its agents and players, and some bonds' characteristics. Then, the sample results are compared to those from other studies, indicating whether the frequency of each covenant or feature has been kept the same and if these frequencies varied inside the sample. Next, the sample is divided according to the issuing process rule with the purpose of comparing the frequencies of features and covenants in the ICVM 476 bonds to those in the ICVM 400 bonds issued from 2009 to 2018. In the last analysis, this work presents some information about the general meeting of debenture holders quorums specified in each issue indenture.

4.1 Microstructure Aspects of the Brazilian Bond Market

Ten years after the publication of ICVM 476 in 2009, not only has the annual volume of corporate bond issues grown more than 425%, but investors and issuers' preference for certain covenants, features and bond types has also changed.

According to their claim priority, bonds can be formally divided into secured, senior, unsecured, and subordinated, in descending order of priority. Despite the formal classification, a number of unsecured bonds may present third-party guarantees or collaterals, which can only be pledged if the issuer's assets are insufficient to handle the protected debt. Table 4 presents the claim priority for the bonds in the sample.

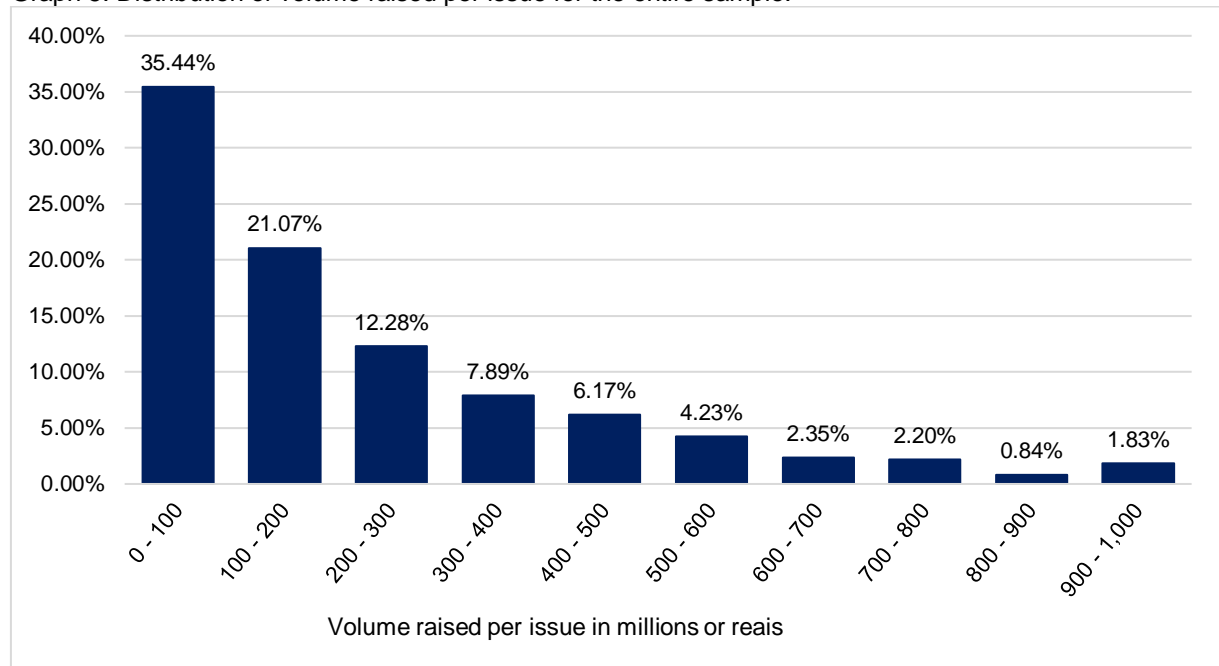
Table 4: Claim priority of bonds in the sample per year.

Year	Volume of Issues - billions of reais				Total
	Secured	Senior	Unsecured	Subordinated	
2009	3.7 (16%)	2.1 (9%)	13.0 (57%)	3.9 (17%)	22.7 (100%)
2010	7.2 (17%)	3.6 (8%)	26.0 (62%)	5.5 (13%)	42.2 (100%)
2011	6.9 (14%)	2.4 (5%)	38.7 (78%)	1.5 (3%)	49.4 (100%)
2012	13.5 (17%)	0.0 (0%)	62.1 (79%)	2.6 (3%)	78.1 (100%)
2013	13.1 (20%)	0.3 (0%)	50.6 (78%)	0.6 (1%)	64.6 (100%)
2014	16.0 (27%)	0.3 (1%)	43.0 (72%)	0.6 (1%)	59.9 (100%)
2015	14.6 (26%)	0.2 (0%)	41.1 (74%)	0.0 (0%)	55.9 (100%)
2016	19.6 (41%)	0.0 (0%)	28.5 (59%)	0.3 (1%)	48.4 (100%)
2017	13.7 (18%)	0.4 (1%)	61.3 (81%)	0.2 (0%)	75.7 (100%)
2018	29.7 (20%)	1.5 (1%)	115.5 (79%)	0.1 (0%)	146.9 (100%)
Total	138.0 (21%)	10.8 (2%)	479.6 (75%)	15.3 (2%)	643.7 (100%)

Source: Author.

Despite the high standard deviation of face values in the sample, 56.51% of the issues raised R\$ 200.0 million or less, and only 17.15% raised more than R\$ 500.0 million. Except for 2018, the average face value was always below R\$ 400.0 million, indicating that only recently has the economic environment developed enough to support issuers to seek higher emissions. Graph 5 presents the distribution of volume raised by issue.

Graph 5: Distribution of volume raised per issue for the entire sample.



Source: Author. Notes: (1) Each range of emission volume considers the lower boundary not included and the upper boundary included. (2) Issues with volumes higher than R\$ 1.0 billion represent together 5.70% of the sample and are not shown in the graph. (3) This analysis considers the 1,913 issues without their divisions in tranches, because it would distort the metrics of volume per issue.

Regarding bond maturity, the average term has varied little over the years, although emissions individually have very different maturities. The bond with the lowest term was issued in 2018 and was due in 46 days, while the bond with the highest term was issued in 2015 and has a maturity of almost 36 years. Table 7 presents the average maturity and the volume weighted average maturity for the years in the sample.

Table 7: Average maturities for the years in the sample.

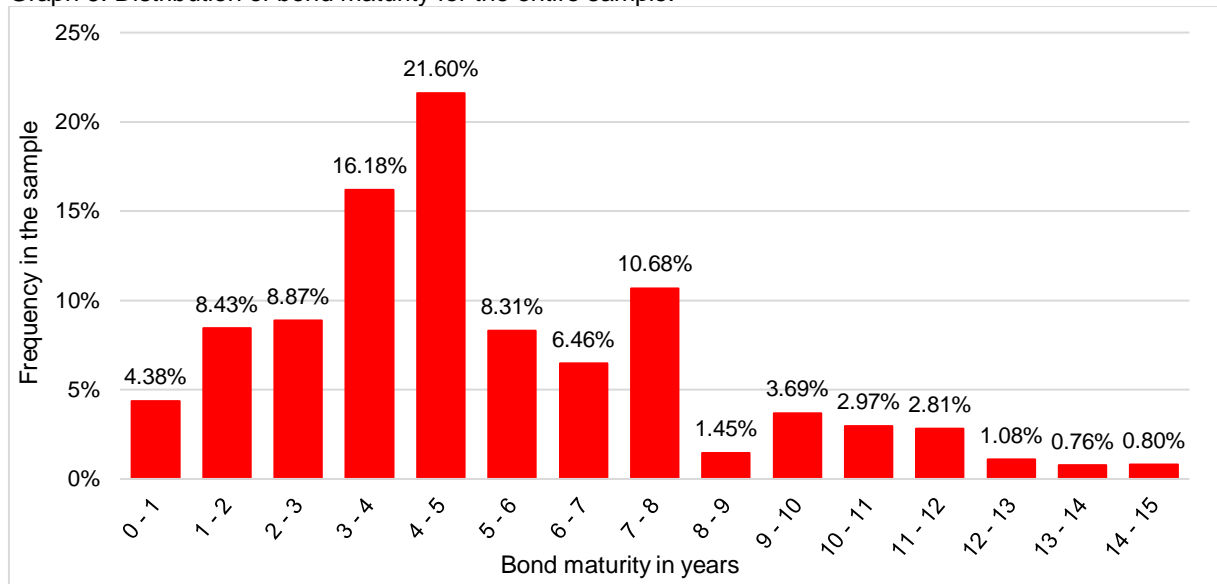
Year	Average Maturity (in years)	Volume Weighted Average Maturity (in years)
2009	4.86	5.20
2010	5.72	5.52
2011	5.71	5.94
2012	5.84	6.95
2013	5.75	6.27
2014	5.31	5.45
2015	4.68	5.27
2016	4.49	4.97
2017	5.39	5.24
2018	5.74	6.45
Sample	5.42	5.90

Source: Author.

According to the sample, there are little differences in each year between the average maturity, which considers only the number of issues and their terms, and the volume weighted average maturity, which weighs the term of each issue according to how much its volume represents in the total issued per year. This indicates that the volume issued has little influence on the bond's term. Indeed, the correlation between these variables in the sample is only 0.09.

Graph 6 presents the distribution of maturities for all issues in the sample. According to those results, 80.5% of the issues have a term between 1 and 8 years, 37.8% of the sample is concentrated in the range of 3 to 5 years of maturity, and only 10% have a maturity over 10 years. These findings indicate that despite its recent growth, the Brazilian corporate bond market was focused on small and medium size emissions with short terms, maybe due to the economic recession in the Brazilian economy from the end of 2013 to 2016, and due to investors' and issuers' lack of confidence in any growth resumption. This scenario seems to have changed only in late 2017 and 2018, when both the average maturity and the average face value began to rise.

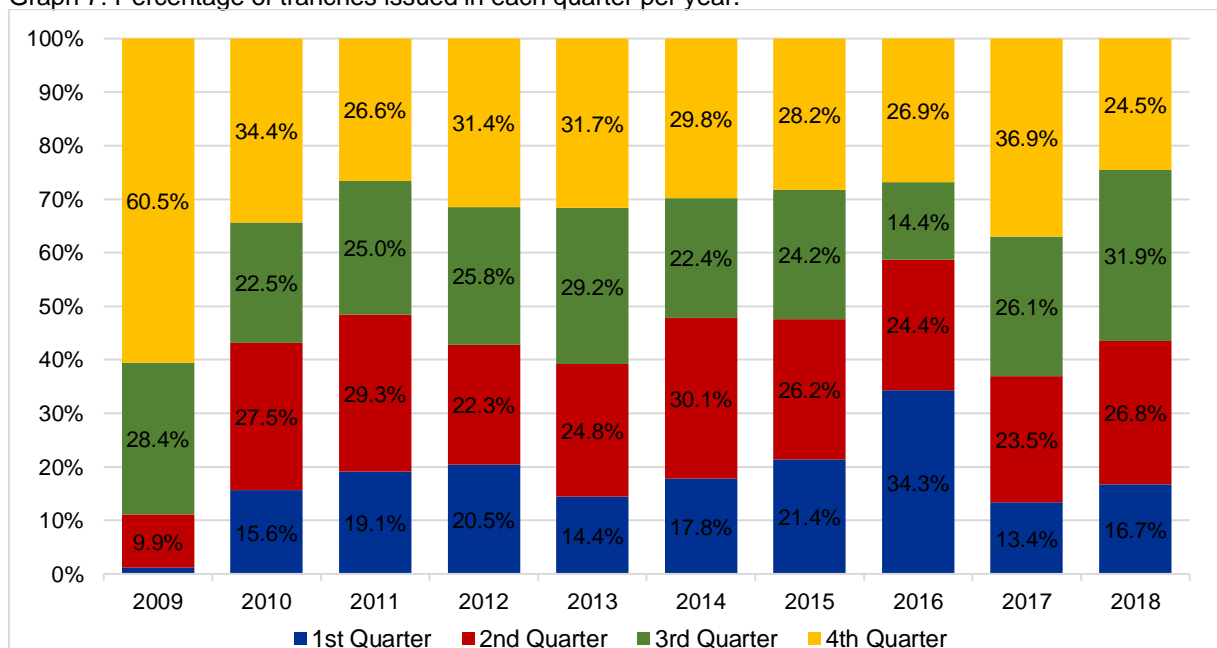
Graph 6: Distribution of bond maturity for the entire sample.



Source: Author. Notes: (1) Each range of emission maturity considers the lower boundary not included and the upper boundary included. (2) Issues with maturity longer than 15 years represent together approximately 1.5% of the sample and are not presented in the graph.

Of the 2,491 tranches in the sample, 30.7% of them were issued in the 4th quarter, and December alone represented 12.8%, showing that issuers may perceive a better market window for year-end emissions. On the other hand, only 18.1% of the issues were launched in the 1st quarter, also probably due to the high frequency of emissions in the end of previous years. Graph 7 presents the percentage of bonds issued in each quarter per year.

Graph 7: Percentage of tranches issued in each quarter per year.



Source: Author.

Additional research is needed to explore these phenomena, propose hypothesis and confirm these results for other periods, but the data indicate a strong market preference for issuing in the second week, between days 8 and 15 of each month, since this period corresponded to 43% of the issues and to 42.2% of the volume in the sample. The first week of each month was the least preferred, accounting for 16.5% of the issues.

Results on quarter frequencies and on week frequencies presented no significant difference if calculated using volume issued instead of number of issues.

The publication of ICVM 476 opened the debt market for non-public companies and increased the flexibility for corporate bond emissions, raising the number of issues and issuers in recent years. However, the quantity of emission-related service providers has not kept pace with such growth. Of the total R\$ 643.7 billion raised between 2009 and 2018, more than 50% was backed by the two biggest lead underwriters. Together, the nine biggest lead underwriters represent 90% of the volume issued, indicating a market concentration in the bond emission process. Table 8 presents the total amount backed by the ten biggest lead underwriters in the sample.

Table 8: Top 10 lead underwriters by volume backed in the sample.

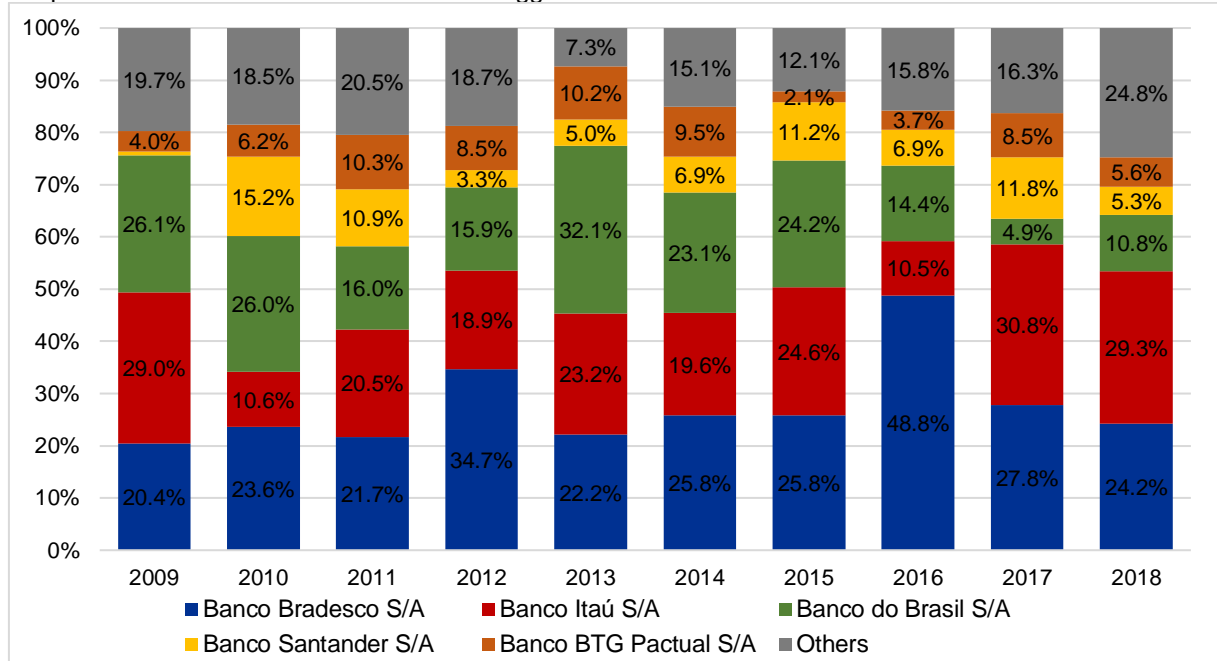
Lead Underwriter (Institution or Group)	Percentage of the total amount raised in the 2009-2018 period
Banco Bradesco S/A	27.47%
Banco Itaú S/A	22.95%
Banco do Brasil S/A	17.38%
Banco Santander S/A	7.48%
Banco BTG Pactual S/A	7.02%
Banco Votorantim S/A	2.26%
Banco Citibank S/A	2.01%
Banco ABC-Brasil S/A	1.99%
Banco Caixa Econômica Federal	1.57%
Banco Safra S/A	1.01%
Others	8.85%

Source: Author.

Despite the existence of more than 60 different financial institutions providing underwriting services in the sample, only 10 of them have backed enough issues to represent 1% or more of the sample. Concerning the full 2009-2018 period, the number of underwriters supporting issues in the same year did not surpass 27, and the five

biggest financial institutions together backed 75% or more of the capital raised by bonds each year, as shown in Graph 8.

Graph 8: Market share evolution of the five biggest lead underwriters.

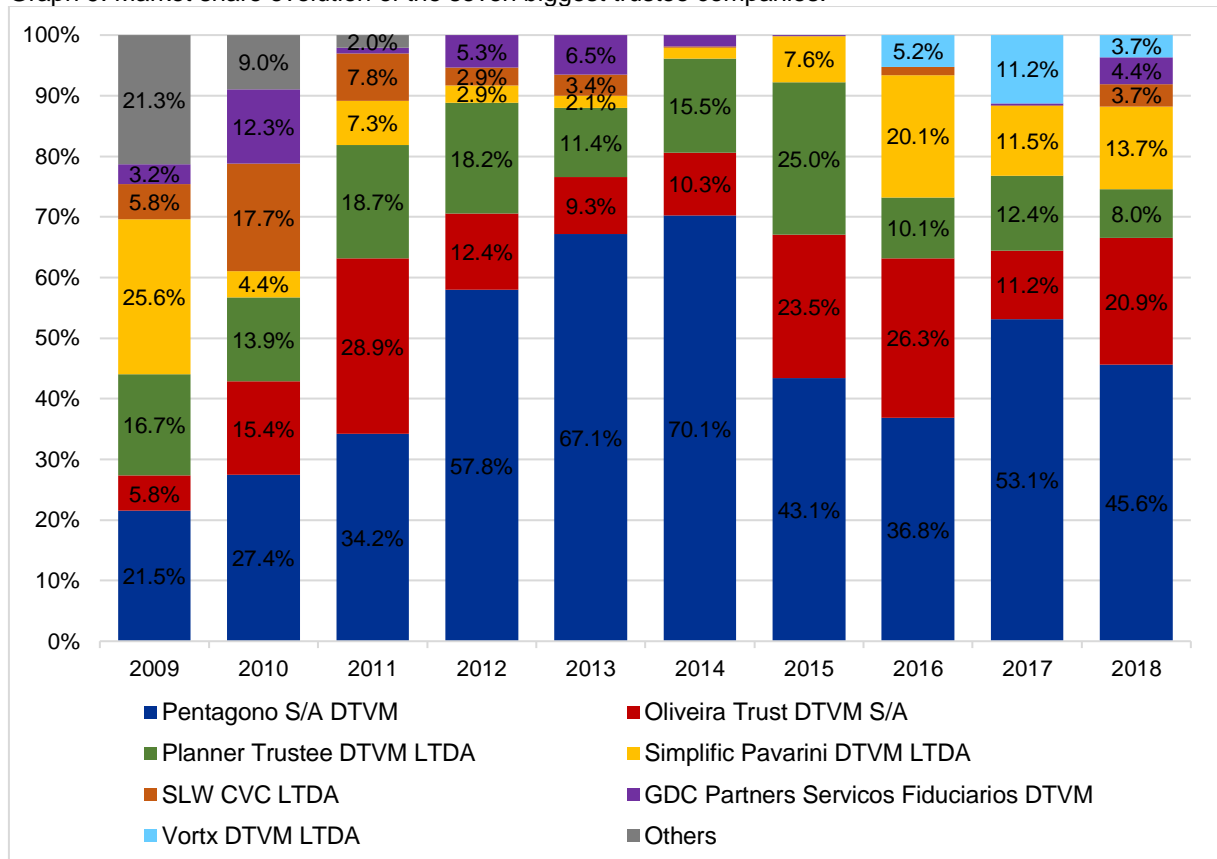


Source: Author. Note: Percentages calculated in relation to the total amount raised by bonds each year.

Since the lead underwriter is one of the most influential agents in the issuing process and is responsible for the securities allocation, the observed concentration may be harmful for the bond market, leading to possible inefficiencies such as non-competitive issuing costs, highly standardized indentures without flexibility, conflicts of interests between the issuer and the underwriters, and institutional allocation of securities, which is the assignment of higher quality issues to preferred investors and funds.

The same could be observed for other financial services related to bond issues. Of the 22 trustee companies listed in the sample, 15 of them did not reach 0.5% of the total amount raised in the period, while the other seven, together, provided trustee services for 98.3% of the capital raised by the bonds in the sample. From 2012 on, the group of smaller companies represented together less than 1% of the amount raised each year, and, in 2018, they had no emissions. Graph 9 presents the market share evolution of the seven biggest trustee companies.

Graph 9: Market share evolution of the seven biggest trustee companies.



Source: Author. Note: Percentages calculated in relation to the total amount raised by bonds each year.

As one may observe, the market for the trustee services was even more concentrated than the market of underwriters, leading to the same inefficiencies, such as non-competitive issuing costs and highly standardized indentures without flexibility, but with less harm for both issuers and investors.

4.2 Historical Comparison of Features and Covenants

As attested by Saito, Sheng and Bandeira (2007) and previous studies, after the economic stabilization promoted by the Plano Real in 1994, the frequency of bonds indexed to inflation has dropped from 88% in the 1989–1993 period to only 20% in the 2002–2005 period. Also, the frequency of indexation to foreign exchange rate variation has decreased to almost zero since many companies became able to access international markets to raise capital in foreign currencies. In this sense, it is expected that these features become even more rare in recent years.

Regarding compensation, Saito, Sheng and Bandeira (2007) have documented the shift from fixed interest rates, which is often used with monetary correction features, to floating rates as the principal mechanism of bond remuneration. The authors argued that the preference for floating rates rather than fixed rates was due to the need for protection against the high volatility of interest rates in that period.

After the sharp reduction in the Brazilian interest rate during the period from 2005 to 2009, the need for protection against interest rate volatility has been reduced, making room for remuneration models that involve fixed rates tied to floating rates. Therefore, it is expected to find in recent years a lower frequency of pure floating rate remunerations and a higher incidence of compensation clauses that mix the market level of interest rate (floating rate) with the necessary remuneration for specific risks, such as credit, maturity and liquidity, among others (fixed rate). Table 9 presents the results for monetary correction features and remuneration clauses, confirming the expected outcome.

Table 9: Results for monetary correction features and remuneration clauses.

Covenant/Feature	Sample Frequency					Statistical Tests			
	Results in percentages					Comparing 2009-2018			
	89-93 (50)	94-97 (96)	98-01 (119)	02-05 (141)	09-18 (2,491)	with 89-93	with 94-97	with 98-01	with 02-05
Monetary Correction									
No indexation	0	41	68	78	81.0	G***	G***	G***	G***
Indexed to inflation	88	59	32	20	18.6	S***	S***	S***	S*
Indexed to foreign exchange rate variation	12	0	0	2	0.4	S***	N.D.	N.D.	S***
Remuneration									
No interest	36	3	3	0	0.2	S***	S***	S***	N.D.
Fixed interest	56	57	33	21	19.8	S***	S***	S***	N.D.
Floating interest	7	5	18	76	21.8	G***	G***	G***	S***
Floating interest added to fixed interest	2	34	47	4	58.2	G***	G***	G***	G***

Source: Prepared by the author based on Anderson (1999) for the January 1989 to December 1993 period sample, on Filgueira and Leal (2000) for the July 1994 to December 1997 period sample, on Saito et al. (2005) for the January 1998 to December 2001 period sample, on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample, and on this work's database for the January 2009 to December 2018 period sample. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval.

Table 10 presents the results for the in-sample analysis and the comparison with the 2002-2005 period sample from Saito, Sheng and Bandeira (2007). The outcomes show two effects that happened in recent years. The first is a greater frequency, in the 2017-2018 subsample, of fixed interest rates associated with monetary corrections indexed to inflation. This is due to a larger amount of tax-exempt infrastructure bonds issued in that period, which require, according to Law N° 12,431/2001, a non-floating interest rate to be eligible for the tax exemption benefit.

Table 10: In-sample results for monetary correction and remuneration clauses.

Covenant/Feature	Sample Frequency				Statistical Tests		
	Results in percentages				09-11	12-16	17-18
	02-05 (141)	09-11 (429)	12-16 (1,358)	17-18 (704)	with 02-05	with 09-11	with 12-16
Monetary Correction							
No indexation	78	80.7	83.2	77.0	N.D.	G**	S***
Indexed to inflation	20	18.9	16.3	22.9	N.D.	S**	G***
Indexed to foreign exchange rate variation	2	0.5	0.4	0.1	S**	N.D.	N.D.
Remuneration							
No interest	0	0.0	0.4	0.0	N.D.	N.D.	N.D.
Fixed interest	21	19.8	17.5	24.3	N.D.	S**	G***
Floating interest	76	13.3	19.0	32.2	S***	G***	G***
Floating interest added to fixed interest	4	66.9	63.1	43.5	G***	S***	S***

Source: Prepared by the author based on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample, and on this work database for January 2009 to December 2018 subsamples. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval.

The second effect observed is related to the use of pure floating interest rates and remuneration models that mix fixed and floating interest rates. After a huge decline in the use of pure floating interest rates from 76%, in the 2002-2005 sample, to only 13.3% in the 2009-2011 sample, and an evident preference for mixed remuneration models, the frequency of floating interest rates rose again, particularly between 2017 to 2018. This could be explained by the decrease in the interest rate level that

happened in late 2016 and 2017, which may have encouraged some companies to prefer floating rates, expecting further decreases in the interest rate to lower their debt costs.

As proposed by Anderson (1999), scheduled recontracting is a possible substitute for short-term debt to reduce agency costs since it forces the company to renegotiate terms and remuneration with its debt holders in order to reflect any new condition or risk that may have arisen.

Filgueira and Leal (2000) evidenced that, after the economic stabilization promoted by the Real Plan, the frequency of schedule recontracting has dropped from 66% in the 1989-1993 sample, to only 26% in the 1994-1997 sample. Saito, Sheng and Bandeira (2007) confirmed this trend, showing that only 7% of bond indentures present this feature in the 2002-2005 sample. These evidences corroborated Anderson's hypothesis, indicating that a more stable economic environment is associated with a lower need for recontracting clauses. Therefore, an even lower frequency of this feature is expected in the recent sample.

Previous studies indicate that the frequency of call provisions has been at least 60% since the 1989-1993 sample, except for the period from 2002 to 2005, when the frequency was only 28%. Saito, Sheng and Bandeira (2007) argued that it could be due to a higher presence of floating rate remuneration, which decreases the use of call provisions to adjust the bond interest to the market level. Following this argument, one expects to find a lower frequency of callable bonds in the recent sample since most bonds have a mixed remuneration model indexed to market interest. Table 11 summarizes the results for contingent maturity features.

Table 11: Results for contingent maturity features.

Covenant/Feature	Sample Frequency Results in percentages					Statistical Tests Comparing 2009-2018			
	89-93 (50)	94-97 (96)	98-01 (119)	02-05 (141)	09-18 (2,491)	with 89-93	with 94-97	with 98-01	with 02-05
Contingent Maturity									
No Contingent Maturity	18	1	9	3	26.7	G***	G***	G***	G***
Scheduled Recontracting	66	26	28	7	1.2	S***	S***	S***	S***
Call Provision	60	98	85	28	73.1	G***	S***	S***	G***
Call Provision and Scheduled Recontracting	61	25	24	9	1.0	S***	S***	S***	S***
Call Provision or Scheduled Recontracting	82	99	90	36	73.3	S***	S***	S***	G***

Source: Prepared by the author based on Anderson (1999) for the January 1989 to December 1993 period sample, on Filgueira and Leal (2000) for the July 1994 to December 1997 period sample, on Saito et al. (2005) for the January 1998 to December 2001 period sample, on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample, and on this work's database for the January 2009 to December 2018 period sample. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval.

The observed outcome shows that the frequency of scheduled recontracting has declined as expected; however, the presence of call provisions rose despite the high use of floating rates added to fixed rates, which may indicate that this provision is not related to the remuneration model adopted in bond indentures. In-sample results, presented in Table 12, reinforce this hypothesis, showing that the frequency of call provisions has not decreased in response to a higher use of pure floating interest in the 2017-2018 period.

Table 12: In-sample results for contingent maturity features.

Covenant/Feature	Sample Frequency Results in percentages				Statistical Tests		
	02-05 (141)	09-11 (429)	12-16 (1,358)	17-18 (704)	09-11 with 02-05	12-16 with 09-11	17-18 with 12-16
Contingent Maturity							
No Contingent Maturity	3	25.4	27.1	26.7	G***	N.D.	N.D.
Scheduled Recontracting	7	3.7	0.4	1.3	S***	S***	G***
Call Provision	28	73.7	72.9	73.2	G***	N.D.	N.D.
Call Provision and Scheduled Recontracting	9	2.8	0.4	1.1	S***	S***	G**
Call Provision or Scheduled Recontracting	36	74.6	72.9	73.3	G***	N.D.	N.D.

Source: Prepared by the author based on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample and on this work's database for January 2009 to December 2018 subsamples. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval.

Regardless of the remuneration model adopted, issuers' preference for call provisions over scheduled recontracting features may be due to how each clause works. In a scheduled recontracting, the issuer must redeem all bonds from investors who did not accept the new terms. Eventually, this could result in a cash shortfall for the company, and even a bankruptcy event, if many investors disagree with the proposed conditions. Also, after the recontracting date is determined in the bond indenture, the issuer has little or no power to change it without bondholders' consent.

On the other hand, call provisions are options that allow the company to redeem its securities when it is convenient, although subject to certain restrictions. Despite being more costly, call provisions can be activated only by the issuing company, which gives it the flexibility to only redeem its bonds under favorable circumstances.

As previous studies indicate, dividend covenants are one of the most common restrictions found in Brazilian bond indentures. Except for the 1998-2001 sample, more than 65% of the indentures posed some degree of dividend restriction. This is not a surprise since dividends transfer assets from the firm to its stockholders, decreasing

the company's availabilities and increasing its default risk. Therefore, it is in the interest of bondholders to restrict the payment of dividends by the company, reducing the likelihood of debt holder's wealth expropriation.

The results presented in Table 13 show that the frequency of dividend covenants further increased in the recent years. The presence of covenants that restrict dividends when the company is in arrears on payments to bondholders grew from 67%, to more than 80%. Restriction on dividends as a function of financial statement variables also increased, reaching almost 12% of the issues.

Table 13: Results for dividend covenants.

Covenant/Feature	Sample Frequency Results in percentages					Statistical Tests Comparing 2009-2018			
	89-93 (50)	94-97 (96)	98-01 (119)	02-05 (141)	09-18 (2,491)	with 89-93	with 94-97	with 98-01	with 02-05
Dividend Restrictions									
No dividend restrictions	32	27	48	27	17.6	S***	S***	S***	S***
No dividends permitted or no dividends permitted when in arrears on payments to bondholders	68	70	46	67	80.5	G***	G***	G***	G***
Restriction on dividends as a function of financial statement variables	8	4	5	6	11.9	G***	G***	G***	G***
Other restrictions on cash flows to related parties (a)	2	10	3	0	84.4	G***	G***	G***	G***

Source: Prepared by the author based on Anderson (1999) for the January 1989 to December 1993 period sample, on Filgueira and Leal (2000) for the July 1994 to December 1997 period sample, on Saito et al. (2005) for the January 1998 to December 2001 period sample, on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample, and on this work's database for the January 2009 to December 2018 period sample. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (a) The expressive growth observed in the frequency of other restrictions on cash flow to related parties is mainly due to changes in the classification parameters of this clause for this work. For more information, see the detailed descriptions in Appendix A.

In-sample results (see Table 14) indicate that the growth in the use of this type of covenant has followed the development of the Brazilian bond market in recent years. In the 2017-2018 subsample, more than 90% of bond indentures have at least one dividend restriction, and almost 93% have covenants regarding cash distributions other than dividends.

Table 14: In-sample results for dividend covenants.

Covenant/Feature	Sample Frequency Results in percentages				Statistical Tests		
	02-05 (141)	09-11 (429)	12-16 (1,358)	17-18 (704)	09-11 with 02-05	12-16 with 09-11	17-18 with 12-16
Dividend Restrictions							
No dividend restrictions	27	24.5	19.9	9.1	N.D.	S***	S***
No dividends permitted or no dividends permitted when in arrears on payments to bondholders	67	74.1	77.9	89.5	G***	G***	G***
Restriction on dividends as a function of financial statement variables	6	6.1	12.9	13.6	N.D.	G***	N.D.
Other restrictions on cash flows to related parties (a)	0	70.4	84.5	92.9	G***	G***	G***

Source: Prepared by the author based on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample and on this work's database for the January 2009 to December 2018 subsamples. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (a) The expressive growth observed in the frequency of other restrictions on cash flow to related parties is mainly due to changes in the classification parameters of this clause for this work. For more information, see the detailed descriptions in Appendix A.

Despite the high frequency observed, this covenant may not protect bondholders well, since most issues only prohibit dividends when the company is late with interest or principal payments, which indicates an already high default risk. As Saito, Sheng and Bandeira (2007) stated, the low frequency of restriction on dividends as a function of financial statement variables may leave bondholders unprotected against some agency conflicts.

In the sample analyzed by Anderson (1999), more than 50% of bond issues had no investment covenant, and only insurance requirements and restrictions to operate beyond corporate objectives presented significative frequencies. The author argued that the low use of investment covenants in a volatile economic environment was expected since they would limit future investment, consequently leading to significant ex-post inefficiencies, as well as imply a difficult monitoring and elevated enforcement costs.

Results from Filgueira and Leal (2000), and Saito, Sheng and Bandeira (2007) follow the same path, indicating that the frequency of investment covenants has been growing since the Brazilian economic stabilization in 1994. Thus, it is expected to find an even higher presence of these restrictions in the recent sample, as confirmed by the results presented in Table 15.

Table 15: Results for investment covenants.

Covenant/Feature	Sample Frequency Results in percentages					Statistical Tests Comparing 2009-2018			
	89-93 (50)	94-97 (96)	98-01 (119)	02-05 (141)	09-18 (2,491)	with 89-93	with 94-97	with 98-01	with 02-05
Investment Restrictions									
No investment restrictions	52	29	33	2	0.5	S***	S***	S***	S***
Maintain insurance on properties	32	36	29	49	64.2	G***	G***	G***	G***
Prohibition of operations beyond corporate objective	28	38	30	67	94.3	G***	G***	G***	G***
Accelerated maturity in event of change in ownership and/or control	10	20	28	52	90.2	G***	G***	G***	G***
Prohibition on alienation of capital assets	4	5	17	23	53.2	G***	G***	G***	G***
Requirement to allocate funds raised pursuant to bond indenture	n.a.	n.a.	n.a.	n.a.	80.6	-	-	-	-

Source: Prepared by the author based on Anderson (1999) for the January 1989 to December 1993 period sample, on Filgueira and Leal (2000) for the July 1994 to December 1997 period sample, on Saito et al. (2005) for the January 1998 to December 2001 period sample, on Saito, Sheng and Bandeira (2007) for January 2002 to December 2005 period sample and on this work's database for the January 2009 to December 2018 period sample. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "n.a." stands for "not available" since these data were not collected in previous studies.

As one may observe, almost all issues in the 2009-2018 sample present at least one investment covenant, making it the most common type of covenant in Brazilian bond indentures. Indeed, approximately 65%⁶ of the recent issues have four or more restrictions on company's assets, operations, or ownership. This may be explained by

⁶ This percentage is 35% if the requirement to allocate funds raised pursuant to bond indenture were not considered.

a more developed institutional environment, which decreases monitoring and enforcement costs, and by more liquid markets for properties, goods, and receivables, making it easier to sell the pledged assets in case of default.

Since the firm's assets represent the last possibility of recovering the bondholders' capital in case of insolvency, covenants that restrict the company from disposing them are extremely relevant to protect claimants against agency problems such as asset stripping. Furthermore, the obligation to maintain insurance of properties aims to guarantee that these assets will be conserved, operational and available to face the firm's debt.

In a similar way, boundaries on company's operations and investments help bondholders to understand the inherent risks of the economic activity financed, and prevent managers from allocating the raised capital for purposes other than those fixed in the bond indenture. Without such restrictions, shareholders could expropriate creditors by allocating capital to riskier activities without remunerating them properly, a practice known as asset substitution.

Table 16 presents the results for the three subsamples, showing that the presence of investment covenants continued its growing trend after the ICVM 476 publication. For the third subsample (2017-2018), all issues have at least one investment covenant, and 75%⁷ of them have no less than four restrictive clauses.

⁷ This percentage is 35% if the requirement to allocate funds raised pursuant to bond indenture were not considered.

Table 16: In-sample results for investment covenants.

Covenant/Feature	Sample Frequency Results in percentages				Statistical Tests		
	02-05 (141)	09-11 (429)	12-16 (1,358)	17-18 (704)	09-11 with 02-05	12-16 with 09-11	17-18 with 12-16
Investment Restrictions							
No investment restrictions	2	2.6	0.1	0.0	N.D.	S***	N.D.
Maintain insurance on properties	49	60.8	62.2	70.3	G***	N.D.	G***
Prohibition of operations beyond corporate objective	67	88.3	95.1	96.4	G***	G***	N.D.
Accelerated maturity in event of change in ownership and/or control	52	84.4	90.5	93.0	G***	G***	G**
Prohibition on alienation of capital assets	23	37.8	53.6	61.8	G***	G***	G***
Requirement to allocate funds raised pursuant to bond indenture	n.a.	61.1	82.3	89.2	-	G***	G***

Source: Prepared by the author based on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample and on this work's database for the January 2009 to December 2018 subsamples. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (6) "n.a." stands for "not available" since these data were not collected in previous studies.

The high frequency observed for the examined covenants may have an additional explanation since they help both bondholders and minority shareholders in preventing agency conflicts with controlling shareholders. The presence of debt with restrictive covenants increases the number of external agents monitoring the firm's managers and limits the controller's ability to take decisions that exploit value from the company.

Therefore, it is reasonable to expect that both groups, bond investors and minority shareholders, demand company's debt indentures to contain covenants restricting management's actions. The first group can pressure issuers by not buying securities that do not have the desired clauses. The second can influence the board of directors to require some restrictive covenants on the firm's issues.

In the same sense, restrictions on the company's financing decisions are important to protect creditors against claim dilution. Whenever a firm issues debt and increases its leverage, the risk of default for all claimants also increases since the company equity cushion, available to protect it against downturns, becomes proportionally lower.

Despite its relevance, the frequency of issues without a single financing covenant was higher than 70% for all the previous samples except for the 1994-1997 period. Anderson (1999) argued that the absence of explicit financing restrictions is explained by the high presence of scheduled recontracting clauses, which work as implicit covenants, since bondholders would be able to put their securities back in a recontracting event if the new terms fail to adjust for past or potential claim dilution. Due to the strong decrease in recontracting features, one expects the recent sample to have a high frequency of financing restrictions.

Table 17 shows the results for the recent sample and compares them to those from previous studies. Additionally, this sample includes information about three other covenants not covered by previous papers: "no better condition allowed to new debt", which restricts the company to offer more favorable conditions to new creditors without extending those conditions to the bondholders; "cross-default or cross acceleration", which puts the issuer in default if it fails to pay any other obligation; and "debt limit", which limits the issuers' total debt based on financial statement variables. Appendix A presents the detailed description of all covenants collected.

Considering only the covenants examined in previous studies, the frequency of issues with no financing restrictions decreased from 75% in the 2002-2005 sample, to 28.9% in the 2009-2018 period, as expected. Taking into account the three new clauses analyzed, almost all issues have at least one restriction, and 55% present three or more financing covenants.

Table 17: Results for financing covenants.

Covenant/Feature	Sample Frequency Results in percentages					Statistical Tests Comparing 2009-2018			
	89-93 (50)	94-97 (96)	98-01 (119)	02-05 (141)	09-18 (2,491)	with 89-93	with 94-97	with 98-01	with 02-05
Financing Restrictions									
No financing restrictions - all covenants regarded (a)	n.a.	n.a.	n.a.	n.a.	0.2	-	-	-	-
No financing restrictions - old covenants regarded (b)	80	31	72	75	28.9	S***	S**	S***	S***
Restrictions on additional debt	4	16	16	21	15.1	G***	N.D.	N.D.	S***
Secured, third-party guaranteed, or privileged seniority debt (c)	30	40	21	3	70.3	G***	G***	G***	G***
No better conditions allowed to new debt	n.a.	n.a.	n.a.	n.a.	16.8	-	-	-	-
Cross-default or cross acceleration	n.a.	n.a.	n.a.	n.a.	98.1	-	-	-	-
Debt limit	n.a.	n.a.	n.a.	n.a.	61.6	-	-	-	-

Source: Prepared by the author based on Anderson (1999) for the January 1989 to December 1993 period sample, on Filgueira and Leal (2000) for the July 1994 to December 1997 period sample, on Saito et al. (2005) for the January 1998 to December 2001 period sample, on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample, and on this work's database for the January 2009 to December 2018 period sample. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (6) "n.a." stands for "not available" since these data were not collected in previous studies. (a) This category considers only issues without any of the financing covenants listed. (b) This category considers all issues without "restrictions on additional debt", and "secured, third-party guaranteed, or privileged seniority debt". (c) This category is equivalent to the categories "Third-party guarantees on debt", and "Secured or privileged seniority debt" from previous studies added. It is possible that some issues in previous samples have both covenants, resulting in double counting, but that would not change the significance found for the difference.

Despite its importance, restrictions on additional debt have presented a low frequency in the recent sample, which may be explained by a high presence of debt limiting covenants. The potential problem of the first clause is that it restricts all new debt, without considering the company's capacity to support more leverage, as well as the possibility that the new debt would be solely used to repay older or costlier debts.

On the other hand, the debt limit covenant is more flexible since it restricts only the total amount of debt that the company can have, and usually binds this limit to specific

financial statement variables, thereby enabling the possibility for the company to increase its leverage if its assets and operating flows were high enough to justify it.

The significant presence of cross-default or cross acceleration features represents an important protection to bondholders. With this clause, whenever the issuing company defaults in any other debt, either caused by non-payment or by breach of covenant, the bond also becomes due in advance. This feature is designed to prevent the company from selling assets or taking out emergency loans to raise cash and pay off the overdue debt, since these actions could further aggravate the default risk for the other creditors.

In some cases, the cross-default or cross acceleration feature may represent implicit covenants, which enhance the level of protection provided to bondholders. Through this clause, a single covenant violation on any company's debt would be able to trigger the default of all the firm's financial obligations. Therefore, even if a bond indenture lacks a specific restriction, bondholders can still be considered protected from a number of agency conflicts if the company's other debts include such covenants.

The observed results also evidence a huge increase in the frequency of secured or guaranteed bonds. This finding supports the hypothesis that the institutional environment and the asset markets have developed more in recent years, making bondholders more confident about the execution of collateralized assets and third-party guarantees. In-sample frequencies varied little in the period, as shown in Table 18, indicating that the market has reached an acceptable level of institutional protection to investors.

Table 18: In-sample results for financing covenants.

Covenant/Feature	Sample Frequency Results in percentages				Statistical Tests		
	02-05 (141)	09-11 (429)	12-16 (1,358)	17-18 (704)	09-11 with 02-05	12-16 with 09-11	17-18 with 12-16
Financing Restrictions							
No financing restrictions - all covenants regarded (a)	n.a.	0.2	0.4	0.0	-	N.D.	N.D.
No financing restrictions - old covenants regarded (b)	75	34.5	25.6	31.8	S***	S***	G***
Restrictions on additional debt	21	6.5	18.9	13.2	S***	G***	S***
Secured, third-party guaranteed, or privileged seniority debt (c)	3	64.1	73.7	67.6	G***	G***	S***
No better conditions allowed to new debt	n.a.	15.9	15.8	19.2	-	N.D.	G**
Cross-default or cross acceleration	n.a.	96.0	98.2	99.1	-	G***	G*
Debt limit	n.a.	68.5	56.8	66.6	-	S***	G***

Source: Prepared by the author based on Saito, Sheng and Bandeira (2007) for the January 2002 to December 2005 period sample and on this work's database for the January 2009 to December 2018 subsamples. Notes: (1) For each period, the number of observations in the sample is presented in parenthesis. (2) All the results are in percentages. (3) "G" ("S") indicates that the frequency in the 2009-2018 sample is greater (smaller) than the frequency in the sample in comparison. (4) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (5) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (6) "n.a." stands for "not available" since these data were not collected in previous studies. (a) This category considers only issues without any of the financing covenants listed. (b) This category considers all issues without "restrictions on additional debt", and "secured, third-party guaranteed, or privileged seniority debt". (c) This category is equivalent to the categories "Third-party guarantees on debt" and "Secured or privileged seniority debt" from previous studies added. It is possible that some issues in previous samples have both covenants, resulting in double counting, but that would not change the significance found for the difference.

4.3 Comparing ICVM 400 and ICVM 476 Bonds

After 2009, the ICVM 476 rule became strongly predominant among bond issues, mainly due to its flexibility and lower requirements for issuing securities. However, 5.38% of the bonds (7.95% of the tranches) were issued using the previous regulation, indicating that some issuing companies deliberately choose to use the ICVM 400, despite its greater complexity.

It is important to observe that these ICVM 400 issues were not uniformly distributed over time. In the first subperiod, from 2009 to 2011, while the market was adopting the new rule, ICVM 400 represented 11.68% of all bonds issued, but in the third subperiod, from 2017 to 2018, this percentage dropped to 2.87%. Of the 103 ICVM 400 bonds issued from 2009 to 2018, only 15 were issued in the last two years of the sample, indicating a huge and increasing preference for the new rule over the old one. Table 19 presents the number of ICVM 400 and ICVM 476 bonds in each subperiod.

Table 19: Number of ICVM 400 and ICVM 476 bonds in each subsample.

Subsample	Period	ICVM 400	ICVM 476	Proportion of ICVM 400
1st	09-11	39 (70)	295 (359)	11.68% (16.32%)
2nd	12-16	49 (100)	1,008 (1,258)	4.64% (7.36%)
3rd	17-18	15 (28)	507 (676)	2.87% (3.98%)
Whole Sample		103 (198)	1,810 (2,293)	5.38% (7.95%)

Source: Author. Notes: (1) This table considers the 1,913 issues without their divisions in tranches, but presents the information considering the 2,491 tranches in parenthesis.

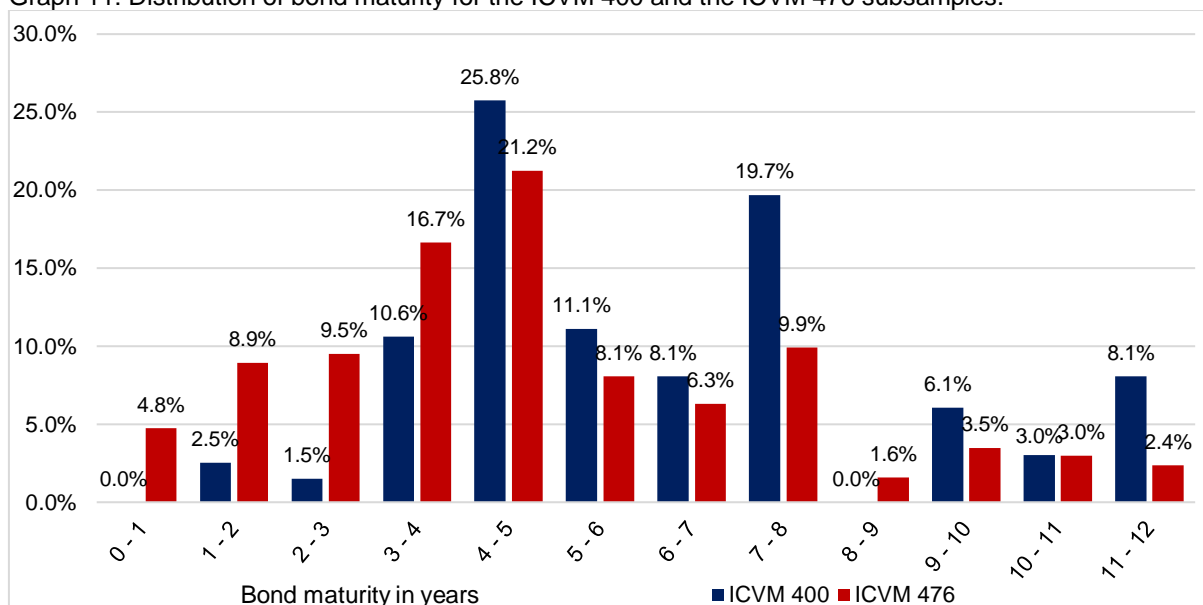
Since ICVM 400 bonds could be sold to any number of investors, these bonds could access a greater pool of capital, not limited to professional investors, which could explain the use of this regulation on some issues, even with the great prevalence of the new rule. This seems to be correct as ICVM 400 bonds presented an average volume per issue (see Table 20) that is two times the average of ICVM 476 issues.

Table 20: Comparison between ICVM 476 and ICVM 400 bonds.

Characteristic	ICVM 400 (198)	ICVM 476 (2,293)	Statistical Test for Mean Difference
Average Volume per Issue (R\$ million) (a)	640.76	319.19	Different***
Average Maturity (in years)	6.73	5.30	Different***
Average Number of Covenants and Features of Interest per issue (b)	8.53	8.99	Different***
Average Number of Contingent Maturity Features	0.40	0.77	Different***
Average Number of Dividend Covenants	1.67	1.78	Different*
Average Number of Investment Covenants	3.98	3.81	Different**
Average Number of Financing Covenants	2.48	2.63	Different***

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (a) This analysis considers the 1,913 issues (103 ICVM 400 bonds and 1,810 ICVM 476 bonds) without their divisions in tranches, because it would distort the metrics of volume per issue. (b) This category includes contingent maturity features and dividend, investment, and financing covenants of interest, as described in Appendix A.

Graph 11: Distribution of bond maturity for the ICVM 400 and the ICVM 476 subsamples.



Source: Author. Notes: (1) Each range of maturity considers the lower boundary not included and the upper boundary included. (2) Issues with maturities longer than 12 years represent together approximately 3.54% of the ICVM 400 subsample and 4.23% of the ICVM 476 subsample and are not presented in the graph.

Characteristics like higher average volume and longer average term are often associated with infrastructure projects, which are capital intensive and require a longer period to produce cash flows and repaid debts.

In the sample, 30.3% of the ICVM 400 tranches⁸ benefit from Law N° 12,431/2011, but only 7.6% of the ICVM 476 tranches have that incentive. However, in absolute numbers, there are 175 ICVM 476 infrastructure tranches and only 60 ICVM 400 infrastructure tranches. This indicates that the higher frequency of infrastructure emissions among ICVM 400 bonds cannot totally justify the use of the old rule, although it may influence the results about covenants and features of interest.

Table 21 presents the frequency of monetary correction, remuneration and contingent maturity features in both subsamples, and the statistical significance of the differences found. The results are potentially influenced by the high presence of infrastructure bonds in the ICVM 400 subsample, benefiting from Law N° 12,431/2011, which has strict rules for certain features.

⁸ The term tranches are used in the paragraph to distinguish them from number of bonds, because certain bonds have tranches that benefit from Law N° 12,431/2011 and tranches that are not eligible. Therefore, the percentages were calculated based on number of tranches in order to better indicate the influence of the tax-exemption regulation in the frequencies of covenants and features of interest.

Table 21: Results for monetary correction, remuneration and contingent maturity features in the ICVM 400 and the ICVM 476 subsamples.

Covenant/Feature	Sample Frequency Results in percentages		Two-Tailed Statistical Test for Two Proportions
	ICVM 400 (198)	ICVM 476 (2,293)	
Monetary Correction			
No indexation	41.9	84.4	Different***
Indexed to inflation	58.1	15.2	Different***
Indexed to foreign exchange rate variation	0.0	0.4	N.D.
Remuneration			
No interest	0.0	0.3	N.D.
Fixed interest	58.1	16.5	Different***
Floating interest	3.5	23.3	Different***
Floating interest added to fixed interest	38.4	59.9	Different***
Contingent Maturity			
No Contingent Maturity	61.1	23.7	Different***
Scheduled Recontracting	2.5	1.1	Different*
Call Provision	37.4	76.2	Different***
Call Provision and Scheduled Recontracting	1.0	1.0	N.D.
Call Provision or Scheduled Recontracting	38.9	76.3	Different***

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (3) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval.

As one may observe, the ICVM 400 subsample has a higher frequency of indexation to inflation associated with fixed interest, and a lower presence of call provisions. These evidences could also be explained by the greater presence of infrastructure bonds in the subsample since Law N° 12,431/2001 only considers eligible for tax exemption, issues with prefixed interest rates, indexed or not to inflation or to a referential rate, and prohibits the issuing company from calling those bonds or making early amortizations.

The difference in the average number of covenants and features of interest between the subsamples (see Table 20), although statistically significant, has low economic significance since it does not reach 0.5 covenant per issue. This is evidence that, in terms of governance, both ICVM 400 and ICVM 476 bonds have the same level of protection to investors.

Despite this low economic significance, these results are in line with those presented by Kwan and Carleton (2010), who found a greater number of restrictive clauses in private-market issues. Table 22 details the frequency of occurrence of the covenants.

Table 22: Results for dividend, investment, and financing covenants in the ICVM 400 and the ICVM 476 subsamples.

Covenant/Feature	Sample Frequency Results in percentages		Two-Tailed Statistical Test for Two Proportions
	ICVM 400 (198)	ICVM 476 (2,293)	
Dividend Restrictions			
No dividend restrictions	19.7	17.4	N.D.
No dividends permitted or no dividends permitted when in arrears on payments to bondholders	78.3	80.7	N.D.
Restriction on dividends as a function of financial statement variables	11.1	12.0	N.D.
Other restrictions on cash flows to related parties	77.8	85.0	Different***
Investment Restrictions			
No investment restrictions	0.0	0.6	N.D.
Maintain insurance on properties	65.7	64.1	N.D.
Prohibition of operations beyond corporate objective	97.0	94.1	Different*
Accelerated maturity in event of change in ownership and/or control	89.9	90.2	N.D.
Prohibition on alienation of capital assets	64.6	52.2	Different***
Requirement to allocate funds raised pursuant to bond indenture	80.8	80.6	N.D.
Financing Restrictions			
No financing restrictions	0.0	0.3	N.D.
Restrictions on additional debt	6.6	15.9	Different***
Secured, third-party guaranteed, or privileged seniority debt	43.4	72.7	Different***
No better conditions allowed to new debt	18.2	16.7	N.D.
Cross-default or cross acceleration	100.0	98.0	N.D. (a)
Debt limit	79.8	60.0	Different***

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (3) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (a) The reported frequencies are statistically different for the 95% confidence interval, but the necessary conditions to make the test valid were not met (minimum of five observations without the analyzed covenant in the ICVM 400 subsample).

Most of the covenants analyzed presented no significant differences between the subsamples. Of the observed dividend covenants, the only difference is a lower frequency of "other restrictions on cash flows to related parties" in the ICVM 400 subsample, but this information by itself is insufficient to draw possible hypotheses.

Regarding the investment covenants, the results show a higher frequency of “prohibition on alienation of capital assets” in the ICVM 400 subsample, which again could be related to a greater proportion of infrastructure bonds.

The main differences found are related to the financing covenants. Despite the lower frequency of “restrictions on additional debt” in the ICVM 400 subsample, it presented almost 20% more issues with covenants limiting the company’s total debt, which is more flexible than restricting any new debt, and also protects the investors from being expropriated.

The most prominent difference is in the proportion of secured issues or with third-party guarantees. While 72.7% of the ICVM 476 issues have at least one guarantee mechanism, only 43.4% of the ICVM 400 subsample presented this feature. Although it may indicate a lower protection for investors, the lack of guarantee is probably related to the hypothesis that well-known companies prefer to use the ICVM 400 rule to spread their bonds among investors, and need less guarantee mechanisms to succeed in their distribution. Also, it is possible that higher volume emissions were more costly to secure, reducing this protection in the ICVM 400 subsample.

The previous analyses consider the whole sample, with issues from 2009 to 2018, to understand the main differences between ICVM 400 and ICVM 476 bonds. Since some of these bonds were issued in the first years of ICVM 476, they may reflect an adoption process under which some companies may have issued in the old rule because they were not familiar with the new rule. To overcome this possibility and better understand the differences of those subsamples in recent years, Table 23 presents an analysis of the differences between ICVM 400 and ICVM 476 bonds, considering issues only from 2017 and 2018.

Table 23: Comparison between the ICVM 400 and the ICVM 476 bonds raised from 2017 to 2018.

Characteristic	ICVM 400 (28)	ICVM 476 (676)	Statistical Test for Mean Difference
Average Volume per Issue (R\$ million) (a)	614.80	420.76	Different**
Average Maturity (in years)	6.43	5.57	Different**
Average Number of Contingent Maturity Features	0.25	0.76	Different***
Average Number of Dividend Covenants	1.68	1.97	Different**
Average Number of Investment Covenants	4.21	4.10	N.D.
Average Number of Financing Covenants	2.14	2.68	Different***

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (3) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (a) This analysis considers the 522 issues from 2017 to 2018 (15 ICVM 400 bonds and 507 ICVM 476 bonds) without their divisions in tranches, because it would distort the metrics of volume per issue.

As one may observe, the two main differences between the subsamples – the average volume per issue and the average maturity - were maintained but have slightly reduced due to increases in the ICVM 476 bonds' average metrics, and decreases in these parameters in the ICVM 400 bonds. On the other hand, the differences in the average number of contingent maturity features and restrictive clauses have increased. As predicted by Kwan and Carleton (2010), bonds issued in private or restricted markets have more restrictive clauses due to a greater information asymmetry and, a greater necessity of monitoring in those markets.

Following the classification proposed by Kwan and Carleton (2010), the sample was segregated according to the issuing process that each issuing company prefers. Of the 1,004 issuing companies in the sample, 13 of them have issued only ICVM 400 bonds from 2009 to 2018, 928 have issued only ICVM 476 bonds, and 63 were classified as "switchers" since they have issued both ICVM 400 and ICVM 476 bonds in the period. Table 24 presents this segregation and the number of issues related to each group of issuing company.

Table 24: Sample issues divided by issuing company classifications.

	Issuing Companies	Bonds	Tranches
ICVM 400 only	13	14	30
ICVM 476 only	928	1,587	1,985
ICVM 400 Switchers	63	89	168
ICVM 476 Switchers		223	308
Whole Sample	1,004	1,913	2,491

Source: Author.

As indicated previously, the ICVM 476 seems to be preferred by the market instead of the old rule. Only 7.57% of issuing companies have ever issued an ICVM 400 bond, considering both switchers and non-switchers. Taking into account only non-switcher issuing companies that preferred the old regulation, this percentage drops to 1.29%, reaffirming the dominance of the new rule.

This classification segregates the sample into four subsamples according to two dimensions: if issued by switchers or non-switchers and if ICVM 400 or ICVM 476. To understand if there is any difference between the bonds issued by switchers and non-switchers, the sample was divided according to the issuing rule and compared according to the issuing company classification. Table 25 presents the results.

Table 25: Comparison between bonds issued by switchers and non-switchers.

Characteristic	Non-Switchers		Switchers		Statistical Test for Mean Difference	
	400 (30)	476 (1,985)	400 (168)	476 (308)	400	476
Average Volume per Issue (R\$ million) (a)	544.99	294.06	655.82	497.99	N.D.	N.D.
Average Maturity (in years)	9.60	5.31	6.22	5.28	Diff.***	N.D.
Average Number of Contingent Maturity Features	0.33	0.78	0.41	0.71	N.D.	N.D.
Average Number of Dividend Covenants	1.63	1.78	1.68	1.73	N.D.	N.D.
Average Number of Investment Covenants	4.40	3.82	3.90	3.77	Diff.***	N.D.
Average Number of Financing Covenants	2.97	2.66	2.39	2.42	Diff.***	N.D.

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference ("Diff.") in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (3) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (a) This analysis considers the 1,913 bonds in the sample (14 ICVM 400 non-switcher bonds, 1,587 ICVM 476 non-switcher bonds, 89 ICVM 400 switcher bonds and 223 ICVM 476 switcher bonds) without their divisions in tranches, because it would distort the metrics of volume per issue.

Regarding ICVM 476 issues, there are no statistical differences between the issues from switchers and non-switchers. Indeed, the characteristics of these emissions vary so much that it is not possible to distinguish any different behavior for the switcher group.

Despite the low number of ICVM 400 bonds from non-switchers, this group of issues presents significant differences in relation to the ICVM 400 bonds from switchers. Issues from non-switchers have an average term 40 months longer than the switchers' bonds, and a higher frequency of investing and financing covenants to protect their investors. These characteristics are commonly related to capital intensive companies like infrastructure ones, which need long-term financing for specific projects. Table 26 presents the name and the industry of the 13 ICVM 400 non-switcher issuing companies. As indicated, all of them have long-term, capital intensive projects.

Table 26: List of the ICVM 400 non-switcher issuing companies in the sample.

Issuing Company	Industry / Economic Activity
Cachoeira Paulista Transmissora de Energia S.A.	Electricity transmission
Concessionaria das Rodovias Ayrton Senna e Carvalho Pinto S/A - Ecopistas	Highway concessions
Concessionaria Ecovias dos Imigrantes S.A.	Highway concessions
Concessionaria Rodovias do Tiete S/A	Highway concessions
Hopi Hari S/A	Amusement Park
Libra Terminal Rio S.A.	Port Operations
One Properties S/A	Real estate
Raizen Energia S/A	Sugar and alcohol industry
Rede Energia Participacoes S.A	Electricity distribution
TCP Terminal de Containeres de Paranaguá S.A.	Port Operations
Termelétrica Pernambuco III S.A.	Electric power generation
Vale S/A	Extraction of iron ore
Vianorte S/A	Highway concessions

Source: Author. Note: (1) Some of these companies operate in more than one industry, but only the main industry of each issuing company is shown in the table.

The use of ICVM 400 by few non-switcher issuing companies, and only in case of longer maturities, reinforces the argument that the new rule has overwhelmed the old one in almost all situations.

The same happened in the switcher subsamples. Of the 312 bonds issued by switchers, 28.5% of them were issued according to the ICVM 400 rule, but only two differences were observed between these subsamples, as indicated in Table 27.

Table 27: Comparison between the ICVM 400 and the ICVM 476 bonds in the switcher subsample.

Characteristic	Switchers		Statistical Test for Mean Difference
	400 (168)	476 (308)	
Average Volume per Issue (R\$ million) (a)	655.82	497.99	N.D.
Average Maturity (in years)	6.22	5.28	Different*
Average Number of Contingent Maturity Features	0.41	0.71	Different***
Average Number of Dividend Covenants	1.68	1.73	N.D.
Average Number of Investment Covenants	3.90	3.77	N.D.
Average Number of Financing Covenants	2.39	2.42	N.D.

Source: Author. Notes: (1) For each subsample, the number of observations is presented in parenthesis. (2) The number of asterisks indicates the level of the confidence interval for which the difference in results is statistically significant: one asterisk for the 90% confidence interval, two asterisks for the 95% confidence interval, and three asterisks for the 99% confidence interval. (3) "N.D." stands for "No Difference", indicating that it is impossible to reject the null hypothesis that the compared frequencies of occurrence are equal using a 90% confidence interval. (a) This analysis considers the 312 bonds in the switchers subsample (89 ICVM 400 switcher bonds and 223 ICVM 476 switcher bonds) without their divisions in tranches, because it would distort the metrics of volume per issue.

For the switchers subsample, the choice between ICVM 400 and ICVM 476 seems to be related to the bond maturity. Bonds issued according to the old rule have an average term 11 months longer, and a lower number of contingent maturity features. These evidences may indicate that ICVM 400 issues are related to specific projects financing or to companies' permanent financing, while ICVM 476 bonds are used for financial flexibility with shorter terms and a greater frequency of call provisions.

Although switchers represented only 6.27% of issuing companies, this group presents relevant data about the use of each rule, as well as the preferred time for each issue. Of the 63 issuing companies, 26 (41.3%) can be labeled as "migrants" because they used to issue ICVM 400 bonds in the early years of the sample, but switched their preference to the new rule. Other 28 (44.4%) issuers can be labeled as "changers" since they had more than one switching event in the sample period, both from the old to the new rule and vice versa. At last, nine (14.3%) of them can be labeled as

“inverters” since they issued ICVM 476 bonds first in the sample, but switched back to the old rule.

The proposed classification of the switchers helps to understand what percentage of them has adopted the ICVM 476 after an adaptation period, which is the case of migrants, as well as what percentage used both rules as a flexibility tool to better match their preferences and conditions in each issue, which is the case of changers. Table 28 lists how many switching events happened in each year of the sample, and if they were from the old to the new rule or the opposite movement, as well as the number of switcher's issues under each rule in each year.

Table 28: Number of switching events and switcher's issues per year.

Year	Number of Switching Events						Total Number of Switcher's Issues	
	Migrants 400 to 476	Inverters 476 to 400	Changers		Total		ICVM 400	ICVM 476
	400 to 476	476 to 400	400 to 476	476 to 400	400 to 476	476 to 400		
2009	0	1	0	2	0	3	13	8
2010	3	0	5	2	8	2	15	18
2011	5	0	4	1	9	1	5	23
2012	2	2	2	8	4	10	17	23
2013	6	1	2	6	8	7	11	22
2014	3	3	6	1	9	4	6	25
2015	1	0	1	2	2	2	5	16
2016	1	0	4	1	5	1	2	19
2017	3	1	3	5	6	6	10	33
2018	2	1	9	3	11	4	5	36

Source: Author. Notes: (1) It was considered a switching event when a company has issued a bond under a rule other than its last issue rule. (2) The issuing year of the bond that caused the switch is the year considered for the switching event.

Observe that after the first year, 2009, many switchers migrated from the old to the new rule. Indeed, for every year after 2009, switchers issued more ICVM 476 than ICVM 400 bonds, and the number of switching events from the old to the new rule was equal or higher than the opposite movement in each year, except for 2012. Considering the whole period, 73% of the switchers preferred the ICVM 476, 19% issued an equal number of bonds under each rule and only 8% preferred the ICVM 400, reaffirming the prevalence of the new rule.

In 2012 and 2013, changers were responsible for many switching events from ICVM 476 to ICVM 400, probably to better exploit the benefits of Law N° 12,431, published in 2011. Although the tax-exemption benefit could be received by individual investors

in bonds under either rule, it is easier to access this type of investor using an ICVM 400 bond, which does not restrict the available market.

A similar, but with lower intensity, movement occurred in 2017, when switchers issued 10 ICVM 400 bonds in the year, a high number if compared to the three previous years. This event coincided with the reduction in Brazilian interest rates and the end of BNDES' subsidized interest policy, which forced issuing companies to search the bond market as an alternative to both the lack of financing from BNDES, and the higher interest rates from banks.

These events indicate that part of the issuing companies, particularly some of the changers, may be partially influenced by "hot market" windows for ICVM 400 bonds, similar to those of equity markets. In these windows, issuing companies may find that issuing ICVM 400 bonds becomes easier than in other periods, increasing the flexibility to choose between the old and the new rule.

The results from this section present relevant conclusions about the impact of ICVM 476 in the Brazilian bond market. Since its publication in 2009, the ICVM 476 has become the preferred option for issuing companies, accounting for 94.62% of bonds issued from 2009 to 2018 in the sample. This preference has intensified in recent years, and only 2.87% of the bonds in the sample issued from 2017 to 2018 used the old rule.

Despite its great variation and prevalence in the Brazilian market, ICVM 476 was mainly used for bonds with volumes inferior to R\$ 300.0 million and terms below five years. However, it is possible to find in the sample ICVM 476 bonds raising more than R\$ 2.0 billion, and with maturities above 20 years.

The ICVM 400, on the other hand, was rarely used for issues raising less than R\$ 200.0 million, and for issues with maturities lower than 3 years. Due to the greater number of required documents, such as prospectus for issuance and public announcement of the offer, and its availability only to public companies, the old rule was used mainly for medium size issues with maturities between three and eight years which needs to access a greater pool of capital to complete their financing, such as those from capital intensive projects. A clear evidence is that of the 1,004 issuing

companies in the sample, just 13 of them have issued only ICVM 400 bonds, and all these 13 companies operate in capital intensive industries, mainly in infrastructure.

4.4 General Meeting of Debenture Holders

Whenever an issuing company breaks a covenant or desires to change any feature from the bond indenture, the trustee company has to call all bondholders to a “General Meeting of Debenture Holders” (from now on represented by the acronym GMDH), in which the investors may choose to request the early maturity of the debt, or approve or reject the proposed changes. The GMDH can also be convened by a bondholder or a group of them, if they have enough percentages of securities to do so.

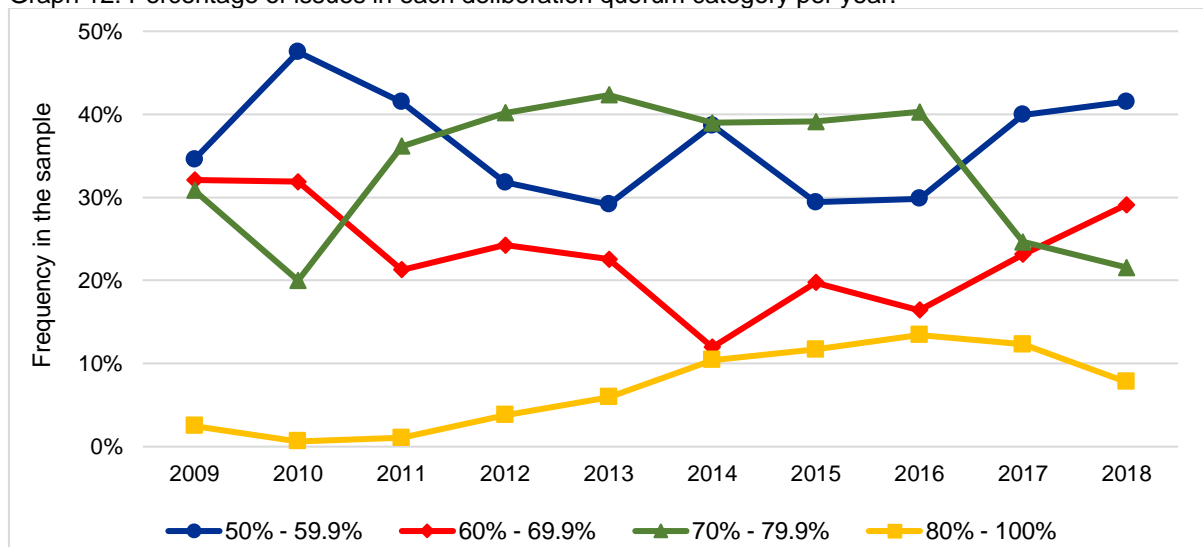
This work’s sample presents data on all issues concerning percentages of securities needed (1) for bondholders to convene a GMDH, (2) for the GMDH to be initiated, (3) for bondholders to approve a common decision at the GMDH, and (4) for bondholders to approve a decision that changes structural characteristics of the bond at the GMDH.

The percentage of securities needed to initiate the GMDH refers only to its first call since the GMDH could be initiated on second call with any quorum. For classification purposes, decisions on structural features were defined as those capable of changing the bond remuneration and term.

Following what is proposed by law, 99.7% of the issues in the sample require that bondholders have at least 10% of the securities to be able to convene a GMDH. Also, 94.5% of the issues allow the GMDH to be initiated on first call with the presence of bondholders representing just 50% of the securities. This indicates that, for these proceedings, only in rare exceptions, percentages higher than those provided by law are required.

On the other hand, the percentage of securities necessary to approve common decisions has varied substantially among the issues and over the years. For the whole sample, approximately 36% of the bonds require 50% plus one vote to approve a decision at a GMDH, the minimum percentage demanded by law, and the other 56% have a deliberation quorum between 60% and 80%. Graph 12 divides the issues of each year into four categories of deliberation quorum and presents the results.

Graph 12: Percentage of issues in each deliberation quorum category per year.



Source: Author. Note: (1) Each category refers to a deliberation quorum range that issues may present.

For the first two years of the sample, the proportion of issues in the categories “50% - 59.9%” and “60% - 69.9%” was evidently superior, indicating a lower level of governance at the GMDH deliberations. However, the scenario changed from 2011 to 2016, when the “70% - 79.9%” category was more predominant, and more issues adopted deliberation quorums of 80% or more. This shift towards more elevated quorums at GMDHs may be related to a greater number of investors purchasing fixed income securities in that period, either directly or through investment funds, and possibly demanding higher governance standards at the GMDH to protect them.

From 2017 on, both categories of lower deliberation quorum rose again in frequency, representing more than 60% of issues in the period. This movement accompanied the strong increase in annual emissions of those years and was potentially related to the improvement of the Brazilian economic environment, as well as a reduced need for investor protection.

Regarding the percentage of securities needed to approve decisions that change structural features, such as a bond’s remuneration and term, no relevant variations were observed from 2009 to 2016. In that period, 84.7% of issues required a minimum quorum of 90% to validate structural changes. This percentage of issues fell to 73.1% in 2017, and to 70.6% in 2018, signaling a trend similar to that observed in common decision quorums.

5 Conclusions

The publication of ICVM 476 in 2009 represented a turning point for the bond market. The flexibility introduced in the issuing process, as well as the opening of the market to non-public companies resulted in a huge increase in annual emissions. Of the R\$ 8.9 billion registered in 2008, the volume of issues per year grew 210% already in 2009, reaching R\$ 27.6 billion, and achieved the unprecedented milestone of R\$ 153.7 billion in 2018.

In these 10 years after the publication of ICVM 476, not only did the volume of annual emissions increase, but several other transformations were also observed. The growth of the market impacted governance standards embedded in bond indentures, increasing the number of covenants, and enhancing protection provided for investors.

Previous papers' results show that the evolution in governance standards was gradual, but has intensified after 2009. Before the economic stabilization of 1994, a low percentage of issues had financing and investment covenants capable of adequately protecting investors. This absence was overcome with a high frequency of scheduled recontracting clauses, which enabled issuers to adjust their bonds to market rates and investors to return their securities if they disagree with issuers' decisions.

This governance model was replaced over the years. In the period from 2002 to 2005, the frequency of issues with renegotiation clauses was less than 10%, and most of the bonds already had investment and dividend covenants; however, financing covenants were still rare.

The results of this study show that this process of increasing the governance level has intensified since the issuance of ICVM 476. In the 2009-2018 period, the frequencies of dividend, investment and financing covenants reached their highest levels since 1989, the first year with data available, probably due to a more developed economic and institutional environment, which reduced monitoring and enforcement costs.

Of the 2,491 issues analyzed in this work, 82% of them present restrictions on dividend payments, 84% limit other kinds of cash transference to shareholders and almost all bonds in the sample have at least one financing and one investment covenant. The

most frequent restrictions are related to corporate objectives, debt limits, company ownership and control, and uses of the raised capital. The presence of cross-default and cross acceleration features in more than 98% of the issues also contributes to the high governance standards observed since these clauses could act like implicit covenants, as discussed in the previous section.

Despite the market growth initiated in 2009, the Brazilian bond market still concentrated in small emissions with short and medium terms. 43.3% of the issues in the sample raised R\$ 100.0 million or less, and the other 21.6% raised between R\$ 100.0 million and R\$ 200.0 million. Of the 110 bonds raising above R\$ 1.0 billion in the sample, 31 of them were issued in 2018, which is the only year in the sample with an average issuing volume superior to R\$ 300 million. Regarding bond maturities, 55% of the issues have terms between two and six years, and only 10% above ten years.

From the comparison between ICVM 400 and ICVM 476 bonds in the sample, it was possible to observe that the new regulation, although widely preferred in recent years, did not fully replace the old one. The ICVM 400 rule was used in 5.38% of the issues in the sample, and was related to a higher average face value, a longer average term, and a lower average number of covenants and features of interest per issue. The frequency of the old rule is even lower in the last two years of the sample, accounting for only 2.87% of issues.

The evidences show that the ICVM 476 rule was preferred across all volume and maturity ranges. However, almost 60% of ICVM 476 bonds raised R\$ 200.0 million or less, and more than 60% had five years or less to mature, indicating that the flexibility introduced by this rule was probably used by small, non-public issuing companies, which became allowed to issue bonds under the new rule. On the other hand, the ICVM 400 rule was rarely chosen for issues below R\$ 200.0 million or with maturities shorter than three years.

Regarding the 1,004 issuing companies present in the sample, 13 of them have issued only ICVM 400 bonds, 928 have issued only ICVM 476 bonds and 63 have issued both ICVM 400 and ICVM 476 bonds, reaffirming the dominance of the new rule over the old one. Indeed, only 28.5% of the switchers' issues were according to the ICVM 400,

and they barely differentiate from switchers' ICVM 476 bonds, except for a longer average maturity and a higher number of contingent maturity features.

The results additionally indicate that the Brazilian bond market has been characterized by a low number of companies providing financial services related to debt issuance. From 2009 to 2018, five investment banks together were responsible for 80% of all capital raised, and seven trustee companies divided 98% of the market. This concentration may have potentially resulted in inefficiencies, such as non-competitive issuing costs, highly standardized indentures without flexibility, conflict of interests between the issuer and the underwriters, and institutional allocation of securities.

The collected data also present some results regarding the bond's issuing period. 30% of bonds in the sample were issued in the 4th quarter of the year, and only 18% in the 1st quarter. Additionally, 43% of bond issuances occurred in the second week of the month. These results remain unexplained, with further research needed to explore these phenomena.

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