Market Reaction to Debt Renegotiations: Evidence From Brazil

Abstract

The theory of incomplete contracts advocates that drawing up contracts capable of predicting all future contingencies is impossible. For this reason, renegotiations are essential for maintaining contracts as they allow for contract adjustments to adapt to new emerging realities. Regarding debt renegotiations, previous studies show that these renegotiations transmit information to the market. More specifically, since creditors collect non-public information from borrowers to make decisions related to debt renegotiation, the renegotiations can offer relevant signals about the borrower's quality, generating the certifying effect in the market. Nevertheless, these studies have been contracted in developed economies such as the United States and European countries. Therefore, we aimed to analyze the market reaction to renegotiations in the Brazilian market, whose characteristics differ substantially from those of developed markets (i.e., less liquidity market, more significant information asymmetry, less sophisticated investors, less demanding disclosure requirements, and less enforcement of these disclosures). The sample comprises all 346 non-financial companies listed on the Brazilian stock exchange "B3" (Brasil, Bolsa e Balcão) in 2021. The data analyzed are daily and comprise the period from 2010 to 2021. The results show that, even with emergent market characteristics, there is evidence of a positive market reaction to renegotiations. However, this reaction tends to be less intense than those seen in developed economies. These results are new in the literature. To the best of our knowledge, this is the first market reaction study to focus on debt renegotiation. Furthermore, we innovate by addressing capital market debt renegotiations in addition to bank debts traditionally addressed in previous studies. As a practical contribution, the results showed that debt renegotiation disclosure can be a strategy to increase the shareholders' value perception of the company.

Keywords: Market Reaction, Debt Renegotiation, Certifying Effect.

1. Introduction

Companies are composed of contracts established between different agents (Jensen & Meckling, 1976). These contracts are considered incomplete due to the impossibility of anticipating all future contingencies (Christensen, Nikolaev & Wittenberg, 2016). However, as a means of protection against contractual incompleteness, creditors can design more restrictive contracts, using, for example, tight and restrictive covenants to limit the borrower's decisions (e.g., restricting asset sales, acquisitions, capital expenditures and dividend payments) (Roberts & Sufi, 2009).

Given these limitations imposed by creditors, borrowers can seek to renegotiate these contractual terms in the future. Thereby, renegotiation is an important occasion for the lender to seek new information about the borrower. For Godlewski (2015), renegotiations allow the incorporation of previously unavailable information into contracts, improving the contracts' efficiency over time. Since this new information about the borrower may not be public, the renegotiation generates important information about the quality of the borrower and, according to Silagh et al. (2022), may lead to a certification effect. Hence, this study aims to understand how investors react to this type of information.

Empirical evidence about the market reaction to the renegotiation is found in Godlewski (2015), Nikolaev (2018) and Silagh et al. (2022). Godlewski (2015) investigated the influence of debt renegotiations on the stocks of European companies. According to the author, changes in financial covenants and positive changes to loan amounts have positive effects on abnormal returns, ranging between 10% and 15%.

Nikolaev (2018) focuses on the U.S. stock market. According to the results, companies have a high volume of stock trading and high price volatility on renegotiation days. In addition, the study found that companies that manage to modify their debt contracts show a statistically significant increase in cumulative abnormal return by 30 basis points.

Unlike the studies mentioned above, Silagh et al. (2022) focused on analyzing the impact of renegotiations in the U.S. Credit Default Swap (CDS) market. According to the authors, the CDS market has specific characteristics (e.g., a higher concentration of sophisticated investors) that could lead to different results from those found in the two previous studies.

The results showed a positive reaction from the CDS market to the disclosure of credit agreement changes. Furthermore, the study revealed an anticipation effect in the CDS market of up to 30 days before the renegotiation announcement. Silagh et al. (2022) argue that this anticipation effect was expected considering the higher presence of sophisticated investors in this market that exploit their information advantage.

Despite the importance of these studies, the financial literature lacks empirical evidence regarding the market reaction to debt renegotiation in contexts different from those explored by Godlewski (2015), Nikolaev (2018) and Silagh et al. (2022).

The significant differences in emerging economies underscore the importance of exploring the market reaction to debt renegotiation in contexts different from developed economies. Emerging economies are characterized by having capital markets with less liquidity, more significant information asymmetry, less sophisticated investors, less demanding

disclosure requirements, and less enforcement of these disclosures (Saleh & Ahmed, 2005; Bhagat et al., 2011; Alali & Foote, 2012; ElBannan, 2017). The idiosyncrasies present in developing countries may be relevant enough to make the results different from those of developed economies.

So, this paper aims to analyze the Brazilian stock market reaction to debt renegotiation disclosure and compare it to results from developed economies. Brazil presents a suitable context for this study since it has a highly globalized economy with significant representation among emerging economies, especially Latin America (Oura, Zilber & Lopes, 2016). For example, in 2021, Brazil was one of the emerging countries with the highest total net corporate debt (16% of the total net debt of emerging countries) (Corporate Debt Index, 2021). Moreover, in 2020, the country's largest banks renegotiated more than 1 trillion reais in loan contracts (Rodrigues & Castro, 2021).

Therefore, to analyze the Brazilian stock market reaction to debt renegotiation disclosure, we conducted an analysis based on a hand-collected sample of renegotiations from Brazilian companies not used in any previous study. The sample comprises all companies listed on B3, covering the 2010 to 2021 periods.

Overall, the results showed that the capital market reacts positively to the announcement of firms' renegotiation. However, this reaction tends to be less intense than those presented in other contexts, such as European (Godlewski, 2015) and U.S. (Nikolaev, 2018).

Despite the extensive literature on market reaction in emerging economies, to the best of my knowledge, this is the first study to focus on debt renegotiation. More specifically, some studies investigated market reaction in emerging economies to corporate social responsibility (CSR) (Arya & Zhang, 2009), dividend change announcements (Sharma & Pandey, 2014), terrorist attacks (Mnasri & Nechi, 2016) and Covid-19 (Topcu & Gulal, 2020). However, no research analyzes the market reaction to the debt renegotiation announcement focused on the emerging economy. This is an important topic to be addressed in emerging economies since debt renegotiation can be especially relevant in this context where there is low protection of creditor rights and more information asymmetry. More specifically, due to the low protection of creditors' rights, the bankruptcy of borrowers can make it extremely difficult to return the loan granted. Therefore, creditors tend to avoid the borrowers' bankruptcy as much as possible, and debt renegotiation can be an important instrument. Moreover, renegotiation is an ideal opportunity for the creditor to obtain new information about the borrower, thus reducing the information asymmetry characteristic of emerging economies.

This study differs from Godlewski (2015), Nikolaev (2018) and Silagh et al. (2022) when addressing not only bank debt renegotiations but also capital market debt renegotiations, which may expand knowledge on this topic.

Finally, once the study presents evidence that the disclosure of debt renegotiations triggers an increase in stock returns, we hope to contribute to corporate decision-making regarding information disclosure. In other words, this study shows that investors value renegotiations, for this reason, disclosure of renegotiation can be a strategy to company increase the shareholders' value perception.

The remainder of this paper is organized as follows. The next section provides a review of the literature and hypotheses developments. The third section presents descriptions of the data and research methodologies used for this study. The fourth section presents the empirical results and final remarks are provided in the final section.

2. Theoretical framework and hypothesis development

Companies have a contractual relationship with different agents (e.g., customer, supplier, lender, employee etc). However, these contracts can be considered incomplete. According to Nikolaev (2018), contractual incompleteness comes from two reasons. The first one is exogenous and concerns the contingencies or states of the world that are impossible to predict and incorporate when the contract is drawn up (Nikolaev, 2018). The second is endogenous and is related to the agent's non-contractible actions. More specifically, actions that "are difficult to induce via ex-ante contracts in the presence of agency and information problems, creating a need to monitor and discipline the agent ex-post, hence prompting future renegotiations" (Nikolaev, 2018, p.2).

Therefore, considering the uncertainties of incomplete contracts, creditors develop restrictive contracts that limit the borrower's decisions and provide greater bargaining power to them, for example, by designing tight and restrictive covenants (Silaghi et al., 2022). Given these contractual constraints, companies could be limited on asset sales, financing, acquisitions, capital expenditures, dividend payments, which demand ex-post renegotiations.

For this reason, renegotiations play an essential role in contributing to contracts' efficiency (Godlewski, 2014; Nikolaev, 2018). So, given the renegotiation's relevance, some studies have emerged analyzing whether the market reacts to debt renegotiation disclosure, as Godlewski (2015), Nikolaev (2018) and Silagh et al. (2022).

The central argument of these studies is that renegotiations generate a certifying effect. It is possible that, over time, the debt contract established a priori becomes ineffective in the face of the new situation of the company, making room for renegotiations (Nikoaev, 2018). For example, a contract whose interest rate is excessively high or has restrictive covenants that prevent the company from implementing its strategies efficiently. The renegotiation will allow the acquisition of new information about the company, thus generating revisions in contracts and improving the contracts' efficiency. Since the general public does not have access to this information, renegotiations can generate a certifying effect by signaling about borrower's quality (Godlewski, 2015).

Furthermore, debt renegotiation reduces the need for creditors to use costly bankruptcy filings as a disciplining mechanism, avoiding bankruptcy costs and thus provoking a positive reaction in the share price (Silaghi et al. 2022).

From a sample of bank loan renegotiations, Godlewski (2015) showed that renegotiations significantly alter the contractual characteristics of loans, thus benefiting shareholders. According to the study, most of the changes are related to the loan amount (36% of amendments), maturity (25%) and covenants (10%). According to Godlewski (2015), renegotiations have a certifying effect since empirical results show that changes in financial covenants and positive changes to loan amounts positively affect abnormal returns, ranging between 10% and 15%.

Based on a sample of debt contract renegotiations in the U.S., Nikolaev (2018) analyzed whether the disclosure of renegotiations appears to reveal private information to outside investors. The author hypothesizes that the renegotiation transmitted private information to market participants, to whom they had no access until then, thus generating the aforementioned certifying effect. Nikolaev's (2018) showed that disclosing debt contracts' changes increases the cumulative abnormal return by 30 basis points in the U.S. stock market. Therefore, according to the author, this result indicates that renegotiations transmit significant information to outside market participants.

Unlike Godlewski (2015) and Nikolaev (2018), Silagh et al. (2022) sought to analyze the impact of loan renegotiations on firms' credit risk using the CDS market as a measure of credit risk. CDS are derivatives purchased by investors to insure against debtors' loan default. And, according to the authors, the CDS market promotes high-quality data for measuring credit risk. According to the results, there is a drop in CDS spreads around renegotiation announcements, which shows that renegotiations are informative for CDS investors. Furthermore, the biggest reactions are related to renegotiations of loan amounts.

Despite the literature advancement provided by Godlewski (2015), Nikolaev (2018) and Silagh et al. (2022), there is a gap in the market reaction literature regarding the renegotiation disclosure effects in contexts other than Europe and the U.S. Put it another way, we do not know if the results found by these studies are valid in other contexts, such as emerging economies. Unlike the U.S. and European economies, the stock markets of emerging economies may present several types of problems such as: less liquidity, more significant information asymmetry, less sophisticated investors, less demanding disclosure requirements, and less enforcement of these disclosures (Saleh & Ahmed, 2005; Bhagat et al., 2011; Alali & Foote, 2012; ElBannan, 2017).

Regarding disclosure requirements, according to Roberts and Sufi (2009), the SEC has a variety of regulations that require companies to detail material debt agreements, sources of liquidity, and long-term debt schedules. According to the authors, as a result of these regulations, companies almost always give detailed explanations of their debt arrangements in their SEC filings. On the other hand, due to the lower disclosure requirements in emergent markets, the disclosure of negotiations may be less informative than the disclosures in developed economies. Therefore, due to less disclosure, emerging market investors tend to have greater information asymmetry concerning company debt renegotiations.

In addition, the smaller number of sophisticated investors present in emerging markets may affect the market reaction to renegotiation once this type of investor is known to have more ability to maximize the usefulness of disclosed information (Hand, 1990). Sophisticated investors dedicate more time to their investments and, therefore, stand out compared to others (Kalay, 2015), especially when it comes to avoiding losses and making more assertive decisions in the market (Balsam, Bartov & Marquardt, 2002; Ferg & Seasholes, 2005).

Finally, the low level of disclosure and the information asymmetry in emerging markets tend to negatively affect stock market liquidity (Lakhal, 2008; Roulstone, 2013). So, this lower liquidity can reduce stocks' sensitivity to certain types of information.

Therefore, due to low liquidity, high information asymmetry, the smaller number of sophisticated investors and lower demand for disclosure, the hypothesis of this study is that:

H1: there is no market reaction to the debt renegotiation disclosure.

3. Methods

3.1. Data and Sample

The sample comprises all 346 non-financial companies listed on the Brazilian stock exchange "B3" (Brasil, Bolsa e Balcão) in 2021. The data analyzed are daily and comprise the period from 2010 to 2021[1]. Data collection involves two steps. The first step is the renegotiation data collection. we collected information such as whether and when the company renegotiated and, in addition, the renegotiation outcomes. The second step involves a combination of hand-collected renegotiation data with stock data available on Capital IQ.

3.2. Renegotiation Database and variables

To hand-collected the renegotiation data, we analyzed over three thousand notes to financial statements from 2010 to 2021. we searched for terms often used to describe contractual changes as "renegotiation", "financial restructure", "waiver", "covenant", "reclassified debt", "consent", "renegotiated conditions", "debt restructuring", "addition" among others.

After identifying the occurrence of the renegotiation, we checked if there was a Material Fact ("Fato Relevante"), Notice to the Market ("Comunicado ao Mercado") or Minutes of the Debenture Holders' Meeting ("Ata da Assembleia Geral de Debenturistas") disclosure. In Brazil, under Resolution 44 of the CVM ("Comissão de Valores Mobiliários"), debt renegotiation is a material fact and must be disclosed widely and immediately by companies.

Only renegotiations published in one of the above reports were considered in this study. Putting it another way, we did not consider the renegotiations that are only disclosed in the notes to financial statements since their effect may be confused with other relevant information disclosed on the same date.

Once we identified the renegotiations, we proceeded to a more detailed analysis of the reports to identify the outcomes of this renegotiation. Following on Roberts and Sufi (2009) and Roberts (2015) studies, we searched to identify which contractual terms were changed: i) loan amount (i.e., if there was an increase in the loan amount); ii) interest rate (i.e., if there was an increase or reduction in the interest rate); iii) term (i.e., if there was an increase or reduction in the maturity and granting of grace period); and iv) waiver/ covenant renegotiated. This information can be found in Material Fact ("Material Fact"), Notice to the Market ("Notice to

[1] The data collection process was supported by the Laboratório de Finanças e Risco of FEA/USP.

the Market") or Minutes of the Debenture Holders' Meeting ("Minutes of the General Meeting of Debenture Holders") and notes to the financial statement. However, information about renegotiation is not standardized, which means that some firms offer greater detail than others.

After this procedure, we obtained information from 117 renegotiations of 35 companies. Of these 117 renegotiations, we excluded 27 due to the impossibility of obtaining share price data. we also excluded renegotiations in which companies did not trade their shares in any of the five event window days (event day and the two days before and after). Subsequently, we exclude renegotiations whose companies have not traded in at least half of the days of the pre-event window (180 – 45 days). The event and pre-event window specifications will be presented in the following subsection. After all these exclusions, 54 renegotiations remained of 23 companies.

3.3. Models

In order to analyze whether the stock market reacts to the occurrence of debt renegotiation, we applied the traditional event study methodology to estimate the firms' abnormal returns, according to Camargos and Barboza (2007); Knauera and Wöhrmann (2016); Nikolaev (2018) and Zanon and Dantas (2020).

First, we used the logarithm form with continuous capitalization to calculate the stock return, as indicated in equation 12.

$$R_{it} = ln \frac{P_{it}}{P_{it-1}} \tag{1}$$

Where R_{it} is the return of stock i, in period t; P_{it} e P_{it-1} refer to the share price i, at moments t and t-1, respectively. Once the return has been calculated, we estimate the stock abnormal return, determined by:

$$AR_{it} = R_{it} - E(R_{it}) \tag{2}$$

[2] We also used arithmetic return and the main results have not changed.

Where AR_{it} is the abnormal return of stock i, in period t; R_{it} is the return of stock i, in period t e $E(R_{it})$ is the expected return on the stock i, in period t. The abnormal return can be considered the portion of the variation in the stock return caused by factors unrelated to the market variations (Brito et al., 2005). Thus, the abnormal return is obtained by the difference between the return obtained and the expected return if the event had not occurred (Zanon & Dantas, 2020).

We estimated the expected return through a linear regression between the stock's daily returns with the daily variation of the market index (BOVESPA index) as in Camargos and Barboza (2007) and Zanon and Dantas (2020). This model predicts which return is expected under "normal conditions". Equation 3 points out the expected return equation.

$$E(R_{it}) = \beta_0 + \beta_1 x\, R_{mt} \tag{3}$$

Where $E(R_{it})$ is the expected return of stock I, in period t, and R_{mt} is the return of the Bovespa index in period t. Following Nikolaev (2018), we calculate the expected return from a 180-day pre-event window ending 45 days before the renegotiation's release date. As in Nikolaev (2018), we assumed that the event does not influence the returns from 45 days before the event. Moreover, we considered as event's date the one on which the renegotiation was disclosed in a Material Fact, Notice to the Market or Minutes of the Debenture Holders' Meeting.

Furthermore, in addition to the previous model, to make the study more robust, we also estimated the expected return based on the 4-factor model by Fama and French (1993) and Carhart (1997), as in Borges and Martelanc (2015), Li, Zhang and Zheng (2018) and Machado and Faff (2018). The 4-factor model includes, in addition to the market factor considered in the previous model, three other factors known to have significant risk premiums: company size, market-to-book index, and momentum. The equation below presents the four-factor model.

$$R_{it} - R_{ft} = \alpha_{0i} + \beta_1 \left(R_{mt} - R_{ft}\right) + \beta_2\, SMB_t + \beta_3\, HML_t + \beta_3\, MOM_t + e_{i,t} \tag{4}$$

Where R_{it} is the return of stock i in period t; R_{ft} is the risk-free return (proxied by SELIC rate); R_{mt} is the market return (proxied by Bovespa index); SMB_t is the size factor

premium (Small minus Big), calculated by the difference between the return in períod t of the 50% smallest stocks (in terms of market value) and the 50% largest stocks; HML_t is the premium for the book-to-market factor (High Minus Low), calculated by the difference between the return of the 30% stocks with the highest book-to-market ratio and the 30% with the lowest ratio; MOM_t is the momentum factor premium, calculated by the difference between the 30% stocks with the best performance in t and the 30% stocks with the lowest performance in the same period.[3]

After estimating the equation, α_{0i} indicate, for each stock, the presence or absence of abnormal returns. Thus, the statistically significant α_{0i} indicates the presence of abnormal returns after controlling all of the risk factors in the model.

To minimize the influence of other factors on the stock's return, we perform tests considering the 3-day window in this analysis (the day before, the day of, and the day after the event), 5-day event window (day of the event, two days before the event, and two days after the event) and 11-day event window (day of the event, five days before the event, and five days after the event) as Arya and Zhang (2009), Nikolaev (2018) and Silagh et al. (2022). According to H1, we do not expect significant coefficients. In other words, we do not expect any signs of a market reaction in the days following the renegotiation disclosure.

Finally, we implement another test as proposed by Nikolaev (2018). we regress the daily stock returns on five daily indicator variables. In short, from a sample with observations from the 15 days before and after the renegotiation, we estimate an OLS with abnormal returns as a dependent variable and proxies representing the days of the event window as explanatory variables, as indicated in equation 5.

$$AR_{it} = \beta_0 + \beta_1\, Day - 2_{i,} + \beta_2\, Day - 1_{i,} + \beta_3\, Day\, 0_{i,} + \beta_4\, Day + 1_{i,} + \beta_5\, Day + 2_{i,} + e_i \quad (5)$$

Where AR_{it} is the abnormal return calculated by the market and 4-factor models; $Day - 2_i$ is a dummy that assumes value 1 for the second day prior to the renegotiation; $Day - 1_i$ is a dummy that assumes value 1 for the second day prior to renegotiation; $Day\ 0_i$ is a dummy that assumes value 1 for the day of renegotiation; $Day + 1_i$ is a dummy that assumes

[3] These factors were obtained from the website of the Research Center in Financial Economics of the School of Economics, Business, Accounting and Actuarial Sciences of the University of São Paulo (NEFINFEA-USP) (http://www.nefin.com.br/).

value 1 for the first day after renegotiation; $Day + 2_i$ is a dummy that assumes value 1 for the second day after renegotiation.

As before, we do not expect significant beta coefficients (showing any signs of a market reaction in the days following the renegotiation disclosure).

4. Results

This section begins with the descriptive statistics of the study sample. Table 4 presents the number of renegotiations and companies that disclose renegotiations. The number of renegotiations signals the amount of renegotiation disclosed in Material Fact ("Fato Relevante"), Notice to the Market ("Comunicado ao Mercado") or Minutes of the Debenture Holders' Meeting ("Ata da Assembleia Geral de Debenturistas"). The number of companies that disclosed their renegotiations represents the total number of companies that disclosed their renegotiations in some previously mentioned media per year.

Table 1. Number of Renegotiations and Companies that Disclose Renegotiations

	Renegotiations per year	Companies that Disclose Renegotiations per year
2010	0	0
2011	0	0
2012	1	1
2013	2	1
2014	1	1
2015	6	2
2016	6	6
2017	13	6
2018	0	0
2019	8	6
2020	10	9
2021	7	7
Total	**54**	**39**

Note: The number of renegotiations signals the amount of renegotiation disclosed in Material Fact ("Fato Relevante"), Notice to the Market ("Comunicado ao Mercado") or Minutes of the Debenture Holders' Meeting ("Ata da Assembleia Geral de Debenturistas"). The number of companies that disclosed their renegotiations represents the total number of companies that disclosed their renegotiations in some previously mentioned media per year.

According to table 1, the number of renegotiations has grown over the last few years, especially since 2015. Furthermore, 2017 was the year with the highest number of renegotiations. However, part of these renegotiations was from the same company. That is, only ATMA Participações S.A disclosed seven renegotiations this year. In addition, 2020 and 2021, the period marked by the covid-19 pandemic, was the years in which more companies disclosed their renegotiations with 9 and 7 companies, respectively.

Table 2 shows the industries of the companies that disclosed their renegotiations.

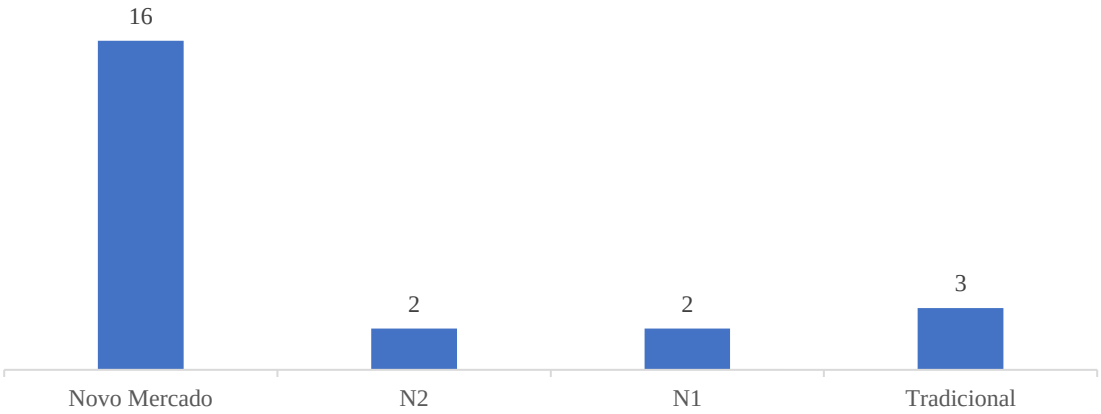
Table 2. Industries of Companies that Disclosed Renegotiation

Industries of Companies that Disclosed Renegotiation	
Transport and Services	4
Steel and Metallurgy	3
Construction	2
Chemistry	1
Vehicles and parts	1
Paper And Cellulose	1
Telecommunications	1
Business	1
Textile	1
Others	8
Total	**23**

The most representative industry in the sample is Transport and Services (4 companies), followed by the Steel and Metallurgy sector (3 companies). In the "Others" classification, there are industries such as: Educational Services, Medical Laboratories and Machinery, Equipment, And Supplies. Therefore, table 2 shows significant heterogeneity in the sample regarding industries.

Figure 1 shows the companies' level of corporate governance.

Figure 1. Corporate Governance Level



Note: Data refer to the remaining 23 companies in the sample. The X-axis presents the different levels of corporate governance of the companies in the sample.

According to figure 1, most companies that disclosed the renegotiations (16 companies) belong to the group with the highest level of corporate governance at B3. Due to the high level

of corporate governance, these companies have a greater commitment to transparency, which could explain the greater number of disclosures for companies in the "Novo Mercado" category.

Finally, table 3 presents the characteristics of the renegotiations in the sample.

Table 1. Characteristics of Renegotiations

	Number of Renegotiation	**%**
Types of Renegotiations		
Covenant Waiver/ Change	31	50%
Term Extension	28	45%
Interest Rate Reduction	1	2%
Loan Amount Increase	2	3%
Total	**62**	**100%**
Type of Lender		
Capital Market	43	80%
Banks	11	20%
Total	**54**	**100%**
Type of Announcement		
Relevant fact	33	52.40%
Notice to the Market	2	3.20%
Minutes of the Debenture Holders' Meeting	28	44.40%
Total	**63**	**100%**

Note: The data in table 3 refer to 54 disclosed renegotiations. The total of "Types of Renegotiation" and "Types of Announcement" is greater than 54 because, in some cases, the same renegotiation can be of different types (e.g., a company that renegotiates term extension and reduction of interest rate at the same time) or be disclosed in different ways simultaneously (e.g., a company that discloses renegotiation in Minutes of the Debenture Holders' Meeting and Relevant Facts at the same time).

The results presented in table 3 indicate that covenant waiver/change was the most common renegotiation disclosered over the period. After, the term extension appears in 45% of the renegotiations. The least renegotiated terms are the Interest Rate Reduction (2%) and the Loan Amount Increase (3%).

Other studies did not identify the predominance of covenant waiver/change among renegotiations for both U.S. and European companies. Term extension is the most relevant renegotiation in U.S. companies, according to Robers and Sufi (2009) (57% of renegotiations of U.S. companies are related to an extension of debt maturity). In the case of European companies, most of the renegotiations (40%) are related to the amount increasing (Godlewski, 2014). This difference may reflect the context in which Brazilian companies operate. More specifically, in a context of high information asymmetry and low creditor protection rights,

creditors may impose stricter restrictions on borrowers, thus increasing future covenant renegotiations (Albanez & Schiozer, 2022).

Also, according to table 4.3, most of the renegotiation announcements are for capital market debts (80%). Only 20% of the announcements are for bank debts (subsidized and unsubsidized).

Finally, according to table 3, Relevant Fact is the most common mean of renegotiation announcement (52.4%), followed by the Minute of the Debenture Holders' Meeting (44.4%). Notice to the Market has a share of only 3% of the renegotiations disclosed.

Table 4.4 presents the results of the market reaction to the renegotiation announcement. The second and fourth columns present the average of abnormal returns, considering the market model and the 4-factor model. The third and fifth columns present the t-statistics of both models to assess if abnormal returns are significantly different from 0. Besides the average abnormal return for the event (day 0), the table shows the averages for the five days before and after the event. In the last three lines are shown the accumulated returns for the following windows: 3-day (-1, 1), 5-day (-2, 2) and 11-day (-5, 5).

Table 2. Stock market reaction to renegotiation announcements

	Market Model		4 Factor Model	
Day	Mean	t-stat.	Mean	t-stat.
-5	0.000	0.091	0.000	0.014
-4	0.002	0.437	0.002	0.384
-3	0.002	0.356	0.002	0.305
-2	0.009	1.589	0.009	1.540
-1	-0.003	-0.767	-0.003	-0.841
0	0.005	1.049	0.005	0.995
1	0.012	1.560	0.011	1.527
2	-0.007	-1.626	**-0.008**	**-1.687***
3	-0.004	-0.719	-0.004	-0.761
4	-0.007	-1.238	-0.007	-1.286
5	-0.003	-0.486	-0.003	-0.526
[-1;1]	0.014	1.462	0.013	1.379
[-2;2]	0.016	1.527	0.015	1.397
[-5;5]	0.006	0.416	0.003	0.218

Note: Columns 2 and 3 present the mean and the t-statistic of the abnormal returns, respectively, calculated by the market model. Columns 4 and 5 present the mean and the t-statistic of the abnormal returns, respectively, calculated by the 4-factor model; [-1; 1] represents the cumulative abnormal return of the 3-day window; [-2, 2] represents the cumulative abnormal return of the 5-day window; [-5; 5] represents the cumulative abnormal return of the 11-day window. The superscripts ∗∗∗, ∗∗, and ∗ indicate significance at the 1%, 5%, and 10% levels, respectively. The sample is composed of 54 events.

The results for the 4-factor model showed signs of negative abnormal return on the second day after the release. However, these results are inconsistent since they are only present in the 4-factor model. Therefore, the results in table 4 do not allow us to state that there is a market reaction on the day of the announcement and the days immediately after and before.

Figure 2 and 3 illustrate the results presented in table 4.

Figure 2. Cumulative abnormal stock returns (CAR) around the renegotiation date (Market Model)

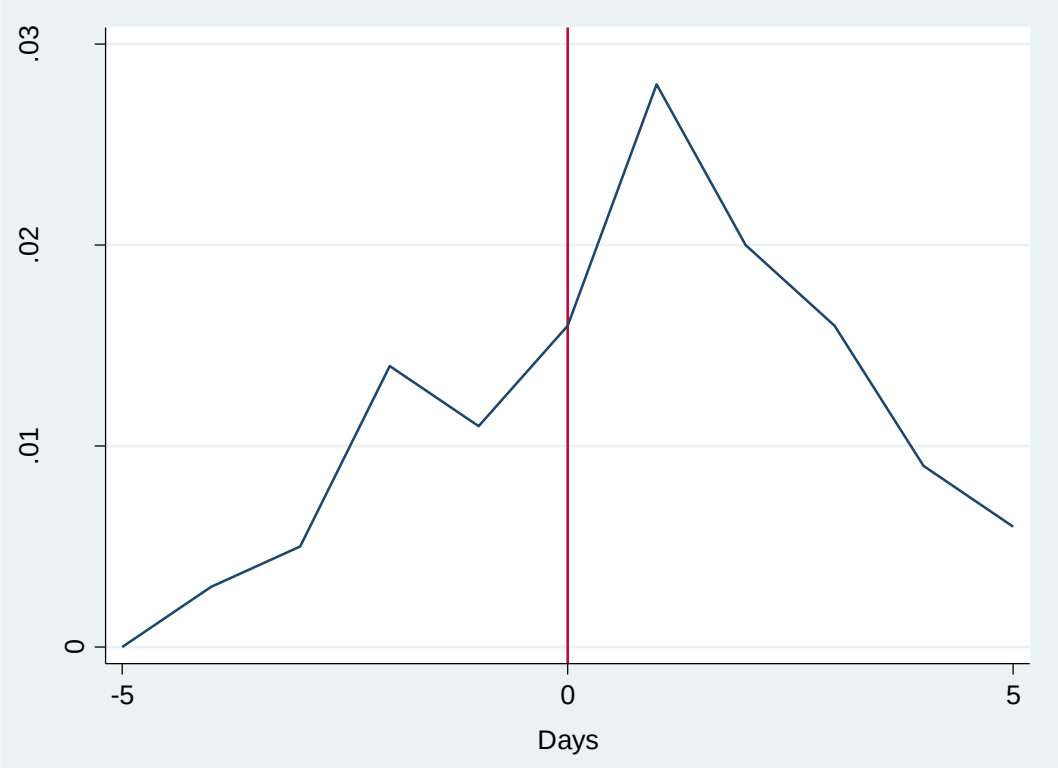
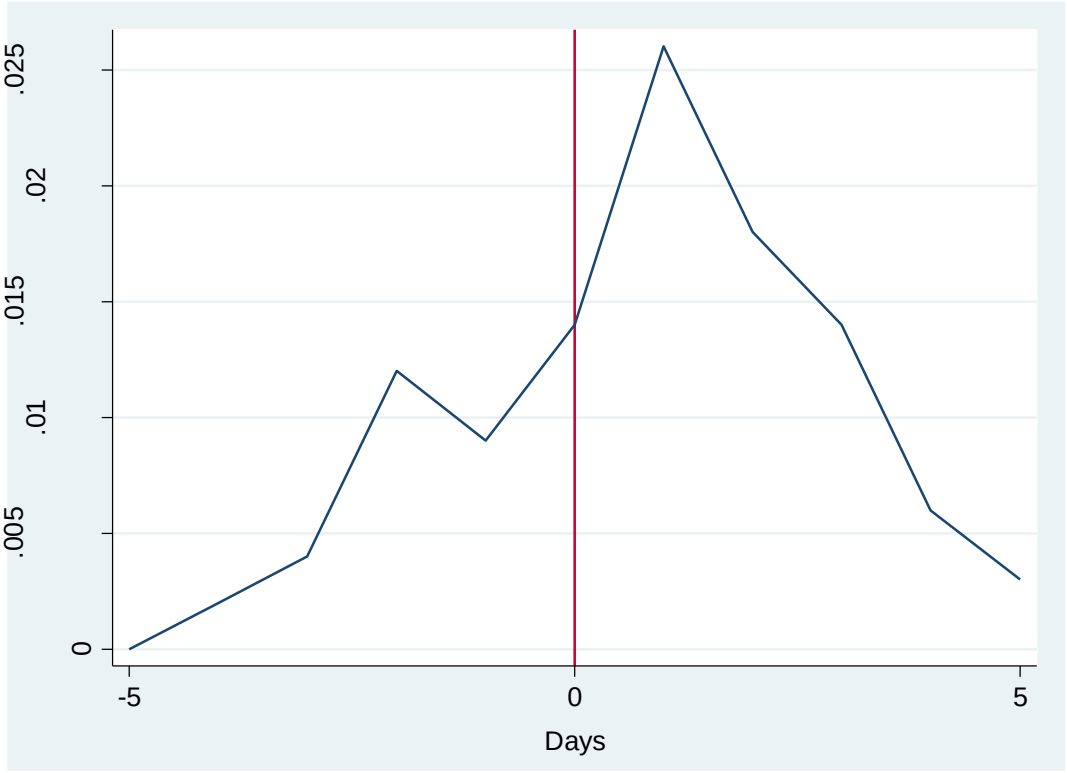


Figure 3. Cumulative abnormal stock returns (CAR) around the renegotiation date (4 Factor Model)



Therefore, figures 4.2 and 4.3, as well as table 4.4, show no indications of a market reaction to debt renegotiation. Nevertheless, one could argue that these results might be absorbing the effects of other important information disclosed by the companies in the days following the event. In other words, these results may be reflections of confounding events. Therefore, following Godlewski (2015) and Silaghi et al. (2022), we drop all confounding events. we considered as confounding events when material facts, minutes of the management meeting, notice to the market, results from the period, reference form, minutes of the annual general meeting and sustainability report were disclosed within five days before and after the renegotiation announcement.

By excluding all Confounding Events, the renegotiation amount dropped to 21. Table 5 presents the characteristics of these 21 renegotiations.

Table 3. Characteristics of Renegotiations

	Number of Renegotiation	**%**
Types of Renegotiations		
Covenant Waiver/ Change	12	50%

Term Extension	11	46%
Loan Amount Increase	1	4%
Interest Rate Reduction	0	0%
Total	**24**	**100%**

Type of Lender		
Capital Market	17	81%
Banks	4	19%
Total	**21**	**100%**

Type of Announcement		
Relevant fact	13	52%
Minutes of the Debenture Holders' Meeting	11	44%
Notice to the Market	1	4%
Total	**25**	**100%**

Note: The data in table 5 refer to 21 disclosed renegotiations. The total of "Types of Renegotiation" and "Types of Announcement" is greater than 21 because, in some cases, the same renegotiation can be of different types (e.g., a company that renegotiates term extension and reduction of interest rate at the same time) or be disclosed in different ways simultaneously (e.g., a company that discloses renegotiation in Minutes of the Debenture Holders' Meeting and Relevant Facts at the same time).

In summary, the characteristics of the remaining 21 renegotiations are similar to those presented in table 4. Covenant Waiver/Change and Term Extension are the most common contractual amendments, most renegotiations were carried out with bondholders, and Minutes of the Debenture Holders' Meeting and Relevant facts are the most common means of disclosing the renegotiation.

Considering only the 21 renegotiations, we created new tests and the results are shown in table 6.

Table 4. Stock market reaction to renegotiation announcements

	Market Model		4 Factor Model	
Day	Mean	t-stat.	Mean	t-stat.
-5	- 0.001	- 0.241	-0.002	-0.280
-4	**- 0.011**	**- 1.789***	**-0.011**	**-1.828***
-3	- 0.001	- 0.092	-0.001	-0.125
-2	0.007	1.180	0.007	1.142
-1	- 0.007	0.918	-0.007	-0.950
0	**0.011**	**2.132****	**0.011**	**2.092****
1	**0.017**	**1.916***	**0.017**	**1.893***
2	0.004	0.663	0.004	0.628
3	- 0.019	- 1.609	-0.019	-1.626
4	- 0.005	- 0.457	-0.005	-0.477
5	0.004	0.400	0.004	0.381
[-1;1]	0.022	1.674	0.021	1.622

[-2;2]	**0.033**	**2.179****	**0.031**	**2.104****
[-5;5]	- 0.001	- 0.021	-0.003	0.116

Note: Columns 2 and 3 present the mean and the t-statistic of the abnormal returns, respectively, calculated by the market model. Columns 4 and 5 present the mean and the t-statistic of the abnormal returns, respectively, calculated by the 4-factor model; [-1; 1] represents the cumulative abnormal return of the 3-day window; [-2, 2] represents the cumulative abnormal return of the 5-day window; [-5; 5] represents the cumulative abnormal return of the 11-day window. The superscripts ∗∗∗, ∗∗, and ∗ indicate significance at the 1%, 5%, and 10% levels, respectively. The sample is composed of 21 events.

Table 6 shows signs of a positive market reaction on the day of the renegotiation and the day immediately after the renegotiation. When we consider the accumulated return in the different windows, there are signs of a market reaction in the 5-day window (-2; 2). The results also show a significant abnormal return on the fourth day before the renegotiation. However, due to the reduced sample size, this result may have been influenced by distortions caused by specific companies. For example, one of the companies in the sample had a share price drop of more than 10% on the fourth day before the announcement of renegotiation. Important to mention that both the market model and the 4-factor model presented similar results.

Figures 4 and 5 allow better visualization of these results.

Figure 4. Cumulative abnormal stock returns (CAR) around the renegotiation date (Market Model)

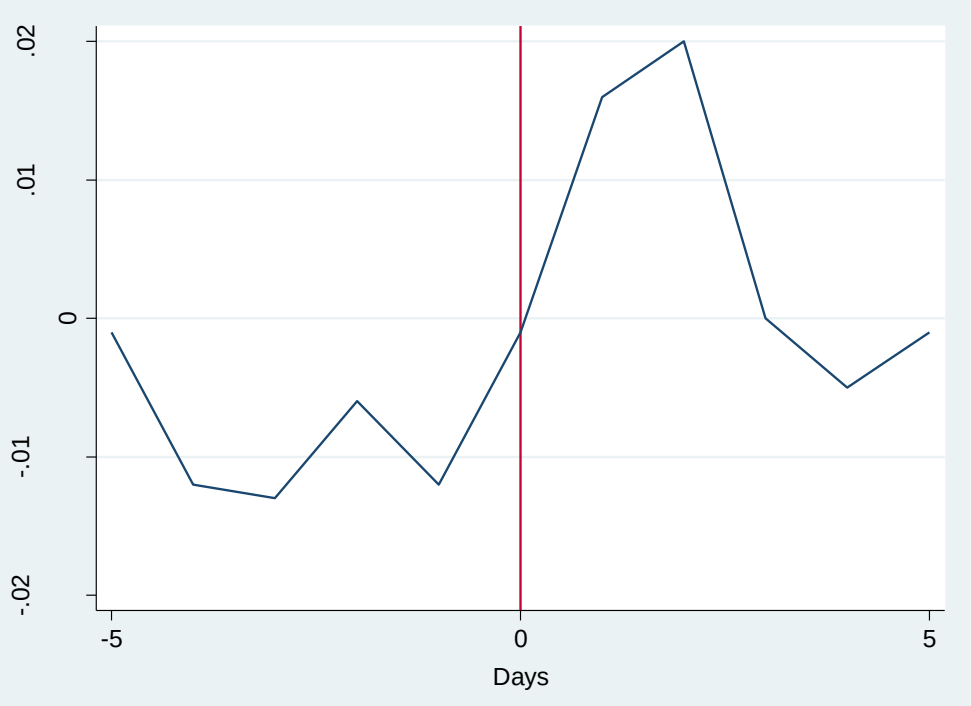
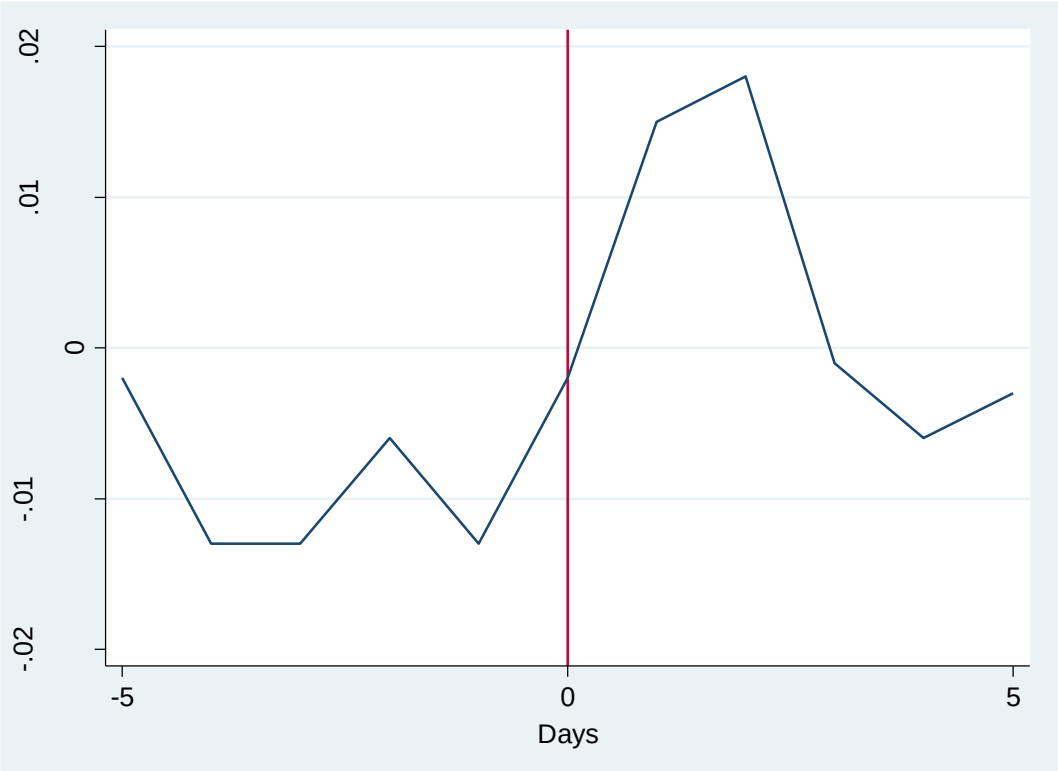


Figure 5. Cumulative abnormal stock returns (CAR) around the renegotiation date (4 Factor Model)



Figures 4 and 5 show signs of a market reaction on the day of the event and immediately after. It is expected that the positive effects of the market reaction would be maintained over the days of the window, showing a greater relevance attributed by the market to the disclosed information. However, Figures 4.4 and 4.5 show that this positive effect does not seem to last long since the accumulated return drops from the third day onwards. Table 4.6 also shows a drop of 0.019 on the third day after the renegotiation, an average higher than all other days. On the other hand, Nikolaev (2018) shows a pronounced positive market reaction surrounding the day of renegotiation, but it does not show a later reversal, even 20 days after the disclosure. Once again, the reversal presented in Figures 4.4 and 4.5 can be influenced by specific events in certain sample companies. For example, the share value of one samples' company dropped more than 20% on the third day after the renegotiation, influencing the overall average.

The so-called certifying effect can explain the market reaction presented on the day of the event and the day after. Contracts between agents are intrinsically incomplete (Hart, 1995). In other words, there is no way to consider in the contracts every contingency and future state of the world. Therefore, contracts may eventually become inefficient over time. Nikoaev (2018)

cites, as an example of inefficiency in the contracts, covenant becoming overly tight or the loan term becoming insufficient.

Therefore, renegotiations are a good opportunity for lenders to seek new information about borrowers to support their decision regarding renegotiation. So, in renegotiations, private information could be transmitted to the market to participants who do not have access to such information, which is the so-called certifying effect. This effect, therefore, tends to provoke a positive stock market reaction (Godlewski, 2015; Nikolaev; 2018).

In addition, debt renegotiation reduces the need for creditors to use costly bankruptcy filings as a disciplining mechanism, avoiding bankruptcy costs and translating into a higher equity value of the company (Silaghi et al., 2022).

Following Nikolaev (2018), we also ran a regression model test. We sampled observations during the period of −15 to + 15 trading days around a renegotiation and considered as explanatory variables 5-day indicator dummies: "Day −2", "Day −1", "Day 0", "Day + 1" and "Day + 2", defined in relation to the renegotiation date. As in Nikolaev (2018), this estimation aims to verify if there are associations between the 5-day window and the presence of abnormal returns. Table 7 presents the results of this regression analysis.

Table 5. Stock market reaction to renegotiation announcements

VARIABLES	(1) Market Model	(2) 4 Factors Model
Day -2	0.00877	0.00878
	(0.00537)	(0.00537)
Day -1	-0.00352	-0.00352
	(0.00547)	(0.00547)
Day 0	0.00505	0.00506
	(0.00542)	(0.00542)
Day 1	**0.0122****	**0.0122****
	(0.00558)	**(0.00558)**
Day 2	-0.00797	-0.00796
	(0.00542)	(0.00542)
Constant	0.00183	0.00160
	(0.00162)	(0.00162)
Observations	1,577	1,577
R-squared	0.008	0.008
Confounding Event Dummies	Yes	Yes

Note: Dependent variable: abnormal return; "Day – 2" assumes value 1 for the second day prior to the renegotiation; Note: "Day - 1" assumes value 1 for the second day prior to renegotiation; "Day 0" assumes value 1 for the day of renegotiation; "Day + 1" assumes value 1 for the first day after renegotiation; "Day + 2" assumes value 1 for the second day after renegotiation; Confounding Event Dummies assumes a value of 1 if other information is published during the five days before and after the disclosure of the renegotiation. The superscripts

∗∗∗, ∗∗, and ∗ indicate significance at the 1%, 5%, and 10% levels, respectively. The sample is composed of 21 events.

Table 7 shows a relationship between the first day after the renegotiation announcement and the abnormal returns. This result is in line with the previous results presented in table 6.

Furthermore, these results are consistent with Godlewski (2015) and Nikolaev (2018). In Godlewski (2015), the financial covenant renegotiation of European companies (most significant amendment type) led to a cumulative abnormal return of 14% in the 3-day window. In this study, as shown in Table 4.6, the 3-day window did not show statistical significance. However, the cumulative abnormal return for the 5-day window (statistically significant) was only approximately 3%.

Nikolaev (2018) indicated the presence of abnormal returns on the first day after disclosure of only 0.07%, while in this study, the percentage was 1.22% (Table 7). On the other hand, table 4.7 showed abnormal returns only on the first day after the renegotiation, while in Nikolaev (2018), besides the first day, the same test showed abnormal returns on the renegotiation day and the two previous days.

Therefore, broadly speaking, we showed that there is a market reaction to the renegotiation announcement in Brazil, rejecting Hypothesis 1 of this study. However, this reaction tends to be less intense than in developed economies. This lower intensity is perceived by the lower economic significance of the reaction (compared to Godlewski (2015)) or by the reaction duration (compared to Nikolaev (2018), and can be a reflection of the idiosyncrasies present in an emerging market like Brazil (i.e., less liquidity, more significant information asymmetry, less sophisticated investors, less demanding disclosure requirements, and less enforcement of these disclosures).

With a lower level of disclosure, there is a greater information asymmetry between the company and the investor, thus making the renegotiation disclosure less informative than in countries with higher disclosure levels, possibly affecting the market reaction. In addition, the smaller number of qualified investors present in emerging economies may reduce the intensity of the market reaction to renegotiations, given that this type of investor is known to have more ability to maximize the usefulness of disclosed information (Hand, 1990). Finally, the lower liquidity present in emerging markets tends to reduce the sensitivity of stocks to the disclosed information, which could also explain the results found in this study.

Beyond the emerging economy contexts' argument, the divergence between the results could also be explained by the difference in the renegotiations characteristics. As it was possible

to notice in the descriptive statistics (table 5), more than 80% of the renegotiations in the sample are with bondholders, unlike Nikolaev (2018) and Goldewski (2015), who focused on renegotiations with private debt.

This is a significant difference since bondholders do not have access to soft information like bank creditors (Nikolaev, 2018; Lou & Otto, 2020). By having access to less information than banks, bondholders tend to reduce the certifying effect since the bondholder's decision-making tends to be through the information that is already public, making the disclosure of the renegotiation less informative to the market.

4.1. Additional Analysis

One could argue that market reactions may differ depending on the type of renegotiation disclosed. For this reason, we separate the renegotiations into two types: renegotiations without counterpart and renegotiations with counterpart. Renegotiations without counterparts generate only positive outcomes for companies, such as loosening covenants or increasing the loan amount. On the other hand, renegotiations with counterparts are those that, despite generating positive outcomes, also generate an adverse one (e.g., interest rate increases or the imposition of tight covenants). Table 8 presents the results of this test.

Table 6. Stock market reaction to renegotiation announcements (models with counterpart and without counterpart)

	(1) Market Model (without counterpart)	(2) 4 Factors Model (without counterpart)	(3) Market Model (with counterpart)	(4) 4 Factors Model (with counterpart)
Day -2	0.00680	0.00680	0.0104	0.0104
	(0.00761)	(0.00761)	(0.00753)	(0.00753)
Day -1	-0.0121	-0.0121	0.00418	0.00417
	(0.00761)	(0.00761)	(0.00779)	(0.00779)
Day 0	0.00539	0.00540	0.00479	0.00480
	(0.00761)	(0.00761)	(0.00765)	(0.00765)
Day 1	**0.0139***	**0.0139***	0.0110	0.0110
	(0.00811)	**(0.00811)**	(0.00765)	(0.00765)
Day 2	-0.00667	-0.00667	-0.00899	-0.00898
	(0.00776)	(0.00776)	(0.00753)	(0.00753)
Constant	0.00178	0.00152	0.00201	0.00181
	(0.00209)	(0.00209)	(0.00251)	(0.00251)

Observations	690	690	887	887
R-squared	0.013	0.013	0.007	0.007
Confounding Event Dummies	Yes	Yes	Yes	Yes

Note: "Day - 2" assumes value 1 for the second day prior to renegotiation; Day – 1" assumes value 1 for the first day prior to the renegotiation; "Day 0" assumes value 1 for the day of renegotiation; "Day + 1" assumes value 1 for the first day after renegotiation; "Day + 2" assumes value 1 for the second day after renegotiation; Confounding Event Dummies assumes a value of 1 if other information is published during the 5 days before and after the disclosure of the renegotiation. The superscripts ∗∗∗, ∗∗, and ∗ indicate significance at the 1%, 5%, and 10% levels, respectively. The sample is composed of 21 events.

Table 8 shows a market reaction only for renegotiations that did not present a counterpart. In other words, it is not just any renegotiation that tends to be valued by the market, but only those that generate only positive outcomes for the borrower. Therefore, I showed that debt renegotiations can provoke stock market reactions, even in emerging economy markets.

To sum up, these results reject the hypothesis that there is no market reaction to the debt renegotiation disclosure. However, these results also differ from those found in developed economies, given that the reaction was less intense. This lower intensity may reflect the idiosyncrasies in an emerging economy and the lender characteristics.

5. Concluding Remarks

Debt renegotiation is essential in the contractual relationship between the creditor and borrower. The theory of incomplete contracts asserts that it is impossible to establish contracts that cover all contingencies or future states of the world. Therefore, renegotiation serves to adjust the contract in the face of new realities that arise.

Previous studies have shown that debt renegotiations transmit information to the market. This happens because the renegotiation implies the collection of new information from the borrower by the creditor to subsidize their decisions about the renegotiation. Since this new information may not be public, the renegotiations can offer relevant signals about the borrower's quality, generating the certifying effect in the market.

Nevertheless, these studies have been contracted in developed economies such as the United States and European countries. Therefore, this study aimed to analyze the market reaction to renegotiations in the Brazilian market, whose characteristics differ substantially from those of developed markets.

The results show that, even in a market with less liquidity, more significant information asymmetry, less sophisticated investors, less demanding disclosure requirements, and less

enforcement of these disclosures, there is evidence of a positive market reaction to renegotiations. However, this reaction tends to be less intense than those seen in developed economies.

These results are new in the literature. To the best of our knowledge, this is the first market reaction study to focus on debt renegotiation. Furthermore, we innovate by addressing capital market debt renegotiations in addition to bank debts traditionally addressed in previous studies. As a practical contribution, the results showed that debt renegotiation disclosure can be a strategy to increase the shareholders' value perception of the company.

Finally, the main limitation of this study is related to a possible bias regarding the companies that discloses renegotiations. More specifically, not all companies that renegotiated their debts disclosed this renegotiation. Therefore, this may bias the results found in this study. In addition, this study's small sample makes it challenging to design additional tests to explore other approaches.

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