Economic Policy Uncertainty and Leverage Dynamics in Brazil

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Abstract

This paper aimed to investigate the relation between Economic Policy Uncertainty and short-long term debt in brazilian companies. Empirical evidence provided by samples from different countries suggest that in periods of high political uncertainty, companies shorten debt maturities due to future uncertainties regarding cash flows generation (Li, 2022; Zhang et al., 2015). The decision to balance short and long term debt can be influenced by Policy Uncertainty (Datta, 2019). Under this approach, the dependent variables of proposed models are short-term and long-term debts released by companies. As proxy for Policy Uncertainty, it was used EPU Index (Economic Policy Uncertainty). Based on quarterly data, the selected sample presents 170 non-financial companies listed on B3 from 2010 to 2019. The inferential methods used covered since Ordinary Least Squares (OLS) estimations to parameters estimated throught Generalized Method of Moments (GMM) for dynamic panel data to deal with issues related to instrument restrictions and endogeneity. The results indicated positive association on short and negative on long debt. This evidence reinforces that in periods of high uncertainty corporations obtain debt with shorter terms. In further analysis, it was found that this relationship remains the same when analyzing companies with more (and less) short-long debt into tertiles. Considering the negative relation between Policy Uncertainty and long term debt, it was also verified that corporate investments declines with the increase in Uncertainty. The same estimates were shaped taking into account a balanced sample (147 companies) and provided the same direction of EPU coeffcientes whether compared to unbalanced sample.

Keyword: Economic Policy Uncertainty; Short-term debt; Long-term debt

1. Introduction

Financial Markets are not indifferent to the Policy Uncertainty that runs througt the economic environment (Al-Thaqeb & Algharabali, 2019; Andrews, 2013; Julio & Yook, 2012; Pástor & Veronesi, 2010). This correlation is manifested when governments make decisions in the field of Fiscal and Monetary Policies and agents' previous beliefs may be reset to a scenario of uncertainty (Aizenman & Marion, 1993; Demir & Ersan, 2017b; Guiso & Parigi, 1999; Hassett & Metcalf, 1999), which can affect asset pricing (Pástor & Veronesi, 2010).

Over the years, investigations have verified the relationship between Policy Uncertainty and (i) Investments (Gulen & Ion, 2016; Julio & Yook, 2012; Kang et al., 2014); (ii) Mergers and Acquisitions (Bonaime et al., 2018); (iii) Equity (Xiaorong Li et al., 2018); and Initial Public Offerings (Çolak et al., 2017). Taking into accout the persistent need of capital by companies to finance mainly investment projects (Barclay & Smith Jr, 1995), investigations that aim to understand the interference of Policy Uncertainty on debt have thrived recently (Bajaj et al., 2021; Çolak et al., 2018b; Kotcharin & Maneenop, 2018; Schwarz & Dalmácio,

2020). Although Schwarz & Dalmácio (2020) have focused on understanding the relation between total debt and Policy Uncertainty, they add that the breadth at this topic turn investigations into this relationship incipient.

Predominantly, the corporate decision to go into debt also considers the need to determine a balance between short-term and long-term debt. In turn, the decision to balance short and long term debt can be influenced by Policy Uncertainty (Datta, 2019). This is because Policy Uncertainty can be detrimental to the external financing environment, which implies on the use of more short-term debt and reduction of overall corporate leverage (Pan et al., 2019).

Although debt shortening can be considered a seemingly easy way out (Myers, 1977), there is a risk of refinancing – credit is not always available – because the investments do not generate sufficient cash, creating a gap between the debt and investment maturation (Diamond, 1991). Companies need to roll over debt more frequently if they rely on short-term debt (Pan et al., 2019). Thus, companies tend to reduce short-term debt when uncertainty is high (Alfaro et al., 2018; Pan et al., 2019).

On the other hand, long-term debt has maturity compatible with the generation of cash flows, indicating a balance between asset maturation and debt (Diamond, 1991). As an implication at the microeconomic level, corporations will always seek to understand the directions taken by Government in order to be able to guide their short and long-term decisions (Bloom, 2014; Julio & Yook, 2012; Selmi & Bouoiyour, 2020).

From the perspective of the combination of short and long-term debts, Datta et al. (2019) advanced in studying the relationship between Policy Uncertainty and debt composition, concluding that in periods of high Policy Uncertainty, companies shorten debt maturity, due to uncertainties about future cash flows, while high-growth companies lengthen debts in the face of the same scenario. Pan et al. (2019) presented the same result, adding that the effect of uncertainty is greater in companies with lower credit ratings, which may affect debt maturity in at least five quarters in the future.

In Brazil, Schwarz & Dalmácio (2020) studied the relation between Policy Uncertainty and debt. They presented an increase in debt with the increase in Policy Uncertainty. In similar theme, the present reseach investigates the relationship between Policy Uncertainty and the composition of debt in the short and long terms. This choice is due to the nature of corporate debt, which in essence has several aspects, one of which is its composition (Póvoa & Nakamura, 2014, 2015). Understanding the segregation of onerous liabilities becomes relevant because the maturity of debts is correlated to the understanding of the dynamics of generating future cash flows of the company (Nakamura et al., 2011).

Different results obtained in previous researches reinforce the importance of this study by segregating the effects of Policy Uncertainty on short-term and long-term debt. The research helps managers to assess debt maturities in the face of uncertainty scenarios. The findings complement the study by Schwarz & Dalmácio (2020) by looking at the relationship between Policy Uncertainty and short-term and long-term debt in the Brazilian scenario, a country with several political events that converge to the increase of Policy Uncertainty (Davis, 2016). Thus, in the context of uncertainty of Policy Uncertainty, the theme gains relevance because when there is an increase in this uncertainty, agents redefine their expectations and this redefinition, combined with the existence of debts, may compromises the future cash flow of companies. Using a sample that includes 170 non-financial companhies over 2010-2019 years, the results suggest that politicy uncertainty is positively and negatively related to short and long term debt, respectvively. These findings are in line with those obtained by Zhang et al. (2015) and Xiang Li (2022) who found that companies tend to reduce the maturity of debts in the period of high politicy uncertainty, that is, they reduce long-term debt to obtain debt in shorter terms.

2. Literature Review

2.1 Debt Structure

When studying the determinants of corporate financing structure, Myers (1977) examed the reason why differences in the debtedness of some companies occur. While some opt for short-term financing, others seek to raise long-term . Debt maturity increases with the quality and size of credit and decreases with the company's growth opportunities.

What was defended by Myers was later supported in the study developed by Barclay & Smith (1995) who analyzed debt maturity under three aspects: (i) the influence of the cost of contracting, (ii) the influence of signaling, and (iii) the influence of the taxes. They found evidence that the increase in cost of contracting tends to shorten debt maturity, while obtaining limited evidence that this debt information is used by the market. In addition, they concluded that large firms and industry regulation contribute to long-term fundraising, while companies with greater information asymmetries issue more short-term debt.

The issuance of short-term debt is also affected by the risk in the generation of future cash flows and by the decisions and expectations of return on investments (Guedes & Opler, 1996). Corporate financing decisions involve not only the choice of capital structure, but also the maturity structure of the company's debt (Datta et al., 2019), which has a higher cost in periods of greater Policy Uncertainty, as is the case of electoral periods (Çolak et al., 2017).

In this sense, Policy Uncertainty emerges as another factor that can influence the debt maturity structure, due to the existing relationships between (i) Policy Uncertainty and investments (Al-Thaqeb & Algharabali, 2019; Gulen & Ion, 2016; Julio & Yook, 2012; Kang et al., 2014; Pástor & Veronesi, 2012); (ii) Policy Uncertainty and mergers and acquisitions (Bonaime et al., 2018); (iii) Policy Uncertainty and equity (Xiaorong Li et al., 2018); and (iv) Policy Uncertainty and cash holding (Cao et al., 2013; Demir & Ersan, 2017; Duong et al., 2020) and (v) Policy Uncertainty and Initial Public Offerings (Çolak et al., 2017). On Policy Uncertainty and leverage, the studies by Bajaj et al. (2020), Bajaj et al. (2021), Çolak et al., (2018), Datta et al., (2019), Kotcharin & Maneenop (2018); Le et al. (2021), Schwarz & Dalmácio (2020) e Zhang et al. (2015) have been drawn attention. Related to Policy Uncertainty and debt, the investigations carried out by Bajaj et al. (2020), Bajaj et al. (2021), Çolak et al., (2018), Datta et al., (2019), Kotcharin & Maneenop 2018; Le et al., 2021; Schwarz & Dalmácio, 2020; Zhang et al., 2015) may to be highlighted.

Decisions related to Economic Policy events have the strength to influence corporate investment propensity. Julio & Yook (2012) found that in the electoral period, companies reduce investment spending by an average of 4.8% when compared to periods when there are no elections. This conclusion is in line with the reflections of Al-Thaqeb & Algharabali (2019) who suggests that companies tend to be more conservative in periods of uncertainty, as is the case in election years. These events also reduce initial public offering (IPO) volume. As a consequence, studies by Cao et al. (2013); Demir & Ersan (2017) and Duong et al. (2020) found that, in view of this more conservative approach, companies tend to keep cash resources, due to the uncertainty regarding the generation of future cash flows. On the other hand, studies that address the issue of debt have presented divergent results. While some authors note that there is a positive relationship between EPU and leverage, others note that this relationship is negative, as shown in Table 1.

2.2 Políticy Uncertainty

Politicy uncertainty is the economic risk associated with undefined future government policies and regulatory frameworks (Al-Thaqeb & Algharabali, 2019). This phenomenon further increases the risk that companies and individuals will delay their spending and investments due to market uncertainty (Al-Thaqeb & Algharabali, 2019). The economic consequences of Policy Uncertainty have been a topic of growing interest (Tran & Phan, 2017). Expressive quantity of events related to Policy Uncertainty have been highlighted by the media and academia a relevant issue for business (Al-Thaqeb & Algharabali, 2019).

As a consequence of this highlight, some metrics were developed to measure uncertainty. Manela & Moreira (2017) constructed a text-based metric starting in 1890 using front-page articles from the Wall Street Journal. In the same line, Hassan et al. (2019) developed a metric to calculate political risk, whose methodology was based on those used to measure political uncertainty developed by Baker et al. (2016), being used in the studies by carried out by Pan et al. (2019) and Wu & Lai (2021).

However, in this paper it was used the Politicy Uncertainty index arranged by Baker et al. (2016). For Brazil, the index was build on specific terms (S. R. Baker et al., 2016; Schwarz & Dalmácio, 2020) obtained from the newspaper Folha de São Paulo (Schwarz & Dalmácio, 2020). This index is known as BBD Index (in reference the authors who developed the measure). Politicy uncertainty data for Brazil and other countries is available at policyuncertainty.com. The BBD index is released monthly. As the analyzed data are on a quarterly basis, the methodology used to transforme it into quartely variable is the same from that applied by Zhang et al. (2015); Gulen & Ion (2016); Nguyen & Phan (2017); Schwarz & Dalmácio (2020).

$$EPU_t = \frac{3.\,BREPU_m + 2.\,BREPU_{m-1} + BREPU_{m-2}}{6} \quad (1)$$

2.3 Economic Policy Uncertainty (EPU) and Debt

Corporate financing decisions involve not only the choice of capital structure, but also the maturity structure of the company's debt, which is related to Policy Uncertainty (Datta et al., 2019; Fan et al., 2012; Li , 2022; Li & Su, 2019; Tran & Phan, 2021; Zhang et al., 2015). Policy Uncertainty corresponds to the uncertainties associated with political choices that influence the reality of companies (Datta et al., 2019).

The different directions that the results of recent research on the influence of Policy Uncertainty on leverage have been pointing (Bajaj et al., 2021a), bring the reflection on which factors can influence this divergent behavior in the face of increased Policy Uncertainty. Fan et al. (2012) found that the debt structure of companies is influenced by local uncertainties that mark the characteristics of each country.

Cao et al. (2013), Zhang et al. (2015), Pan et al. (2019) and Le et al. (2021) found that as Policy Uncertainty increases, debt decreases, as companies tend to wait longer to obtain debt and retain more cash, due to uncertainty about future cash flows. For Le et al. (2021), the increasing in debt might reduce investments, which is consistent with the findings of Gulen and Ion (2016) and Chen, Hoang Le, Shan and Taylor (2020) and Zeferino (2021).

According to Cao et al. (2013), listed companies which have access to debt markets are less sensitive to changes arising from Policy Uncertainty. Zhang et al. (2015) found that companies which maintain a good reputation with financial institutions suffer less from the effects of Policy Uncertainty. The authors argue that the negative effect of Policy Uncertainty on debt stems from the deterioration of the external financing environment. The increase in default risk changes the behavior of financial institutions in relation to the risks they are willing to assume. The negative relationship between Policy Uncertainty and debt is in accordance to the Trade-off Theory, in which debt would be less attractive and companies would tend to reduce it, and therefore consistent to what is denominated debt market supply hypothesis. In Brazil, when the relationship between total debt and Policy Uncertainty was investigated, this hypothesis was not evidenced, taking into account the positive sign related to Policy Uncertainty and therefore consistent to equity market supply Hypothesis (Schwarz & Dalmácio, 2020).

Pan et al. (2019) advanced their research by analyzing, in addition to debt, debt maturity. It is worth mentioning the fact that their investigation applied as a proxy for Policy Uncertainty the measure calculated by Hassan et al. (2019) instead of using the BBD index proposed by Baker et al. (2016). Even so, the results presented by Pan et al. (2019) are similar to studies by Tran & Phan (2017) and Tran & Phan (2021), who used the BBD index as a measure for policy uncertainty, indicating that it is negatively associated with corporate debt maturity. Tran & Phan (2021) suggest that this relationship is more intense on companies with financial constraints.

Studies that mostly indicate the negative relationship between Policy Uncertainty, debt and debt maturity were based on the idea that the increase in Policy Uncertainty affects the environment for obtaining external financing, whose institutions, taking into account the greater risk of default and refinancing (Tran & Phan, 2017), reduce contracting terms and increase the cost of debt. As a result, companies reduce leverage and corporate investments awaiting an improvement in the uncertainty scenario.

In contrast, Bajaj et al. (2021), Çolak et al. (2018) and Schwarz & Dalmácio (2020) found a positive relationship between Policy Uncertainty and debt. As Policy Uncertainty increases, debt also increases. The authors who also found this same correlation argued that Policy Uncertainty increases the uncertainty of profits and financial resources, encouraging the external use sources of finance in times of uncertainty in business (Bajaj et al., 2021a), as the cost of issuing of stocks is also higher. These results are in line with the Market Time Theory, according to which companies tend to issue more debt in periods of uncertainty (equity market supply issues hypothesis) due to the cost of issuing shares (Baker & Wurgler, 2002; Çolak et al. , 2018; Schwarz & Dalmácio, 2020). Nonetheless, The research carried out by Schwarz and Dalmácio (2020) considering the Brazilian market, the authors did not decompose the debt, leaving the analysis of the influence of Uncertainty unfinished. That is, the study did not analyze the effects of Policy Uncertainty on short-term and long-term debt separately.

The split of debt into short and long terms was provided by Zhang et al. (2015). They concluded that, in addition to the negative relationship between Policy Uncertainty and debt, this relationship is also negative for short-term and long-term debt at the 1% significance level. In summary, Table 1 presents efforts that have been undertaken recently to examine the relation between Policy Uncertainty in debt.

Table 1

Investigations on debt and Policy Uncertainty

Investigation	Country	Total Debt	Short-Term	Long-Term	Association to Policy Uncertainty
Schwarz & Dalmácio (2020)	Brazil	x			Positive
Bajaj et al. (2021a)	India	x			Positive
Cao et al. (2013)	USA	x			Negative
Zhang et al. (2015)	China	x	X	X	Negative
Tran & Phan (2017)	USA	x	X		Negative (Total) / Positive (Short)
Datta et al. (2019)	Several	x	X	X	Negative
Pan et al. (2019)	Several	x		X	Negative
Le et al. (2021)	Vietnam	x			Negative
Tran & Phan (2021)	USA	x	X		Negative
Li (2022)	Germany, French, Italy e Spain		Non siginificative)	X	Negative

Source: Literature review provided by authors (2022)

Authors also have been considered debt maturity periods as starting point of analysis, breaking them down into periods ranging from 1 year to 5 years. When verifying a negative relationship between Policy Uncertainty and maturity, they have concluded that companies begin to use debt with shorter maturities (Li, 2022). However, when decomposing the debt, studies are inconclusive, taking into account that this difference may be due to the manner in which the debt variable is operationalized. Furthermore, in Brazil, the literature that explores this relationship is incipient and its decomposition has not yet been investigated. Supported by previous findings, it is cohent to expected that in times of increasing Policy Uncertainty, companies will chose to be supplied by short term debt rather than in the long, given the future uncertainties arising from the increase in Policy Uncertainty.

3. Sample, data and methods

This section presents the methodological procedures that were applied in the research whose objective is to verify the effect of Policy Uncertainty observed in Brazil on debt maturity from companies listed on the Brasil Bolsa Balcão – B3. It is an empirical and predominantly quantitative approach research, which applies methods of descriptive and inferential statistics to achieve the proposed objective.

On corporate level, the data related to research variables were obtained throught Refinitiv® system. Consistent with previous studies (Bajaj et al., 2021a; Schwarz & Dalmácio, 2020; Zhang et al., 2015), financial companies were excluded, in addition to companies that did not have information on total assets or without market capitalization and companies with negative equity.

The selected sample (Table 2) consisted of 170 companies listed on B3, from 2010 first quarter to 2019 first, which is same range used by Schwarz & Dalmácio (2020) to investigate

the relation between total debt and Policy Uncertainty in Brazil. To provide adittional analisys, its was shaped a balanced panel. The sample data, even unbalanced, are similar to those of the sample used by Schwarz & Dalmácio (2020), for the same period, which included 163 Brazilian companies.

Table 2

Sample Research

Total of Companies	563
(-) Financial companies	46
(-) Negative Equity	57
(-) Without debt information	273
(-) Market capitalization	17
Companies (unbalanced panel)	**170**
Companhies with debt in all periods	**147**

Source: Reserach Data (2022)

The variables used in the study are described in Table 3. Total debt, divided into short-term and long-term, is the research dependent variable. The EPU for the Brazilian context was obtained from the website policyuncertainty.com.

Table 3

Research Variables

Variáveis	Tipo	Descrição	Referências
Blevcp	Dependent	Short debt/Total Asset	Zhang et al. (2015); Li & Su (2019), Li (2022)
Blevlp	Dependent	Long debt/Total Asset	Zhang et al. (2015); Li & Su (2019), Li (2022)
EPU	Independent	EPU Index (Equation 1)	Zhang et al. (2015); Gulen & Ion (2016); Nguyen & Phan (2017); Schwarz & Dalmácio (2020)
Size	Control	Natural logarithm of total assets	Schwarz & Dalmácio (2020); Bajaj et al. (2021); Le (2021)
Profit	Control	Ebitda/Total Asset	Rajan & Zingales (1995); Datta et al. (2019); (Bajaj et al. (2020), Li & Su (2019); Li (2022); Schwarz & Dalmácio (2020); Le et al. (2021)
Tang	Control	Property Plants and Equipment / Total Assets	Çolak et al. (2018); Rajan & Zingales (1995) Schwarz & Dalmácio (2020)
Grow	Control	(Total debt + Market Capitalization) / Total Assets	Schwarz & Dalmácio (2020)
Ibc	Control	Brazilian Central Bank Economic Activity Index	Schwarz & Dalmácio (2020)

Ipca	Control	Price Index	Datta et al., (2019); Li & Su (2019); Li (2022), Schwarz & Dalmácio (2020)

Source: Research Data (2022)

In this sense, supported by the models proposed by Bajaj et al. (2021) and Schwarz & Dalmácio (2020), it was sought to expand knowledge related to short and long debt dynamics considering the Policy Uncertainty. The empirical model is specified as follows:

$$blevcp_{it} = \beta_0 + \beta_1 blevcp_{it-1} + \beta_2 EPU_t + \beta_3 size_{it} + \beta_4 profit_{it} + \beta_5 \text{tang}_{it} + \beta_6 grow_{it} + \beta_7 ibc_t + \beta_8 ipca_t + \varepsilon_{it} \quad (2)$$

$$blevlp_{it} = \beta_0 + \beta_1 blevlp_{it-1} + \beta_2 EPU_t + \beta_3 size_{it} + \beta_4 profit_{it} + \beta_5 \text{tang}_{it} + \beta_6 grow_{it} + \beta_7 ibc_t + \beta_8 ipca_t + \varepsilon_{it} \quad (3)$$

To deal with problems caused by possible outliers in research variables, winsorization technique (cuts 1 99) was used (Brugni et al., 2021; Hoo et al., 2002; Kwak & Kim, 2017).

4. Data Analysis

Table 4 presents the descriptive data of the sample. Similar to Li (2022), the average long-term debt is higher than the short-term debt. Indicating that companies have greater amounts of debt in the long term. For EPU, the average found is 5.13, higher values than that shown by Li (2022) of 4.88 and Tran and Fan (2021) of 4.65. This is due to the difference in the period considered for analysis and also the analysis region presents higher uncertainty values. In general, it can be understood that this period from 2010 to 2019, in Brazil, the uncertainty, on average, was higher than the periods and countries that the authors analyzed. These values reinforce the Brazilian characteristic that has several political events that help to increase Policy Uncertainty (Davis, 2016).

Table 4

Descriptives

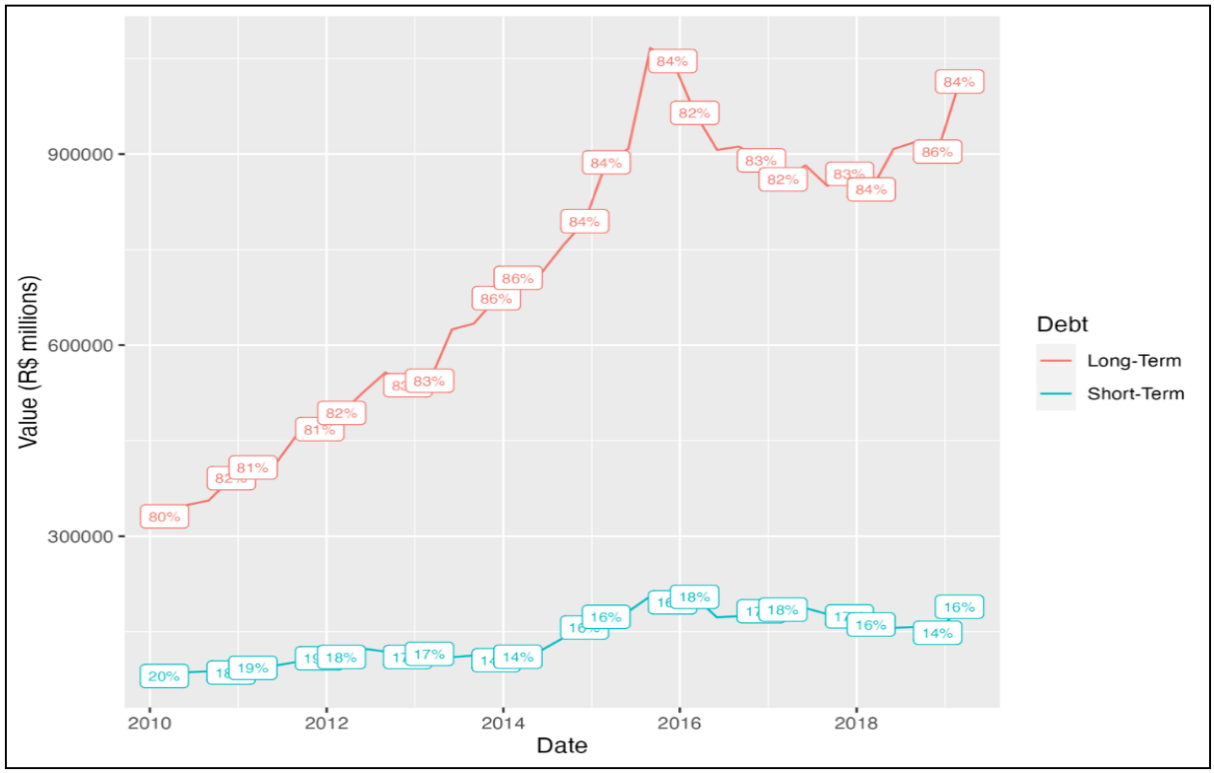
Variabel	Observations	Mean	Median	Std. Deviat.	Min.	Max.
blevcp	6290	0,0782	0,0618	0,0680	0	0,3098
blevlp	6290	0,1843	0,1722	0,1420	0	0,5580
Epu	6290	5,1351	5,0290	0,49286	4,2801	6,2490
Size	6290	21,8725	21,9385	1,7063	15,0082	27,5788
profit	6290	0,0253	0,0238	0,0234	-0,0420	0,0982
Grow	6290	1,0102	0,7180	0,9300	0,0830	5,6518
Tang	6290	0,3011	0,5197	0,3513	0	1,2969
Ibc	6290	0,0037	0,0048	0,0432	0,0841	0,0879
Ipca	6290	0,0147	0,0140	0,0076	0,0022	0,03828

Source: Reseach Data (2022).

Figure 1 presents the evolution of the debt amount of all companies over the analyzed period, describing that short-term and long-term debt represent, respectively, an average of 20% and 80% of total debt. Eventhough the differences in slopes between short-term and long-term debt, the proportion of total debt remains at very similar levels over the years from 2010 to 2019.

Figure 1

Debt amount and percentage on total debt



Source: Research Data (2022)

Additionally, the correlation matrix presents negative coeffcients between Policy Uncertainty and size, profitability and tangibility. As well, negative correlation considering macroeconomic factors.

Table 5

Correlation Matrix

	Epu	size	profit	grow	tang	ibc	ipca
Epu	1,000						
Size	0,0592 (0,0000)	1,000					
Profit	-0,1079 (0,0000)	0,1295 (0,0000)	1,000				
Grow	-0,0055 (0,6643)	-0,0056 (0,0000)	0,3449 (0,0000)	1,000			
Tang	-0,0565 (0,0000)	0,1116 (0,0000)	0,1429 (0,0000)	-0,0470 (0,0002)	1,000		
Ibc	-0,0133 (0,0000)	-0,0205 (0,1067)	-0,0037 (0,0000)	0,0011 (0,9305)	0,0729 (0,0000)	1,000	
Ipca	-0,0193 (0,1254)	-0,0102 (0,4254)	-0,0310 (0,0000)	-0,0535 (0,0000)	-0,0296 (0,0203)	0,0492 (0,0001)	1,000

Source: Research Data (2022). This table presents the correlations between the research variables. The variance inflation factor (VIF) test ranged from 1.00 to 1.21, with an average of 1.06, which does not indicate the presence of multicollinearity.

4.1 Multivariate Analysis

Similar to Bajat et al. (2021), Table 6 reports the results for the dynamic adjustment of debt structure using Ordinary Least Squares (OLS) and fixed effects estimation, from the variables defined in Table 3. Columns (1) and (3) report the results without considering macroeconomic variables, respectively, while the results presented in columns (2), (4), (5) and (6) consider economics controls.

Table 6

OLS Regression

Variable	(1)	(2)	(3)	(4)	(5)	(6)
blevcp$_{(t-1)}$	0,8988 (0,0000)	0,8989 (0,0000)			0,7467 (0,0000)	
blevlp$_{(t-1)}$			0,9503 (0,0000)	0,9502 (0,0000)		0,7945 (0,0000)
Epu	0,0015 (0,0370)	0,0015 (0,0340)	-0,0032 (0,0000)	-0,0032 (0,0000)	0,0022 (0,0037)	-0,0031 (0,0005)
Size	0,0008 (0,0050)	0,0008 (0,0050)	0,0022 (0,0000)	0,0022 (0,0000)	0,0026 (0,0940)	0,0083 (0,0020)
Profit	-0,0682 (0,0030)	-0,0674 (0,0030)	-0,0241 (0,3690)	-0,0232 (0,3880)	-0,0987 (0,0020)	-0,0748 (0,0390)
Grow	0,0001 (0,7800)	0,0001 (0,7340)	0,0016 (0,0030)	0,0017 (0,0030)	0,0022 (0,0200)	0,0044 (0,0070)
Tang	0,0006 (0,6230)	0,0006 (0,6170)	0,0008 (0,6380)	0,0007 (0,6560)	0,0025 (0,2600)	0,0017 (0,6230)
Ibc		0,0068 (0,4850)		0,0090 (0,4500)	0,0056 (0,5330)	0,0019 (0,8640)
Ipca		0,0777 (0,0700)		0,04782 (0,3560)	0,0839 (0,0590)	0,1472 (0,0100)
Setor	Sim	Sim	Sim	Sim		
Constante	-0,0217 (0,0010)	-0,0229844 (0,0010)	-0,0299 (0,0010)	-0,03083 (0,0010)	-0,0511 (0,1200)	-0,1316 (0,0170)
R2	0,8280	0,8281	0,9296	0,9296		

Source: Research Data (2022). This table presents the results of equations (1) and (2), and columns (1), (2), (3) and (4) report the results of the OLS with control of sector dummies. Columns (5) and (6) report the results of fixed effects regressions. The data shown is β with respective p-value in parentheses.

For long-term debt, the result is consistent with Zhang et al. (2015) when verifying a negative relation to EPU. On the other hand, for short-term debt, positive relation was found. Although the signal differs from that found by Zhang et al. (2015) and Li (2022), the understanding follows the same line as the present study, that is, in the analyzed period there was a reduction in the debt maturity period. This is because, for Li (2022), the negative coefficient found indicates that the increase in uncertainty is associated to the decrease in debt maturity. In the present study, the positive sign found for short-term debt indicates that the increase in Policy Uncertainty is associated with the increase in the composition of debt that refers to the short term.

The firm size coefficients, at 5% significance level, report a positive relationship (except in model 5) considering short and long term debt, which allows us to infer that large firms are more indebted (Bajaj et al., 2021a). This result corroborates the conclusion of Rajan & Zingales

(1995) that size is expected to be positively related to debt, since large companies are characterized by having more diversification and less volatile cash flow (Cao et al. , 2013).

Regard to profitability, all models showed a negative relationship, that is, the lower the profitability, the greater the debt, although the result was statistically significant only in models (1), (2), (5) and (6). This indicates that Brazilian companies take on less debt when they have higher profits (Bajaj et al., 2021a). This association points out that companies with higher profits use less debt, consistent with the hierarchical financing model, therefore connected with the pecking order hypothesis (Bajaj et al., 2020).

4.2 *Generalized Method of Moments* (GMM) Model

The $blevcp_{(t-1)}$ and $blevlp_{(t-1)}$ coefficients, which correspond to lagged debts, report in Table 7 different speeds of adjustment with an average of 30% in the short term and 27% in the long term. The speed of adjustment is calculated by (1-λ), where λ is equal to the coefficient of the lagged variables ($blevcp_{it-1}$ e $blevlp_{it-1}$). The estimators of the lagged group of dependent variables suggest endogeneity problems in line with what Barros et al. (2020) argues. Regarding the OLS, if the coefficients of the lagged dependent variable are very different, then there is evidence of endogeneity in the model (Abdallah et al., 2015; Bajaj et al., 2021a). The application of GMM estimations is one way to deal with this issue. The estimations performed using OLS and OLS with fixed effects do not deal with endogeneity caused by omitted variables, heteroscedasticity and autocorrelation problems in dynamic panel models. Therefore, estimation using the GMM was adopted, as it provides consistent and efficient estimates in the presence of endogeneity (Arellano & Bover, 1995; Bajaj et al., 2021a, 2021b; Baum et al., 2003).

Table 7

Generalized Method of Moments with unbalanced panel

Variável	(1)	(2)	(3)	(4)	(5)
$blevcp_{(t-1)}$	0,7076 (0,0000)	0,7058 (0,0000)			
$blevlp_{(t-1)}$			0,7356 (0,0000)	0,7219 (0,0000)	
Capex					0,15863 (0,0000)
Epu	0,0035 (0,0000)	0,0037 (0,0000)	-0,0039 (0,0000)	-0,0037 (0,0000)	-0,0019 (0,0000)
Size	-0,0123 (0,0000)	-0,0116 (0,0000)	0,0068 (0,0000)	0,0076 (0,0000)	-0,0132 (0,0000)
Profit	-0,1959 (0,0000)	-0,1899 (0,0000)	-0,1226 (0,0000)	-0,1022 (0,0000)	0,0164 (0,0000)
Grow	0,0007 (0,0000)	0,0021 (0,0000)	0,0044 (0,0000)	0,0077 (0,0000)	0,0005 (0,0000)
Tang	0,0005 (0,0000)	0,0022 (0,0000)	0,0094 (0,0000)	0,0142 (0,0000)	-0,0006 (0,0000)
Ibc		0,0036 (0,0000)		-0,0114 (0,0000)	-0,0336 (0,0000)
Ipca		0,1233 (0,0000)		0,2679 (0,0000)	-0,0021 (0,0000)
Setor	Yes	Yes	Yes	Yes	Yes
Hansen	0,3925	0,3866	0,6294	0,4415	0,4003

AR2	0,1538	0,6504	0,6414	0,4667	0,9636

Source: Research Data (2022).

Diagnostic tests were carried out to validate the estimates of the GMM model, which has as one of the main assumptions the exogeneity of the instruments (Bajaj et al., 2021a). Hansen J statistical test was performed, which tests the overidentified restrictions for valid instruments (Bajaj et al., 2021a; Hansen, 1982). The null hypothesis of this test states that the instruments are valid and derive from a chi-square test. The first differentiated residues should not have any second-order serial correlation (AR2) (Arellano & Bond, 1991; Bajaj et al., 2021a).

The results obtained through the GMM model reinforce the relationship obtained by the OLS and fixed effects models. For short-term debt, the signs remained positive, while for long-term debt and capex, the signs remained negative. This corroborates the understanding that in periods of high uncertainty there is an increase in short-term debt while long-term debt and investments decrease.

5. Additional Analysis

5.1. Debt and Capex

Periods of high Policy Uncertainty drive the agency cost problem between shareholders and debt holders, which can lead to increasing use of short-term debt to solve the underinvestment problem (Li, 2022; Myers, 1977). Pan et al. (2019) found that companies with more investment reversibility tend to use more short-term debt. Investment decisions become more conservative (Bernanke, 1983) and exacerbate the financial constraints of companies leading to an increase in their cash retencion (Phan et al., 2019). In this sense, studies have found that increasing in Policy Uncertainty reduces corporate investment (Bernanke, 1983; Gulen & Ion, 2016; Julio & Yook, 2012; Kang et al., 2014). Zeferino (2021), when studying the relationship between Policy Uncertainty and investments by Brazilian companies, also found a negative relationship.

Table 7 shows that in periods of high Policy Uncertainty, short-term debt increases, while long-term debt and Capex (Capital Expenditures) decrease. When debt is short-term, assets may not generate sufficient cash flow to service the debt to maturity, leading companies to match long term debt to asset maturation (Datta et al., 2019).

5.2 Stratification of short-term and long-term debt into tertiles

The influence that Policy Uncertainty generates in the financial market (Al-Thaqeb & Algharabali, 2019; Andrews, 2013; Julio & Yook, 2012; Pástor & Veronesi, 2010) reachs financing decision-making at firm level (Bajaj et al., 2021a; Lee et al., 2017). Complementarily, Barclay & Smith Jr (1995); Datta et al. (2005); Li & Qiu (2021); Myers (1977) state that the decision to take on short-term or long-term debt is influenced by the company's characteristics, its relationship with the market and financial credit institutions.

To assess the performance of short and long-term debt, Table 8 reports the results obtained from the stratification of the sample into tertiles, segregating the most indebted companies - columns (1) and (4) - companies in the middle third - columns (2) and (5) – and the least indebted companies – columns (3) and (6).

Table 8

Stratification of the sample into tertiles

Variável	(1)	(2)	(3)	(4)	(5)	(6)
blevcp$_{(t-1)}$	0,7365 (0,0000)	0,6699 (0,0000)	0,5468 (0,0000)			
blevlp$_{(t-1)}$				0,7701 (0,0000)	0,7710 (0,0000)	0,7560 (0,0000)
Epu	0,0046 (0,0000)	0,0022 (0,0006)	0,0029 (0,0000)	-0,0009 (0,4497)	-0,0058 (0,0000)	-0,0040 (0,0000)
Size	0,0008 (0,8547)	-0,0096 (0,0000)	0,0036 (0,0000)	0,0045 (0,2047)	0,0196 (0,0000)	0,0127 (0,0000)
Profit	-0,3028 (0,0000)	-0,18587 (0,0000)	-0,0398 (0,0000)	-0,1832 (0,1902)	-0,0891 (0,0014)	-0,1122 (0,0000)
Grow	0,0046 (0,1933)	-0,0005 (0,0034)	0,0016 (0,0000)	0,0009 (0,0896)	0,0000 (0,9708)	0,0026 (0,0000)
Tang	-0,0036 (0,1977)	0,0155 (0,0000)	0,0040 (0,0000)	0,0199 (0,0060)	0,0195 (0,0000)	0,0077 (0,0000)
Ibc	-0,0126 (0,0166)	0,0176 (0,0000)	-0,0059 (0,0000)	-0,0295 (0,0411)	0,01423 (0,0884)	-0,0141 (0,0000)
Ipca	0,2420 (0,0000)	-0,1122 (0,0000)	-0,0070 (0,0000)	0,1821 (0,0576)	0,1503 (0,0177)	-0,0051 (0,0000)
Setor	Sim	Sim	Sim	Sim	Sim	Sim
Hansen	0,5278	0,42097	0,2672	0,3846	0,4760	0,2928
AR2	0,9988	0,9997	0,9836	1,0000	0,8550	0,9999

Fonte: Dados da pesquisa (2022)

The results reinforce the positive relationship between EPU and short-term debt, as well as the negative relationship between EPU and long-term debt. For 33% of the most indebted companies – column (4) – the result obtained was not statistically significant. The result obtained through model 4 allows the reflection that the most leveraged companies suffer less impact due to Policy Uncertainty.

5.3. GMM model for unbalanced panel

Table 9 presents the results of GMM model considering a unbalanced panel, which reinforce the (i) positive relationship between EPU and short-term debt; (ii) negative relationship between EPU and long-term debt; and (iii) and the negative relationship between EPU and capex

Table 9

GMM with unbalaced panel

Variável	(1)	(2)	(3)
blevcp$_{(t-1)}$	0,7181 (0,0000)		
blevlp$_{(t-1)}$		0,7411 (0,0000)	
capex$_{(t-1)}$			0,1690 (0,0000)
Epu	0,0037 (0,0000)	-0,0041 (0,0000)	-0,0019 (0,0000)

Size	-0,0078 (0,0000)	0,0105 (0,0000)	-0,0131 (0,0000)
Profit	-0,1948 (0,0000)	-0,1434 (0,0000)	0,0155 (0,0000)
Grow	0,0059 (0,0000)	0,0087 (0,0000)	0,0010 (0,0000)
Tang	-0,0026 (0,0000)	0,0128 (0,0000)	-0,0021 (0,0000)
Ibc	0,0016 (0,0000)	-0,0133 (0,0000)	-0,0323 (0,0000)
Ipca	0,1340 (0,0000)	0,2475 (0,0000)	-0,0130 (0,0000)
Setor	Sim	Sim	Sim
Hansen	0,3760	0,4181	0,1110
AR2	0,9174	0,8244	0,4173

Fonte: Dados da pesquisa (2022)

Based on these results, the reported evidence is consistent to the findings described by Li (2020), Tran and Phan (2021) and Zhang (2015), indicating that in times of increasing uncertainty, companies choose to use more short-term than long. In addition, the relationship between uncertainty and investment is negative, also reinforcing that assets may not generate sufficient cash flow to service the debt to maturity. Results remain the same eventhough sample reduction to balanced panel.

6. Concluding Remarks

Understanding the factors that can influence corporate decisions related to debt terms contributes to managers being able to use these mechanisms to define the paths that the company can follow or even to know the previous behavior observed, on average. Using the Policy Uncertainty index developed by Baker et al. (2016), this study investigated the relationship between Policy Uncertainty and debt, segregated into short and long terms. For this, 170 companies listed on B3 were analyzed, from 2010 to 2019. The results obtained through the OLS, fixed effects and GMM models reinforce that Policy Uncertainty play a important role on debt structure.

In the analysis, it was identified that even in the face of fluctuations in the growth of short and long-term debts over time, the relationship with total debt remains stable, totaling around 80% in the long term. The results of this study indicate that with increasing Policy Uncertainty, Brazilian companies reduce long-term debt, while short-term debt grows.

It was possible to analyze that the uncertainty regarding the generation of future cash flows sufficient for operational maintenance and investments can influence the company's decision regarding debt maturity. However, it can be argued that this decision is not always made by the company itself. Institutions that provide credit can also change the criteria depending on the risks they are willing to assume, so that the availability of credit decreases and the supply tends to debt with shorter terms (Lee et al., 2017).

In additional analysis, it was found that uncertainty also influences the investments reduction. From this point, it can be inferred that the increase in short-term debt may not have the objective of expanding investments (as they have reduced) but guaranteeing the maintenance of the companies' activities.

The estimations of parameters for short-term and long-term debt remained the same both with the stratification of the sample into tertiles (except for model 4 in Table 8) and with the reduction of the sample from the application of the balanced panel model.

The evidence is robust with controlling for economic conditions, considering endogeneity issues and firm-level characteristics. These results confirm that changes in the country's economic policy that generate increasing uncertainty impact companies' financing practices. Thus, the reduction of debt maturities is aligned with the uncertainty regarding the generation of cash flows. As a result, investment reduce in order to align the maturation of assets with debt levels.

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