REVISTA AMBIENTE CONTÁBIL
Universidade Federal do Rio Grande do Norte
ISSN 2176-9036
Vol. 13, n. 1, Jan./Jun, 2021
Sítios: http://www.periodicos.ufrn.br/ambiente
http://www.atena.org.br/revista/ojs-2.2.3-06/index.php/Ambiente
Article received: 17 January 2020. Peer reviewed: 30 March 2020. Reformulated: 24 April 2020. Evaluated by using the double-blind review system.

DOI: 10.21680/2176-9036.2021v13n1ID23627

A study about the determinant factors of the capital structure of Brazilian companies: a quantile regression analysis

Estudio sobre los factores determinantes de la estructura de capital de las empresas brasileñas: un análisis de la regresión cuantil

Um estudo sobre os fatores determinantes da estrutura de capital das empresas brasileiras: uma análise de regressão quantílica

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Abstract

Purpose: The present paper aims to analyses the determinants of capital structure of ninety-four organizations from the five hundred largest Brazilian companies according to 2018 Exame magazine yearbook.

Methodology: For this research we used information from financial statements of the five hundred largest Brazilian companies. Data inference was made through descriptive statistical analysis and quantile regression analysis. The data was obtained through the companies' websites and through economática software. The descriptive and econometric analysis were performed using Stata 12 software.

Results: The results indicate that the variables such as size and structure of the assets are significant in some quantiles to determine how companies adopt a particular capital structure. In addition, the results indicate the relationship between firm size and total debt level is positive for 25th quantile of the sample. Another point to note is that the asset structure variable has a positive relationship with the long-term debt variable for the 75th and 95th quantiles.

Contributions of the study: This research is an important contribution for finance literature considering that the quantile regression method was used. The scarcity of research using this method is notorious. Moreover, the results obtained in other works on the subject are not yet convergent about the relevant variables to determine the capital structure.

Key words: Capital structure; quantile regression; Indebtedness; third-part capital; owner capital.

Resumen

Objetivo: Este artículo tiene como objetivo analizar los determinantes de la estructura de capital de noventa y cuatro empresas entre las quinientas compañías brasileñas más grandes en el anuario de la revista Exame 2018.

Metodología: Para la investigación, utilizamos información de los estados financieros de las compañías brasileñas más grandes. Los datos se obtuvieron de la información financiera para el año financiero 2017 de 94 empresas entre las 500 compañías más grandes según el anuario de la revista Exame 2018. La inferencia de datos se realizó mediante análisis estadístico descriptivo y análisis de regresión cuantil. Los datos se obtuvieron a través de los sitios web de las propias empresas y a través del software economática. El análisis descriptivo y econométrico se realizó con el software Stata 12.

Resultados: Los resultados indican que variables como el tamaño y la estructura de los activos son importantes em algunos cuantiles, para determinar cómo las empresas adoptan una estructura de capital particular. Además, los resultados indican que la relación entre el tamaño de la empresa y el nivel de deuda total es positiva para el 25º cuantil de la muestra. Otro punto a tener em cuenta es que la variable de estructura de activos tiene una relación positiva con la variable de deuda a largo plazo para los cuantiles 75 y 95.

Contribuciones del Estudio: Esta investigación es una contribución importante a la literatura en el campo de las finanzas ya que se utilizó el método de regresión cuantil. La escasez de investigación con este método es notoria. Además, los resultados obtenidos por otros estudios sobre el tema aún no son convergentes con las variables relevantes para la determinación de la estructura de capital.

Palabras clave: Estructura de capital; regresión cuantil; endeudamiento; capital de terceros; capital propio.

Resumo

Objetivo: O presente artigo teve como objetivo principal analisar os fatores determinantes da estrutura de capital de noventa e quatro empresas dentre as quinhentas maiores companhias brasileiras do anuário da revista Exame de 2018.

Metodologia: Como base para a pesquisa foram utilizadas informações das demonstrações contábeis das maiores empresas brasileiras. Os dados foram obtidos a partir das informações financeiras do exercício de 2017 de 94 empresas, dentre as 500 maiores segundo o anuário da revista Exame de 2018. A inferência dos dados foi feita através de análise estatística descritiva e da análise de regressão quantílica. Os dados foram obtidos diretamente dos sites das próprias empresas e por meio do software Economática. A análise descritiva e econométrica foi feita utilizando o software Stata 12.

Resultados: Os resultados indicam que variáveis como tamanho e estrutura dos ativos são significantes, em alguns quantis, para determinar a forma pela qual as empresas adotam determinada estrutura de capital. Além disso, os resultados indicam que a relação entre o tamanho da empresa e o nível de endividamento total é positivo para o quantil 25 da amostra. Outro ponto a destacar é que a variável estrutura dos ativos tem uma relação positiva com a variável endividamento de longo prazo, para os quantis 75 e 95.

Contribuições do Estudo: Esta pesquisa é uma importante contribuição para a literatura na área de finanças, tendo em vista a utilização do método da regressão quantílica. A escassez de pesquisas feitas utilizando esse método é notória. Além disso, os resultados obtidos por outros trabalhos sobre o tema ainda não são convergentes acerca das variáveis relevantes para a determinação da estrutura de capital.

Palavras-chave: Estrutura de capital; regressão quantílica; endividamento; capital de terceiros; capital próprio.

1 Introduction

Due to a very complex and full of uncertainties economic and financial context, companies need to analyze their sources with care and keep the debt levels under close attention in order to guarantee a balanced capital structure suited to their operational needs.

The rise in productive capacity, the profit growth and the increasing rates of return on investment are ongoing goals in the business environment and they are present in organizations' agenda.

Nevertheless, for such situations, companies need a consistent financing structure adapted to their operational reality and to their market risk.

The debate about capital structure and its relationship with the company's value and its increase has been intense in academic circles without reaching a theoretical convergence.

Therefore, given the non-convergence on the determinants of companies' capital structure, this paper aims to study the determinants of the capital structure in Brazilian companies in order to add empirical evidence to contribute to the literature on the topic.

A differential of this paper is the use of quantile regression, which brings important information about the distribution of conditional leverage to the set of explanatory variables per analyzed quantile.

The research collected information about financial statements of 500 of the largest Brazilian companies, according to Exame Magazine in the year of 2018.

It was used *Economática* database to collect information. The sample congregates 94 publicly traded companies and the database was built from consolidated financial statements.

The research is justified by the topicality of the theme and the risk and return perspectives linked to it. Besides that, several researches of this important and controversial subject use the linear regression or the multiple linear regression while in this the quantile regression statistic technique is used. Such conception can not only ratify positions and perceptions, but also highlight facets not achieved in other statistics techniques.

2 Literature review

The company capital structure is determined by the relationship of own capital and third-party capital. For more than fifty years several researchers have done analyzes to try to discover an explanation to elucidate the way in which companies determine their capital structure. Durand (1952, 1959) argues that the company's capital structure affects its value. For the author, until a certain indebtedness level the third-party capital keeps stable. Thenceforth, it starts to rise because of the increase of company's bankruptcy risk. The same trajectory is verified for the own capital. Nevertheless, from a certain level of indebtedness, it rises more than that because of the cost of third-party capital being lower than the own capital cost. Thus, the company will maximize the value.

The same trajectory is verified to the cost of equity. However, from a certain level of indebtedness it rises more because the capital of third parties becomes lower than the cost of equity. Therefore, the company should go into debt until the average cost of capital reaches a minimum level. Thus, the company maximize**s** its value from the better combination of debt and cost of equity and it would minimize the total cost of financing. It would be the conventional theory about company's capital structure.

Six years later, in the opposite of conventional theory, Modigliani and Miller (1958)

present a study that becomes a landmark capital structure discussion. They conclude that the way in which the firm is financed should not affect his value. Obviously, they concluded this fact under some restriction hypothesis. The authors consider in their paper, for instance, the inexistence of taxes, the absence of agency problems, the lack of information asymmetry, the lack of an unlimited market access with a risk-free rate and the absence of transaction costs and bankruptcy costs. Under these conditions the authors conclude that the leverage is irrelevant to determine the firm's value.

Some years later the authors applied some changes to the absence of taxes hypothesis and they showed that due to the fact that the interest is deductible when calculating corporate income tax, the market value of these companies is directly proportional to the financing level. Thus, there would be a fiscal benefit from the relationship between third party capital and equity capital (Modigliani & Miller, 1963).

Since then, academic papers have been elaborated to try to demonstrate in an empiric way the impact of some variables in the companies' capital structure. Scott (1976) makes a review to the Modigliani and Miller (1963) study refuting the argument that companies obtain benefits becoming more indebted. The author argues that companies could be harmed because of unrestrictive leverage from the increase of bankruptcy cost. It would affect their value in a negative way. Among other seminal researches that consider the cost of bankruptcy appears that elaborated by Kim (1976), Kraus and Litzenberger (1973).

From the combination of arguments proposed by Modigliani and Miller (1963), two assumptions are established: 1) greater leverage would generate tax benefits for the company and; 2) The existence of costs resulting from higher indebted level would generate what literature identifies as trade-off theory.

Hence, as the company becomes more leveraged two elements must be considered: There's a greater risk of bankruptcy and, therefore, the debt cost becomes higher and there is a debt tax benefit. Thus, we have a trade-off between the debt tax benefit and the bankruptcy cost.

In short, it is possible to assert that the company's capital cost, to lower levels of indebtedness presents a declining trajectory because of debt tax benefit, as proposed by Modigliane and Miller (1963). Nevertheless, additional increases in the third-party resources in the capital structure would result bankruptcy risk increases. Thus, the cost capital function trajectory would have a U format, which denote that there would be an optimal capital structure that would minimize the total capital cost and, consequently would maximize the company's value.

According to Jensen and Mackling (1976) the cost of capital would decrease not just due to the increased probability of bankruptcy. The authors argue that the maintenance of debts in the capital structure can generate issues associated to interest conflict between shareholders and creditors, because the latter provides financial resources to the companies without control of its application. Basically, the problem emerges when the investor, under contract, nominates a manager to perform tasks of his own interest and it really implies to delegate power to this agent.

Assuming that both parties wish to maximize their usefulness, there's a good reason to believe that the agent will not always act according to the investor interest. The interest conflict can take several ways and one of them occurs when the managers are negligent to adopt strategies with high risks. The cost derived of this kind of conflict is called agency cost.

One explanation for this conflict environment between managers and the investors is the asymmetric information. Managers really have more knowledge about the real financial and economic situation of the company than the external investors and this situation promotes conflicts in fundraising. Myers and Majluf (1984) were the first to approach the asymmetric information subject and its impact on determining company's capital structure.

Besides that, as a consequence of this problem of information there would be a preference order about company's financing sources. This theory was known in literature as pecking order (Myers, 1984).

According to this theory, the company adopts a hierarchy to select the sources for financing their investments. Therefore, the capital structure of the company would be composed according to this following preference order: retained profit, third-party resources and issuance of shares. Unlike the trade-off theory, in pecking order there's no optimum level of debt for a company to pursue. Issues related to tax benefits and bankruptcy cost are secondary problems.

The preference to the financing internal source (retained profits) can be explained with the lack of dependence of investors' external evaluation. In addition, using third-party capital for issuing debts, can signalize to the market that the produced wealth for this new investment will be distributed only between the current shareholders and it is observed for the market in a positive way. In a complementary way this composition signalize that the share value is undervalued. When the share is above the fair value (overvalued), then managers, according to Myers (1984), would prefer an issue of shares. It can be interpreted in the market in a negative way because managers have more information about the real condition of the company than external agents.

Some scientific researches tried to explain the determining factors of the capital structure of Brazilian companies. Medeiros and Daher (2005) studied if it really exists a pecking order preference in financing sources. According to the authors there is a strong and a weak version to this theory. The strong version assures that the issuance of shares, the last option in the financing way of choosing it would not happen. The weak version asserts that a limited amount of issuance is acceptable. The authors, through a linear regression analyze with cross-section data conclude that the weak version is applicable to the Brazilian companies and, on the contrary, the strong version is not applicable.

Nakamura *et al* (2007) used a panel with 91 Brazilian companies covering the period between 1999 to 2003. To confirm the literature about the theme, the authors used dependent variables the current liquidity, the size of the company, the return, the increase opportunity, business risk, the tax benefit and the selling increase, the tangibility, the coefficient of variation and the bankruptcy cost. According to the results, the authors concluded that there are important evidences in favor to pecking order and the trade-off theories.

Using the linear multiple regression analyses method and Brazilian companies' data, Brito *et al* (2007) concluded that there's no evidence to confirm the pecking order theory. The authors used as independent variables the return, the risk, the company's size, the asset composition, the rate growth and a dummy variable to determine if the company is a publicly traded company or a privately held company. They also conclude that only the risk, the size, the asset composition and the growth are determinants to the company capital structure.

Colla *et al* (2013) examined the debt structure of US public companies. The results they found showed that the majority of the firms give preference to a specific kind of indebtedness. The authors also conclude that several firms search diversity in its debt structure and that companies that don't have a very diversified debt structure have more risk to bankruptcy cost.

Póvoa and Nakamura (2015) follow the same line of Colla *et al* (2013) when they make an analyses of capital structure considering the existence of heterogeneity in the debt structure. The authors conclude that the companies' characteristics are associated in the way that companies take resources in specific sources. Nonetheless, the heterogeneity in the debt structure won't be studied in this paper.

3 The research's methodology

To estimate the impact of several variables cited in the literature in the debt level of companies, it will be used the quantile regression method that is scarce in the topic addressed here. The advantage in its use is in the rich characterization of information in each quantile because it considers the heterogeneity of indebtedness conditional to the determinants.

Besides that, according to Cameron and Trivedi (2005), the quantile regression is capable to produce estimates either in the median or in the different quantiles of the dependent variable engender more rugged results to the outliers.

Another advantage of using this method in a comparison with the simple method of ordinary least square generally used in the research of this theme is that the generated estimators in the quantile regression can be consistent under weak stochastic assumption.

For the case of linear model $y_i = x'_i\beta_q + e_t$, the quantile regression can be seen as an extension of the sample quantiles:

$$Q_N(\beta_q) = \sum_{i:\, y_i \geq x'_i\beta}^{N} q\,|y - x'_i\beta_q| + \sum_{i:\, y_i < x'_i\beta}^{N} (1-q)\,|y_i - x'_i\beta_q|$$

The value of estimator $\hat{\beta}q$, to each quantile **q** is obtained by linear programing methods through simplex method. To each quantile we will obtain a different $\hat{\beta}$ estimator (KOENKER and BASSET, 1978).

This research involved three regressions. One to each variable of indebtedness defined as dependent variable. The regression used in this research to analyse the determinants of capital structure are demonstrated bellow.

$$End_i = \alpha + \beta_1 Tam_i + \beta_2 Rent_i + \beta_3 Cresc_i + \beta_4 EstrAtiv_i + \beta_5 Risc_i + \mu$$

As the study of Medeiros and Daher (2005) it was made a comparison between the empirical results with forecasting of the main theories about determinants of capital structure.

4 Data and variables

The research is made by the utilization of the financial report of the 500 biggest Brazilian companies according to Exame magazine. The sample is composed by 94 open capital companies. The data base was built from the consolidated financial reports. Besides that, contrary to other researches, the observations with extreme values were not excluded from the base due to the fact that quantile regression uses all the sample, incorporating all disponible information.

Financial sector companies were excluded from the sample because they have different characteristics presenting specific financial reports and accounting plans.

The description of the waited impact in each independent variable in the capital structure is done as follows:

Size – Large companies are relatively more diversified in their investments and they are less subject to financial difficulties. They have more guarantees to offer to the creditors. Thus, they have smaller bankruptcy cost. A positive relationship between size and indebtedness is expected. In this case, we would have evidence to confirm the trade-off theory.

Empirical evidences also present a reverse relationship between size and indebtedness. Fama and Fench (2002) and Medeiros and Daher (2008) argue that smaller companies go into more debts than bigger ones because the cash flow does not present the same solidity and these companies have more difficulties to issue share because of high level costs and less liquidity in the market. In addition, for this reason, smaller companies are expected to have a higher short-term debt ratio.

Return – The preference order theory admits that companies prefer to finance their investments through retained profits. According to this theory, retained profits are preferable than third-capital and even new capital of shareholders. In that case, the company's capacity to generate profits would influence its capital structure. Companies with more own resources make less use of debts. Thus, according to this theory, it waited a negative relationship between return and indebtedness (MEDEIROS and DAHER, 2008).

Otherwise, according to the bankruptcy cost theory, more profitable companies have less risk of insolvency, which would lead companies to go into more debts. In that case, there would be a positive relationship between return and indebtedness and it would confirm the trade-off theory.

Growth rate - According to the literature there is a negative relationship between growth opportunity and indebtedness. The support base to this reverse relationship is the weight of obligations of third parties that can drive to reduce the growth speed. (MYERS, 1984).

Besides that, according to Brito et al (2007), enterprises with high growth rates have higher bankruptcy cost because its market value is linked to future profit expectations and not to assets that company can liquidate in difficult finance situations.

On the other hand, Fama and French (2002) argues that the company's increase requires high third-party capital investments. Thus, a positive relationship between growth and indebtedness is expected.

Risk – According to Brito *et al* (2007), companies with higher risks present more probability of its cash flow not to be enough to honor their obligations and then, use it to be less indebted. That is, according to bankruptcy cost theory, that supports the trade-off theory, it is waited that companies with higher risks have less indebtedness level.

Asset structure – Combining with pecking order theory, Harris and Haviv (1991) argues that companies with less intangible assets would have problems with asymmetric information and it would generate high indebtedness rates because the issue of the shares would be possible only with its underpricing. Thus, it is waited a negative relationship between asset structure variable and indebtedness.

The opposite argument relies on trade-off. According to this theory, companies with higher fixed assets have more guarantees to offer to creditors and, therefore, it would have less bankruptcy costs because these assets could be offered with guarantee in insolvency cases. Thus, these companies would have higher indebtedness capacity (MEDEIROS and DAHER, 2008).

Beyond these variables, it was used as dependent variables three indebtedness measures: short-term indebtedness, long-term indebtedness and total indebtedness whose acronyms and calculation methods are shown in table 1. This empirical strategy follows the models used in literature and give more detailed explanation about the relationships between explanatory variable and their determinants.

The table 1 shows the variables used in this paper and the acronym and calculation.

Table 1:
Research variables and calculation method

Variable	Abreviation	Calculation form
Indebtedness Short Term	IndST	Current Liability/total Asset
Indebtedness Long Term	IndLT	Non-current liability/Total Asset
Total Indebtedness	IndT	(Current and non Current Liability)/Total Asset
Size	Size	LN Total Asset
Return	Return	EBITDA / Total Asset
Growth rate	GroR	Variation % in the total asset
Risk	Risk	Debt Short Term/Debt Long Term
Asset Structure	Asset St	Fixed asset/ total asset

Source: *The authors.*

5 Descriptive statistic

The table 2 presents the averages and standard deviations of the dependent variables (debt ratios) and regressors: size, profitability, growth rate, asset structure and risk.

Table 2
Descriptive Statistics

Variable	average	Standard deviation
IndT	0,649	0,224
IndLT	0,356	0,192
IndST	0,304	0,194
Size	23,238	1,548
Return	0,146	0,145
Growth	0,**1** 8	-0,274
Asset Struc	0,462	0,201
Risk	2,693	1 ,175

Source: *The authors.*

The results show that the average value of total indebted of the companies is 64,9%. It is interesting to note that the long-term indebtedness is 35,6% and the short-term indebtedness is 30,4% maybe because of long-term rate used by Social and Economic Development National Bank in Brazil whose rates are below the market rates.

The relation existing between the variables size and long-term indebtedness is positive. It indicates that the bigger the company, the greater the long-term debt tends to be. On the other hand, the correlation between the variables size and short-term indebtedness is negative. It indicates that the bigger the company, the smaller the short-term debt tends to be.

The average return of the companies in the research is 14,6%. Besides that, the growth rate average was 11,8%. The asset structure of companies has the characteristic of being significantly composed by fixed asset. This kind of asset is responsible, in average, for 46,2% of total asset. Another relevant information is that companies, in average, maintain a higher proportion of short-term debts in relation to long-term. The math reason of the two parts is equal to 2,69.

The table 3 presents in a detailed way the results for analyzed indicators in the research.

Table 3
Correlation matrix of dependent and independent variables

Variable	**Indtotal**	**IndLT**	**IndST**	**Size**	**Return**	**Growth**	**Structure**	**Risk**
IndT	1							
IndLT	0,4808	1						
IndST	0,6168	-0,1795	1					
Size	-0,0326	0,1714	-0,2074	1				
Return	-0,0671	0,0167	-0,0795	0,1854	1			
Growth	0,11	-0,004	0,1225	0,0969	0,1694	1		
Asset Struc	-0,0817	0,3739	-0,4445	0,2289	0,0584	-0,1788	1	
Risk	0,0518	-0,31 0	0,3585	-0,1858	0,1367	-0,0364	-0,2909	1

Source: *survey data.*

6 Estimated coefficients.

It was estimated coefficients to several quantis (0,05; 0,25; 0,5; 0,75; 0,95). The objective was to extract information inside the different quantis of dependent variables. The statistics values is shown in parenthesis.

As used by Brito and Lima (2005) and Titman and Wessels (1988) it was estimated coefficients to three regressions models with different dependent variables: Total indebtedness, short-term indebtedness and long-term indebtedness. Besides that, according to literature (Brito *et al* 2007; Brito and Lima, 2005; Nakamura *et al,* 2007; Perobelli and Famá, 2003) it was used the main variables as determinants of capital structure. They are size, return, growth, asset structure and risk. The way these variables was built can be seen in table 1.

Just a few coefficients were significant in statistic, in special, size to total indebtedness; asset structure to long-term indebtedness and to short-term indebtedness.

The results show a positive effect of size variable, that turns to negative for the last quantiles. In the case of model of long-term indebtedness, the size variable is positive in all the quantiles. However, the coefficient is significant only in the total indebtedness model in quantile 0,25. This result shows that to less indebtedness companies, the size variable is partially relevant to explain the capital structure and to more indebtedness companies the size variable is not relevant. The trade-off theory is partially confirmed with these results.

In the long-term indebtedness model just the variable asset structure was significant in the quantiles 0,75 and 0,95. It presents a negative relationship in the quantile 0,05 **e** turned positive. According to trade-off theory, tangible assets can be used as guarantees to loans and it diminish**(es)** the bankruptcy cost **e** turn higher the indebtedness capacity.

On the other hand, in the long-term model, the variable asset structure presented a positive signal in the quantile 0,05 and presented a negative signal in the other quantiles. This result confirms the pecking order theory.

The results of quantiles regressions are presented in the tables 4, 5 and 6 as follow.

Table 4
Estimated Coefficient for the dependente variable IndT

	IndT				
Variable	q05	q25	q50	q75	q95
Size	0,000882	0,0286**	0,024	-0,00559	-0,0431
	[0,0146]	[2,4]	[1,053]	[-0,153]	[-0,744]
Return	-0,305	-0,361	-0,216	-0,00273	0,0098
	[-0,729]	[-1,371]	[-0,793]	[-0,01]	[0,0175]
Growth	0,263	0,0805	0,132	0,0285	-0,0783
	[1,335]	[0,75]	[1,341]	[0,421]	[-0,267]
Asset Struc	-0,0655	-0,149	-0,104	-0,0494	-0,238
	[-0,235]	[-0,932]	[-0,663]	[-0,316]	[-0,423]
Risk	-0,0155	0,00382	0,00283	0,000634	-0,00298
	[-0,643]	[0,29]	[0,219]	[0,0401]	[-0,0486]
Constant	0,429	-0,0184	0,132	0,916	2,107
	[0,327]	[-0,0744]	[0,261]	[1,050]	[1,612]

Observations: 94
T estatstic in brackets *** p<0.01, ** p<0.05, * p<0.1
Source: *survey data*.

Table 5
Estimated coefficients to dependente variable IndLT

	Indebtedness - Long Term (IndLT)				
Variables	q05	q25	q50	q75	q95
Size	-0.00275	0,0134	0,0127	0,00599	0,00229
	[-0,111]	[0,66]	[0,643]	[0,417]	[0,05]
Return	0,175	0,11	0,078	0,00812	-0,235
	[0,704]	[0,392]	[0,0437]	[0,0515]	[-0,928]
Growth	0,0439	-0,0108	-0,033	-0,0458	0,173
	[0,247]	[-0,0668]	[-0,233]	[-0,573]	[0,1076]
Asset structure	-0.0175	0,148	0,331	0,385***	0,841**
	[-0.0892]	[0,625]	[1,646]	[3,24]	[2,044]
Risk	-0.0186	-0,0243	-0,0022	-0,00277	-0,00232
	[-0,668]	[-0,764]	[-0,0755]	[-0,101]	[-0,0943]
Constant	0,208	-0,0814	-0,0725	0,152	0,245
	[0,416]	[-0,173]	[-0,157]	[0,398	[0,236]

Observations: 94
statistic t in brakets *** p<0.01, ** p<0.05, * p<0.1
Source: *data research.*

Table 6
Estimated coefficient to dependent variable IndST

	IndST				
Variables	q05	q25	q50	q75	q95
Size	0,0038	0,00195	-0,00338	-0,0104	-0,0402
	[0,159]	[0,157]	[-0,272]	[-0,429]	[-1,021]
Return	-0,186	0,00462	-0,0598	-0,0743	-0,154
	[-0,828]	[0,0199]	[-0,306]	[-0,469]	[-0,252]
Growth	0,187	0,113	0,0795	0,142**	0,026
	[1,419]	[1,429]	[1,322]	[2,092]	[0,0999]
Asset structure	0,00882	-0,243**	-0,368***	0,361***	-0,413
	[0,0614]	[-2,464]	[-3,471]	[-3,012]	[-1,137]
Risk	0,00784	0,00528	0,00415	0,00359	0,00572
	[0,979]	[0,417]	[0,182]	[0,117]	[0,0813]
Constant	-0,000975	0,259	0,524*	0,738	1,704**
	[-0,00164]	[0,892]	[1,807]	[1,36]	[2,010]

Observations: 94
Statistic t in brakets *** p<0.01, ** p<0.05, * p<0.1
Source: *data research.*

7 Conclusions

This paper studied the determinant factors of Brazilian companies' capital structure through quantile regression technique that allows us to analyze with more detail the impact of each variable in the distribution of companies' indebtedness. To achieve this goal it was used data from 500 of the largest Brazilian companies listed in Exame Magazine, an important publication in Brazil.

The results indicate that only the size variable and the asset structure variable, for some quantiles, are determinant factors to companies' capital structures. Other variables such as return, risk and growth were not significant to explain how companies finance themselves.

This research contributes to literature by using a quantile regression analysis method, that it is not so much used in researches in this area. This method allowed to extract information about the determinant factors of capital structures of the companies with several levels of debts. It should be noted that the method used in this paper does not make possible to analyze the heterogeneity of debt structure to comprehend the capital structure. It is possible that the utilization of general measures of indebtedness, such as those used in this research, can hide relevant information to compose capital structure.

Besides that, factors such as economic environment and the quality of Brazilian companies, that are not treated in an explicit way in this paper can be relevant factors to explain how companies finance themselves.

Thus, new researches are proposed using the quantile regression analyses method considering such factors to obtain a better comprehension about the determinant factors of capital structure of Brazilian companies.

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