O EFEITO DO TAMANHO NA RELAÇÃO ENTRE ESTRUTURA DE CONTROLE E DISCLOSURE VOLUNTÁRIO DE COMPANHIAS BRASILEIRAS

Do Largest Corporations Disclosure Less Information Because They Have More Private Benefits?

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■ RESUMO

O estudo objetiva analisar a influência do tamanho na relação entre estrutura de controle e *disclosure* voluntário das companhias listas na B3. Para atingir este fim, foi criada uma variável dependente, "nível de *disclosure* voluntário", que corresponde a 38 indicadores de informações coletados manualmente dos demonstrativos e sites das empresas. Após, estimou-se um modelo de regressão com dados em painel balanceados através do efeito *threshold* para tamanho, a fim de identificar a relação entre as variáveis. Os resultados indicaram que as empresas menores, com estrutura de controle mais concentrada, tendem a apresentar maior nível de *disclosure* voluntário. Contudo, para as maiores empresas, quanto maior a concentração da estrutura de controle, menor a evidenciação dessas informações. Essas inferências levam a crer que as maiores corporações brasileiras com controle mais concentrado podem não estar interessadas em divulgar informações voluntárias, porque a maioria de seus acionistas goza de benefícios privados de controle.

Palavras-Chave: Estrutura de controle; Assimetria Informacional; *Disclosure* voluntário

■ ABSTRACT

This study aims to analyze the influence of size on the relationship between the control structure on the voluntary disclosure policy of the listed companies in B3. To achieve this goal, we created a dependent variable, called "voluntary disclosure level", which corresponds to 38 indicators of information collected manually from the companies' statements and websites. Afterwards, we estimated a balanced panel data regression model with a threshold effect for size in order to identify the relationship between the variables. The results indicated that smaller companies, with a more concentrated control structure, tended to present a higher level of voluntary disclosure. However, for larger companies, the greater the concentration of the control structure, the less evidence of this information. These inferences lead to believe that the largest Brazilian corporations, with more concentrated control, may not be interested in disclosing voluntary information because most of their shareholders enjoy private control benefits.

Key-words: Control structure; Informational Asymmetry; Voluntary Disclosure

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1 INTRODUÇÃO

The disclosure of information is a determining factor for an efficient allocation of resources and, consequently, growth of the economy (Bushman et al., 2004). Both the quantity and the quality of the information evidenced to the external users would provide credibility to the managers of the companies in the capital market (Baums, 2002). However, it is assumed that the information available may be imperfect, its production and disclosure has a certain cost, and there is a level of information asymmetry that affects the conduct of companies and individuals (Stiglitz, 2000). This can generate agency conflicts between the owners and managers of the capital.

This asymmetric information can be manifested in any contractual relationship, where each user's level of information is different (Akerlof, 1970; Stiglitz, 2000), or when not all facts are known to both parties to the contract (Hendriksen & Van Bredda, 1999). This fact can generate inefficient valuation of stocks, high capital cost, excessive private benefits for those with privileged access to information (Lev, 2005), as well as a possible reduction in the liquidity of organizations' stocks (Diamond & Verrecchia, 1991).

The occurrence of agency conflicts, fostered by informational asymmetry, may be related to the way capital is formed. In this sense, the main differentiation is the control structure of the companies related to the level of stock concentration. The structure can be more concentrated, with few stockholders holding large numbers of shares, or more dispersed, with several stockholders with few shares (Stiglitz, 2000).

For Jensen and Meckling (1976), the concentration of shareholder control in the "hands" of a single shareholder can be beneficial as it would increase the company's monitoring capacity at a lower cost. On the other hand, a concentrated control structure can encourage controllers to seek private benefits (Consoni et al., 2017). In addition, it may lead to a conflict of interests between majority and minority shareholders, allowing the expropriation of the minority shareholders, which may generate inefficient investments. In other words, a highly concentrated structure may not be optimal for shareholders (La Porta, et al., 1999).

One measure used to minimize this problem of informational asymmetry and agency conflicts would be the disclosure of the information, which can be understood as a channel of disclosure of the company's information to the market (Botosan, 1997), thus acting as a facilitator of the decision-making process (Baums, 2002). However, the willingness of company managers to disclose information may be influenced by the structural form of the capital.

Studies like Chau and Gray (2002), Ajinkya et al. (2005), Gisbert and Navallas (2013), Haddad et al. (2015), Nagata and Nguyen (2017), Allaya et al. (2018) and karajeh (2020) suggest that a more concentrated control structure would increase the willingness of managers to evidence voluntary information. This is supported by the argument of Jensen and Meckling (1976) and Shleifer and Vishny (1997) that the concentration of control would provide economic incentives for effective monitoring, which more dispersed structures do not have.

On the other hand, Kolsi (2017) argue that controllers would have access to private information, and prefer to maintain this informational advantage, discouraging voluntary disclosure. For Jankensgärd (2018) there is an optimum point between the control structure and the disclosure of information, which the disclosure of information increases with the concentration of control to a certain point, and tends to fall, reflecting the effects of agency conflicts between majority and minority shareholders. Winter and Zülch (2019) found no significant relationship between control structure and information disclosure policy of German companies.

In Brazil, there are few studies investigating the influence of the control structure on the information disclosure policy (Almeida et al. 2015). For instance, Viana Junior and Crisóstomo (2019) suggest that the shareholding concentration positively influences the disclosure of information, in which controlling shareholders, concerned with the reputation and legitimacy of the companies' behavior, would be willing to promote better voluntary disclosure policies. On the other hand, for Almeida et al. (2015), the control structure does not seem to impact the voluntary disclosure of Brazilian companies.

In addition, there are studies that investigate the explanatory factors of disclosure in the Brazilian

market. For example, Pontes Nunes et al. (2020) indicate that the concentration of shareholding control would be a determinant of the disclosure of information. However, Murcia and Santos (2012), Kirch et al. (2012) and Consoni et al. (2017) suggest that the control structure does not influence the disclosure of voluntary information. These studies follow a tendency of empirical literature to focus their analysis on the determinants of firms' spontaneity in evidencing information (Winter & Zülch, 2019) and the use of size as a control variable.

The size of the company would be related to the importance of its performance in the market, the complexity and interest in its business, which would require higher levels of disclosure of information (Winter & Zülch, 2019). Thus, large companies would have higher agency costs, resulting from the greater number of stakeholders in their actions (Winter & Zülch, 2019). Larger companies have greater investment capacity, availability of resources and knowledge, which requires higher levels of disclosure (Kolsi, 2017).

However, large companies would be subject to greater government intervention and higher political costs, which would encourage managers to omit information to draw less attention (Pontes Nunes et al. 2020). In addition, for Kirch et al. (2012), Murcia and Santos (2012), Consoni et al. (2017) and Viana Junior and Crisóstomo (2019) in the Brazilian market there is no significant relationship between the size of the firms and the disclosure of voluntary information.

In this context, the following question arises: What is the effect of size on influence of the control structure in the voluntary disclosure of publicly traded companies in Brazil? In order to answer this question, this paper aims to identify if the size is a determinant for the company's disclosure, through the analysis of the influence of the control structure on the voluntary disclosure policy of listed companies in B3.

This study contributes to the finance area in several ways: Knowing the effects of the size on the disclosure of voluntary information of the companies can encourage regulatory bodies to formulate specific information policies, encouraging the increase of the requirements about this issue. In addition, it can guide the definition of more efficient internal

disclosure policies, improving monitoring and minimizing agency problems related to the expropriation of minority shareholders.

Finally, this study contributes significantly to the empirical literature, relating to the structural composition of control companies with their voluntary disclosure policy. When using a regression model in panel data with a threshold effect, it is possible, not only verify if there is a relationship between the control structure and the voluntary disclosure, but also to identify the behavior of this influence according to the size of the companies, which is not noticed other studies addressing the same theme.

2 GOVERNANCE AND DISCLOSURE: CONCEPTIONS AND HYPOTHESIS

Corporate governance is a set of mechanisms that aim to minimize agency problems (Shleifer & Vishny, 1997). It is worth mentioning the importance of a strong system with a set of good governance practices (Brandão & Crisóstomo, 2015), mainly related to the disclosure of essential information to its shareholders and other interested parties (Agyei-Mensah, 2017). To better understand this context, this section is divided into two parts, as follows: (i) Governance, agency conflicts, informational asymmetry and control structure; and, (ii) Disclosure and its relation to the control structure.

2.1 Governance, agency conflicts, informational asymmetry and control structure

With the largest corporations, a new business management model emerged, which indicates the separation of ownership and corporate control (Berle & Means, 1932). As a consequence of this separation, there is the possibility of occurrence of agency conflicts, which correspond to the clash of interests between the principal and the agent (Jensen & Meckling, 1976), in which the latter would have incentives to divert their actions from the interests of shareholders, making decisions that maximize their own wealth as opposed to owners of capital (Lim et

al., 2007). In other words, those responsible for the control can take advantage of private benefits rather than pursuing the maximization of the well-being of other stakeholders (Consoni et al., 2017).

This conflict of interest arises from informational asymmetries, generating costs and other agency problems. Agency costs would be expenditures of the shareholders to align managers' interests with theirs, such as costs incurred in drawing up contracts between principal and agent, and monitoring managers' behavior (Jensen & Meckling, 1976). These expenditures could impact the performance and value of companies (Eisenhardt, 1989).

The problems of informational asymmetries and agency conflicts in the contractual relationship between principal and agent would have an impact on the companies' decision-making process (Guariglia & Yang, 2016). In modern corporations, owners need to delegate strategic roles to managers, taking advantage of their professional skills, which would, inevitably, result in asymmetric information (Cui & Shibata, 2017).

For Akerlof (1970) a contractual relationship may present an imbalance regarding the level of information between the related parties, that is, there are information asymmetries when one of the parties benefits from information that the other party does not possess, which would facilitate opportunistic actions, in favor of private benefits (Shleifer & Vishny, 1997). This scenario may generate losses for companies, such as increase in the cost of capital, loss of market value, increase of fraud and reduction of liquidity (Hermalin & Weisbach, 2012).

In this context, control mechanisms should be established by companies to reduce the conflict of interests between agents and shareholders (Sepasi et al., 2016). A quality of the corporate governance system would be an important tool for protecting shareholders against adverse behavior of managers (Brandão & Crisóstomo, 2015). In this line, the way corporate share control is structured would be a relevant corporate governance mechanism.

Company control can be concentrated in the "hands" of a few shareholders, forming a coalition of power (Brandão & Crisóstomo, 2015). For Jensen and Meckling (1976), the concentration of control would be beneficial to companies, as it would minimize

agency problems. This would be possible through more effective monitoring, at a lower cost (Jensen & Meckling, 1976).

However, a high concentration of shareholding control would increase the agency conflict among shareholders (Brandão and Crisóstomo, 2015). This would lead to the expropriation of minority shareholders by the majority (La Porta et al., 1999). This happen because those who hold control would be encouraged to maintain it, which would ensure private benefits (Connelly et al., 2010; Dyck & Zingales, 2004).

On the other hand, corporate control can be structured in a dispersed manner, in which several shareholders control the company. For La Porta et al., (1999) a dispersed control would reduce the possibility of expropriation of minority shareholders. However, the dispersion would increase monitoring costs and decrease company profits (Demsetz & Lehn, 1985).

In this way, the definition of the company's shareholding structure should aim to maximize the company's value (Demsetz & Lehn, 1985). In addition, for La Porta et al. (1997), the historical origin of the legislation of the countries, would influence the control structure of the corporations, especially related to the protection to minority shareholders. In countries with civil laws, as in the case of Brazil, there is weak legal protection, which would favor the expropriation of minority shareholders (La Porta, et al., 1999).

In addition, a legal environment of weak shareholder protection, would lead to smaller and less developed capital markets (La Porta, et al., 1999). For Dyck and Zingales (2004), the highest private benefits of control would be associated with less developed markets. In this line, the control structure, coupled with efficient disclosure policies, would eventually minimize informational mismatch and agency conflicts (Sepasi et al, 2016).

2.2 Disclosure and its relation to the control structure

Corporate disclosure is one of the most important tools to alleviate the effects of informational asymmetry (Healy & Palepu, 2001), and is an aid tool for capital market development (Diamond &

Verrecchia, 1991). In this sense, the disclosure of corporate information may be mandatory, provided by current legislation, or voluntarily, when the managers or majority shareholders have information that is not mandatory disclosure, and wish to disclose it (Verrecchia, 2001).

Companies which develop efficient disclosure policies tend to have a lower cost of equity (Botosan, 1997), cost of debt (Sengupta, 1998) and usually have more liquid shares (Leuz & Verrecchia, 2000). On the other hand, the greater the disclosure of information from organizations, the greater would be their costs to prepare and disseminate information, evaluate actions, increase competitiveness resulting from competitive actions and costs related to ownership (Wagenhofer, 1990; Verrecchia, 2001). In this way, corporate disclosure can only be justified if the advantages of disclosing information outweigh the disadvantages (Depoers, 2000). Reduction of investment financing, investor transaction or opportunity costs, are examples of potential benefits of voluntary disclosure (Healy & Palepu, 2001; Verrecchia, 2001).

The way in which the share control is distributed, would also influence the decision to disclosure voluntary information or not (Khlif et al., 2017), in the sense that it determines the level of monitoring of agents' actions, which results in a higher level of disclosure (Eng & Mark, 2003). Shareholders differ in terms of power, wealth, competence and links with companies, which end up affecting their objectives and the way they exercise their property rights, leading to important consequences for management behavior in relation to disclosure (Connelly et. al, 2010).

Country-specific characteristics and financial markets, such as the legal protection system for shareholders (Viana Junior & Crisóstomo, 2019) can affect firms' willingness to evidence information (Kolsi, 2017). This argument gains strength, with the absence of conclusive empirical evidence regarding the influence of the control structure on the information disclosure policy of firms (Jankensgärd, 2018). In the Brazilian context, studies such as that of Murcia and Santos (2012), Kirch et al. (2012), Almeida et al. (2015) and Consoni et al. (2017), did not identify a relationship between the control structure and the disclosure of the companies. In addition, studies

focusing on other countries, such as Raffournier (1995), Switzerland, Depoers (2000) in France and Winter and Zülch (2019) in Germany, also suggest that ownership structure does not influence the voluntary disclosure policy of companies.

On the other hand, Chau and Gray (2002) suggest that the more concentrated the structure of ownership, the greater the level of information disclosure of companies in Hong Kong and Singapore. This same relation is evidenced by Ajinkya et al. (2005) in the United States, by Karajeh (2020) in Malaysia, by Gisbert and Navallas (2013) in Spain, by Haddad et al. (2015) in Jordan, by Nagata and Nguyen (2017) in Japan, by Allaya et al. (2018) in France and by Viana Junior and Crisóstomo (2019) in Brazil. These results can be explained by managers' willingness to demonstrate that they are acting in the best interests of shareholders (Chau & Gray, 2002; Winter & Zülch, 2019). In addition, companies with high concentration are more likely to elect respected professionals to improve the company's transparency and reputation (Gisbert & Navallas, 2013; Jankensgärd, 2018). According to these assumptions, the following hypotheses are formulated:

H1. The more concentrated the control structure, the higher the voluntary disclosure level of the largest companies;

H2. The more concentrated the control structure, the higher the voluntary disclosure level of the smallest companies;

However, studies such as Eng and Mark (2003) in Singapore, by Lim et al. (2007) in Australia, by Sepasi et al. (2016) in Iran and by Kolsi (2017) in United Arab Emirates suggest that the more concentrated the ownership structure, the lower the disclosure level of firms. This relationship would be explained, in the sense that a high concentration of ownership and control would require less monitoring, and consequently, a lower level of information (Eng & Mark, 2003). In this line, companies that have few owners, would not need to provide more and better information to their users (Sepasi, et al., 2016).

Another factor that may explain the inverse relationship between control and disclosure lies in

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the fact that firms may not be interested in providing high quality voluntary disclosure because most of their shareholders enjoy private control benefits (Consoni et al., 2017). These benefits give to the managers, incentives to use private information to transfer wealth to themselves (Lafond & Watts, 2008; Kolsi, 2017). According to these assumptions, the following hypotheses are formulated:

H1A. The more concentrated the control structure, the lower the disclosure level of the largest companies;

H2A. The more concentrated the control structure, the lower the disclosure level of the smallest companies.

3 METHODOGICAL ASPECTS

To analyze the effects of size on the influence of the control structure on voluntary disclosure of companies listed in Brazilian stock exchange (B3), we develop a descriptive and quantitative research, based on secondary data. The sample corresponds to all companies listed in B3 between 2011 and 2018. However, due to the peculiarities of its operations, we excluded financial sector companies from the sample, following Cooke´s (1989) research. In addition, the application of the threshold methodology requires balancing panel data. Thus, the final sample of the study corresponds to 65 companies, where 35 are considered large and 30 small, totalizing 520 observations, collected in May 2017 and June 2020.

After that, we create the dependent variable, called "voluntary disclosure level" (NDV), whose information we collected manually from the Financial Statements of the companies, available on the CVM and on the websites of the companies. For the constitution of the "voluntary disclosure level" (NDV), we made an adaptation of the metric used in the study of Marcia and Santos (2012). The NDV variable corresponds to a set of 38 (thirty-eight) indicators of voluntary information, subdivided into 6 (six) categories, presented in Table 1.

The proxy used to determine the NDV variable corresponds to the sum of the score resulting from the analysis of the disclosure indicators. Thus, one (1)

point was computed on the evidenced information indicators and no point on those not evidenced. Thus, the NDV variable could range from 0 to 38 points. Finally, we obtained the level of voluntary disclosure by dividing the total number of points of each company by the maximum number of possible points (38).

In addition, the possibility of companies having multiple large shareholders, can lead to distortions in the analysis of the control structure (Sonza & Kloeckner, 2014). To avoid this situation, we used, in addition to the main shareholder (AP), the three (TAP) and five (CAP) major shareholders as the principal independent variables. In the study, we considered the term "control structure" instead of "ownership structure", as we work with the distribution of capital with voting rights, not with the total distribution of capital, as we understand that, holding common shares, shareholders can interfere in strategic decisions of the company and affect, in a more significant way, the governance. This difference between ownership and control is a peculiar characteristic of weak legal protection countries, like Brazil.

In addition, we use control variables obtained through the ECONOMATICA database, which correspond to possible factors that would impact voluntary disclosure. The Table 2 contemplates the independent and control variables, with their descriptions, main authors and expected signs related to NDV.

In this sense, we submitted the data to the statistical program STATA14® to run the descriptive statistics, correlation and regressions. Thus, Formula (1) presents the non-linear panel regression model used in this study.

$$NDV_{it} = \beta_{0} + \beta_{1EST\_CON\ it} + \beta_{2LUCit} + \beta_{3TAM\ it} + \beta_{4ENDit} + \beta_{5MB\ it} + \beta_{6AUD\ it} + \beta_{7GOVit} + \varepsilon_{it} \quad (1)$$

Where NDV = Voluntary Disclosure Level (dependent variable); EST_CON = Control Structure; LUC = Profitability; TAM = Size; END = Leverage; MB = Market-to-Book; AUD = Audit; GOV = Governance i = Companies; t = Time and ε = Standard error.

To identify the effect of the size of the companies, we applied the threshold regression. This model, developed by Hansen (1999), allows dividing the

Table 1 Variable level of voluntary disclosure

Categories		Information
Business Environment	1	Effects of economic events (interest rates, inflation, crisis)
	2	Information about the sector in which the company operates
	3	Information about competition
	4	Supplier Relationship Information
	5	Customer satisfaction
	6	Market share
	7	Identification of business risks
	8	Exchange exposure
Operational Activity	9	Information about the company's history
	10	Organizational structure
	11	Technological aspects of operational activity
	12	Information by segment or line of business
	13	Information on the utilization of productive capacity
	14	Efficiency indicators
	15	Quantities produced and/or services provided
Strategic Aspects	16	Objectives, plans and future goals of the company
	17	Outlook for new investments
	18	Main markets for performance
	19	Perspective of new markets that the company intends to act
	20	Profit reinvestment policy
	21	Research and development
	22	Information on the quality of products and services
	23	Price of goods and services of the company
Financial Information	24	Monetary Correction
	25	Information about the costs of the products or services
	26	Price or valuation of shares by type (common or preferred stock)
	27	Market Value
	28	Projections (cash flow, sales, profits)
Financial Indicators	29	Profitability indicators (ROE, ROA)
	30	Liquidity indicators
	31	Debt indicators
	32	EBITDA
Corporate Governance	33	Main corporate governance practices
	34	Composition of the fiscal council
	35	Composition of the board of directors
	36	Identification of top managers
	37	Major shareholders
	38	Investor Relations

Source: Adapted of Murcia and Santos (2012).

Table 2 Independent and control variables

Independent Variables - Control Structure			
Name	**Description**	**Authors**	**Signal**
Major shareholder (AP)	% of common shares owned by the major shareholder in relation to the total	Gisbert and Navallas (2013); Haddad et al. (2015); Nagata and Nguyen (2017); Allaya et al. (2018); Karajeh (2019); Viana Junior and Crisóstomo (2020).	+
Three major shareholders (TAP)	% of common shares owned by the three major shareholders in relation to the total		
Five major shareholders (CAP)	% of common shares owned by the five major shareholders in relation to the total	Eng and Mark (2003); Lim et al. (2007); Sepasi et al. (2016); Kolsi (2017).	–
Control Variables – Profitability			
ROE (Return on Equity)	Net Profit Equity	Murcia and Santos (2012); Gisbert and Navallas (2013); Haddad et al. (2015); Almeida et al. (2015); Consoni et al. (2017); Nagata and Nguyen (2017).	+
ROA (Return on Assets)	Operational Income Total Assets		
Control Variables – Growth Opportunities			
Market-to-book (MB)	Market Value Total Assets	Winter and Zülch (2019).	+
Tobin´s Q (Q-t)	(MVE+PS+D)* Total Assets	Nekhili et al. (2016).	–
Control Variables – Size			
Total Assets (AT)	Log(Total Assets)	Lim et al. (2007); Murcia and Santos (2012); Gisbert and Navallas (2013); Haddah et al. (2015); Nekhili et al. (2016); Consoni et al. (2017); Nagata and Nguyen (2017); Winter and Zülch (2019).	+
Equity (PL)	Log(Equity)		
Net Revenue (RL)	Log(Net Revenue)	Pontes Nunes et al. (2020)	–
Control Variables – Leverage			
Leverage – (END)	(Cur. Liab. + Non-cur. Liab.) Equity	Lim et al. (2007); Murcia and Santos (2012); Gisbert and Navallas (2013); Haddah et al. (2015); Almeida et al. (2015); Consoni et al. (2017); Allaya et al. (2018); Pontes Nunes et al. (2020).	+
Control Variables – Audit			
Audit (AUD)	Dummy: 1 - Companies audited by a company belonging to the Big four; 0 - Otherwise	Murcia and Santos (2012); Ajinkya et al. (2005); Lim et al. (2007); Gisbert and Navallas (2013).	+
Control Variables – Corporate Governance			
Governance (GOV)	Dummy: 1 - Adherence to a governance segment of B3; 0 - Otherwise	Murcia and Santos (2012); Kirch et al. (2012)	+

Note: *Suggested by Chung and Pruitt (1994), whose market value is the sum of MVE - firm's stock price multiplied by the number of common shares outstanding, PS - settlement value of the preferred shares outstanding and D - total debt (Current Liabilities minus current assets plus inventories and long-term debt).
Source: Elaborated by Authors.

sample into different regimes based on values of one observed variable (Dalcin et al., 2017). These values are determined endogenously, which can be considered one of the main advantages of this method. In addition, what determine the sample separation are the estimated values of the threshold variable (Dalcin, et al., 2017). Such methodology does not accept the use of dummies. For this reason, we did not use variables Audit and Governance in the main model. However, for robustness, we run regressions using GMM-Sys and OLS considering these two variables, in order to compare the results.

In this sense, by applying the Threshold effect, the sample is divided into groups that can be called classes or schemes. This division is performed based on an observable variable, called threshold. In this way, the Total Asset (AT) was selected as the threshold. And so, the sample was divided into two large groups: regime (0), companies with smaller values in relation to Total Assets; and regime (1) companies with larger values.

4 ANALYSIS AND DISCUSSION OF RESULTS

The present section is divided into three parts to better explain the results achieved: (a) descriptive statistics and correlation; (b) regression results with threshold; and, (c) robustness checks.

4.1 Descriptive statistics and correlation

Before performing the analysis of the results, we verified the correlation between the variables. As expected, we identified a high correlation (above 0.70) between AP (major shareholder), TAP (three major shareholders) and CAP (five major shareholders) and between the total assets (AT), net revenues (RL) and Equity (PL). It we also verified that Tobin´s Q (Q) shows a high correlation with Leverage (END) and Return on Equity (ROE). In addition, these last two variables are also highly correlated with each other. In order to avoid the multicollinearity problem, we did not use that ones with high correlation in the same model, choosing to run three regressions, one for each control structure and using Return on Asset (ROA),

Leverage (END) and Market-to-Book (MB) as control variables, since the size was selected as the Threshold.

After checking the correlation and for a better analysis of the variables, we presented the descriptive statistics, segregated in large and small companies. In this sense, for both groups, net revenue (RL), equity (PL) and total assets (AT) present a significant variance and standard deviation, in addition to a large difference between the mean and the median, evidencing the need to apply the logarithm.

We found that the voluntary disclosure level of the sample for the largest companies is 81.79%, while for smaller ones is around 75.90%, but this difference is not statistically significant. In terms of control structure, the largest companies presented a slightly lower average, with 39.85% of the control for the main shareholder (AP), 57.40% for the three (TAP) and 61.42% for the five main shareholders (CAP), compared to smaller companies (37.39% for the AP, 57.90% for the TAP and 64.27% for the CAP), but these averages are also not significant. These data show highly concentrated structures in the sample.

In terms of market performance, market value exceeds the total assets, on average, by 34.98% in the largest companies and by 161.58% in the smaller ones. For the Market-to-Book, the market value exceeds the total assets by 4% for largest and by 117.96% for smaller companies, being that the averages were significantly different for both variables.

Regarding accounting performance, the averages between the groups were similar, indicating that around 4% of total assets are converted into operational income for the largest, and 6% for smaller companies. For the ROE, around 10% of equity are converted into profit for largest and 8% for smaller companies. The means of both groups are not significantly different. In terms of leverage, for each USD 1.00 of equity, the largest companies have around USD 2.00 of current and noncurrent liabilities, while smaller ones are significantly more indebted (USD 3.00).

Lastly, with regard to size variables, the largest companies have, on average, a net revenue around USD 2.07 billion, a total assets of USD 5.27 billion and a stockholders' equity of USD 3.32 billion. Meanwhile, the smallest companies have, on average, a net revenue around USD 311 million, a total assets of USD

642 million and a net worth of USD 454 million. As expected, there is a significant difference between the two groups in these variables.

4.2 Results of regression with threshold

To achieve the goal of the study, the methodological proposal is the application of the threshold effect. To this end, the log of Total Asset (log AT)

was admitted as a Threshold variable. In this sense, Table 3 presents the Threshold estimation for the regression models for the major shareholder (AP); the three major shareholders (TAP) and the five major shareholders (CAP).

Table 3 Threshold effect test for regression models

Threshold effect test (*bootstrap* = 100)						
Threshold	**[1]RSS**	**Threshold Value**	**F Statistics**	**Probability**	**Crit5**	**Crit1**
Unique /AP	0.5801	12.9613	38.82	0,0410**	49.0414	69.9143
Unique/TAP	0.5814	12.9613	33.82	0,0400**	51.4373	65.6141
Unique/CAP	05817	12.9600	32.24	0,0270**	53.4556	83.6390

Note: AP- Major shareholder; TAP – Three major shareholder;
CAP – Five major shareholder; [1]RSS – Residual Sum of Squares; ** Significant at 5%.

Source: Elaborated by Authors.

In this sense, the sample is separated into two schemes, where (0) represents the smallest companies, where the log of assets is less than 12.96 and (1) represents the largest companies, where the assets are more than 12.96. In addition, there is a need to analyze the possibility of structural breaks in the model. Table 3 also shows, through the F test, the existence of a one break at a significance level of 5% for the three analyzes, which present a reduction of the sum of the squares of the errors in relation to the test without structural breaks.

After the possibility of a break is verified, Table 4 is elaborated, which we divided into 3 panels, representing the principal, the three and five major shareholders. In all cases, the explanatory power of the model is around 10% and the F test confirms the association between the group of variables, at a significance level of 1%. The results show, in general, that the control structure influences the voluntary disclosure of companies. According to panel A, the variable (AP) is significant at 1% only for smaller companies (threshold 0), and its positive influence on the voluntary disclosure is (6.45%). This result is related with the findings of Allaya et al. (2018), Karajeh (2020), Viana Junior and Crisóstomo (2019)

and Pontes Nunes et al. (2020), who suggests that controlling shareholders would be more concerned with the reputation and legitimacy of the firms and, for this reason, they would be more willing to disclosure voluntary information (Viana Junior & Crisóstomo, 2019). In addition, smaller companies would have less visibility and be less susceptible to political costs, which would encourage disclosure of information to the market (Pontes Nunes et al. 2020).

On the other hand, panel B, representing the variable relative to the three major shareholders (TAP), shows that the control structure is significant at 5% only for the largest companies (threshold 1), and its negative influence on the voluntary disclosure level is 3.89%. In this same line, panel C, which represents the five major shareholders (CAP), also indicates that the control structure has a negative influence of 4.12% on the level of voluntary disclosure, significant at 5%. These results are similar to the findings of Kolsi (2017), and suggest that the concentration of share control would encourage controlling shareholders to obtain private benefits, with little interest in voluntarily disclosing information (Consoni et al. 2017). The excess of control rights would lead shareholders to use private information to capture

Table 4 Result regression data in panel with Threshold effect

	Dependent Variable: NDV			Observations: 520	
	PANEL A – Major Shareholder				
	Threshold **Regimes**	**Coefficient**	**Standard Error**	**"t" Test**	**p value**
AP	0	**0.0645*****	0.0255	2.53	0.010
	1	−0.0252	0.0200	−1.26	0.207
ROA	0	0.0373	0.0660	0.56	0.573
	1	0.0421	0.0558	0.75	0.451
END	0	−0.0002	0.0027	−0.09	0.928
	1	**0.0043*****	0.0014	3.06	0.000
MB	0	**0.0081****	0.0036	2.28	0.020
	1	0.0005	0.0024	0.19	0.846
Constant	–	**0.7811*****	0.0093	84.42	0.000
	$R^2 = 10.61$			Prob > F = 0.0000	
	PANEL B – Three Major Shareholders				
	Threshold **Regimes**	**Coefficient**	**Standard Error**	**"t" Test**	**p value**
TAP	0	0.0270	0.0247	1.09	0.275
	1	**−0.0389****	0.0194	−2.00	0.046
ROA	0	0.0266	0.0663	0.40	0.688
	1	0.0453	0.0554	0.82	0.414
END	0	−0.0015	0.0029	−0.50	0.616
	1	**0.0044*****	0.0014	3.12	0.002
MB	0	**0.0068***	0.0037	1.85	0.065
	1	−0.0003	0.0024	−0.13	0.898
Constant	–	**0.7947*****	0.0129	61.69	0.000
	$R^2 = 9.95$			Prob > F = 0.0000	
	PANEL C – Five Major Shareholders				
	Threshold **Regimes**	**Coefficient**	**Standard Error**	**"t" Test**	**p value**
CAP	0	0.0197	0.0263	0.75	0.456
	1	**−0.0412****	0.0199	−2.07	0.039
ROA	0	0.0263	0.0663	0.40	0.692
	1	0.0487	0.0553	0.88	0.379
END	0	−0.0015	0.0031	−0.48	0.628
	1	**0.0045*****	0.0014	3.20	0.001
MB	0	**0.0068***	0.0037	1.82	0.069
	1	−0.0004	0.0024	−0.18	0.855
Constant	–	**0.7979*****	0.1141	56.77	0.000
	$R^2 = 9.90$			Prob > F = 0.0000	

Note: AP – Major shareholder; TAP – Three major shareholder; CAP – Five major shareholder; ROA – Return on assets; END – Leverage; MB – Market-to-book; * Significant at 10%; ** Significant at 5%; *** significant at 1%.

Source: Elaborated by the authors.

their own benefits, a situation that is aggravated in environments with weak legal protection (kolsi, 2017), as in the Brazilian reality. The identification of this negative relationship only for large companies can be associated with a greater concern with political costs on the part of this type of company (Pontes Nunes et al. 2020).

Other factors that seem to influence companies' voluntary disclosure are leverage and market performance. The (END) variable is significant at 1% only for large companies, in the three models, with a positive influence of approximately 4.5%. This result is in accordance to the findings of Allaya et al. (2018), and indicates that companies that use debt, would show greater willingness to volunteer information to facilitate external monitoring and obtain creditors' confidence (Pontes Nunes et al. 2020). The Market-to-book is significant for the smallest companies in the three models. It exerts a positive influence of 8.10% on the disclosure, with a significance of 5% for the model with AP, and 6.80% for TAP and CAP, with a 10% level of confidence. These findings are similar to those of Winter and Zülch (2019) and suggests that the market reacts well to the willingness of companies to spontaneously reveal information. In addition, smaller companies would suffer less from the effects of agency problems (Winter & Zülch, 2019), which would be a good sign for the market.

4.3 Robustness checks

In order to check the robustness of the threshold model, the Systemic Generalized Moments Method (GMM-SYS) and Ordinary Least Squares (OLS) regressions models were estimated (Table 5). In this sense, we performed the Hausman test, which indicated non-rejection of the null hypothesis, assuming that the random-effects regression model is consistent and asymptotically efficient. Therefore, we chose to estimate the OLS regression model with random effects (EA). In these models, we added the variables related to audits and governance, which could not be analyzed previously because the Threshold model does not accept dummies.

At the bottom of Table 5 the tests are presented. When checking the Hansen (1982) overidentification test, we evidenced that, in all the analyzes, the null

hypothesis is not rejected, indicating that the instruments are not related to the error. In the Chi-square test (Chi2), the null hypothesis is rejected, indicating that there is association between the variables of the model. Finally, in the test of Arellano and Bond (1991), in all analyzes, the hypothesis of absence of serial correlation in the first order residues is rejected, but is not rejected for the second order ones. Therefore, the model has serial correlation of order 1, justifying the use of GMM-Sys and the dynamic model.

According to Table 5, the control structure is not significant for any of the models, similar to studies like Murcia and Santos (2012), Kirch et al. (2012), Consoni et al. (2017) and Viana Junior and Crisóstomo (2019), who also found no relationship between the variables. However, with the threshold effect (Table 4), the variable is significant for all regimes, evidencing that this method captured the model better than the others, allowing a more accurate analysis regarding the effect of company size on the relationship between control structure and disclosure.

The leverage was significant for all OLS model, evidencing that this variable positively influences the voluntary disclosure, at a significance level of 5% (AP and TAP) and 1% (CAP). This result is similar to Haddah et al. (2015), Consoni et al. (2017) and Allaya et al. (2018) and reinforces the argument that external monitoring requires better levels of transparency. However, with the application of the threshold effect in relation to the size of the companies, it is possible to confirm this relationship only for the largest companies, as presented in Table 4. In this same line, the size of the companies, as a control variable, is significant for all OLS models, with a positive effect on voluntary disclosure, at a significance level of 10% (AP and TAP) and 1% (CAP), corroborating the idea that the largest companies would have greater incentives to disclose information (Karajeh, 2020; Winter & Zülch, 2019). Capturing structural breaks using the threshold model, this relationship is reversed, as shown in table 4.

The internal variables were significant in these analyzes, where ROA positively influences the level of voluntary disclosure for the three and five major shareholders in the GMM-SYS, at a significance level of 10% and 5%, respectively. This result is similar to Murcia and Santos (2012), Consoni et al. (2017) and

Table 5 Estimation of GMM-SYS and OLS models with random effects

	Dependent Variable: NDV			Observations: 520		
	GMM – SYS			OLS – Random Effects		
Variable	AP	TAP	CAP	AP	TAP	CAP
D (−1)	**0.7165***	**0.6949***	**0.7318***			
Z	(4.7300)	(7.6600)	(8.3000)			
EC	0.0203	0.0428	0.0438	−0.0037	−0.0294	0.0113
Z	(0.2100)	(1.4900)	(1.4800)	(−0.2000)	(1.6000)	(0.6200)
ROA	0.2917	**0.2036***	**0.2272****	−0.0055	−0.0123	0.0525
Z	(1.4000)	(1.8600)	(2.0100)	(−0.1300)	(−0.2800)	(1.3100)
END	0.0002	0.0021	−0.0003	**0.0032****	**0.0033****	**0.0038***
Z	(0.0100)	(0.5600)	(−0.0100)	(1.9800)	(2.0300)	(2.5500)
Size	−0.0035	−0.0038	−0.0020	**0.0088***	**0.0087***	**0.0278***
Z	(−0.3200)	(−0.7900)	(−0.4600)	(1.8100)	(1.8000)	(5.6000)
MB	−0.0186	−0.0060	−0.0066	0.0032	0.0027	0.0023
Z	(−1.1900)	(−0.7700)	(−1.2800)	(1.5400)	(1.2900)	(1.1100)
Audits	0.0170	−0.0031	−0.0123	0.0041	0.0037	0.0132
Z	(0.1200)	(−0.1300)	(−0.5900)	(0.4000)	(0.3600)	(1.3800)
Governance	0.0242	**0.7112***	**0.0536****	**0.0291****	**0.0263****	**0.0279****
Z	(0.4200)	(2.8500)	(2.3800)	(2.3500)	(2.1100)	(2.4000)
Constant	0.2567	**0.2181****	**0.1893****	**0.6373***	**0.6568***	**0.3339***
Z	(0.9400)	(2.3000)	(2.900)	(9.6000)	(9.8100)	(4.7100)
R²				0.1261	0.1079	0.2427
Chi2	187.6386	247.8374	248.8505			
Chi2p	0.0000	0.0000	0.0000			
Hansen	17.7184	40.2710	35.9967			
Hansen p	0.2199	0.5029	0.6923			
Ar1	−2.7844	−3.2172	−3.1806			
Ar1p	0.0054	0.0013	0.0015			
Ar2	1.0996	1.0726	1.1565			
Ar2p	0.2715	0.2835	0.2475			

Note: AP – Major shareholder; TAP – Three major shareholder; CAP – Five major shareholder; : D-1 – Dependent variable lagged; EC – Control structure; ROA – Return on assets; END – Leverage; MB – Market-to-book; Chi 2 – Chi-square teste; Ar1 – First-order serial correlation; Ar2 – Second-order serial correlation; * Significant at 10%; ** Significant at 5%; *** significant at 1%.

Source: Elaborated by the authors.

Nagata and Nguyen (2017) studies, suggesting that companies with good internal performance would be more interested in disclosing this information to the market (Murcia & Santos, 2012).

Finally, the governance variable is significant for all OLS models, at 5%, and for the TAP and CAP models analyzed by GMM-SYS, with a significance of 1% and 5%, respectively, with a positive effect on all cases. These results indicate that the fact of the companies belong to the differentiated segments of B3, causes them to show more voluntary information, in agreement with Murcia and Santos (2012) and Kirch et al. (2012). This variable are not highly correlated with the control structure, not interfering in the significance of this variable. The variable Audits was not significant, showing that firms audited by a big four company don't increase its voluntary disclosure.

5 FINAL REMARKS

For a more accurate analysis of the impact of size on the control structure of the voluntary disclosure policy, a panel data regression model with threshold for size was estimated. The results suggest that the control structure influences the voluntary disclosure level of the brazilian companies, but this impact follows opposite directions when analyzing the size of the corporations. In larger firms, the more concentrated the control structure, the lower the level of voluntary disclosure, rejecting hypothesis 1, and not rejecting hypothesis 1A. This evidence is statistically significant in the regression model for almost all control structure variables (with exception of major shareholder's regression). The smallest companies have an inverse result. The more concentrated the control structure, the greater is the level of voluntary disclosure of these companies, not rejecting hypothesis 2 and rejecting hypothesis 2A. This result is statistically significant when the major shareholder variable (AP) was used to analyze the control structure.

One factor that may explain these results refers to private benefits. For Consoni et al. (2017), several companies in Brazil may not be interested in providing high quality voluntary disclosure because most of their shareholders enjoy private control benefits. These benefits give managers incentives to use private

information to transfer wealth to themselves (Lafond & Watts, 2008). This situation can reduce the importance of the potential demand of market information and stratify the asymmetry of information, not impeding the management of gains (Consoni et al., 2017), which would be accentuated in markets with weak legal protection (Kolsi, 2017), as in Brazil.

These findings are opposed to studies such as Raffournier (1995), Depoers (2000), Murcia and Santos (2012), Kirch et al. (2012), Almeida et al. (2015), Consoni et al. (2017) and Winter and Zülch (2019), who indicate that there is no influence of the control structure on the level of disclosure of companies, probably because they do not consider the possibility of structural breaks in the model, biasing the analysis. On the other hand, the results are similar to those of Chau and Gray (2002), Gisbert and Navallas (2013), Allaya et al. (2018) and Viana Junior and Crisóstomo (2019), specifically regarding the relationship between control structure and disclosure in smaller companies. They also are in consonance with the findings of Eng and Mak (2003), Ajinkya et al (2005), Lim et al (2007), Haddad et al. (2015) and Kolsi (2017), regarding the relationship between control structure and disclosure of the largest corporations.

In addition, the results indicate that the greater the growth opportunities of the smaller companies, the greater they are willing to evidence information of a voluntary nature. These results are in line with the findings of Winter and Zülch (2019), who verified that that disclosure sends good signals to the market, in terms of dealing with agency problems, and these signals are more felt in small companies. Regarding internal variables, leverage is significant only for large companies. In other words, leveraged companies show more voluntary information to guarantee creditors' confidence, which would maintain the availability of external resources (Allaya et al. 2018).

Some important variables, such as those related to auditing and governance, were not considered in the threshold regressions, but were added in the robustness checks. It has been proven that the firms belonging to the differentiated segments of B3 show more voluntary disclosure, in agreement with Murcia and Santos (2012) and Kirch et al. (2012).

A possible limitation of the study is the number of observations, which was reduced by the need for

data balancing. Another factor is related to the impossibility of using important dummies to control the sample, due to the requirement of the method. Finally, there is the possibility of endogeneity of the variables. It is also noticed that there are opportunities for future research on the subject, in order to analyze the quality of the information evidenced, possible consequences of this disclosure, and its relation with the control structure of the companies.

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