RBGN REVISTA BRASILEIRA DE GESTÃO DE NEGÓCIOS
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ISSN 1806-4892
e-ISSN 1983-0807

The Influence of Board Structure and Ownership Concentration on GRI Reporting

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Recebimento:
07/30/2019
Aprovação:
03/03/2020

Editor responsável:
Prof. Dr. Joelson de Oliveira Sampaio

Avaliado pelo sistema:
Double Blind Review

Abstract

Purpose – The purpose of this paper is to investigate the relationship between corporate governance structure and GRI reporting. More specifically, the study seeks to analyse board independence, board size and ownership concentration and their relationships with GRI reporting.

Design/methodology/approach – The hypotheses of the study were tested in a sample of 287 Brazilian companies listed on the B3, the Brazilian stock exchange, using logistic regression models. Data from 2013 were collected from the Econoinfo and GRI databases.

Findings –The findings show that there is a positive relationship between both board independence and GRI reporting and board size and GRI reporting, and a neutral relationship between ownership concentration and GRI reporting. These results indicate that the corporate governance structure influences a company's decision to engage in social issue and stakeholders' relationship activities.

Originality/value – The contribution of this study is it presents theoretical arguments and empirical evidence regarding the influence of corporate governance structure on CSD beyond the Anglo-Saxon context. The results show that good corporate governance practices cannot be generalized to different contexts.

Keywords – Corporate Governance; Ownership Structure; Board of Directors; Corporate Social Disclosure; GRI Reporting.

Revista Brasileira de Gestão de Negócios

DOI : 10.7819/rbgn.v22i3.4075

1 Introduction

The relationship between corporate governance and performance is an important topic in corporate finance research and practice. Many studies have analysed the influence of the characteristics of corporate governance structure on financial performance (Bhagat & Bolton, 2008; Core, Holthausen & Larcker, 1999; Dalton & Dalton, 2011; Paniagua, Rivelles & Sapena, 2018; Zahra & Pearce, 1989). The relationship is complex and a large amount of empirical evidence is presented in the literature (Paniagua et al., 2018).

Considering the relevance of understanding this relationship, studies have been concerned with analysing corporate performance in a broader way, by including a larger number of stakeholders that are also affected by the corporate governance structure. From this perspective, some recent studies have focused on the relationship between corporate governance structure and corporate social performance (CSP) (Bachiller & Garcia-Lacalle, 2018; Ducassy & Montandrau, 2015; Ortas, Álvarez & Zubeltzu, 2017; Peng & Yang, 2014).

CSP can be defined as the broad set of strategies and practices that a company develops to create and maintain relationships with its stakeholders and with the environment (Waddock, 2004). Firms' activities related to social and stakeholder interests have received attention in the finance research (Liang & Renneboog, 2017). Corporate financial performance (CFP) is the most common variable considered as both a consequence and an antecedent of CSP (Margolis & Walsh, 2003; Orlitzky, Schmidt & Rynes, 2003). However, corporate governance structure is also a variable that could explain the CSP level of firms. Surprisingly, this variable receives comparatively less attention in the literature.

The corporate governance structure influences the main strategic decisions of a company, which are driven by the values and motivations of its managers. Corporate governance mechanisms can offer legitimacy to company actions and activities, as they establish rules and norms that serve as a basis for decisions (Khan, Muttakin & Siddiqui, 2013). In this sense, corporate governance mechanisms can influence the values and motivations of managers regarding investment in strategies and practices related to CSP, including the disclosure of the company's activities to create and maintain relationships with its stakeholders and with the environment (Waddock, 2004), in other words, the corporate social disclosure (CSD).

Despite the corporate governance structure potentially affecting a company's involvement in social issues and its relationships with stakeholders, the relationship between governance and CSD is underexplored (Khan, et al., 2013; Mohd-Ghazali, 2007). In addition, such studies are almost exclusively focused on the Anglo-Saxon context. Considering that the corporate governance structure is different according to the country context (Cunha & Rodrigues, 2018) as well the corporate social responsibility activities (Liang & Renneboog, 2017), it is also important to investigate the relationship between corporate governance and CSD in other contexts

To fill this gap, this paper has the objective of analysing the relationship between CSD and corporate governance structures, in a non-Anglo-Saxon country, more specifically in Brazilian firms. Although companies can use several channels for CSD strategies, the Global Reporting Initiative (GRI) framework is considered one of the most trusted and widely used CSD tools adopted by companies worldwide (Alonso-Almeida, Llach & Marimon, 2014; Grushina, 2017; Weber, 2018). Also, because of its standards and guidelines, the GRI framework allows for comparisons among different companies (Marimon, Alonso-Almeida, Rodríguez & Cortez Alejandro, 2012).

In order to meet its objective, this study specifically seeks to: (i) analyse the relationship between board independence and GRI reporting; (ii) analyse the relationship between board size and GRI reporting; (iii) examine the relationship

between ownership concentration and GRI reporting.

For this, we considered the following governance structure variables: board independence, i.e. the presence of independent directors on the board; board size, i.e. the number of directors on the board; and ownership concentration, i.e. the concentration of majority shareholders who are entitled to vote. We analysed 287 Brazilian companies listed on the Brazilian stock exchange, which together held R$ 23,711,716.2 in assets in 2013. The data on those companies are taken from the Econoinfo and GRI databases.

This article contributes to the discussion about corporate governance and its relationship with a broader approach to corporate performance, by including a social perspective that emphasises the disclosure of relevant information to a more comprehensive set of stakeholders.

2 Theoretical Framework

This section presents concepts, frameworks and discussions in relevant literature and is divided into the following subsections: (i) corporate social performance (CSP), (ii) corporate social disclosure (CSD) and GRI reporting, and (iii) corporate governance structure.

2.1 Corporate social performance

The first CSP model was proposed by Carroll (1979), who defined it based on the concept of corporate social responsibility (CSR). According to the concept proposed by Carroll (1979), social responsibility involves four corporate performance perspectives: economic, legal, ethical and discretionary. From the economic perspective, a company has the responsibility to produce and sell goods and services desired by society and obtain a profit. The legal perspective involves contractual aspects that must comply with laws and regulations. The ethical perspective involves norms, behaviours and activities that, although not mentioned in laws, are expected by society. The discretionary approach involves voluntary actions such as charitable contributions. In addition to the four perspectives of performance, Carroll (1979) also includes social responsibility and social issues in the model, which refer to the philosophy or strategy that companies use to respond to these matters.

CSP can also be evaluated by addressing the relationship between corporate management and stakeholders, rather than using models and methodologies based on concepts of social responsibility. It is possible to distinguish stakeholder management from social issues, because organisations manage relationships with all their stakeholders and not only with society (Clarkson, 1995). In this sense, firms' practices for the benefit of their stakeholders are not an obligation but a way to create more value (Harrison, Freeman & Abreu, 2015).

The increasing amount of research about the relationship between CSP and CFP has encouraged the emergence of studies seeking to consolidate the empirical findings. For instance, Orlitzky et al. (2003) carried out a meta-analysis of 52 studies; Margolis and Walsh (2003) reviewed 127 studies from between 1972 and 2002; Boaventura, Silva and Bandeira (2012) analysed 58 articles from 1996 to 2010. According to Orlitzky et al. (2003), the results of the studies on the relationship between CSP and CFP are still inconclusive. They also noted that CSP seems to be more related to accounting-based measures of CFP, such as return on assets (ROA) and return on equity (ROE), than with market-based indicators of CSP, such as price per share and share price appreciation. While accounting-based measures capture a firm's internal efficiency, market-based indicators reflect external market responses to organizational actions (Orlitzky et al., 2003).

There are also different ways of measuring CSP. In a broad sense, there are four commonly accepted measurement strategies: (i) CSD; (ii) reputation ratings; (iii) social audits and observable CSP processes and outcomes; (iv) managerial principles and values (Orlitzky et

al., 2003). In our study, we focus on the CSD dimension of CSP. That is, we seek to understand corporate decisions about reporting activities related to social issues and relationships with stakeholders, which is one of the dimensions related to CSP (Roberts, 1992).

2.2 Corporate social disclosure and GRI reporting

According to voluntary disclosure theory there is a positive relationship between CSP and CSD. The literature on voluntary disclosure was initially based on financial and accounting disclosures, but later was extended to the disclosure of social and environmental information (Guidry & Patten, 2012). For instance, Vurro and Perrini (2011) use the theory to investigate the relationship between CSD and CSP, and Guidry and Patten (2012) highlight that the main studies supporting the application of voluntary disclosure theory are undertaken in the environmental area (e.g. Dye, 1985; Lang & Lundholm, 1993; Verrecchia, 1983).

The main argument for the positive relationship between CSD and CSP, defended by Verrecchia (1983) and supported by Lang and Lundholm (1993), is that companies with superior environmental performance have a greater incentive to disclose their actions and commitments. Another argument is that companies seek disclosure to improve stakeholders' perceptions of the company, thus avoiding possible risks of adverse selection and exposure to future social costs (Dye, 1985). Regarding adverse selection, Dye (1985) explains that investors view the omission of information by managers as undesirable.

Moreover, the greater the dissemination of information, the greater the credibility of the company (Clarkson, Li, Richardson & Vasvári, 2008). Also, the greater the engagement with stakeholders, the greater the need for an organisation to disclose its performance, which has a positive impact on CSP (Vurro & Perrini, 2011). CSP and CSD have a strong association that could also be explained by the size of the firm and the company's visibility in society (Schreck & Raithel, 2018). Thus, decisions regarding CSD may be related to the search for organizational legitimacy (Khan et al., 2013) and are influenced by different cultures, political systems and ideologies (Mohd-Ghazali, 2007).

The GRI is the most adopted and widely accepted international socio-environmental disclosure initiative (Grushina, 2017; Marimon et al., 2012; Weber, 2018). The GRI is a non-profit organisation that provides standards on sustainability reporting. GRI sustainability reports have developed guidelines that can be adopted by organisations of all sizes, sectors and localities (Global Reporting Initiative, 2013). In the CSD literature, many studies use GRI reporting to measure CSD levels and decisions (Bae, Masud & Kim, 2018; Chen, Feldmann & Tang, 2015; Fernández-Gago, Cabeza-García & Nieto, 2018; Hussain, Rigoni & Orij, 2018).

The basic content of the GRI sustainability report's structure consists of three parts: (1) Profile: information about the overall context for understanding organisational performance, including strategy, profile and governance; (2) Information on management approach: data whose purpose is to explain the context in which an organisation's performance in a specific area is interpreted; (3) Performance indicators: comparable information about the economic, environmental and social performance of organisations (Global Reporting Initiative, 2006). The GRI framework has about 80 social performance indicators that are responsive to voluntary indicators. Since the GRI provides a standard for reporting, it allows for comparability among firms (Alonso-Almeida et al., 2014; Marimon et al., 2012).

2.3 Corporate governance structure

Corporate governance consists of the processes, policies, laws and regulations that define how companies are managed and controlled. Laws and regulations can influence processes and

policies formally and informally through customs and organisational culture. Corporate governance is fundamental for economic and social well-being, as it promotes not only incentives and measures of company performance, but also accountability and transparency to guarantee the fair distribution of the resulting wealth (Clarke, 2004).

The dominant economic view claims that corporate governance is mainly concerned with ensuring that capital providers have a return on their investments (Letza, Sun & Kirkbride, 2004; Shleifer & Vishny, 1997). In this view, governance practices such as clarification of rules and procedures for decision makers and the promotion of the structure by which the company's goals are determined and monitored can protect shareholders' interests (Clarke, 2004).

However, besides investors, other stakeholders, such as employees, suppliers, customers and the community, also have interests in a company's management and monitoring, and the concerns of these stakeholders must be considered (Tirole, 2006). Thus, corporate governance also includes the relationships between companies and all the stakeholders that influence and are influenced by the achievement of the companies' goals (Freeman & Reed, 1983). In this view, senior management and the board of directors are in charge of balancing the various interests (Clarke, 2004).

This perspective is represented by the stakeholder model of corporate governance, which has challenged the dominant shareholder model (Letza et al., 2004). The purpose of an organisation is not only to maximize shareholder wealth, as proposed by Jensen and Meckling (1976), but also to maximize other stakeholders' wealth (Freeman, 1984). Examples of good corporate governance practices are accountability to shareholders and society, monitoring of managers, rules for the composition and size of the board of directors and attention paid to minority shareholders.

A few studies have attempted to relate good corporate governance practices to CSD. However, differences in corporate governance models and in the orientation of controlling shareholders can shape the decisions about corporate social disclosure. Firms in different contexts have different models of corporate governance, i.e. the Anglo-Saxon model, the European model, the Asian model and others. Companies' ownership has different structures according to the context and is affected by several external pressures.

The Brazilian context has particularities that make it important to develop studies focused on corporate governance structure. Brazil is characterized by companies with highly concentrated ownership and weaknesses in board composition, with a low percentage of independent directors (Black, Carvalho & Gorga, 2010). While significant advances have been made in the regulatory context of the Brazilian stock exchange (Black et al., 2010) and the market has advanced by offering more protection to investors (Crisóstomo & Brandão, 2019), empirical evidence shows that ownership concentration still has a negative effect on corporate governance quality in Brazil (Crisóstomo & Brandão, 2019) and improvements are needed in the formation of boards of directors.

Corporate governance practices and mechanisms have an impact on the level of company CSD. In other words, CSD policies can be influenced by characteristics such as the composition of the board of directors and the governance structure (Khan et al., 2013; Michelon & Parbonetti, 2012). For instance, the board of directors represents an important corporate governance mechanism that influences companies' strategic decisions. Frias-Aceituno, Rodriguez-Ariza and Garcia-Sanchez (2013) argue that CSD is a mechanism that can harmonize the interests of an organization and its stakeholders. Moreover, the board can be a resource provider of external and strategic information, helping an organization to understand stakeholders' and society's interests (Chang, Oh, Park & Jang, 2017).

3 Hypotheses Development

One of the corporate governance practices that can influence CSD relates to the level of board independence, that is, the presence of independent outsider members on a board (Daily, Dalton & Cannella, 2003). Many studies, such as those by Rosenstein and Wyatt (1990), Ghosh and Sirmans (2003) and Lefort and Urzúa (2008), indicate that board independence is associated with better corporate governance practices, because outsider members are more able to monitor management and the CEO and analyse performance with less conflicts of interests than insider directors. According to them, outsider members provide complementary skills, experience and external information about the organizational environment.

The presence of independent directors can influence a company's decision to engage in social issues and stakeholder relationship activities, such as the relationship with employees, the promotion of diversity, the reputation of firms' products and services, and respect for environmental policies (Johnson & Greening, 1999). Board independence may have a positive relationship with CSR (Harjoto & Jo, 2011) and sustainability performance (Hussain et al., 2018), since independent directors are concerned about issues involving different stakeholders (Jizi, Salama, Dixon & Stratling, 2014; Wang & Dewhirst, 1992).

Independent directors do not have a direct claim on companies' activities; therefore, they are more likely to consider all stakeholders' interests, whereas insider directors may prioritize the interests of management (Zhang, 2012). Insider directors are usually more concerned about short term economic outcomes, neglecting actions that may influence companies' outcomes in the long term, such as ones related to CSP (Coffey & Wang, 1998). Finally, a more independent board is motivated to include multiple variables in the decision-making process, leading to a more comprehensive stakeholder-orientated management (Dunn & Sainty, 2009). It is, therefore, expected that the presence of independent directors is also positively correlated to the willingness of firms to disclose their activities related to social issues and stakeholders' relationships. Thus, we propose the following hypothesis:

> **H1:** *There is a positive relationship between the presence of independent directors and GRI reporting.*

Board size is an important feature of corporate governance structure. Although there is no ideal number of directors for every company, good corporate governance practices are usually not associated with very large or very small boards of directors (Van den Berghe & Levrau, 2004). This belief is reflected in the Brazilian code of best corporate governance practices, which requires a board size ranging from 5 to 11 members (Brazilian Institute of Corporate Governance [IBGC], 2010). The agency theory literature argues that, on the one hand, very large boards face the challenge of conciliating the interests of many directors with different interests, skills and experience, making the decision process less effective. In this view, larger boards can result in less discussion about management performance and facilitate control by the CEO (Jensen, 1993). On the other hand, it is recognized that smaller boards have less expertise, knowledge and skills at their disposal (Van den Berghe & Levrau, 2004).

Unlike agency theory, most CSD literature shows that board size has a positive influence on disclosure (Bachiller & Garcia-Lacalle, 2018; Cheng, 2008; Esa & Mohd-Ghazali, 2012; Hussain et al., 2018; Jizi et al., 2014). Large boards have greater monitoring capacity and more diversity (Jizi et al., 2014), and may lead to a greater exchange of ideas and experiences (Frias-Aceituno et al., 2013).

Although some decisions may be less effective in larger groups because they take more effort and time to reach a consensus, they are

more likely to embrace the interests of a greater number of stakeholders. Cheng (2008) provides empirical evidence that larger boards make less risky decisions because they have to balance the positions of several group members. Before any decision is implemented, it must be accepted by a large number of people. Large boards have more stakeholder representatives and tend to allocate resources to multiple stakeholders interests (Bachiller & Garcia-Lacalle, 2018). Large boards lead to a better appreciation and involvement in corporate social disclosure activities (Esa & Mohd-Ghazali, 2012).

Thus, it is expected that larger boards are more likely to consider the interests of a greater number of stakeholders, i.e. they will embrace a multiple stakeholder-oriented approach, which will be reflected in companies' decisions to disclose their activities related to social issues and stakeholder relationships. Based on these assumptions, we suggest the following hypothesis:

H2: *There is a positive relationship between board size and GRI reporting.*

Another important aspect of governance structure is ownership concentration, i.e. the amount of stock owned by an individual or institutional investor. Claessens and Djankov (1999) present a set of studies that consider ownership concentration to be positively related to financial performance, as well as another set that reject this hypothesis. Regarding the relationship between ownership concentration and CSP, there is no consensus, and the empirical research has found both positive and negative relationships.

Some studies (Crisóstomo & Freire, 2015; Stavrou, Kassinis & Filotheou, 2007) argue that companies presenting ownership concentration are more likely to engage in social issues and to invest in relationships with stakeholders. Majority shareholders tend to have greater concerns about issues such as long-term company survival and reputation. Dispersed shareholders are more likely to focus on short-term outcomes, such as market value and profitability. If shareholders are more focused on short-term performance, they will only engage in CSR initiatives such as CSD if they expect a short-term outcome of this initiative. Thus, the investor decision about CSR is more oriented by self-interest (Aguilera, Williams, Conley & Rupp, 2006). However, if a firm is controlled by a major shareholder, decisions about CSR can be more driven by moral motives.

Firms controlled by a family shareholder, for instance, may want to leave a legacy to society and ensure the continuation of the business for the next generation, which may reflect concerns about sustainability and stakeholder management (Stavrou et al., 2007). Similarly, major state owners are committed to promoting social responsibility activities such as employment, growth, regional development, education, health and social care, which can lead to greater concerns about a broad range of stakeholders (Dam & Scholtens, 2012). Ownership concentration can be associated with higher levels of CSD because investments in CSP present a long-term and low-risk perspective (Graves & Waddock, 1994). Prado-Lorenzo, Gallego-Alvarez and García-Sánchez (2009) also argue that the reputation of a dominant shareholder is strongly related to the firm's reputation and, therefore, this leads the firm to improve its social issue and stakeholder relationship activities and communicate them to the market and society.

However, some recent empirical studies (Dam & Scholtens, 2013; Ducassy & Montandrau, 2015; Peng & Yang, 2014) have argued that companies with majority owners are more likely to prioritize the interests of the controlling shareholders at the expense of other shareholders and, thus, are less willing to invest in activities related to social issues and stakeholders' relationships. Thus, given that there is no theoretical or empirical consensus regarding the relationship between ownership concentration and social reporting, we propose that:

H3: *There is a neutral relationship between ownership concentration and GRI reporting.*

4 Methods

4.1 Sample selection

The sample selected for this research is non-probabilistic and contingent on the availability of GRI reporting and corporate governance structure data. The companies analysed in this research were selected from a set of publicly-traded companies listed on the B3 (*Brasil, Bolsa, Balcão*, in Portuguese) Brazilian stock exchange located in São Paulo and formerly called the Bovespa. The sample selection criteria included the availability of information on ownership structure and board composition. The final sample consists of 287 listed companies.

4.2 Data collection

The collection of data on ownership structure and board composition was performed using the Econoinfo database, which publishes information on the corporate governance structure of listed companies. The data collection regarding CSD was carried out using the GRI database. The GRI database contains the reports of different types of properties, such as publicly- and privately-controlled companies (Weber, 2018).

4.3 Research variables

CSD is the dependent variable of this study and was constructed using the GRI database. Based on the 2013 GRI, a binary variable was created for the Brazilian companies, where the value 1 was assigned to companies that published GRI reports in that year, and 0 was assigned to companies that did not. The dummy variable refers to the decision to publish a GRI report, which is in line with previous studies that have considered that companies that disclose their social and environmental activities through annual reports provide accountability about their environmental and social performance in order to meet stakeholders' expectations (Zorio, García-Bernau & Sierra, 2013). The independent variables of the research are board independence, board size and ownership concentration. Firm size was used as a control variable.

The variable related to the independence of the board was obtained by checking the composition of the board of each of the companies studied. The Econoinfo database provides the name and profile of board members for each company. From this information, it was possible to obtain the number of independent directors and the total number of directors. The variable related to board independence was defined as the ratio between the number of independent directors and the total number of directors. The board size variable was considered as the total number of directors indicated by the Econoinfo database, whether independent or not.

The variable relating to ownership concentration was also obtained using the Econoinfo database, as it describes the shareholders of each company and the percentage that are entitled to vote. The variable was created by finding the percentage value of shares with voting rights of the largest shareholder.

The control variable is the size of the company, which is commonly used in performance studies, and was obtained from the natural logarithm of total assets in the 2013 financial year.

4.4 Data analysis

For an analysis of the two categories of companies (those that disclose GRI reports that those that do not), we used the t-test to compare the averages of board independence, board size and ownership concentration.

To test the hypotheses proposed in the research, we applied logistic regression analysis, which allows the use of a binary variable as the dependent variable (Hair, Black, Anderson & Tatham, 2009) and continuous and categorical predictor variables. The advantage of this technique is that logistic regression makes no assumptions about the distribution of the predictor variables, just the predicted value (IBM SPSS, 2014).

The logistic regression model is described as follows:

$$CSP = \beta o + \beta 1 Independence + \beta 2 Boardsize + \beta 3 Ownership + \beta 4 Size + \varepsilon$$

where,
CSP = CSP variable
βi = model slope
Independence = board independence variable
Ownership = ownership concentration variable
Board size = total board members variable
Size = company size variable
ε = error

We used the SPSS software for the statistical analysis. The logistic regression was performed using the enter method and the Hosmer and Lemeshow goodness-of-fit test to verify the quality of the fit of the model.

In our model, the dependent variable was measured on a dichotomous scale. Thus, the dependent variable has mutually exclusive and exhaustive categories. There was more than one independent variable that was continuous (e.g. total board members) and categorical (e.g. concentration of ownership). So, before we opted to run the binomial logistic model, we ran the Box-Tidwell test to verify the linearity of the continuous predictors and the logit (log odds). As a result, the interaction between the continuous predictors (board independence, or ownership concentration) and the logit (log odds) was shown to be linear. In a logistic regression, if this interaction is not significant then the assumption is not violated. This assumption was not violated since the interaction was not significant for any predictor (p-value of concentration of ownership * log of concentration of ownership equals 0.98 and p-value of board independence * log of board independence equals 0.34). Therefore, we can assume that there is a linear relationship between the variables.

5 Results

This research analyses the relationship between GRI reporting and the following governance structure features: board independence, board size, and ownership concentration. The companies studied have the following types of ownership: 117 are family-owned, 20 are state-owned, 67 are institutional, 30 are foreign, 16 have shared control and 37 have a dispersed ownership. In 2013, of the total sample of 287 companies, 76 presented reports in the GRI database (listed in Appendix A) and 211 did not. Table 1 presents the descriptive statistics of the other variables.

Table 1
Descriptive statistics

	Minimum	Maximum	Average	Standard deviation	Variance
Board Independence	0,00	1,00	0,19	0,21	0,05
Board Size	2,00	30,00	8,31	4,74	22,48
Ownership Concentration	5,03	100,00	57,51	27,65	764,66
Company size (ln Asset)	2,30	20,87	14,59	2,42	5,85

5.1 Differences between the companies related to GRI reporting

The t-test was used to analyse the average differences of the governance variables (board independence, board size, and ownership concentration) and compare the companies that disclose GRI reports with those that do not. It is observed that the companies that publish GRI reports also have a greater relative number of independent directors, which indicates good governance practices. Table 2 presents the descriptive statistics of the two groups and Table 3 presents the Levene test and the results of the t-test's comparison of averages.

The Levene test shows if the data has an equality of variances for the calculated groups, in other words, it presents whether there is homoscedasticity in the data used. Observing Table 3, board independence and ownership concentration are homogeneous so the best t-test analysis is for the equal variance assumed. For the board size data, which are not homoscedastic ($F=12.49$, $p<0.001$), the not assumed equal variance data are analysed.

The average for independent directors in the companies that publish GRI reports (22.7%) is higher compared to the companies that do not disclose them (17.9%) (Table 2). The results of the t-test are presented on Table 3, showing the level of statistical significance of the board independence variable in relation to GRI reporting.

Table 2
Descriptive statistics of the GRI variable groups

	GRI reporting	N	Average	Standard deviation	Mean standard error
Board Independence	No	211	0,18	0,21	0,02
	Yes	76	0,23	0,20	0,02
Board Size	No	211	7,43	3,95	0,27
	Yes	76	10,78	5,81	0,67
Ownership Concentration	No	211	57,69	28,23	1,94
	Yes	76	57,02	26,17	3,00

Table 3
T-test results

		Levene		Teste t				
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Board Independence	equal variances assumed	0,504	0,478	-1,73*	285	0,08	-0,05	0,03
Board Size	equal variances not assumed			-4,65***	100,94	0,00	-3,35	0,72
Ownership Concentration	equal variances assumed	2,328	0,128	0,18	285	0,86	0,68	3,71

Notes: *t* is marked with a single asterisk to show the difference is significant at $p<0.10$, with two asterisks to show significance at $p<0.05$ and three for $p<0.01$

Also in Table 2, ownership concentration, which was analysed via the percentage of shares of the largest shareholder, shows a similar average for the companies that publish GRI reports (57.69) and the ones that do not disclose them (57.01). In Table 3, we observe that the ownership

concentration implies no difference in the averages between the companies that disclose and those that do not disclose GRI reports.

For board size, in Table 2 we observe that the companies that do not publish GRI reports seem to present a smaller number of people on their boards (average of 7.427), while the ones that publish GRI reports present more participants on their company boards (average of 10.776). This difference is significant according to the t-test as presented in Table 3.

5.2 Hypotheses results: The relationship between governance structure and GRI reporting

The t-test analysis presents whether there is an association between CSD and the independent variables. To test the directional effect of the associations, we complement the analysis and investigate the hypotheses by running a logistic regression. The three hypotheses of this study are: (H1) the presence of independent directors is positively related to GRI reporting, (H2) board size is positively related with GRI reporting and (H3) there is a neutral relationship between ownership concentration and GRI reporting.

Before running the logistic regression analysis, we ran the collinearity diagnostics test to analyse if there is multicollinearity among the independent variables. The mean VIF obtained was 1.3, which is acceptable because it is less than 3. We also verified possible multicollinearity between the independent variables through the Pearson correlation coefficient. As a result, the highest significant correlation found was between ownership concentration and the presence of independent directors, with a coefficient of -0.44, which indicates a weak correlation (Mukaka, 2012) or slightly moderate one (Hair, Babin, Money & Samouel, 2005). The lowest significant correlation was between ownership concentration and company size, with a coefficient of -0.14, which is considered a non-existent correlation.

To investigate the strength with which the model predicts the dependent variable, we present the Cox & Snell R^2, which can be perceived as the R^2 of a multiple regression, but cannot reach a maximum value of 1, and the Nagelkerke R^2, which reaches a maximum of 1. For the Cox & Snell R^2 our model resulted in 0.248 and for the Nagelkerke R^2 it was 0.361. Based on these results, the pseudo r-squared value is respectable and the model can be analysed. Also, our logistic regression model has a prediction accuracy of 78.4%. The ROC curve supports the data being distinguished between the two groups from the dependent variable, showing that the area is equal to 0.823.

Employing a 0.01 statistical significance criterion, the presence of independent directors, the board size and the ownership concentration had significant effects on GRI reporting. Table 4 shows the logistic regression coefficient, standard error, Wald test, p-value and odds ratio for each of the predictors.

As a result, it is observed that the coefficient of the board independence variable is positively associated with GRI reporting. One can infer that the greater the relative number of independent directors, the more likely the company is to be classified in the group with GRI reports. This result leads us to confirm H1. The findings for the board independence variable in the model are reinforced by the t-test applied to the sample, which indicated a large and statistically significant average for the relative presence of independent directors in companies that publish GRI reports.

Note that the odd ratio shows that the effect of board independence is strongest among the three variables tested regarding the likelihood of a company publishing the GRI report (5.14), in other words, board independence has the highest probability of increasing the companies' commitment to CSD.

Table 4
Regression Model Results

	B	S.E.	Wald	Sig.	Exp(B)
Board Independence	1,64**	0,84	3,80	0,05	5,14
Board Size	0,09**	0,04	6,11	0,01	1,09
Ownership Concentration	0,01*	0,01	2,65	0,10	1,01
Company size	0,66***	0,11	33,27	0,00	1,93
Constant	-12,87***	1,85	48,36	0,00	0,00

Notes: a single asterisk shows the difference is significant at p<0.10, two asterisks show significance at p<0.05 and three at p<0.01. The odd ratio is represented in the Exp(B) column.

Regarding board size, the results show a positive and significant relationship. One can interpret that the greater the amount of directors, the more likely the company is to be classified in the publishing group. Therefore, board size is positively related to GRI reporting, thus supporting H2. Figure 1 represents this analysis graphically. It should be noted, however, that the company size control variable is also positive and significant, and successfully used in the model. As showed by Linck, Netter and Yang (2008), larger companies tend to have larger boards.

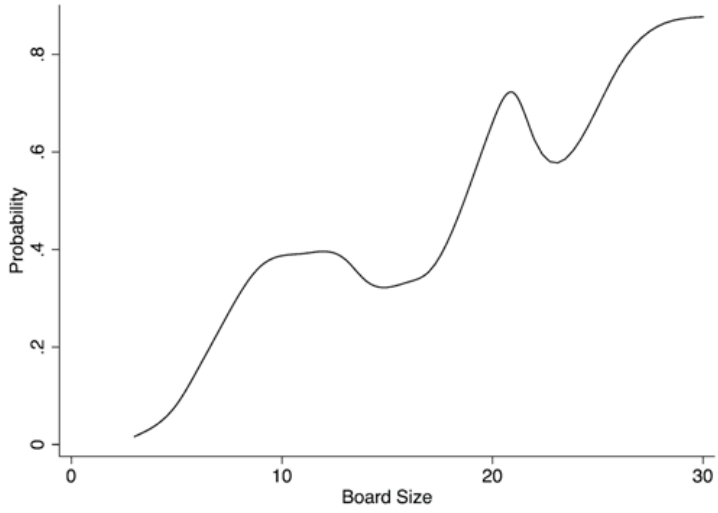

Figure 1. Effect of board size on the probability of publishing GRI reports.

Related to ownership concentration, the logistic model shows a positive and slightly significant coefficient (p=0.10), so the results for the relationship between ownership concentration and the probability of publishing GRI reports is inconsistent. Analysing the p-value in Table 3, there is no statistical difference between the ownership concentration of firms that publish and those that do not publish GRI reports. Therefore, we observe that the result supports H3, considering that there is no evidence of a positive relationship between the variables. Other variables related to ownership concentration could explain GRI reporting.

6 Discussion

Our findings show a positive and significant relationship between board independence and GRI reporting in the Brazilian context. This result

is in accordance with the arguments of Harjoto and Jo (2011), Johnson and Greening (1999) and Wang and Dewhirst (1992), where a greater representation of independent directors correlates with increased company efforts regarding social issues and issues related to stakeholders. This finding may contribute to the discussions about the participation of independent directors. Companies that are more geared towards improving their relationship with stakeholders and that are more committed to social issues may consider increasing the number of independent members on their boards. Similarly, companies that are more oriented towards short-term profits and towards shareholder salience may choose to have more internal members.

A positive relationship between board size and GRI reporting is also confirmed. These results show that larger boards tend to consider the interests of a greater number of stakeholders, reinforcing the empirical findings of Cheng (2008) and the arguments of Bachiller and Garcia-Lacalle (2018). However, these results should be analysed with caution since good corporate governance practices recommend a limit for board size. A positive relationship between board size and CSD was found in our research; however, it is important to note that the mean for board size in the sample was 8.31 and the standard deviation was 4.74. Those numbers are aligned with the recommendation of the Brazilian code of best corporate governance practices, which indicates a board size of 5-11 members (IBGC, 2010).

We also find evidence that there is a neutral relationship between ownership concentration and GRI reporting. High ownership concentration as a characteristic of companies in the Brazilian context (Black et al., 2010) is reflected in the sample, since the average concentration of shares is 57.5% in the hands of the majority shareholder. This reality differs from companies in other contexts that present more dispersed ownership.

7 Conclusion

We analysed the relationship between the publication of GRI reports and companies' corporate governance structures in the Brazilian context. The results confirmed that there is a positive relationship between the presence of independent directors and the likelihood that the company will publish GRI reports. The results indicate that companies embracing the GRI adopt one of the good governance practices related to board composition. We find a positive relationship between board size and GRI reporting. So, the greater the amount of directors, the more likely the company is to be classified in the publishing group. With regards to ownership concentration and GRI reporting, no strong evidence of a positive relationship is found, so the neutral relationship is confirmed.

Our paper shows empirical evidence contributing to the field of CSD and corporate governance. Our study supports the idea that the corporate governance mechanisms that are a form of protection of shareholders' interests also promote transparency and dialogue with stakeholders. The presence of more directors may imply a greater concern about the consolidation and dissemination of information. Board composition and size should be considered by companies seeking to improve their reputations and stakeholder relationships through disclosure.

Finally, regardless of a high ownership concentration, majority shareholders tend to consider the corporation's long-term survival, which may positively influence disclosure. Conversely, companies with dispersed ownership may be more concerned about attracting new investors and, therefore, seek to strengthen their reputations in society, which can also positively affect transparency. That is, ownership concentration and CSD may interact differently in different circumstances, and this thus presents new opportunities for future studies. In this sense, it is important to analyse the characteristics of the majority shareholders (i.e., family or state) in different contexts.

The contribution of this paper is it presents theoretical arguments and empirical evidence about the influence of corporate governance

structure on the company decision to publish GRI reports. The empirical evidence contributes by reinforcing the idea that in a specific country context that is understudied, organizations must align their practices and corporate governance structures with the aim of achieving transparency and engagement with stakeholders. The study also contributes to the analysis of the impact of the best corporate governance practices developed by the Brazilian Institute of Corporate Governance (IBGC), and has practical implications for defining the best corporate governance practices and mechanisms associated with social disclosure.

Despite its contributions, this study has some limitations. We only analysed companies listed on the Brazilian stock exchange, considering a single country and cross-sectional data. We controlled for size, however other variables may influence CSD. For future research, we suggest investigating the influence of the type of ownership concentration on CSD, i.e., family-owned, state-owned, institutional, foreign, and others. Board characteristics, such as diversity CEO duality, may also be relevant for future studies. Finally, future studies could search for other alternatives for measuring CSD, or other dimensions of CSP.

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Appendix

SAMPLE OF 76 COMPANIES WITH GRI REPORTS			
AES TIETE	CELUL IRANI	EMBRAER	OI
AGCONCESSOES	CEMAT	ETERNIT	P.ACUCAR-CBD
ALL AMER LAT	CEMIG	FER HERINGER	PETROBRAS
AMAZONIA	CESP	FIBRIA	PINE
AMBEV S/A	CIELO	FLEURY	POSITIVO INF
ANHANGUERA	COELBA	GOL	RANDON PART
AREZZO CO	COMGAS	INDS ROMI	RENOVA
B2W DIGITAL	COPASA	INDUSVAL	SABESP
BANRISUL	COPEL	ITAUTEC	SANTANDER BR
BICBANCO	COSAN	ITAUUNIBANCO	SANTOS BRP
BMFBOVESPA	COSERN	JSL	SAO MARTINHO
BRADESCO	CPFL ENERGIA	KLABIN S/A	SOUZA CRUZ
BRASIL	DASA	LIGHT S/A	SUL AMERICA
BRASKEM	DURATEX	LOJAS RENNER	SUZANO PAPEL
BRF SA	ECORODOVIAS	MAGAZ LUIZA	TECNISA
CCR SA	ELEKEIROZ	MINERVA	TELEF BRASIL
CEEE-D	ELEKTRO	MULTIPLAN	TIM PART S/A
CEEE-GT	ELETROBRAS	NATURA	TRACTEBEL
CELPE	ELETROPAULO	NORD BRASIL	WEG

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Contribution	Keysa Mascena	Simone Barakat	Giuliana Isabella	Adalberto Fischmann
1. Definition of research problem	√	√		
2. Development of hypotheses or research questions (empirical studies)	√	√		
3. Development of theoretical propositions (theoretical work)				
4. Theoretical foundation / Literature review	√	√		
5. Definition of methodological procedures	√		√	
6. Data collection	√			
7. Statistical analysis	√		√	
8. Analysis and interpretation of data	√	√	√	√
9. Critical revision of the manuscript			√	√
10. Manuscript writing	√	√		
11. Other (please specify which)				