The role of the board in voluntary disclosure

Giovana Bueno, Rosilene Marcon, Andre Leonardo Pruner-da-Silva and Fabio Ribeirete

Giovana Bueno is based at Universidade do Vale do Itajai, Itajai, Brazil.
Rosilene Marcon is Dra at Universidade do Vale do Itajai, Itajai, Brazil.
Andre Leonardo Pruner-da-Silva is a PHD candidate at Fundacao Getulio Vargas Escola de Economia de Sao Paulo, Sao Paulo, Brazil.
Fabio Ribeirete is Researcher at Universidade do Vale do Itajai, Itajai, Brazil.

Received 1 September 2017
Revised 17 January 2018
20 March 2018
Accepted 21 March 2018

Abstract

Purpose – *Since 2012, the Brazilian Stock Exchange has recommended that listed companies inform them if they have conducted voluntary disclosure. The purpose of this study is to describe the voluntary disclosure by companies listed in the B3 in Brazil and to analyze which characteristics of the board of directors influence this disclosure.*

Design/methodology/approach – *The study involves quantitative research using a sample of 285 companies and 575 reports from 2011 to 2014. A fixed-effects regression model with panel data was used for the analysis.*

Findings – *The results were statistically significant for gender and duality variables, which confirms the theory that the presence of women as members of the board positively influences voluntary disclosure and that chief executive officer and chairman of the board positions have a negative effect. The age and independence of the board variables did not present statistical significance.*

Research limitations/implications – *As a theoretical contribution, the authors aim to complement sustainability, finance and strategy research by using agency theory and measuring the variable of voluntary disclosure and the board, which is rarely studied in this context.*

Practical implications – *As social and empirical contributions, a better understanding of this theme in the context of emerging countries, which is the peculiarities of Brazil with little information transparency and well-known corruption scandals, is likely to aid investors. Increased access to company information can help investors better select their investment portfolios and assist in the choice of their board representatives in companies in which they have participation and voting rights.*

Originality/value – *The fact that Brazil is an emerging country, where the lack of transparency of information and corruption in these environments stand out the importance of studying the subject of voluntary disclosure in this context. All data were collected manually specifically for this research.*

Keywords *Board of directors, Corporate governance, Voluntary disclosure*

Paper type *Research paper*

Introduction

Scandals revealed throughout financial crises highlight the importance of ethical and transparent actions and have motivated discussions on corporate governance, specifically on boards (Martins and Rodrigues, 2005; Vieira and Mendes, 2006). Voluntary disclosure is important because it reduces information asymmetry (Cormier *et al.*, 2010). Alignment of the board with a business strategy focused on voluntary disclosure is an alternative to strengthen credibility and promotes transparency and dialogue between parties (Adams, 2002; Boulouta, 2013), in addition to providing stakeholders indirect management monitoring (Farooque and Ahulu, 2015; Michelon and Parbonetti, 2012).

In 2012, the Brazilian Stock Exchange (B3), in partnership with the Global Reporting Initiative (GRI), recommended that Brazilian listed companies indicate if they have disclosed their sustainability reports and considered voluntary disclosure. The purpose of the report is to provide information that will be useful to users in making economic decisions. Existing and potential shareholders use the company's annual reports to

evaluate the investment potential of a company's stock, and creditors use them to assess the company's credit and liquidity capacity (Agyei-Mensah, 2016). The objective of this paper is to describe the disclosure reports of Brazilian companies listed on the B3 from 2011 to 2014 and determine which characteristics of the board of directors influence voluntary disclosure.

As an emerging country, Brazil is embedded in a challenging environment (Cuervo-Cazurra and Genc, 2008) characterized by a lack of access to reliable and adequate information for stakeholders, economically healthy regulations and efficient judicial systems (Rottig, 2016). The lack of information transparency and the corruption in these environments underscore the importance of studying the subject of voluntary disclosure within this context because published corporate information can be used by organizations to mitigate agency costs, political costs and information asymmetry (Friaz-Aceituno *et al.*, 2013; Hapsoro and Fadhilla, 2017; Santana *et al.*, 2015). In Latin America, Brazil accounts for over 50 per cent of all reports and plays an important role in the dissemination process (Calixto, 2013; Conceição *et al.*, 2012). The average social-environmental disclosure index of Brazilian companies was 65 per cent in 2012 (Santana *et al.*, 2015).

Disclosure and corporate governance are explained by several theories, notably, the agency theory, the legitimacy theory, the signaling theory, the stakeholder theory and the voluntary disclosure theory (Macedo *et al.*, 2013). This research is based on the agency theory because it comprises two main themes: information asymmetry (voluntary disclosure increases transparency between the parties) and governance mechanisms (the board monitors and controls the actions of the parties to reduce this asymmetry).

Regarding the relationship between characteristics of the board and voluntary disclosure, Michelon and Parbonetti (2012) did not find significant results for the independence and duality variables. However, Matos and Gois (2013), Agyei-Mensah (2016), Madhani (2015) and Hapsoro and Fadhilla (2017) found that the proportion of independent directors was the most relevant variable. In the Brazilian context, research has investigated the predominant factors for dissemination of sustainability reports, including studies by Cunha and Ribeiro (2008) and Murcia *et al.* (2008) that related the disclosure to other characteristics of the company and governance but not the board of directors specifically.

Post *et al.* (2011-2011) and Hafsi and Turgut (2013) surveyed American companies and suggested research in other countries and with larger samples. Thus, it would be opportune to study an emerging country such as Brazil so that the investigations can be compared. Michelon and Parbonetti (2012) recommended analyzing other variables in addition to independent members and duality and analyzing longer periods of time. In addition, the authors used a dichotomous measure for the disclosure index that did not allow for them to make any statements about the extent of disclosure. As suggested in this study, other board variables such as the age and proportion of women were used to verify the relationship with disclosure.

As a theoretical contribution, we aim to complement sustainability, finance and strategy research by:

- using the agency theory to explain the conflicts arising from the lack of transparency between parties, which generates the information asymmetry;
- measuring the variable of voluntary disclosure and its interaction with other characteristics of the board, which is little studied in this context; this measurement can be used in other studies and will facilitate comparison between new studies in different contexts and periods; and
- in the Brazilian context, in which the peculiarities of Brazil as an emerging country with little information transparency, weak institutions and well-known corruption scandals in companies and government highlights the relevance of analysis of characteristics of companies that adhere to the voluntary disclosure.

As an empirical contribution, better understanding of this theme in the context of emerging countries is likely to aid investors. Increased access to company information can help investors select their investment portfolios and assist in selection of their board representatives of companies for which they have participation and voting rights.

Voluntary disclosure

Sustainable economic growth is intertwined with the results of the environmental and social actions of companies. Companies should evaluate and report on their performance from a three-pronged approach: economic, social and environmental. These reports, published by the companies, can be understood as reporting the actions taken by the company to accept the responsibilities arising from the impacts of its activities on society and the environment (Vintró and Comajuncosa, 2010). Voluntary disclosure is the reporting of information with the purpose of disclosing important information beyond that required by the market (Santana *et al.*, 2015).

In addition, voluntary disclosure is considered a corporate strategy to enhance credibility and transparency and a means for a company to be assessed by stakeholders (Boulouta, 2013; Prado-Lorenzo and Garcia-Sanchez, 2010). Although adoption of disclosure is voluntary for several countries, standardization is required by the market because it facilitates understanding of information and cross-company comparison. The market requires more standardized disclosure. To respond to accountability and transparency objectives, the disclosure should be timely, relevant and reliable (Crawford and Williams, 2010). The GRI is the most widely used global standard (Boulouta, 2013; Prado-Lorenzo and Garcia-Sanchez., 2010). The GRI has a guiding role in determining what information a company should make explicit in its report. Its guidelines cover the economic, environmental and social dimensions of the impacts of the company's activity (Hapsoro and Fadhilla, 2017). This information is important to society because it reflects the company's reputation and key factors of its ability to generate long-term shareholder value (Farooq *et al.*, 2015).

In Latin America, Brazil accounts for over 50 per cent of all reports (Conceição *et al.*, 2012), playing an important role in the dissemination process (Calixto, 2013). In Brazil, companies listed in the B3 are required to disclose their annual reports, which generally correspond to information regarding financial performance. Since 2012, there is a voluntary disclosure recommendation from the B3 to indicate whether listed companies publish sustainability reports. If not, they should justify why they do not. For the Brazilian stock exchange, this initiative seeks the progressive adherence of companies to the practice of disclosing this specific type of information (B3, 2015). The report follows the GRI standard and presents information on corporate governance, social, environmental and economic aspects of the company.

Santana *et al.* (2015) report that the average social-environmental disclosure index of Brazilian companies was 65 per cent in 2012. In the sample, there were companies with 12 per cent disclosure and others with a 100 per cent index, which reveals the disparity in reports. Friaz-Aceituno *et al.* (2013) note that publication of corporate information may be used by organizations to mitigate information asymmetry and agency and political costs.

Agency theory and corporate governance

When there is information asymmetry and misalignment of interest between parties, the problems associated with managerial opportunism (in which each party acts for its own interest) are large and the costs of minimizing them (agency costs) increase (Jensen and Meckling, 1976). From perspective of the agency theory, it is justified that companies increase voluntary disclosure as a means to reduce such costs and mitigate conflicts between the parties. It is believed that companies use voluntary disclosure to balance the

decisions they make and communicate with the market (Santana *et al.*, 2015). Consequently, this proactive business action provides investors with the information they need to make informed decisions (Madhani, 2016).

The issue of corporate governance has gained greater prominence in several countries, particularly in Brazil, because of global crises that revealed financial scandals. These events highlighted the importance of governance actions such as ethics and transparency in the financial market (Martins and Rodrigues, 2005; Vieira and Mendes, 2006). Corporate governance emerged as a mechanism (Dennis and McConnell, 2003) that seeks to minimize the loss of market value arising from these conflicts (Jensen and Meckling, 1976).

A corporate governance structure is a combination of several external and internal mechanisms in the company. Mechanisms are the main control sets that function to monitor company activities and apply corrective actions when such activities are not aligned with the firm's interests (Hapsoro and Fadhilla, 2017). The internal mechanisms of corporate governance are the board and ownership structure, and external mechanisms include the market and legal system (Dennis and McConnell, 2003). The board plays a key role in the practice of corporate governance as a link between shareholders, stakeholders and the management of the company (Silveira, 2002) and an important tool to monitor the actions of managers and shareholders (Fontes Filho, 2012; Okimura *et al.*, 2007).

The alignment of the board with dissemination of the enterprises' economic, social and environmental activities is an alternative to strengthen credibility, promote transparency and engage in dialogue with stakeholders (Boulouta, 2013). The board can be considered a key part of the governance structure. This is because the board, on behalf of the shareholders, is responsible for management monitoring and the protection of shareholders' rights. Thus, its most important role is to ensure the quality and integrity of the information provided between the parties (Madhani, 2015). Monitoring and the extension of voluntary governance disclosure reduce asymmetric information (Hapsoro and Fadhilla, 2017). We have tabulated some recent research in Table I.

Unlike the US model, a characteristic of the Brazilian capital market is concentrated ownership. Thus, separation between management and control is not a rule, and the agency problem includes the relationship between majority and minority shareholders (Fraga and Silva, 2012). The central question is how to protect minority shareholders from the actions of controlling shareholders (Leal and Saito, 2003). Better governance practices include transparency in disclosure of information and equity, which refers to equal treatment, accountability and corporate responsibility practices (IBGC, 2009).

Most Brazilian publicly traded companies established a board because of legal imposition and to stand out in the market, and decision-making was carried out by the controlling shareholders or executives and approved by the board. However, since 1990, with the relevant presence of institutional investors and foreign investors, the board has become more important because of its need to maintain their representativeness (Prado and Vilela, 2012). The Brazilian Institute of Corporate Governance recommends that all duties of the board should be tied to all actions involving corporate governance practices and relationships with stakeholders (IBGC, 2009).

In Brazil, research has related disclosure with other characteristics of the company and governance but not the board of directors specifically. Cunha and Ribeiro (2008) found that voluntary disclosure is positively associated with the level of corporate governance and negatively associated with the size of the company. Murcia *et al.* (2008) found statistically significant results for disclosure and company participation in the Corporate Sustainability Index (ISE). Santana *et al.* (2015) verified a significant association between social-environmental disclosure and the adoption of good corporate governance practices in Brazilian companies.

Table I Studies on board and voluntary disclosure

Author	*Theme*	*Variables*	*Sample*	*Results*
Michelon and Parbonetti (2012)	Board and disclosure	Independent: board (independent members, duality, community members, committees and number members) Dependent: disclosure of sustainability	57 companies of the Dow Jones Sustainability Index (DJSI) for the period of 2003	There was no statistical significance for the independent member variables and duality. It was confirmed that the disclosure is positively associated with the proportion of community members
Friaz-Aceituno *et al.* (2013)	Board and disclosure	Independent: company size, independence, activity, board diversity Dependent: voluntary disclosure	568 Forbes Global List 2,000 companies for the period from2008 to 2010	Gender diversity explains the dissemination of sustainability information for the three corporate governance models: Anglo-Saxon, Germanic and Latin model
Matos and Gois (2013)	Board and disclosure	Independent: Board (independent members, foreigners, duality) Dependent: disclosure of sustainability	231 companies of the Lisbon Stock Exchange for the period of 2006 and 2010	Non-executive members proved to be more relevant in explaining disclosure practices
Herbohn *et al.* (2014)	Social performance and voluntary disclosure	Independent: social performance Dependent: release of reports	339 Australian companies for the period of 2006	The voluntary disclosure is positively related to the variables age, company size and proactive communication strategy
Amran *et al.* (2014)	Board and voluntary disclosure	Independent: independence, gender, board size, vision and organizational mission, committees and collaboration with NGOs Dependent: voluntary disclosure	113 Asian companies for the period of 2010	They did not find statistical significance
Fernandez-Feijoo *et al.* (2014)	Voluntary disclosure and women on the board	Independent: women on board Dependent: voluntary disclosure	2,400 companies for the period from 2008 to 2010	The presence of three or more women on the board is associated with higher reporting quality and greater external verification of reported information

(*continued*)

Table I

Author	*Theme*	*Variables*	*Sample*	*Results*
Santana *et al.* (2015)	Disclosure, corporate governance and performance	Independent: board, ownership concentration, performance Dependent: disclosure	114 Brazilian companies for the period of 2012-2013	Among the studied variables only the socio-environmental disclosure signals the business performance, insofar as the greater the disclosure the greater the performance
Madhani (2015)	Board and disclosure	Independent: board size and independence Dependent: disclosure	54 Indian companies for the period of 2011-2012	A greater proportion of independent directors on board did not result in better corporate governance and disclosure practices
Madhani (2016)	Corporate governance and disclosure	Independent: ownership concentration Dependent: disclosure	54 Indian companies for the period of 2011-2012	Negative but insignificant correlation with the companies' practices of corporate governance and disclosure
Katmon and Farooque (2017)	Governance mechanisms and quality disclosure	Independent: board size and audit committee size; board meetings and audit committee meetings Dependent: disclosure quality	247 companies EUA for the period of 2007-2011	Efficient mechanisms of corporate governance improve corporate social responsibility practices
Dias *et al.* (2017)	Corporate governance and disclosure in the context of a global crisis	Independent: board size, CEO duality, board independence, ownership concentration and audit committee Dependent: disclosure	48 Portuguese companies	The disclosure is positively affected by board size, duality, company size and industry
Hapsoro and Fadhilla (2017)	Corporate governance and disclosure	Independent: board size, CEO duality, board independence, ownership concentration and audit committee Dependent: disclosure	210 listed companies on the Indonesian Stock Exchange in 2014	The size of the board, the proportion of independent members and the audit committee on disclosure are positive and significant

Source: The authors

Demographic characteristics of the board: Age and gender

As a corporate governance mechanism, the board plays an important role in the context of the agency theory. It has obligations to a wide range of stakeholders, and associated disclosures stem from the decisions of the board. They are responsible for the institution and implementation of adequate mechanisms to monitor and control the firm's activities, including promoting transparency through information dissemination (Dias *et al.*, 2017; Farooq *et al.*, 2015). Research by Cormier *et al.* (2010) showed that the extent of disclosure and some board characteristics reduce information asymmetry. These results suggest that disclosure may serve as a complement to the corporate governance mechanisms in reducing stock market asymmetry.

Zahra and Pearce (1989) showed one of the first studies on the characteristics of board. Since then, other research has emerged on the characteristics, such as the age of the members (Post *et al.*, 2011), gender (Fernandez-Feijoo *et al.*, 2014), duality (chief executive officer [CEO] and president of the board) (Michelon and Parbonetti, 2012) and independent members on the board (Friaz-Aceituno *et al.*, 2013). Post *et al.* (2011) argue that ethical values vary according to demographic characteristics that can affect behavioral aspects and decision-making.

Age reflects the experience and maturity of directors (Hafsi and Turgut, 2013) and can influence the dynamics of the board, because it is related to the moral and ethical perception of an individual (Santos *et al.*, 2013). It is known that the capacity for moral reasoning develops over time (Forte, 2004). Thus, as directors mature, they are more likely to contribute to the well-being of society in general. On the other hand, younger individuals are perceived as more concerned with environmental and ethical issues as a matter of principle (Bekiroglu *et al.*, 2011).

Post *et al.* (2011) and Hafsi and Turgut (2013) included the age characteristic of the board in their studies. Their findings indicated that companies with members with greater diversity of age (Hafsi and Turgut, 2013) and with an average of 50 years presented greater concerns related to ethics. According these studies, the hypothesis will be tested:

H1. The firms that present the board members' age range of an average of 50 years are positively related to voluntary disclosure.

The diversity affects cognition, dynamics and decision-making of the board (Johnson *et al.*, 2013). It allows for new questions and different ways of thinking (Jamali *et al.*, 2007) and assists in the most complex strategic issues (Ben-Amar *et al*, 2013). Presence of women improves board effectiveness and management oversight (Benkraiem *et al*, 2017) and has a significant impact on corporate governance (Adams and Ferreira, 2009). Women are more prone to the principles of fairness and equity and are more focused on social aspects (Ellwood and Garcia-Lacalle, 2015; Ibrahim and Angelidis, 1995; Jaffee and Hyde, 2000). Boards consisting of women have significant results in influencing sustainability activities and disclosures, as suggested by Post *et al.* (2011), Friaz-Aceituno *et al.* (2013), Boulouta (2013), Fernandez-Feijoo (2014) and Harjoto *et al.* (2015). Therefore, the following hypothesis was formulated:

H2. The presence of women on the board is positively related to voluntary disclosure.

Composition of the board: independence and duality

Independent members are less focused on short-term economic performance and more concerned with a long-term vision, perceiving more value in socially responsible actions than internal members (Ibrahim *et al.*, 2003; Webb, 2004). A higher proportion of independent directors is more effective in fulfilling their monitoring role based on their greater objectivity because it is not connected to the company (Dalton *et al.*, 1998).

Studies have reported a positive relationship between voluntary disclosure and the apportioning of independent board members, supporting the view that independent members help improve the quality of disclosure and increase information transparency (Agyei-Mensah, 2016). Independent members promote a sense of objectivity in board decisions, thus ensuring that the actions of the board are in the best interests of all parties (Farooq *et al.*, 2015). When independent, board members can encourage management to disclose more information and contribute to corporate governance effectiveness to overcome agency problems with greater monitoring of opportunistic actions (Madhani, 2015). Herda *et al.* (2013) tested the independent board members and voluntary disclosure variables for a sample of the 500 largest US companies and found statistically significant results. These findings agree with those of Post *et al.* (2011) and Matos and Gois (2013) and support the following hypothesis:

H3. The number of independent members on the board is positively related to voluntary disclosure.

In contrast, the duality between the CEO and chairman of the board differentiates the treatment of stakeholders (Wang and Dewhirst, 1992) and may restrict voluntary disclosure (Tuggle *et al*, 2010). CEO*s* are more concerned with short-term actions (Walls *et al*., 2012), and duality is negatively associated with socially responsible companies (Webb, 2004). Prado-Lorenzo and Garcia-Sanchez (2010) confirmed this theory by testing the role of the board in voluntary disclosure and found that the disclosure could result in legal costs for the shareholders that outweigh any advantages.

Seamer (2014) found similar results with a sample of 60 Australian companies subject to legal intervention for failure to fulfill their disclosure responsibilities. The results show that the probability of companies with dual functions to fail in disclosure is greater than that of companies that segregate these functions. Dias *et al.* (2017) found that duality of the CEO is negatively correlated with board size, firm size and the existence of an audit or a social responsibility committee. Thus, the duality of the CEO diminishes voluntary disclosure in social responsibility in large companies. Therefore, it is intended to test the hypothesis:

H4. Duality on the board is negatively related to voluntary disclosure.

Methodological procedures

The choice of Brazil as a sample of this study is justified because the country is in the context of emerging countries, which have some peculiarities and challenging environments (Cuervo-Cazurra and Genc, 2008). One of the main features of emerging markets is institutional gaps, which are characterized by the absence or underdevelopment of certain institutions. The main sources of market failures due to these institutional gaps include the lack of information transparency, the lack of reliable and adequate information for the parties involved (consumers and investors cannot assess the quality of goods, services and investments), the presence of misguided norms and government regulations that favor political objectives over economic efficiency and the inefficiency of judicial systems (which increases uncertainty and, consequently, the transaction costs for the parties). These characteristics make transactions more expensive and riskier for investors (Khanna and Palepu, 1999; Rottig, 2016).

In environments with low transparency, weak institutions and inefficient legal systems are conducive to corrupt practices. The existence of corruption indicates a lack of respect for the rules governing economic interactions in society. This affects the reliability of the companies involved and the choices of the investors (Cuervo-Cazurra and Genc, 2008). Therefore, when the lack of transparency of information predominates, it is relevant to observe the characteristics of companies that adhere to voluntary disclosure.

In Brazil, the main legislation governing the conduct of firms regarding disclosure of results and corporate legislation is the Law 6,404/76, known as the Brazilian Corporate Law. The law regulates the basic principles that corporations should follow in relation to accounting practices, the rights and duties of the shareholders and advertising, among other subjects. For example, the law determines which financial statements are mandatory and the realization of independent audits.

In 2007, Law 11,638 amended a series of provisions related to the financial statements. The aim was to improve them in accordance with International Financial Reporting Standards. In the 2000s, B3 developed differentiated levels of corporate governance. There are three segments for companies that voluntarily adopt best governance practices – New Market, Level 1 and Level 2. Level 1 is for those whose commitments are lower; the objective is to ensure the provision of information to investors. In Level 2, in addition what is required in Level 1, companies are committed to adopting more balanced practices regarding the interests of minority shareholders. In the New Market segment, the level of demand is higher in addition to the same rules imposed on the lower levels; it comprises companies that only have shares of the ordinary type – with voting rights (B3, 2015).

Adherence to these differentiated segments is not imposed by the norms of the Brazilian financial system or laws. The B3 assumes an important role as a "regulator" of the Brazilian capital market. In this context, we opted to select companies included in the Brazilian stock exchange because they are obliged to provide reliable information to the market. The final sample consisted of 273 companies from the B3 for 2011-2014. The sample represents the population of companies in the analysis period. However, it is an unbalanced panel because some firms opened or closed capital in the analysis period. Information regarding the ownership, board and sustainability reports was obtained from the B3 website. The economic-financial data were obtained from the Economática® database. Because both databases contain the company negotiation code, the data were easily matched.

All sustainability report data were collected manually, and 575 reports were analyzed. Content analysis was conducted using the Atlas Ti software as support for identification of keywords and the distribution of categories. To measure disclosure, the content analysis allowed for analysis of the information in the published reports according to the work of Santana *et al.* (2015). Statistical techniques were used for the other data.

Dependent variable: voluntary disclosure

To measure the dependent variable, it was necessary to codify the sustainability reports by using the content analysis technique. This approach was selected because of the nature of the data, as a statistical-only approach would not extract this information. The content analysis technique is used in studies of the socioenvironmental information disclosed in reports, as in the works of Post *et al.* (2011), Michelon and Parbonetti (2012), Matos and Gois (2013), Calixto (2013), Friaz-Aceituno *et al.* (2013) and Farooque and Ahulu (2015).

First, we defined GRI indicators, which are the parameters for measuring the disclosure of reports. For this study, it was considered as the essential option, and the sectoral indicators were disregarded so that all companies had the same evaluation conditions. The G3 Guidelines were used because they cover the entire analysis period, as they were made available in 2006 and the G4 Guidelines were produced in 2013.

The next step was to use Atlas Ti® software to search for keywords corresponding to the eight indicators of GRI's "Essential G3" version and its 32 subcategories. The categories corresponding to the GRI indicators were input in Atlas Ti® into the area known as codes. The selected items were adapted to avoid penalization of companies that did not use the GRI model, according to Dias *et al.* (2017). For each category found in the report, a score of 1 was assigned, as shown in Table II.

Table II Categories of analysis		
Indicators	*Categories*	*Score*
Strategy and analysis	Letter from the president	1
Organizational profile	Company features	1
Stakeholders	Groups engaged	1
	Key topics and stakeholders concerns	
Report profile	GRI	1
	External verification	
Governance	Governance structure	1
	Codes of conduct and ethics	
Economic indicator	Financial statements	1
	Presence in the market	
	Indirect economic impacts	
Environmental indicator	Used materials	1
	Energy	
	Water	
	Biodiversity	
	Emissions	
	Effluents and residues	
	Products and services	
	Environmental fines	
Social indicator	Employment	1
	Working relationships	
	Health and safety	
	Training and education	
	Diversity and equal opportunities	
	Equal pay	
	Human rights	
	Local communities	
	Fight against corruption	
	Public policy	
	Customer health and safety	
	Labeling of products and services	
	Marketing Communications	
	Conformity	
Score		8

Notes: For each family, the arithmetic mean was calculated for the scores of each category. The maximum score of each family corresponds to 1 point. The household sum of points indicates the total score reached per report in each year of analysis
Source: The authors, based on the GRI Guidelines G3 (2006)

For the categorization, the presence of words correlated to the indicators was verified. Then, it was manually verified whether these words in the text corresponded to the meaning stipulated by the GRI. It was determined whether the information was in accordance with the guidelines of the G3, and the frequency of the words indicative of the theme was not considered. Reports that did not respond to the indicator or those that omitted it without any justification were assigned a value of 0. Previous information was repeated for the years in which the company did not disclose, and in cases of no previous report, the score was zero. Based on the total score of each company for the analysis period, a classification scale was created and is shown in Table III.

Independent variables: board features

The analyzed characteristics of the board were age, gender, independence and duality. For the age variable, the average age of each director was used. For gender, a dummy (1 or 0) was used to indicate the presence or absence of women. For independence, a dummy (1 or 0) was used to indicate the presence or absence of independent members. The duality

Table III Scores

Score	*GRI reporting standard reporting classification*	*(%) of reported indicators*
0-8	Low	0-25
8.01-16	Medium low	26-50
16.01-24	Medium high	51-75
24.01-32	High	76-100

Source: Research data

variable was identified with a dummy (0 or 1) to indicate when the CEO also plays the role of chairman of the board.

Control variables

The control variables were company size, market value, the composition of the board (CEO and board members, members elected by minority shareholders and board size) and the company's participation in the ISE. The size of the company was measured by the logarithm of their total assets. The company's market value was measured using market-to-book. The variable size of the board was measured using the total number of members. The participation of the CEO as a member of the board variable and election of members by the minority shareholders variable were identified using the indicator code of that information. The ISE variable was measured with a binary variable (1 or 0).

Moreover, based on the agency theory, we also control some ownership variables that have implication on firm's strategy. The first variable is the percentage of voting shares owned by the largest shareholder. The objective is to control the level of concentration of the ownership. We also control the shareholder identity based on the study by Thomsen and Pedersen (2000). Thus, the shareholder identity is measured through four binary variables that receive the value of 1 if the most relevant shareholder is family, institutional investor, foreign or government. Private companies are the reference. A description of the variables is presented in Table IV.

Method

The analysis method was the regression of fixed effects with panel data. The equation that represents the general model of the regression is:

$$\text{Voluntary Disclosure}_{it} = \beta_0 + \beta_1 x_1 + \ldots \text{it}\, \beta_n X_{nit} + \alpha i + \varepsilon_{it}$$

where voluntary disclosure is the level of voluntary disclosure measured by indicators of the GRI; *it* is company *i* in period *t*; B_0 is the intercept; $\beta_1 X_{1it}$ represents each independent variable (from Model 1 to Model 4); [1]$\beta_{nit} X_{nit}$ represents all the control vectors; α_i varies from one company to another and is constant over time, capturing differences in behavior between firms; and ε_{it} expresses the error variation observed in relation to the expected one. Robust coefficients were used to improve the consistency of the results and ensure the robustness of the proposed model because of the possibility of heteroscedastic data.

Results

Analysis of reports

The number of companies that published reports in the B3 increased from 21 per cent in 2011 to 37 per cent in 2014, as shown in Table V. An average of 144 companies published reports during the analysis period, with a standard deviation of 28. The number of companies that did not disclose decreased from 55 to 28 per cent, and the number of reporting companies that did not previously publish their reports increased from 24 to 35

Table IV Operational description of variables

Variables		*Measurement*	*Authors*
Independent variables			
Board	Age	Average age of members (age divided by total number of members)	Post *et al.* (2011) and Hafsi and Turgut (2013)
	Gender	Dummy (1 = female member, 0 = male member)	Silveira (2002), Post *et al.* (2011), Walls *et al.* (2012), Hafsi and Turgut (2013), Friaz-Aceituno *et al.*, 2013), Boulouta (2013) and Amran *et al.* (2014)
	Independent	Number of members entitled as independent	Post *et al.* (2011), Michelon and Parbonetti (2012), Walls *et al.* (2012), Hafsi and Turgut (2013), Matos and Gois (2013), Friaz-Aceituno *et al.*, 2013), Amran *et al.* (2014) and Farooque and Ahulu (2015), Madhani (2015), Dias *et al.* (2017) and Hapsoro and Fadhilla (2017)
	Duality	Dummy (D = 1 if CEO is the chairman of the board and 0 = otherwise)	Silveira (2002), Post *et al.* (2011), Michelon and Parbonetti (2012), Walls *et al.* (2012), Hafsi and Turgut (2013) and Matos and Gois (2013) and Dias *et al.* (2017)
Dependent variable			
Voluntary disclosure		GRI indicators (1 = present indicator and 0 = missing indicator)	Michelon and Parbonetti (2012), Matos and Gois (2013), Amran *et al.* (2014) and Farooque and Ahulu (2015), Santana *et al.*, 2015, Dias *et al.* (2017) and Hapsoro and Fadhilla (2017)
Control variables			
Market to Book		$= \frac{Total\ \ Market\ \ Value}{Total\ \ Book\ \ Value}$	Thomsen and Pedersen (2000) and Claessens *et al.* (2002)
Size of the firm		Total asset logarithm	Michelon and Parbonetti (2012), Friaz-Aceituno *et al.* (2013), Matos and Gois (2013), Boulouta (2013), Amran *et al.* (2014), Farooque and Ahulu (2015)
Ownership		Percentage of voting shares owned by the largest shareholder	Claessens, Djankov and Lang (2000), Madhani (2016) and Dias *et al.* (2017)
Shareholder identity		Receives the value 1, when the most relevant shareholder is a family, 0 otherwise Receives the value 1, when the most relevant shareholder is an institutional investor, 0 otherwise Receives the value 1, when the most relevant shareholder is foreign 0 otherwise Receives the value 1, when the most relevant shareholder is the government, 0 otherwise	Thomsen and Pedersen (2000) and Claessens *et al.* (2002)
Size of the Board		Total number of members	Silveira (2002), Post *et al.* (2011), Michelon and Parbonetti (2012), Walls *et al.* (2012), Hafsi and Turgut (2013), Amran *et al.* (2014), Dias *et al.* (2017) and Hapsoro and Fadhilla (2017)
CEO and board member		Specific code	Michelon and Parbonetti (2012)
Elect of minority		Specific code	Michelon and Parbonetti (2012)
ISE		Dummy (1 = CSI participant, 0 = non-participant	Murcia *et al.* (2008)

Source: The authors

Table V Description of responses

Responses	*2011 (%)*	*2012 (%)*	*2013 (%)*	*2014 (%)*	*Average*	*SD*
Did not manifest	55	34	29	28	161	95
Did not publish	24	31	34	35	136	74
Published	21	36	37	37	144	28

Source: B3 (2015)

per cent. In addition, 2011 was the period with the biggest difference, as it was the first year in which this information was requested from the companies by B3.

Despite the apparent growth in the period, the number of companies with reported information is low, less than half of the listed companies. This number may be higher, but some companies do not disclose whether they publish reports.

The quality of the published reports was verified. The most reported category was related to the economic indicator, followed by the social and the environmental indicators. Within each indicator, the most reported category was the economic performance. These results were expected because all listed companies have the obligation to disclose economic information including balance sheets and complete financial statements in their annual reports. These results are in agreement with the findings of Calixto (2013), who investigated the level of disclosure in Latin America and observed that economic performance was the most reported. Brazil had the highest number of companies reporting this indicator, followed by Mexico. In Argentina, Chile and Peru, this category received little emphasis.

Within the social indicator, the category referring to the local community was also highlighted. The possible explanation for this result is that companies, both those that follow the GRI guidelines and those that do not, disclose some type of social work in the local community. In the environmental indicator, the most reported categories were effluents and waste and energy and water. Similar results were found by Calixto (2013), revealing that Latin American companies generally do not provide socio-environmental information in their reports. However, Brazilian companies highlight information on environmental management, emissions and effluents. Farooque and Ahulu (2015) described similar results in Australian companies. Oliveira *et al.* (2009) found similar results in the financial performance and local community categories and differed results in the environmental categories. Their sample consisted of Brazilian companies from the New Market, which is the segment of the B3 with a maximum level of governance.

There was a gradual increase in reports that followed GRI guidelines, from 49 per cent in 2011 to 74 per cent in 2014, and in reports that received external audits, from 26 per cent in 2011 to 39 per cent in 2014. These results demonstrate the improvement in the quality of reports, in relation to the elaboration following GRI guidelines and adherence to external verification. This shows steps towards increasing the credibility of information.

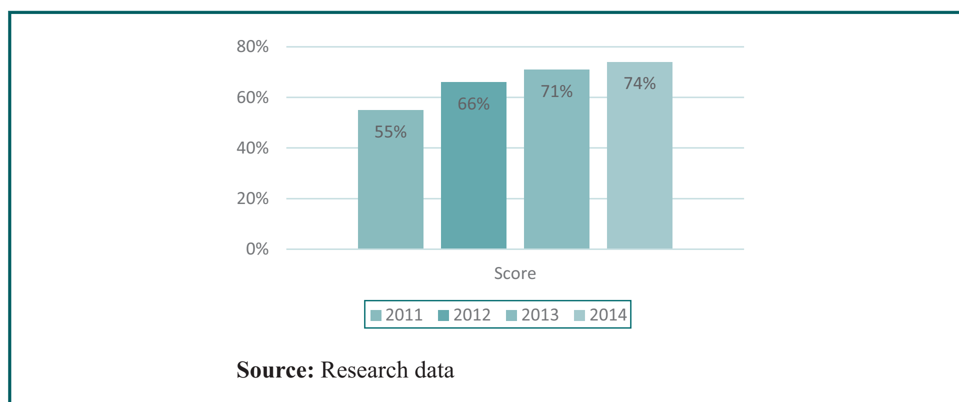
Notably, the corruption combating category had an increase of 75 per cent, followed by engaged groups, with 64 per cent, and human rights, with 59 per cent. This could be due to the implementation of Anti-Corruption Law 12,846 in Brazil in 2013, which governs the administrative liability of legal persons for the commission of acts against the public, national or foreign administrations, thus boosting the adherence of companies concerning this topic. The increase in engaged groups can be linked to an increase of interest from stakeholders to participate and consider their interests. This has been established as an initiative of companies to seek increased dialogue with and management of the most relevant stakeholders. The growth of disclosure in the human rights category can be interpreted by companies adhering to the Global Compact. These findings resemble those of Calixto (2013), except for the human rights category in which the findings received little emphasis.

For the governance structure category, there was an increase from 70 per cent in 2011 to 90 per cent in 2014. This result corroborates the findings of Colares-Oliveira *et al.* (2016), whose research was conducted in the BRICS countries (Brazil, Russia, India, China and South Africa). The authors demonstrated that Brazil had a higher number of companies that disclose their corporate governance practices.

The approximate number of corporate disclosures per year increased from 55 per cent in 2011 to 74 per cent in 2014. This reflects how complete these reports are, as shown in Figure 1.

The percentage of companies classified according to the scope of disclosure in the analysis period was 49 per cent, a high degree of disclosure, to 12 per cent. The 22 and

Figure 1 Scoring chart



Source: Research data

17 per cent correspond to medium-high and medium-low levels, respectively. Most of the companies that publish and fully comply with the guidelines of the GRI are from the energy, beauty and cosmetics and oil and mining sectors. These companies had the highest score for the analysis period. These results corroborate with the findings of Conceição *et al.* (2012). A probable justification for the results of Farooque and Ahulu (2015) and Alonso-Almeida *et al.* (2015) is that these sectors are considered "dirty industry," and "cleaning" the company image requires this type of certification. Especially in Latin America, where a significant number of countries have considerable reserves of energy resources and the company's interaction with the environment becomes increasingly important for future generations. In addition, voluntary reports provide the opportunity for companies to promote their initiatives and defend their actions or infractions, which would not be possible through notifications.

Descriptive variables

Statistical tests were conducted to test whether board characteristics influence voluntary disclosure. Table VI shows the descriptive statistics of the variables. The average level of disclosure based on the GRI guidelines was 1.99, and the standard deviation was 3.03. This shows that in 1,515 observations, the average level of disclosure reached 25 per cent of the maximum score of eight points, confirming the previous analysis in which the levels of

Table VI Descriptive statistics

Variables	*(1)* *N*	*(2)* *Mean*	*(3)* *SD*	*(4)* *Minimum*	*(5)* *Maximum*
Voluntary disclosure	1,516	1.988	3.027	0	8
ISE	1,515	0.0858	0.280	0	1
Board_CEO	1,516	4.954	3.012	0	18
Gender	1,516	0.558	0.890	0	7
Age	1,516	55.47	7.681	0	85
Board_Total	1,516	6.611	2.858	0	24
Independent	1,516	1.190	1.575	0	14
Elect	1,516	0.894	0.882	0	6
Duality	1,516	0.230	0.463	0	1
Marekt-to-book	1,115	2.365	7.684	0	224.1
Size	1,482	12.99	3.153	0	20.15
Number of firms	285	285	285	285	285

Source: Research data

disclosure increased gradually but are still below expected. Regarding the gender variable, the presence of women in the board does not occur frequently. The average indicates the existence of companies in which the boards are composed of only men. The average age of the directors was 55 years, ranging from 34 to 85 years. Duality does not affect all companies; the average occurrence is 0.23. The mean of the independence variable indicates that the proportion independent members in the observations was 1.18.

In the correlation matrix shown in Table VII, there was no strong association between the variables, so a regression was performed.

Table VIII represents the regression model generated from the equation, which contains the indicators for fixed effects of panel data analysis. Notably, the models were estimated with robust standard errors clustered at the firm level. Although theory suggests that the age of the individual influences their moral perception and defines their ethical and social standards (Post *et al.*, 2011, Santos *et al.*, 2013), the results of this study were not statistically significant. Therefore, *H1* was refuted. The results differ from the findings of Post *et al.* (2011) and Hafsi and Turgut (2013), who found significant results in their samples.

For gender, the results of the coefficient are statistically significant at the 10 per cent level, so *H2* was accepted; the magnitude of the coefficient is 0.26-0.27. These results corroborate the findings of Post *et al.* (2011), Friaz-Aceituno *et al.* (2013), Fernandez-Feijoo *et al.* (2014), Boulouta (2013) and Harjoto *et al.* (2015) and reinforce the view of authors such as Ibrahim and Angelidis (1995) that women are more oriented in social aspects than men, which results in greater efficiency in board decision-making, especially in issues related to social responsibility. Ellwood and Garcia-Lacalle (2015) argue that female profiles are associated with empathy traits, care and concern for others. Thus, their actions are more geared to the community, and a woman's presence on a board has positive benefits in relation to social actions.

The independent board variable did not present statistical significance, so *H3* was rejected. The findings agree with those of Michelon and Parbonetti (2012) and Amran *et al.* (2014), who found no statistical significance in their results. The results differ from results that indicate that the presence of independent members on the board is positively related to sustainability, as suggested by Post *et al.* (2011), Matos and Gois (2013) and Herda *et al.* (2013).

For the duality variable, the results were significant at the 5 per cent level in Model 4 and at the 10 per cent in Model 5, so *H4* was accepted; the coefficient ranged from −0.34 to −0.36. These results corroborate those of Prado-Lorenzo and Garcia-Sanchez (2010) and Seamer (2014). In the agency theory, the personal interests of the CEO can outweigh the interests of the company and its stakeholders, reflecting the low level of interest in the disclosure of their activities and commitment to the corporate social responsibility activities. When the CEO is also chairman of the board, their power increases, and they can set the board's agenda, influence the information provided to the other members and restrict voluntary disclosure (Tuggle *et al.*, 2010). In this case, duality is negatively associated with socially responsible companies (Webb, 2004).

Regarding control variables, only the government as the majority shareholder was significant. All specifications presented negative results, and the impact is a reduction of at least 0.6.

To understand the implications of firm size, the firms in the sample were divided into two groups: small\medium- and large-sized firms. Using the ln total assets (size), the first subsample was formed by companies until the second size quartile. The second is composed of large-sized firms, so the variable size is bigger than the second quartile. Because the number of the firms and observations decrease in these specifications, these regressions were run with bootstraps (400 repetitions and 10,101 seeds). The results are presented in Table IX.

Considering only the small- and medium-sized firms, no variables have effects on the dependent variable. However, the results hold in the subsample with big firms, and the gender variable is significant at the 5 per cent level and the coefficient is stronger, 0.51.

Table VII Correlation matrix

Variables	*GRI*	*Gender*	*Age*	*Independent*	*Duality*	*Lassets*	*Board and director*	*ISE*
GRI	1							
Gender	−0.0316	1						
Age	−0.0467	0.00476	1					
Independent	0.161***	−0.119***	−0.0829**	1				
Duality	−0.213***	0.0284	0.0751*	−0.186***	1			
Lassets	0.476***	−0.0525	−0.0210	0.275***	−0.243***	1		
Board and director	−0.0253	0.0718*	0.0434	−0.125***	0.403***	−0.00854	1	
ISE	0.435***	0.00485	0.0859**	0.200***	−0.134***	0.437***	−0.00904	1
Elected	0.233***	0.164***	−0.00780	0.0114	−0.0808*	0.333***	0.133***	0.232***
Board.Total	0.306***	0.194***	−0.103**	0.390***	−0.225***	0.498***	0.0941**	0.279***
Ownership	0.0195	−0.0180	−0.0750*	−0.135***	0.129***	−0.108***	0.101**	−0.0868**
Family	−0.105***	0.0605	0.0803*	0.0712*	−0.0341	−0.0432	−0.00494	−0.0804*
Inst.Investor	0.0785*	−0.0404	−0.0608	0.0783*	−0.0434	0.0183	−0.0171	0.0101
Foreign	0.0883**	−0.0436	−0.0601	0.167***	−0.0470	0.112***	0.0000262	−0.00309
Government	0.185***	0.0862**	−0.0972**	−0.0646*	−0.0757*	0.238***	−0.0643*	0.201***
Market.to.Book	−0.00791	−0.0348	−0.0652*	−0.0211	−0.0413	−0.0780*	−0.0702*	−0.00380

Notes: $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$
Source: Research data

(*continued*)

Table VII

Variables	*Elected*	*Board total*	*Ownership*	*Family*	*Inst. Investor*	*Foreign*	*Government*	*Market.to.book*
GRI								
Gender								
Age								
Independent								
Duality								
Lassets								
Board and director								
ISE								
Elected	1							
Board.Total	0.642***	1						
Ownership	0.0261	−0.0983**	1					
Family	−0.00236	−0.0587	0.0297	1				
Inst.Investor	0.0519	0.112***	−0.0783*	−0.156***	1			
Foreign	0.0161	0.141***	−0.118***	−0.173***	−0.207***	1		
Government	0.0576	0.112***	0.144***	−0.125***	−0.149***	−0.167***	1	
Market.to.Book	−0.0145	−0.0390	0.0645*	0.00122	−0.0333	0.0780*	−0.0000715	1

Table VIII Regression

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5
Gender	0.266* (0.143)				0.274* (0.143)
Age		0.016 (0.015)			0.013 (0.014)
Independent			0.074 (0.060)		0.069 (0.060)
Duality				−0.360** (0.170)	−0.332* (0.172)
Size (ln)	0.066 (0.107)	0.063 (0.108)	0.058 (0.107)	0.062 (0.107)	0.081 (0.108)
Market to book	−0.003 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.002 (0.003)
Board and CEO	−0.162 (0.122)	−0.173 (0.116)	−0.166 (0.117)	−0.102 (0.116)	−0.072 (0.117)
ISE	0.322 (0.369)	0.217 (0.367)	0.178 (0.347)	0.250 (0.361)	0.255 (0.351)
Elected	−0.017 (0.066)	−0.015 (0.066)	−0.010 (0.067)	−0.021 (0.066)	−0.012 (0.065)
Board total	0.021 (0.049)	0.043 (0.049)	0.016 (0.053)	0.046 (0.049)	−0.006 (0.053)
Ownership	−0.003 (0.002)	−0.003 (0.002)	−0.003 (0.002)	−0.003 (0.002)	−0.003 (0.002)
Family	−0.241 (0.163)	−0.229 (0.165)	−0.222 (0.165)	−0.247 (0.164)	−0.257 (0.164)
Institutional investor	−0.150 (0.126)	−0.135 (0.124)	−0.145 (0.126)	−0.141 (0.126)	−0.149 (0.127)
Foreign	−0.205 (0.150)	−0.210 (0.150)	−0.208 (0.150)	−0.179 (0.147)	−0.184 (0.149)
Government	−0.665** (0.267)	−0.663** (0.271)	−0.666** (0.271)	−0.647** (0.271)	−0.659** (0.266)
Market to book	−0.003 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.003 (0.003)	−0.002 (0.003)
Observations	997	997	997	997	997
R^2 [2]	0.041	0.033	0.033	0.038	0.052
Number of firms	273	273	273	273	273

Notes: SE clustered by Firm $^{*}p < 0.1$; $^{**}p < 0.05$

Table IX Implications of the size of the firm

Variables	(1) Small/medium-sized firms	(2) Large-sized firms
Gender	0.176 (0.208)	0.513** (0.251)
Age	−0.001 (0.014)	0.054 (0.034)
Independent	0.076 (0.124)	0.091 (0.082)
Duality	−0.233 (0.202)	−0.651* (0.340)
Size (ln)	0.000 (0.123)	0.068 (0.289)
Board and CEO	0.129 (0.186)	−0.228 (0.185)
Elected	−0.046 (0.095)	0.026 (0.081)
Board total	0.039 (0.088)	−0.045 (0.076)
Ownership	−0.004 (0.003)	−0.002 (0.004)
Family	0.040 (0.090)	−0.491 (0.345)
Institutional investor	−0.013 (0.158)	−0.311 (0.201)
Foreign	−0.173 (0.144)	−0.210 (0.254)
Government	−1.077 (1.016)	−0.544** (0.277)
Market to book	−0.001 (0.032)	−0.080 (0.132)
ISE		0.134 (0.573)
Observations	431	566
R^2	0.079	0.085
Number of firms	131	157

Notes: SE clustered by Firm $^{*}p < 0.1$; $^{**}p < 0.05$

The significance level of Duality is smaller (p-value < 10 per cent), but the decrease for these firms was 0.65.

Enhancing financial reporting: challenges and opportunities in corporate governance statements

Analysis of the reports issued by the companies generates some challenges in codification and interpretation. Beattie and Thomson (2007) noted that the absence of a common

structure makes it difficult to interpret and compare disclosures. Transparency in choices, specifically in the categorization of information and its meanings, becomes important. When shared, these facts would aid in the interpretation and comparison of findings across studies. Content analysis has been used in many studies mainly to quantify the number of disclosures. The challenges of this analysis include choices of the researcher to measure frequency versus presence/absence of words, the codification of the unit as word or phrase and the choice of manual or electronic forms of analysis. Each choice has its own specifics. For example, the researcher can check for the presence or absence of words in the report. In contrast, choosing the frequency of words measures the volume of certain categories in relation to the text. Choosing to encode the unit of analysis by words or phrase implies greater subjectivity of one in relation to another. In choosing the electronic option, the researcher will gain time but may have problems in the interpretation of words with multiple meanings that entails the use of synonyms.

In the present study, content analysis was performed in relation to the presence or absence of previously categorized terms. The search was made using words whose meanings were interpreted in the sentences. For the analysis, the electronic analysis was used as a support tool, and its results were interpreted and checked manually. The use of Atlas Ti software brings some challenges and opportunities. The software is intended to assist the researcher in organizing, recording and monitoring records, contributing to the reliability of the study. It is a widely used technique in social research, although there are questions regarding its validity compared to manual analysis. Comparing the two approaches (manual and electronic), Rosenberg *et al.* (1990) observed more accurate performance of analysis by using software than manual analysis. The software is recommended for working with large amounts of textual data organized in different files (Queiroz and Cavalcante, 2011). The time and cost benefits of software vary by researcher and the characteristics of their research. Atlas was used in the present work to support the analysis of the reports. Its use was justified because of the large number of reports. If these reports were analyzed manually, they would be more exposed to the error and a lengthy analysis.

The software is an excellent "tool" that assists the researcher's analysis; the biggest challenge is that Atlas Ti does not do any analysis and, depending on the type of research, it should be accompanied by manual analysis to avoid misinterpretation. For example, there were cases in which the key word appeared but the context did not correspond to the proper interpretation. A report was found with the words "health and safety," but there was no content relating to that topic. In these cases, Atlas Ti categorized the word, but the occurrence in the manual analysis was not attributed the punctuation.

The advantages of using Atlas include agility and the capability to record notes and comments, reporting, memos, editing and data layouts in Excel tables. Another important factor is that the software allows for the realization of networks in which the researcher can visualize all the connections within and between the categories. Table X summarizes the advantages and disadvantages of using this tool.

Table X Atlas Ti

Benefits	*Disadvantages*
Agility in search	The researcher needs to enter the information
Registration on the computer	Manually entering categories
Better job overview	Manually check if categories have been properly matched
Organization of ideas	Check that the words correspond to the stipulated meaning
Organization of work as a whole	
Better visualization of the relationships between the analyzed categories	

Source: The authors

The main elements of Atlas Ti software are primary documents (P-Docs), quotations (Quotes), codes (Codes) and notes (Memos). These elements give rise to the webs (analysis tools that can be used to illustrate the relationships analyzed by the researcher). Atlas Ti software has a Word Count feature to conduct textual analysis. This feature allows for the software to tabulate all the words contained in the documents in an alphabetical order and with the frequency number of these words that can be transposed to a spreadsheet in Excel (Queiroz and Cavalcante, 2011). For Beattie and Thomson (2007), the choice of analysis unit directly impacts the volume and nature of identified disclosures. It must be transparent to facilitate valid comparisons.

In summary, it is an excellent tool to aid in the codification and separation of key words into categories. It streamlines the search for keywords and their registration and allows for better visualization of the relationships between the selected words so that the results can be immediately inserted into the work. However, software is an assistive tool, and the researcher must enter the information and establish relationships. This is an advantage because it allows for the researcher to be at the forefront of their research. However, any error on the researcher's part will be apparent in the search results, because the software will not be able to detect it. Manual scanning makes the job slower, but it is necessary to ensure that the data are correct. Depending on their preferences, the purpose and type of research, the researcher must determine if the use of this tool will facilitate their work or if manual analysis is sufficient.

Conclusions

The aim of this study was to describe the voluntary disclosure of companies listed in the B3 in Brazil and analyze which board characteristics influence this disclosure. Voluntary reports provide an opportunity for companies to show their initiatives and defend their actions.

It was observed that although increasing, the number of companies with reported information is still low. Among the companies that disclose, there was an improvement in the quality of the reports, both in relation to elaboration following GRI guidelines and in adherence to external verification. This is important within the Brazilian context characterized by a lack of transparency and corrupt environments, because it demonstrates an attempt by companies to increase the credibility of their information.

Notably, companies whose reports follow the GRI and have higher scores are from the energy, oil, mining and beauty and cosmetics sectors. Among these, we highlight a company involved in recent corruption scandals. This corroborates with the conclusions of Farooque and Ahulu (2015) and Alonso-Almeida *et al.* (2015) that voluntary disclosure offers the opportunity for companies to show their initiatives and defend their actions or infractions, which would not be possible through notifications. It may be an attempt by companies to "clean" their image to society.

Regarding the board and voluntary disclosure, the results indicated that *H1* and *H3* showed no statistical significance. In this sample and institutional context, both the age and the number of independent members of the board do not appear to affect the disclosure of information. *H2* was accepted, reinforcing the theory that the presence of women on boards promotes sustainable activities. Our results provide empirical evidence that gender diversity results in an increase in voluntary disclosure of information. Companies with women on the board are scarce, and it is recommended that this should be further explored so that generalizations can be inferred.

The results for *H4* show that the duality of roles for members of the board and chairman is negatively related to the level of voluntary disclosure. This confirms the theory that CEOs as board presidents can have little interest in outreach efforts to stakeholders. Moreover, these

results appear to affect large companies more. For example, for large companies, the level of significance of gender is 5 per cent and the effect of both variables is strong.

Based on these results, the objectives were achieved, and this research is expected to complement research in the areas of sustainability, strategy and finance and contribute to the business practice of assisting shareholders in choosing the composition of their boards of directors. Regarding the challenges in analysis of the reports, the use of software facilitates the search for keywords and their inscription and allow for better visualization of the relations between selected words. However, software is an assistive tool that does not preclude manual checking to ensure that the data are adequate for analysis. It is up to the researcher to determine if the use of the tool will facilitate their work or if manual analysis is sufficient. It is important for researchers to make their choices clear and present them in detail to facilitate interpretation and comparability with other research, as recommended by Beattie and Thomson (2007).

Because of its complexity, the theme could not be reviewed in its entirety, and there are some limitations: the sample consists of public Brazilian companies, only the characteristics provided by the companies were verified and we analyzed only the available reports from B3. There is a considerable number of companies that did not manifest themselves, a fact that decreases the data set compared to the total. Moreover, as we collected the data manually to build the dependent variable, we highlight the impossibility of test different measures of it.

It is recommended that future research should include private companies in the sample, other resources for data collection such as interviews with directors and members of board and analysis of other forms of company disclosure in addition to the reports, such as websites and advertisements, to collect additional information. It is suggested to include other variables such as the formal education of board members, the company's presence in the B3 and its international operations. In addition, other governance mechanisms such as the ownership structure could be used for comparison with other theories such as the institutional theory.

Notes

1. We also test the Model 5 with all independents variables.
2. The R-squared obtained varies from 0.033 to 0.052. All the models are in the reduced form, it is important to emphasize that the R-squared must not be considered essential for measure the goodness-of-fit as well as criterion for choice the regressors. All independent and control variables were choose based on the theory (Wooldridge, 2012, p. 192).

References

Adams, C.A. (2002), "Internal organizational factors influencing corporate social and ethical reporting: beyond current theorising", *Accounting, Auditing and Accountability Journal*, Vol. 15 No. 2, pp. 223-250.

Adams, R.B. and Ferreira, D. (2009), "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, Vol. 94 No. 2, pp. 291-309.

Agyei-Mensah, B.K. (2016), "Internal control information disclosure and corporate governance: evidence from an emerging market", *Corporate Governance*, Vol. 16 No. 1, pp. 79-95.

Alonso-Almeida, M.M., Marimon, F. and Llach, J. (2015), "Difusión de las memorias de sostenibilidad en Latinoamérica: análisis territorial y sectorial", *Estudios Gerenciales*, Vol. 31, pp. 139-149.

Amran, A., Lee, S. P. and Devi, S.S. (2014), "The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality", *Business Strategy and the Environment*, Vol. 23, pp. 217-235.

B3 (2015), Sustainability, available at: www.bmfbovespa.com.br/pt-br/a-bmfbovespa/sustentabilidade.aspx?idioma=pt-br (accessed July 2015).

Beattie, V. and Thomson, S.J. (2007), “Lifting the lid on the use of content analysis to investigate intellectual Capital”, *Accounting Forum*, Vol. 31 No. 2, pp. 129-163.

Bekiroglu, C., Erdil, O. and Alpkan, L. (2011), “Variables perceived by managers as antecedents to environmental”, *Management: An Empirical Study in the Turkish Construction Sector. Journal of Global Strategic Management*, Vol. 1 No. 5, pp. 157-175.

Ben-Amar, W., Francoeur, C., Hafsi, T. and Labelle, R. (2013), “What makes better boards? A closer look at diversity and ownership”, *British Journal of Management*, Vol. 24, pp. 85-101.

Benkraiem, R., Hamrouni, A., Lakhal, F. and Toumi, N. (2017), “Board independence, gender diversity and CEO compensation”, *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 5.

Boulouta, I. (2013), “Hidden connections: the link between gender board diversity and corporate social performance”, *Journal Business Ethics*, Vol. 113 No. 2, pp. 185-197.

Calixto, L.A. (2013), “Disclosure of sustainability reports in Latin America: a comparative study”, *Revista de Administração*, São Paulo, Vol. 48 No. 4, pp. 828-842.

Claessens, S., Djankov, S. and Lang, L.H.P. (2000), “The separation of ownership and control in East Asian corporations”, *Journal of Financial Economics*, Vol. 58 Nos 1/2, pp. 81-112.

Claessens, S., Djankov, S., Fan, J.H.P. and Lang, L.H.P. (2002), “Disentangling the incentive and entrenchment effects of large shareholdings”, *The Journal of Finance*, Vol. 57 No. 6, pp. 2741-2771.

Colares-Oliveira, M., Ceglia, D., Ceglia, D., Antonio Filho, F. and Antonio Filho, F. (2016), “Analysis of corporate governance disclosure: a study through BRICS countries”, *Corporate Governance: The International Journal of Business in Society*, Vol. 16 No. 5, pp. 923-940.

Conceição, S.H., Dourado, G.B. and Silva, S.F. (2012), “Global Reporting Initiative (GRI) - an exploratory study of the practice of evidence in corporate sustainability in Latin America”, *Revista de Gestão, Finanças e Contabilidade*, ISSN 2238-5320, UNEB, Salvador, Vol. 2 No. 3, pp. 17-38.

Cormier, D., Ledoux, M.J., Magnan, M. and Aerts, W. (2010), “Corporate governance and information asymmetry between managers and investors”, *Corporate Governance: The International Journal of Business in Society*, Vol. 10 No. 5, pp. 574-589.

Crawford, E.P. and Williams, C. (2010), “Should corporate social reporting be voluntary or mandatory? Evidence from the banking sector in France and the United States”, *Corporate Governance: The international journal of business in society*, Vol. 10 No. 4, pp. 512-526.

Cuervo-Cazurra, Q. and Genc, M. (2008), “Transforming disadvantages into advantages: developing-country MNEs in the least developed countries”, *Journal of International Business Studies*, Vol. 39 No. 6, pp. 957-979.

Cunha, J.V.A. and Ribeiro, M. (2008), “Voluntary disclosure of information of social nature: a study in Brazilian companies”, *Magazine -Electronics Administration*, RAUSP-e, São Paulo, Vol. 1, No. 1, pp. 1-23.

Dalton, D., Daily, C., Ellstrand, A. and Johnson, J. (1998), “Meta-analytic reviews of composition board, leadership structure, and financial performance”, *Strategic Management Journal*, Vol. 19 No. 3, pp. 269-290.

Dennis, D.K. and McConnell, J.J. (2003), “International corporate governance”, *Journal of Financial and Quantitative Analysis*, Vol. 38 No. 1, March.

Dias, A., Rodrigues, L.L. and Craig, R. (2017), “Corporate governance effects on social responsibility disclosures”, *AABFJ*, Vol. 11 No. 2.

Ellwood, S. and Garcia-Lacalle, J. (2015), “The influence of presence and position of women on the boards of directors: the case of NHS foundation trusts”, *Journal Business Ethics*, Vol. 130, pp. 69-84.

Farooq, S.U., Ullah, S. and Kimani, D. (2015), “The relationship between corporate governance and corporate social responsibility (CSR) disclosure: evidence from the USA”, *Abasyn University Journal of Social Sciences*, Vol. 8 No. 2.

Farooque, A.O. and Ahulu, H. (2015), “Environmental reporting in the UK, Australia, South African and multinational companies”, *The Journal of Developing Areas Special Issue on Sydney Conference Held in April 2015*, Vol. 49 No. 6.

Fernandez-Feijoo, B., Romer, S. and Ruiz-Blanco, S. (2014), “Women on boards: do they affect sustainability reporting?”, *Corporate Social Responsibility and Environmental Management*, Vol. 21 No. 6, pp. 351-364.

Fontes Filho, J.B. (2012), "The roles of the Board and its paradoxes", In: *Corporate Governance: Discussions on the Councils in Companies in Brazil*, IBGC, São Paulo, Ed Paul, S.

Forte, A. (2004), "Antecedents of managers' moral reasoning", *Journal of Business Ethics*, Vol. 51 No. 4, pp. 315-347.

Fraga, J. and Silva, V. (2012), "Diversidade no conselho de administração e desempenho da empresa: uma investigação empírica", *Brazilian Business Review*, Vol. 9, pp. 58-80.

Friaz-Aceituno, J.V., Rodriguez-Ariza, L. and Garcia-Sanchez, M.I. (2013), "The role of the board in the dissemination of integrated corporate social reporting", *Corporate Social Responsibility and Environmental Management*, Vol. 20 No. 4, pp. 219-233.

G3. (2006), "Guidelines for Sustainability Global Reporting Initiative Reporting", available at: www.globalreporting.org (accessed of 10 2015).

Hafsi, T. and Turgut, G. (2013), "Boardroom diversity and its effect on social performance: conceptualization and empirical evidence", *Journal Business Ethics*, Vol. 112 No. 3, pp. 463-479.

Hapsoro, D. and Fadhilla, A.F. (2017), "Relationship analysis of corporate governance, corporate social responsibility disclosure and economic consequences: empirical study of Indonesia Capital market", *The South East Asian Journal of Management*, Vol. 11 No. 2, pp. 164-182.

Harjoto, M., Laksmana, I. and Lee, R. (2015), "Board diversity social and corporate responsibility", *Journal Business Ethics*, Vol. 132 No. 4, pp. 641-660.

Herbohn, K., Walker, J. and Loo, H. (2014), "Corporate social responsibility: the link between sustainability disclosure and sustainability performance", *ABACUS*, Vol. 50 No. 4.

Herda, D.N., Taylor, M.E. and Winterbotham, G. (2013*), "*Board The Effect of Independence on the Sustainability Reporting Practices of Large US Firms", *Issues in Social and Environmental Accounting*, Vol. 6 Nos 3/4, pp. 25-44.

IBGC (2009), "Brazilian Institute of corporate governance", *Code of Best Corporate Governance Practices*, 4th ed., Brazilian Institute of Corporate Governance, IBGC, São Paulo, SP.

Ibrahim, N.A. and Angelidis, J.P. (1995), "The corporate social responsiveness orientation of board members: are there differences between inside and outside directors?", *Journal of Business Ethics*, Vol. 14 No. 5, pp. 405-410.

Ibrahim, N.A., Howard, S.D. and Angelidis, J.P. (2003), "Board members in the service industry: an empirical examination of the relationship between corporate social responsibility orientation and directorial type", *Journal of Business Ethics*, Vol. 47, pp. 393-401.

Jaffee, S. and Hyde, S.J. (2000), "Gender differences in moral orientation: the metanalysis", *Psychological Bulletin*, Vol. 126 No. 5, pp. 703-726.

Jamali, D., Safieddine, A. and Daouk, M. (2007), "Corporate governance and women: an empirical study of top and Middle managers women in the Lebanese banking sector", *Corporate Governance: The International Journal of Business in Society*, Vol. 7 No. 5, pp. 574-585.

Jensen, M. and Meckling, W. (1976), "Theory of the firm: managerial behavior, agency costs, and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

Johnson, G.S., Schnatterly, K. and Hill, A.D. (2013), "Composition board beyond independence: capital, human Capital, and demographics", *Journal of Management*, Vol. 39 No. 1, p. 232.

Khanna, T. and Palepu, K. (1999), "The right way to restructure conglomerates in ermerging markets", *Harvard Business Review*, Vol. 77 No. 4, pp. 125-134.

Katmon, N. and Al Farooque, O. (2017), "exploring the impact of internal corporate governance on the relation between disclosure quality and earnings management in the UK listed companies", *Journal of Business Ethics*, Vol. 142 No. 2, pp. 345-367.

Leal, R.P.C. and Saito, R. (2003), "Finanças corporativas no Brasil", *RAE eletrônica*, Vol. 2 No. 2, pp. 1-15.

Macedo, F.F.R.R., Moura, G. D., Dadostini, L. and Hein, N. (2013), "Voluntary environmental disclosure and corporate governance practices of listed companies in the BM&Fbovespa", *Contabilidade, Gestão e Governança*, Vol. 16 No. 1, pp. 3-18.

Madhani, P.M. (2015), "The impact of board characteristics on corporate governance and disclosure practices of firms listed in Indian stock exchange", *The IUP Journal of Corporate Governance*, Vol. 14 No. 4, pp. 14-46.

Madhani, P.M. (2016), “The relationship between ownership types and corporate governance and disclosure practices of firms listed on Indian stock exchange”, *The IUP Journal of Corporate Governance*, Vol. 15 No. 1, pp. 7-29.

Martins, H.C. and Rodrigues, S.B. (2005), “Attributes and roles of the board of directors of Brazilian companies”, *Journal of Electronic Administration Special Edition Minas Gerais*, Vol. 45.

Matos, M.F. and Gois, C.G. (2013), “Features of the board of directors and disclosure of CSR – study of the companies in the stock Lisbon values”, *Journal of Management, Finance and Accounting. UNEB, Salvador*, Vol. 3 No. 2, pp. 3-23.

Michelon, G. and Parbonetti, A. (2012), “The effect of corporate governance on sustainability disclosure”, *Journal Management Governance*, Vol. 16 No. 3, pp. 477-509.

Murcia, F.D., Rover, S., Santos, A. and Borba, J.A. (2008), “Determinants of corporate environmental reporting in Brazil: the Case of industries sensitive to the environment”, In: *North American Congress on Social and Environmental Accounting Research (CSEAR)*, CSEAR, Montreal.

Okimura, R.T., Silveira, A.M. and Rocha, K.C. (2007), “Ownership structure and corporate performance in Brazil”, Contemporary Administration Magazine, São Paulo, Vol. 1 No. 1.

Oliveira, M.C., De Luca, M.M.M., Ponte, V.M.R. and Pontes, Jr, J.E. (2009), “Disclosure of social information by Brazilian companies according to the ONU corporate social responsibility indicators”, *Revista Contabilidade & Finanças*, USP, São Paulo, Vol. 20 No. 51, pp. 116-132.

Post, C., Rahman, N. and Rubow, E. (2011), “Green governance: boards of directors’ composition and environmental corporate social responsibility”, *Business Society*, Vol. 50 No. 1, pp. 189-223.

Prado, R.N. and Vilela, R. (2012), “Apontamentos sobre a evolução do Conselho de Administração no Brasil a partir dos anos 1980”, In: *Governança Corporativa: Discussões Sobre os Conselhos em Empresas no Brasil*, Filho, J.R.F. and Leal, R. P. C (Coord.), IBGC, São Paulo, Ed Saint Paul, 2012.

Prado-Lorenzo, J.M. and Garcia-Sanchez, M.I. (2010), “The role of the board of directors in disseminating relevant information on greenhouse gases”, *Journal of Business Ethics*, Vol. 97 No. 3, pp. 391-424.

Queiroz, T.L.D.A. and Cavalcante, P.S. (2011), “As contribuições do software Atlas Ti para a análise de relatos de experiência escritos”, In *X Congresso Nacional de Educação, EDUCERE*, Pontifica Universidade Católica do Paraná, Curitiba, pp. 11776-11787.

Rosenberg, S.D., Schnurr, P.P. and Oxman, T.E. (1990), “Content analysis: a comparison of manual and computerized systems”, *Journal of Personality Assessment*, Vol. 54 Nos 1/2, pp. 298-310.

Rottig, D. (2016), “Instituitons and emerging markets: effects and implications for multinational corporations”, *International Journal of Emerging Markets*, Vol. 11 No. 1.

Santana, L.M., Góis, A.D., De Luca, M.M.M. and de Vasconcelos, A.C. (2015), “Relationship between socio-environmental disclosure, corporate governance practices and business performance”, *Revista Organizações em Contexto-online*, Vol. 11 No. 21, pp. 49-72.

Santos, R.A., Guevara, A.J.H. and Amorim, M.C.S. (2013), “Corruption in private organizations: analysis of moral perception according to gender, age and level of education”, *Journal of Management*, Vol. 48 No. 1, pp. 53-66, jan. fev.mar.

Seamer, M. (2014), “Does effective corporate facilitate continuous disclosure market?”, *Australian Accounting Review*, Vol. 69 No. 24.

Silveira, A.D. (2002), “Corporate governance, performance and enterprise value in Brazil”, Dissertation submitted to the Department of Management Faculty of Economics, Administration and Accounting of Universidadede São Paulo as a partial requirement to obtain a master’s degree, USP, São Paulo.

Thomsen, S. and Pedersen, T. (2000), “Ownership structure and economic performance in the largest European companies”, *Strategic Management Journal*, Vol. 21, pp. 689-705.

Tuggle, C.S., Schnatterly, K. and Johnson, R.A. (2010), “Attention patterns in the boardroom: how board composition and processes affect discussion of entrepreneurial issues”, *Academy of Management Journal*, Vol. 53 No. 3, pp. 550-571.

Vieira, S.P. and Mendes, A.G.S.T. (2006), “Corporate governance: an analysis of its evolution and impact on the Brazilian Capital market”, *Organizations in context*, Vol. 2 No. 3, June.

Vintró, C. and Comajuncosa, J. (2010), “Corporate social responsibility in the mining industry: criteria and indicators”, *Dyna*, Vol. 77 No. 161, pp. 31-41.

Walls, J.L., Perrone, P. and Phan, P.H. (2012), “Corporate governance and environmental performance: is there really a link?”, *Strategic Management Journal*, Vol. 33 No. 8, pp. 885-913.

Wang, J. and Dewhirst, H.D. (1992), “Boards of directors and stakeholder orientation”, *Journal of Business Ethics*, Vol. 11, pp. 115-123.

Webb, E. (2004), “An examination of socially responsible firms’ board structure”, *Journal of Management and Governance*, Vol. 8 No. 3, pp. 255-227.

Wooldridge, J. M. (2002), *Econometric Analysis of Cross Section and Panel Data*, The MIT Press, Cambridge, MA.

Zahra, S. and Pearce, J. (1989), “Boards of directors and corporate financial performance: a review and integrative model”, *Journal of Management*, Vol. 15 No. 2, pp. 291-334.

Further reading

Silveira, A.D., Barros, L.A.B.C. and Fama, R. (2008), “Atributos corporate and ownership concentration in Brazil”, Magazine Electronic Administration, April-June.

Corresponding author

Giovana Bueno can be contacted at: giovanabueno2014@gmail.com

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com