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RESEARCH ARTICLE

WOMEN'S PARTICIPATION IN AUDIT COMMITTEES: A STRATEGIC FACTOR IN ESG DISCLOSURE

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ABSTRACT

Objective: This research aims to verify whether there is an influence on the participation of women (gender diversity), on the audit committee, on the disclosure of ESG information of regulated and unregulated companies in [B] [3] in the period from 2013 to 2022. ***Theoretical Framework*:** The study is based on the analysis of female participation in audit committees as a strategic factor in the disclosure of ESG information based on disclosure and stakeholder theories. ***Methodology:*** This study is classified as descriptive, quantitative, documentary, involving descriptive statistics and an econometric model with panel data to achieve the objectives raised, having as population the companies listed on [B]3 SA, composed of 294 companies, totaling 653 observations. ***Results:*** The results showed that of the companies listed in the sample, only 21.49% of the companies have a committee made up of men and women, while the remaining 78.51% are made up of men only. ***Practical and Social Implications of the Research:*** This study offers significant contributions related to the role of women in ESG disclosures, from the perspective of Agency Theory, by companies that are concerned about reputational and image risks and meeting investor demands regarding sustainability, inclusion and diversity issues. ***Contributions*:** The research contributes to the understanding of how female representation on audit committees is a qualitative aspect that, if associated with a longer term of office, can contribute to the occurrence and expansion of ESG disclosures in these institutions.

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INTRODUCTION

The minority participation of women in relation to men in the corporate governance structure of companies, as well as in senior positions, is the focus of several national and international studies (Birindelli et al. 2018; Coluccia et al. 2019; Qureshi et al. 2020; Buallay et al. 2020; Prudêncio et al. 2021). The results obtained for the most distinct scenarios indicate that, regardless of developed or developing economies, the representation of women in the governance structure is substantially lower than that of men (Brugni et al. 2018; Silveira, & Donaggio, 2019; Prudêncio et al. 2021). However, increased participation of women tends to positively impact companies' organizational performance, as it provides a greater diversity of ideas and individual characteristics that favor the decision-making process (Ntim & Soobaroyen, 2013; Coluccia et al. 2019; Wasiuzzaman & Mohammad, 2020). Although empirically there is no consensus on the effective improvement in performance and social and environmental disclosure (ESG) as a consequence of the presence of women in corporate decision-making processes, previous studies indicate that gender diversity in companies favors the achievement of these objectives (Silveira, & Donaggio, 2019; Albitar et al. 2020; Qureshi et al. 2020).

Some studies have hypothesized that specific configurations of governance mechanisms could create greater environmental awareness in organizations. Gender diversity in committees (governance or audit), the presence of independent members, the existence of an environmental committee, the size of the board, the independence of members, the results and size of organizations are mechanisms tested in the literature as characteristics that can favor the social performance of companies as well as environmental performance (Cucari, Esposito De Falco & Orlando, 2017; Bravo et al., 2019). One of these characteristics is the gender diversity of board members. Regarding diversity and gender, some of the literature has focused on understanding the impact of female participation on boards of directors. Studies indicate that boards with greater gender diversity, due to the presence of women through the intersectionality that is present in this study, because when we talk about the large category of "women", it is possible to find different contexts and challenges, such as that of "black women", for example, in the governance mechanism and on committees, are more independent (Carter, Simkins & Simpson, 2003; Adams & Ferreira, 2009; Srinidhi, Gul & Tsui, 2011). Another aspect linked to the female gender, being more independent, confers the benefit of monitoring the company (Bebchuk & Weisbach, 2010), in addition to being more risk averse (Gul, Hutchinson

& Lai, 2013; Levi, Li & Zhang, 2014). However, it is worth highlighting that these benefits provided by female members can be enhanced when the board of directors is composed of both male and female members in a balanced manner. This is because the diversity of personal characteristics and ideas implies more assertive choices regarding the decision-making process, which directly interferes in increasing the effectiveness of problem-solving (Westphal & Milton, 2000, Daily & Dalton, 2003). The acronym ESG only appeared in 2005, in the report "Who Cares Wins", the result of an initiative led by the United Nations (UN), which proposed guidelines and recommendations on how to address environmental, social and governance issues in asset management, securities brokerage services and research related to the topic; however, the theoretical basis and conceptual justification of most ESG studies, academic or otherwise, were based on Corporate Social Responsibility (CSR) or Business Social Responsibility (CSR), according to several studies (e.g. Drucker, 2017; Chiudini, Cunha, & Marques, 2018; Ponte et al. 2019; Garcia et al. 2021). However, CSR gave way to Social and Environmental Responsibility (SER). Although the concept of ESG is not new, in recent years it has gained considerable prominence worldwide. Such factors are essential for innovation, productivity and market growth strategies, as well as for risk management, for the value of companies and mainly for organizational responsibilities (Lourenço & Branco, 2013; Garcia, Mendes-Da-Silva, & Orsato, 2017).

Another point to be observed in the field of corporate sustainability is the relationship between the company's true ESG performance and what it discloses through reports, known as disclosure. Whether on explanatory factors, whether on ESG performance (Lourenço & Branco, 2013; Garcia, Mendes-Da-Silva, & Orsato, 2017; Miralles-Quirós, Miralles-Quirós, & Gonçalves, 2018), or on the level of ESG disclosure as a whole (MCBRAYER, 2018). There are also studies focused only on the environmental dimension of disclosure, whether mandatory (Barth et al. 1997; Chen, Cho, & Patten, 2014; Leal, Costa, Oliveira, & Rebouças, 2018) or voluntary (Cormier & Magnan, 2015; Cormier, Magnan, & Velthoven, 2005; Kim, Ryou, & Yang, 2020). However, some studies show a gap between what is disclosed and what is actually implemented in both social and environmental areas and in corporate governance policies. This practice is known as greenwashing and aims to deceive stakeholders into believing that the company adopts a firm stance on socio-environmental issues, when in reality it lacks ethical and sustainable practices (Fatemi; Glaum; Kaiser, 2018; Eliwa; Aboud; Saleh, 2019). Given the context presented, the following research question arises as a guiding point: What is the influence of women's participation (gender diversity) in the audit committee on the disclosure of ESG information of regulated and non-regulated companies listed on [B]3? The general objective is to verify whether there is an influence of women's participation (gender diversity) in the audit committee on the disclosure of ESG information of regulated and non-regulated companies on [B]3 in the period from 2013 to 2022. Specifically, a search will be conducted through bibliometric examinations, regression analysis and a discussion of Jensen and Meckling's Agency Theory (1976), which places auditing as one of the main monitoring tools to regulate conflicts of interest and reduce agency costs. Structurally, corporate governance constitutes a system of relationships through which companies are managed and monitored, and it is possible to perceive that there are internal and external governance mechanisms for monitoring management (Nascimento; Reginato, 2010; Rossetti; Andrade, 2014). Among the various applicable internal mechanisms, the Audit Committee (CA) stands out, recommended by different codes of good corporate governance practices around the world, guiding its constitution and maintenance with the purpose of improving the governance process (Beuren et al. 2013; Furuta; Santos, 2010). Thus, the audit committee consists of an internal corporate governance mechanism that assists in controlling the quality of financial statements and internal controls, aiming at the reliability and integrity of information, to protect the organization and all stakeholders (IBGC, 2017).

It is possible to verify existing research on the gender diversity of members of the board of directors or management council, with the argument that a board with "diverse" members can make better decisions due to the different points of view and contributions that each member can make to the business decisions of organizations, in how women differ from men, in terms of communication skills, personality, commitment and diligence, generating an improvement in the quality of discussions and an increase in the capacity, whether of the board of directors or committees, to provide better supervision of company reports (IBGC, 2017). A study conducted by the International Labor Organization (ILO, 2019) with 13,000 companies in 70 countries, in which 451 Brazilian companies participated, concluded that only a quarter of Brazilian companies have a woman in leadership. The research shows that 69% of business structures have policies for equality, diversity, and inclusion in the workplace. However, the study shows a slow evolution in the rate of women's presence in the Brazilian labor market: in the early 1990s, 43% of Brazilian women worked in companies, rising to 53% in 2018; in other words, in the last three decades, the growth was only 10 percentage points. Also, according to this study, more than 71% of companies reported that initiatives on diversity and gender equality improved their results. Of the companies that reported profit growth associated with gender diversity, 29% stated that they had an increase in profits between 10% and 15%, and 26.2% reported growth between 5% and 10%.

This argument is generally based on agency theory, as the board plays a significant role in resolving agency issues and ensuring a balance between shareholder interests and management (Coluccia, et al. 2019). However, there is little (minimal) research investigating the influence of other spheres of corporate governance, such as the fiscal council, the statutory board or the audit committee. Furthermore, the presence of women can reinforce mechanisms of engagement with stakeholders and increase the credibility of the various corporate reports, since they tend to adopt a relationship of trust more than men, thus contributing to the reduction of information asymmetry (Manetti; Toccafondi, 2012; Gul; Hutchinson; Lai, 2013).

Theoretical Basis: The explanatory basis of the agency theory adopted in this research is based on the classic approach of Jensen and Meckling (1976), considered seminal in governance studies, despite the relevance of previous works. After this work, numerous empirical studies and new theoretical models were developed that go back to historical reasons, involving mismanagement scandals in large multinational companies. An example of this is the Cadbury Committee report, prepared in 1992, in the United Kingdom, dealing with the causes of several events related to the opportunistic management of companies. One of the fundamental assumptions of the agency theory is that there is a conflicting relationship between the objectives of the parties that make up a set of contracts. In short, the agency theory refers to the relationship between principal and agent, in which one-person (principal) hires another (agent) to perform something that involves the delegation of decision-making and authority. This gives rise to the agency relationship, defined as: "[...] a contract under which one or more persons (the principal(s)) employ another person (agent) to perform on their behalf a service that involves the delegation of some decision-making power to the agent" (Jensen & Meckling, 1976).

The concept of an Audit Committee (AC) emerged in 1940, initially suggested by the New York Stock Exchange (NYSE). The initial idea then received support from organizations such as the American Institute of Certified Public Accountants (AICPA) and the Securities and Exchange Commission (SEC), which promoted several discussions on the subject. However, it was only in 1977 that the NYSE adopted a policy for Audit Committees; and its consolidation took place in the Sarbanes-Oxley Act, in 2002, causing consequences for all foreign companies listed on American stock exchanges. The Audit Committee performs some principal functions, such as hiring the external auditor and advisors, monitoring internal complaints, and supervising internal audit activities (Caskey, Nagar, & Petacchi, 2010). Regarding the function of selecting and hiring independent auditors, Abbott and Parker (2000) found that companies with active and independent Audit Committees are more likely to employ an auditor who is an industry specialist, that is, they demand higher quality of this service. In turn, Alkilani, Hussin, and Salim (2019) understand that the Audit Committee is designed to effectively improve the quality of financial reports and, thus, reduce the prospect of companies obtaining modified audit opinions; and seeks to assist in controlling the reliability and veracity of financial information, supporting the board of directors and providing greater security to shareholders (Colares; Alves; Miranda, 2020; Zhou; Owusu-Ansah; Maggina, 2018).

The Brazilian Institute of Corporate Governance (IBGC, 2017) asserts that the audit committee was created to oversee the process of preparing financial statements. As corporate governance and its mechanisms gained greater visibility and effectiveness, other roles were assigned to this body, such as monitoring risk management processes and internal controls, as well as meeting demands related to internal auditing and independent auditing. Even so, it is recommended that there be gender diversity on the company's Board of Directors to provide a plurality of ideas, thus valuing the characteristics of members with richer debates and, therefore, better decision-making (Martins & Júnior, 2020). Despite evidence of benefits arising from individual, ethical, and social differences in the participation of women in the governance structure of entities (Santos, Santos, & Leite Filho, 2019; Silveira, & Donaggio, 2019; Martins & Junior, 2020; Prudêncio et al., 2021). Previous studies generally indicate that greater gender diversity on boards is related to better corporate social responsibility indicators, better ethical and social reputation, greater compliance with laws and regulations, and better quality of reports disclosed (Abbott & Parker, 2000; Abbott, Parker, Peters, & Raghunandan, 2003; Peleias, Segreti, & Costa, 2009; Furuta & Santos, 2010; Cunha, Pletsch, & Silva, 2015; Camargo & Flach, 2016; Silveira, & Donaggio, 2019). The central idea is that women can provide different points of view in discussions, which would improve decision-making processes, including ESG decisions and disclosure strategies. Therefore, more women (diversity) in the governance structure would increase the quality of the decision-making process and this would potentially have a positive impact on performance (Qureshi et al., 2020; Bektur & Arzova, 2020). Many studies have shown the effective improvement in socio-environmental performance and disclosure as a consequence of the presence of women in decision-making processes and the premise that this gender diversity favors the achievement of ESG goals seems to be unanimous (Boulouta, 2013; Garcia, Mendes & Orsato, 2017; Birindelli et al. 2018; Bravo & Reguera-Alvarado, 2018, Coluccia, Fontana & Solimene, 2018; Buallay & Al-Ajmi, 2020; Qureshi et al. 2020; Albitar et al. 2020). Lião et al. (2015) found a positive relationship between the percentage of women on boards of directors and environmental disclosure. Ben-Amar et al. (2017) investigated 541 Canadian companies between 2008 and 2014 and found that female board participation was positively related to voluntary disclosure of climate change information. Bravo and Reguera-Alvarado (2018) analyzed the link between female representation on audit committees and specific ESG disclosure attributes of 93 Spanish companies from 2012 to 2015. Using panel data, the authors found a positive association between gender diversity and the quality of ESG disclosure.

Based on the above and considering the role of the audit committee in monitoring risk management processes and internal controls, supervising and enhancing the quality of the information reported, it is expected that the degree of cooperation between the audit committee and the external auditor will be strengthened by the participation of women in the audit committee, since women appear to be more conservative and cautious, averse to risk. From this perspective, the following research hypotheses were raised:
H1: There is a positive association between the number of board members and the level of disclosure of ESG information.

H2: There is a positive relationship between the percentage of women in the governance structure and the ESG disclosure of Brazilian companies.

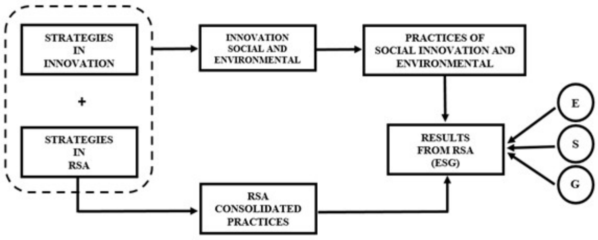
H3: There is a positive association between the proportion of independent members on the Board of Directors and the level of disclosure on ESG.

H4: There is a positive association between Differentiated Levels of Corporate Governance and the level of disclosure on ESG.

METHODOLOGY

This study is classified as descriptive, quantitative, and documentary, involving descriptive statistics and an econometric model with panel data to achieve the objectives raised, having as its population the companies listed on [B]3 SA, composed of 294 companies, totaling 653 observations . For the sample, companies with a constituted audit committee and data available throughout the research period (2013 to 2022) were selected, excluding holding companies, given their differentiated characteristics in relation to the others, thus totaling 81 companies (see Table 1).

In view of these preliminary aspects, the analytical framework and methodological approach of this study are structured in two moments, summarized in Figure 1 and briefly.



Source: Own elaboration, 2023.

Figure 1. ***Framework*** **of the methodological path**

It is worth noting that these moments did not occur in a linear manner, as in this research, but involved a long process of "interobjectification" as described in the studies by Cefai (2003) and Zask (2004), where they state that the experience is then considered on two levels: at the level of observed reality, in which the actors and their environment are perceived from the perspective of interaction, and at the level of the empirical procedure itself, which configures (through the investigation) an interobjectification of knowledge between researcher(s) and investigated(s). However, due to the object of study proposed in this research, the path of RSA strategies was used, where the partitions of women in the audit committees are intrinsically related to the Social (S), Governance (G) and Environmental (E) axes. The initial sample of this research included 81 companies from various sectors of the economy, listed in [B]3 that have audit committees as per Table 1, and that disclosed RSA at some point/year within the period proposed for this study in view of CVM Instruction No. 509, published in November 2011, which establishes rules regarding the implementation of statutory audit committees in organizations. To compose this sample, financial companies were excluded, a procedure also adopted by Ahmed and Henry (2012), due to the particularities in terms of structure of these organizations, and also because, since 2004, through Resolution No. 3,198, these companies comply with the standards issued by Bacen, therefore having different accounting standards and regulatory requirements.

Analyzing Table 1, it can be seen that the industrial goods, cyclical consumption and public utility sectors are the most representative in the study sample, with a share of 25.9%, 21.0% and 19.8%, respectively. The other sectors have less representation in relation to the total sample, ranging from 3% to 9.9%. In order to study the issue of disclosure of Social and Environmental Responsibility (SER) of companies that have audit committees, the content analysis technique was initially used to investigate what information of an environmental nature is disclosed by these companies. A set of metrics composed of nine categories and 39 subcategories was used (GRI Report, 2013; Sousa et al. 2014). Considering that this study aims to address the issue of environmental disclosure that is related to the RSA of companies that have audit committees, the content analysis technique was initially used to investigate which environmental information is disclosed by companies listed in [B]3. Nevertheless, a set of metrics adapted from the work of Sousa et al. (2014) and the GRI Report (2013) was used, consisting of nine categories: Environmental Policies (5), Environmental Management (3), Impacts of Products and Processes on the Environment (3), Mitigation, repair and compensation for damage to the Environment (7), Energy (3), Environmental Financial Information (6), Environmental Education and Research (2), Carbon Credit Market (4) and Other Environmental Information (6), thus totaling 39 subcategories, as shown in Table 2. The survey data refer to annual information and were extracted from publicly available and digital secondary sources. RSA data were collected from the Thomas Reuters database. Financial data were extracted from the Economática® database (to collect companies' economic and financial data) and data on the composition of the Audit Committee were collected from item 12.7/8 of the Reference Form (FR) on the websites of [B]3 and the Brazilian Securities and Exchange Commission (CVM). As companies disclosed an item, the value 1 (one) was associated; for items not disclosed, 0 (zero) was associated, thus constituting a dummy variable. Subsequently, the ratio between the total number of items disclosed by the companies and the total number of items that corresponded to the metric was calculated. In Table 3, it can be seen that the variable that corresponds to the disclosure of environmental information is the variable of interest in the research; gender diversity is an explanatory variable, the focus of this study, together with other characteristics of the committee, size and independence; the other variables are characterized as control variables, which, according to Appuhami and Tashakor (2017), are considered characteristics of organizations, which can influence the disclosure of information by a company (Hackston; Milne, 1996; Halme; Huse, 1997; Gray et al. 2001; Brammer; Pavelin, 2006; Murcia; Santos, 2009; Lu; Abeysekera, 2014; Chandok; Singh, 2017; Cormier; Fomezgutierrez, 2018).

The dependent variable of this study is socio-environmental disclosure, whose proxy used is the ESG score, which represents the market's judgment on the environmental, social and governance disclosure presented by companies (Coluccia; Fontana Solimene, 2018). Disclosure scores measure the company's transparency and range from 1 to 100, so that a higher score indicates more disclosure and transparency of information (Wasiuzzaman; Mohammad, 2020). The methodology used to analyze the research hypothesis of this study was tested using the multiple linear regression model with panel data. The model is presented below:

$$DRSA = \beta 0 + \beta 1PMCA + \beta 2TCAUDIT + \beta 3ICAUDIT + \beta 4TAM + \beta 5GAF + \beta 6ROA + \beta 7NDGC + \varepsilon \quad (1)$$

Where:

ERSA = Evidence of Socio-Environmental Report (RSA).
PMCA = Women's Participation in the Audit Committee.
TCAUDIT = Audit Committee Size.
CAUDIT = Independence of the Audit Committee.
TAM = Company Size.
GAF = Financial Leverage.
ROA = Return on Assets (ROA); and
NDGC = Differentiated Levels of Corporate Governance.

RESULTS

To analyze the relationship between the characteristics of women's participation in the Audit Committee in companies listed on [B] 3, a descriptive data analysis was initially carried out, followed by an econometric analysis, in order to test the research hypothesis and verify the influence of the independent and control variables to identify their profile and behavior in

Table 1. Number of companies in the sample by sector

Economic Sector	Sector Total	Representativeness	Quantity with CA	Representativeness
Industrial Goods	62	21.1%	21	7.1%
Basic Materials	31	10.5%	6	2.0%
Non-cyclical consumption	24	8.2%	8	2.7%
Cyclical Consumption	76	25.9%	17	5.8%
Communications	4	1.4%	4	1.4%
Information Technology	7	2.4%	2	0.7%
Health	14	4.8%	3	1.0%
Oil, Gas and Biofuels	9	3.1%	4	1.4%
Public Utility	67	22.8%	16	5.4%
Total companies	294	100%	81	100%

Source: Data extracted from [B] [3] (2023).

Table 2. Environmental information categories

Categories	Order	Subcategories
Environmental Policies	1	Statement of current policies, practices, actions
	2	Establishing environmental goals and objectives
	3	Statements indicating that the company is (or is not) in compliance *with* environmental laws, licenses, standards and agencies
	4	Environmental partnerships
	5	Awards and participation in environmental indexes
Environmental Management	1	Environmental Management
	2	Quality certifications
	3	Environmental Audit
Impacts of Products and Processes on the Environment	1	Waste of residues
	2	Packaging processes
	3	Impact on the environment (leaks, spills, land used, etc.)
Mitigation, repair and compensation for damage to the Environment	1	Recycling and reuse
	2	Development of ecological products
	3	Efficient use and reuse of water
	4	Repairs to environmental damage
	5	Mention of environmental investments
	6	Environmental safety measures
	7	Environmental indicators
Energy	1	Conservation and/or more efficient use in operations
	2	Use of wasted materials in energy production
	3	Development or exploration of new energy sources
Environmental Financial Information	1	Value of Environmental Investments
	2	Amount of environmental costs and/or expenses
	3	Environmental Liabilities
	4	Accounting practices for environmental items
	5	Environmental Insurance
	6	Intangible environmental assets
Environmental Education and Research	1	Environmental Education (internally and/or community)
	2	Research related to the environment
Carbon Credits Market	1	Clean Development Mechanism Projects
	2	Carbon Credits
	3	Greenhouse Gas (GHG) Emissions
	4	Reduced Emissions Certificates (CER)
Other Environmental Information	1	Expectations and continuity of environmental actions
	2	Forest management and/or reforestation
	3	Biodiversity Conservation
	4	*Landscaping* and gardening
	5	Environmental Relationship with *stakeholders*
	6	Number of complaints and claims related to environmental impacts registered, processed and resolved through a formal mechanism

the 81 companies studied. In this table, it can be observed that the standard deviation of the variables TCAUDIT (1.25498) and TAM (1.39019) presented a greater dispersion of data around the mean, unlike the variable ROA (0.11402), which showed less dispersion. It can also be seen that the variables TCAUDIT and TAM presented the highest means, 3.52610 and 16.41174, respectively. In relation to the dependent variable, ERSA, the companies that have an audit committee evidenced a minimum of 13.31% of the items listed and investigated; the maximum was 89.91%. The identification of the characteristics of the audit committees of the 81 companies in the sample took into account some quantitative aspects related to their members, such as the total number, the number of independent members, and the number of members with training in Accounting, Finance, and Auditing.

Thus, it was possible to verify in Table 4 that only 21.49% of the companies have a committee made up of men and women, while the remaining 78.51% are made up of only men and, at most, two women in 3% of the companies. It is worth noting that the presence of two women was observed in the audit committee of CCR SA, from the transportation sector, regulated by ANTT, and in that of Paranapanema SA, from the metallurgy and steel sector, which is not regulated. This result coincides with that found by Thiruvadi and Huang (2011) regarding the 299 North American companies listed in the S&P Small Cap 600 in the 2003 fiscal year. Thiruvadi and Huang (2011) also found that at most two women participated in the audit committees of 2.3% of the companies, a result similar to that found in this study.

Table 3. Variables used in the research

Variable	Type	Operationalization	Data source	Theoretical basis
DRSA	Dependent	*Disclosure* of Socio-Environmental Report	Thomas Reuters®	Cucari *et al.* (2017); Garcia *et al.* (2017); Birindelli *et al.* (2018); Coluccia, *et al.* (2018); Buallay *et al.* (2020); Qureshi *et al.* (2020); Wasiuzzaman and Mohammad (2020).
PMCA	Independent	Women's Participation	Form of Reference Item 12.5-6	Coluccia, *et al.* (2018); Velte (2018); Buallay *et al.* (2020); Colares, Alves and Miranda (2020); Qureshi *et al.* (2020); Wasiuzzaman and Mohammad (2020).
				Conclusion
Variable	**Type**	**Operationalization**	**Data source**	**Theoretical basis**
TCAUDIT	Independent	Audit Committee Size	Reference Form – Item 12.7	Cucari *et al.* (2017); Birindelli *et al.* (2018); Bravo and Reguera-Alvarado (2018); Qureshi *et al.* (2020); Wasiuzzaman and Mohammad (2020).
ICAUDIT	Independent	Independence of the Audit Committee	Reference Form – Item 12.7	Carcello *et al.* (2006); Cunha *et al.* (2014); Klein (2002); Xie, Davidson III and Dadalt (2003); Yang and Krishnan (2005).
TAM	Control	Company Size	Reference Form – Item 12.7	Cunha *et al.* (2014); Silva *et al.* (2014); Sun, Lan and Liu (2014); Xie, Davidson III and Dadalt (2003) Yang and Krishnan (2005).
GAF	Control	Financial Leverage	Economática®	Sohn (2016) and Francis, Birindelli *et al.* (2018); Bektur and Arzova (2020); Wasiuzzaman and Mohammad (2020); Manta *et al.* (2021).
ROA	Control	Return on Assets (ROA)	Economática®	Cornett (2016); Birindelli *et al.* (2018); Sierra-García *et al.* (2019); Bektur and Arzova (2020); Wasiuzzaman and Mohammad (2020); Manta *et al.* (2021).
NDGC	Control	Differentiated Levels of Governance Corporate	Economática®	Birindelli *et al.* (2018); Bravo and Reguera-Alvarado (2018); Buallay *et al.* (2020); Coluccia, *et al.* (2018); Qureshi *et al.* (2020); Wasiuzzaman and Mohammad (2020); Buallay *et al.* (2020); Manta *et al.* (2021).

Source: Research data (2023).

Table 4. Variables used in the research

Variable	Average	Standard Deviation	Minimum	Maximum
ERSA	0.68954	0.17155	0.13313	0.89910
PMCA	0.08173	0.18173	0.00000	1,00000
TCAUDIT	3.52610	1,25498	1,00000	7,00000
ICAUDIT	0.25297	0.29035	0.00000	1,00000
TAM	16.41174	1,39019	13.32959	21.41110
GAF	0.64135	0.20157	0.14570	1.63973
ROA	0.02783	0.11402	-1.28728	0.37582
NDGC	0.83700	0.41102	0.00000	1,00000
Observations made 81				

Source: Research data (2023).

Table 5. Composition of the audit committee

Standard	Composition	Qualification
Resolution No. 3,198 of the Central Bank of Brazil (2004)	3 members minimum. They cannot be linked or related to any of the directors or any member who exercises the management function of the team involved in the audit or member of the fiscal council. They cannot receive any other remuneration from the institution that is not related to their work with the audit committee;	At least one of the members must have proven knowledge in the areas of accounting and auditing.
		Conclusion
Standard	**Composition**	**Qualification**
CVM Instruction No. 509 (2011)	At least 3 members, appointed by the board of directors. Not having been a director or employee of the company, its subsidiary or affiliate in the last 5 years, nor having any degree of kinship with such people to meet the independence requirement. The prerequisite is that many members are independent.	At least one of the members must have experience in corporate accounting matters. Understanding of internal controls and procedures and corporate accounting.
CNSP Resolution No. 321 (2015)	3 members minimum. Cannot be an employee, director of the institution, its subsidiaries or affiliates, or member of the fiscal council or responsible for independent auditing, nor have any connection or family ties with any of the above mentioned. Not receive any type of remuneration other than that related to your role as a member of COAUD. Independence requirements for audit committee participants.	At least one of the members must have knowledge of accounting and accounting auditing in the markets in which it operates. Experience in preparing, analyzing or evaluating financial statements. Knowledge of internal controls.
Law No. 13303/16	Minimum 3 members and maximum 5, most of them independent. The remuneration of the members of the Statutory Audit Committee will be set by the General Assembly, and they must not receive any other type of remuneration from the state-owned company, other than that related to the function. Not being or having been the holder of an effective public office.	At least 1 (one) of the members of the Statutory Audit Committee must have recognized experience in corporate accounting matters.
IBGC Best Practices Guide (2017)	Preferably formed by members of the Board of Directors, in the event of this advisor accumulating functions, he/she should not be part of the committee's committee. They must not receive remuneration for any activity other than those related to the audit committee. Assumption of independence of audit committee members	Have solid knowledge in the areas of accounting, auditing and finance, as well as experience in corporate risk management

Source: Research data (2023).

Table 6. Result of the regression model and applied tests

Variable	Coefficient	Error	P-value
β0	-0.01681	0.15972	0.77677
PMCA	0.05608	0.04445	0.21496
TCAUDIT	0.00197	0.00789	0.83388
ICAUDIT	0.04611	0.02077	0.02150
TAM	0.03624	0.01007	0.00000
GAF	0.02679	0.05722	0.66462
ROA	-0.10623	0.04590	0.02181
NDGC	-0.02980	0.03167	0.36035
Observations made 81			

Source: Research data (2023).

Other studies have focused on analyzing the impact of the presence of women on the board. So much so that Carter et al. (2003) demonstrated that companies with the highest market values are associated with the presence of women on the board. In addition, gender diversity provides cultural diversity, a characteristic that helps in problem-solving. Adams and Ferreira (2009) complement this discussion by demonstrating that gender diversity in organizations in emerging markets is a factor that implies an increase in the level of efficiency in monitoring managers, making the board more relevant to reducing the information asymmetry of agents external to the company. Still on the subject, Fan et al. (2019) found that gender diversity alone is not enough, but that there must be a minimum number of women on the board of directors. This understanding occurs because only when the board is composed of at least three women is there a decrease in practices related to earnings management. The findings of Fan et al. (2019) advance the discussion because they indicate that it is not only important to have a certain level of gender diversity to mitigate opportunistic practices by managers, but that the gender with the lowest proportion of members must have at least three members.

Below is a presentation of the composition of the Audit Committee and the qualifications of the body's members in accordance with some Brazilian standards. For the econometric analysis, the Chow (p-value = 0.0000), Hausman (p-value = 0.1356) and Breusch-Pagan (p-value = 0.0000) tests were used. Based on the values obtained, it was found that the best panel for the data is the random effects model. Next, the Wooldridge (p-value = 0.0000) and Breusch-Pagan-Godfrey (p- value = 0.0000) tests were performed to determine whether the model presented autocorrelation and heteroscedasticity problems, in that order. With the rejection of the hypotheses of absence of such problems, it was observed that the model is both autocorrelated and heteroscedastic, and, as a way to correct them, the regression model was performed on panel data, with random effects and robustness, the results of which are shown in Table 6. Regarding the PMCA variable, it was not significant (p-value = 0.21496), two proxies with the potential to influence the entities' ESG disclosure reports were considered: the percentage of women's participation in relation to the total number of members, and the minimum representation of three women (Cucari et al. 2017; Ben-Amar; Chang; Mcilkenny, 2017; Birindelli et al. 2018; Bravo; Reguera-Alvarado, 2018; Martins; Ventura, 2020). The larger the size of the committee, the greater the variety of knowledge addressed by its members, thus making the performance of the committee's activities more effective, according to the studies by Yang and Krishman (2005); Boulouta (2013); Cucari et al. (2017); Birindelli et al. (2018); Bravo and Reguera-Alvarado (2018); Qureshi et al. (2020); Wasiuzzaman and Mohammad (2020). It is possible to verify that, according to Table 5, the TCAUDIT variable was not significant (p-value = 0.83388) considering the 5% significance level, thus contradicting the findings of Manfroi and Cunha (2014) and Appuhami and tashakor (2017); Bravo and Reguera-Alvarado (2018); Qureshi et al. (2020). This result demonstrates that the size of the audit committee does not significantly influence the disclosure of environmental information, because the fact that the company discloses information related to environmental aspects is not driven by the number of members that make up its audit committee. This is also because there may be the possibility of an audit committee considered relatively small and, even so, having inherent actions for dealing with environmental issues and, consequently, their disclosure.

The result of the ICAUDIT variable was significant (p-value = 0.02150), considering the significance level of 5%, which demonstrates that the independence of the committee interferes in the environmental disclosure of the companies studied, a result similar to the studies by Carcello et al. (2006); Cunha et al. (2014); Madi, Ishak and Manaf (2014), who found a positive relationship between the variables. This can be explained, according to Allegrini and Greco (2011), because independent members ensure the quality and transparency of the reports, implying the reduction of information asymmetry. In addition, Lein (2002); Xie, Davidson III and Dadalt (2003); Yang and Krishnan (2005) Hanifa and Cooke (2005) argue that members external to the organization are seen as a monitoring mechanism, given that they ensure that companies are acting in a way that protects the interests of shareholders and other stakeholders, thus ensuring that they behave in a socially responsible manner. Regarding the variable SIZE, it can be observed that it is also statistically significant (p-value = 0.000), which clearly shows that the size of companies has a direct relationship with environmental disclosure. It can be observed that this result converges with the studies by Liu and Anbumozhi (2009), Huang and Kung (2010), Monteiro and Aibar-Guzmán (2010), Burgwal and Vieira (2014) and Chandok and Singh (2017) and Manta et al. , 2021, which show a positive relationship between the variables, assuming that, as large companies continually compete in a global economy with a significant number of stakeholders in their reports, they begin to disclose more environmental information, in response to the pressures they suffer, and to legitimize themselves in the environment in which they operate (Chandok; Singh, 2017; Lu; Taylor, 2018; Prates et al. 2019; Qureshi et al. 2020). Regarding the GAF variable, it was found that it did not present statistical significance (p-value = 0.66462); this proves that the fact that companies are in debt has no influence on the disclosure of environmental information, which is in line with studies carried out by Huang and Kung (2010), Giannarakis, Konteos and Sariannidis

(2014) and Chandok and Singh (2017). Creditors of a company, with greater financial leverage, become more influential and begin to demand greater corporate integrity and greater disclosure of information from these companies (Roberts, 1992; Huang; Kung, 2010). In the ROA variable, it can be observed that it presented statistical significance (p-value = 0.02181), at a level of 5% it is considered negative, because the relationship between organizational performance and the disclosure of environmental information is negative. This is because companies with higher performance tend to disclose less information, and the opposite is also true. A company's financial performance also has a positive effect on voluntary disclosure in response to social demands (Helfaya; Moussa, 2017; Birindelli et al. 2018; Bektur; Arzova, 2020; Wasiuzzaman; Mohammad, 2020; Manta et al. 2021). It is natural to think that companies with better performance are more likely to invest economic resources in socio-environmental engagement activities and to get involved in the preparation and disclosure of voluntary information (Coluccia; Fontana; Solimene, 2018).

The NDGC variable did not obtain a statistically significant result (p-value = 0.36035), thus demonstrating that even if a company is included in one of the differentiated levels of corporate governance, it does not imply that it will disclose a significant number of environmental information in relation to those that are not classified in any of the levels of [B]3. It is justified considering that the disclosure of information can be used as a tool capable of reducing the political and social pressures faced by organizations, as stated by Patten (1991), being used as a channel through which they respond to the needs of their stakeholders regardless of whether or not they are part of one of the governance segments (Rivièregiordano; Giordano-Spring; Cho, 2018). In view of the above, several studies, both international and national, have investigated the correlation between the characteristics of the audit committee and other variables related to earnings management and/or disclosure. In a sample of 692 North American companies listed on the S&P 500 in 1992 and 1993, Klein (2002) examined whether the characteristics of the audit committee and the board of directors are correlated with earnings management. The conclusions of this researcher reveal that there is a negative correlation between the independence of the audit committee and the board of directors and the practice of earnings management. Meanwhile, Xie, Davidson III and DaDalt (2003) analyzed 282 North American companies from 1992 to 1996 to verify the role of the board of directors, the audit committee and the executive committee in preventing earnings management practices. They concluded that the practice of earnings management occurs less frequently when there is independence of board and committee members and when audit committee members are active in their activities.

Carcello et al. (2006) used a sample of 226 non-financial companies listed on the NYSE in 2003 to verify the association between audit committee expertise, corporate governance mechanisms, and earnings management. The authors concluded that the experience of committee members reduces earnings management, and that corporate governance improves the quality of institutional financial information. Thiruvadi and Huang (2011) examined 299 North American companies listed on the S&P Small Cap 600 in 2003. They investigated whether gender diversity in audit committees has a significant impact on earnings management. They concluded that there is consistent evidence that the presence of a female director on the audit committee restricts earnings management. Finally, in Brazil, the study by Cunha et al. (2014) investigated the correlation between the size, independence and expertise of the audit committee and the level of earnings management in 31 companies listed on the BM&FBovespa in 2010 and in 33 listed in 2011. They used the total value of assets, leverage, sales growth, internationalization, auditing, capital concentration and sector as independent variables to explain the linear regression model. In the 2010 sample, they found that only three variables (leverage, auditing and sector) contributed significantly to the model. In the 2011 sample, they did not identify any explanatory correlation between earnings management behavior and the independent variables. The studies by Silva et al. (2014) who analyzed 106 companies listed in the Novo Mercado segment of BM&FBovespa from 2010 to 2012. Using metrics such as size, training of members and type of audit, related to the audit committee and earnings management, they verified the influence of audit aspects on earnings management practices. They concluded that the presence of an audit committee, as well as the number of members and training in accounting, have no correlation with earnings management.

DISCUSSION AND CONCLUSION

The results show that most audit committees are made up of men only; and there are no committees made up exclusively of women. These committees have a minimum of three and a maximum of seven members, with the vast majority having between three and five members, with at least one member being independent. In the five companies studied, it was possible to verify that the majority of committee members had a background in Accounting, Finance or Auditing. The results of the comparison - of characteristics such as participation of women (gender), size, independence of audit committee members and discretionary accruals between regulated and non-regulated companies - did not indicate differences between them. Robustness tests were performed, considering the percentage of women on the board, a dummy indicating one, two and finally, three or more women on the board. This research resulted in the PMCA variable being a total of 21.49% (of this percentage, the number of companies with one or two women on the audit board totals 16.12% and with three women only 5.37% of the companies). Greater statistical significance was observed for one or more women, and the same significance decreased with the increase in the restriction, contradicting Konrad and Kramer (2008), where for North American companies, there is a "magic number" of at least three women on the board. Gender diversity on audit committees can be a factor that enhances the efficiency of decisions made by board members, according to the study by Bebchuk and Weisbach (2010). Furthermore, these results complement those discussed by Westphal and Milton (2000) and Daily and Dalton (2003), since such benefits inherent to diversity occur when proportional gender balance among board members is achieved. It is worth noting that the implications are not limited to academia, but can also help external agents of the company, such as creditors and investors. This is because, as more diverse boards reduce the intentional use of compensation reserves, investors and creditors benefit because they have access to financial statements with a lower level of information asymmetry.

It is important to highlight that the results of this study cannot be interpreted as a cause-and-effect relationship, in which the greater the participation of women on boards, the greater or better the results of the organizations would be, because this study maintains the limitations of the various studies cited, of trying to find a positive relationship and not a causal relationship. The findings reveal that gender characteristics cannot, in isolation, guarantee or define whether companies will disclose more or less ESG information. Individual aspects such as professional experience, education and macroeconomic aspects, such as the country's culture, can, together, be determinants of strategies and choices in senior management positions and can indeed be investigated in greater depth in future research. It is clear that, for the sample analyzed, female participation in the corporate governance structure of companies, measured by the proxies of this study, was not able to favor socio-environmental and governance (ESG) disclosure. As limitations of this study, it can be observed that the number of companies that disclose their ESG scores is still relatively low, thus limiting a better analysis of the available data or in a joint intersectoral or intrasectoral manner. Another point to highlight as a limitation is the information disclosed in the reference forms, as there is some data that is not reported and even inconsistent, which also tends to limit the analysis.

The results of this study offer important contributions to the discussion related to the role of women in social, environmental and governance (ESG) disclosures by providing new evidence from companies listed on [B]3, which, from the perspective of Agency Theory, are concerned with reputational and image risks and meeting the demands of investors concerned with sustainability, inclusion and diversity issues. In this sense, female representation is a determining factor in the likelihood of such disclosures occurring, and if associated with a longer tenure, can contribute to the occurrence and expansion of ESG disclosures in these institutions. Therefore, further investigations are suggested into the implications of the presence of women in other governance mechanisms, executive management positions in organizations, in addition to their implications in aspects related to the disclosure of results or aspects that refer to the quality of the information disclosed that assist in the decision-making process of stakeholders.

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