

## **FROM ZERO TO HERO: EFFECT OF GENDER DIVERSITY ON CORPORATE SOCIAL PERFORMANCE IN BRAZIL**

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## 1 INTRODUCTION

In recent years, interest on corporate sustainability issues has ceased to belong narrowly to the academic environment, to integrate the agenda of analysts, investors, executives, and regulators (Birindelli et al., 2019). An important stream of current discussions concerns how modern companies develop Corporate Social Responsibility (CSR) strategies and adopt practices to improve environmental and social outcomes (Nave & Ferreira, 2019), because of contemporary challenges related to the environment and society (Wijethilake & Lama, 2019).

The adoption of good CSR practices and sustainability strategies may be tied to board members' interest in tailoring corporate governance structures to manage such issues (Trinh et al., 2023). Prior evidence suggests that gender diversity on the board can broaden board discussions and perspectives, and consequently Corporate Social Performance (CSP).

The literature has also documented that the effectiveness of a board is strongly associated with its composition, including the gender diversity factor (Yarram & Adapa, 2021). The presence and performance of women positively impacts tasks of a qualitative nature on corporate boards, such as strategic controls and CSR (Huse et al., 2009). The presence of women on the board encourages more explicit conversations, enabling more effective handling of CSR issues and stakeholder needs (Bear et al., 2010).

The consequences of different behaviors between men and women are documented in previous studies, where growth in female representation on boards appears associated with increased levels of charitable giving (Bernardi & Threadgill, 2010), improved community connections (Hillman et al., 2002), enhanced CSR-related organizational practices (Zhang, 2012), increased environmental performance (Kathy Rao et al., 2012), and curbing polluting practices (Bear et al., 2010). However, the studies by Khan (2010) and Azmat and Rentschler (2017), and Francoeur et al. (2019) did not identify relationships between gender diversity and CSR performance.

Although several studies point to the positive relationship between women on boards and social responsibility in developed countries, little is known about this relationship between women on boards and corporate social performance in emerging countries (Fiador, 2023). Brazil is an emerging country, where a patriarchal society persists, in which women's roles are related to social norms (Ayatakshi-Endow & Steele, 2021). According to Lazzaretti et al. (2013), only 7% of seats are occupied by women on Brazilian boards. Additionally, in Brazil, in 2016, female participation in the labor market was 56.3% against 78.5% for men (Santos & Hilal, 2018).

In Brazil, evidence indicates inclusive results of this relationship. Forte et al. (2020) failed to verify an association between the proportion of women on the board and disclosure of environmental and social information, when investigating 73 companies listed on the *Brasil, Bolsa, Balcão* (B3), with disclosure of the GRI model sustainability report. In turn, Prudêncio et al. (2021) investigated companies with higher liquidity and found that gender diversity on the board of directors proved to be a determining factor for higher levels of CSR practices. Noting that the results are not entirely conclusive, one has the prospect of examining the reasons for these differences. Therefore, the purpose of this study is to examine the effect of board gender diversity on corporate social performance in Brazilian companies.

Considering the assumption that CSR is a multifaceted concept (Walls et al., 2012), this study seeks to differ from the methodological strategy adopted by other researchers, who have focused on examining some specific dimension of CSP, such as philanthropy (Williams, 2003),

the quality of the work environment (Bernardi et al., 2009), the natural environment (Post et al., 2011) or ethical aspects (Ibrahim et al., 2009).

In this sense, this study considers several factors to compose CSP: workforce, human rights, community, and product responsibility. Similarly, the research considers different proxies for gender diversity, considering the proportion of members and the minimum number of women board members, under the lens of Critical Mass Theory. Overall, the study supports the hypothesis that female board presence has a positive effect on corporate social performance.

The findings of this study have important theoretical and practical implications. Although the Critical Mass Theory is used in political science, our results allowed us to confirm this theory in the field of environmental management. Greater female representation not only influences the political field, but also influences the structure of company boards and their engagement with corporate social performance. In practical terms, organizations that have an interest in being seen as socially responsible should incorporate female members on their boards.

## **2 THEORETICAL FRAMEWORK**

### **2.1 Critical Mass Theory**

The term ‘critical mass’ emerged from the nuclear physics area, referring to a ‘quantity’ needed to start a chain reaction, resulting in an irreversible ‘turning point’ (Lefley & Janeček, 2023). This theory was first introduced into social science in 1978. Over the last few years, the critical mass theory has gained wide currency among politicians, the media, and international organizations as a justification for measures to bring more women into political office (Childs & Krook, 2008). Hence, a central concept in research on women’s political representation is the ‘critical mass’ notion.

Historically, the literature points out that Granovetter (1978) was the first to publish about critical mass. In general, the theory represents a move from a small to a large minority, which has significant implications according to critical mass theory. Critical mass refers to the problem that a group needs to reach a certain size to affect the entire Group (Yang et al., 2019). For Lefley and Janeček (2023), when a critical mass has been achieved, the minority group will become more assertive in their shared interests and perspectives. These authors also highlight that gender diversity benefits may be achieved if the critical mass is composed of independent female directors (Lefley & Janeček, 2023).

However, in the social science literature, the theory refers to the presence of females on boards. Indeed, authors argue that the composition of women who create a critical mass is important for the critical mass to be effective (Lefley & Janeček, 2023). In this case, women will not just be seen as female directors, but will be accepted on equal terms with their male counterparts and have an equal voice; gender will no longer be an issue (Lefley & Janeček, 2023). Thus, in accordance with Granovetter (1978), a shift would take place when women exceed a proportion of 30% of decision-making positions in organizations. In other words, women have a more significant impact on corporate boards when there are three or more females on the board.

The critical mass theory posits that as the number of women increases in an organizational setting, there is a greater likelihood of observing behavioral differences between men and women (Scheurer, 2014). Hence, as the number of women working in an organization continues to grow, women will have more opportunities for self-expression. From this standpoint, lots of previous studies had been based on and supported that a critical mass of

female directors has enough power to affect corporate board decision-making (Trinh et al., 2023). As a result, a critical mass of female directors may lead to an effective balancing of boards and consideration of their diverse experiences hastily when formulating the corporate strategy (Yarram & Adapa, 2021).

On the other hand, from a critical perspective, in accordance with Childs and Krook (2008), applications of critical mass theory reflect a 'politics of optimism' related to women's progress on boards. However, in some cases, policy change does not occur, even as the percentages of women in the legislature reach 'critical mass' proportions.

In the critical mass scenario, Rosabeth Moss Kanter, in 1977 in her book called 'Men and Women in Cooperation', examined the experiences of women working under-represented in organizations. She discovered that, within organizations, 'tokens' and 'dominants' exist. Tokens are those who represent the minority, while dominants are the majority. The author argued that 'token' women often share similar work experiences and tend to receive a great deal of attention within the organization. As a consequence, Kanter argued that having a critical mass of women working in an organization tends to reduce the number of negative work experiences of female employees (King et al., 2010; Scheurer, 2014; Tampakoudis et al., 2022). Next section we will discuss Tokenism.

## **2.2 Tokenism**

As discussed above, Rosabeth Kanter coined the concept of tokenism regarding an 'artificial appearance' achieved by including a limited number of individuals in the minority group in effective positions within the existing group due to their characteristics, like gender, race, religion, age, etc., accepted as a disadvantage or groups' characteristics different from the dominant group (Kurt Yilmaz & Surgevil Dalkiliç, 2019).

Tokenism theory, thus, posits that numerical underrepresentation is a primary cause of negative work experiences for minority group members (King et al., 2010). For Bratton (2005), in more equitable contexts, on the other hand, women may become less isolated and may affect group processes and the organization's culture. It occurs in both organizations and society that favor men and masculinity (Holgersson & Romani, 2020).

Similarly, Holgersson and Romani (2020) argue that the experience and consequences for token employees differ depending on gender and status. These authors illustrate that men's token positions in female-dominated contexts benefit from, or experience few, adverse effects from their minority position since they tend to enjoy a higher status associated to masculine hegemony.

Finally, it is important to note, in accordance with this theory, the minor appointment of female directors can show gender equality, but does not really impact board decision-making (Trinh et al., 2023).

## **2.3 Corporate social performance**

The role of the business sector in addressing Sustainable Development Goals (SDGs) is increasingly recognized around the world (Yarram & Adapa, 2021). Thus, in recent years, the research field of corporate social performance has grown exponentially. In accordance with Robles-Elorza et al. (2023), the level of sensitivity towards social matters is increasing in society, and firms are expected to take on ever greater responsibility for bringing about sustainable development. Conceptually, social performance refers to how an organization treats its employees, the community, and customers by demonstrating responsibility for its products and services (López-Penabad et al., 2022).

Yet, corporate social performance (CSP, henceforth) is a measure of Corporate Social Responsibility (CSR) (Likitapiwat et al., 2023; López-Penabad et al., 2022; Thao et al., 2019). For Simo et al. (2023), CPS is a multidimensional concept, often measured using diverse indicators available from different sources that can be aggregated and scored. Previous studies on CSP advocate that firms address social issues based on instrumental as well as moral rationales (Hahn et al., 2016).

In a general way, corporate disclosure makes relevant information available in a timely fashion and provides a transparent view of corporate operations (Ho et al., 2022; Simo et al., 2023). As a consequence, the disclosure of CSP not only enables ordinary investors to learn more real information about a company as a whole so that the interests of investors can be protected, but also helps the company make better investment decisions and promote its healthy development (Ho et al., 2022).

## **2.4 Hypothesis development**

Past studies have already joined the critical mass and the tokenism theories in an effort to explain higher levels of CSP disclosure. In accordance with Yarram and Adapa (2021), for example, a critical mass of female directors not only helps foster positive CSR, but would also be useful in providing effective monitoring of negative CSR. For Bussoli et al. (2023), the banking sector with higher board members' diversity achieved higher social performance.

In almost all cases, authors argued women enable firms to manage stakeholder relationships better (Fiador, 2023; Kinatader et al., 2021; Trinh et al., 2023), once they help businesses understand certain customers better and thus help access better resources (Yarram & Adapa, 2021). In addition, in Tampakoudis et al. (2022) words, female representation is argued to enhance decision-making quality as it takes the views of underrepresented groups into account, including various stakeholders and female shareholders. In this same sense, Pandey et al. (2020) affirm women are socialized to be more expressive, interdependent, nurturing, compassionate, and cooperative.

The women's presence is also aligned with corporate governance and business ethics improvement (Tampakoudis et al., 2022). For Pandey et al. (2020), women are more diligent and demonstrate more accountability and responsiveness compared with their male counterparts. For this reason, the female presence is generally positively correlated with CSP and with four dimensions: community, environment, employees, and governance (Nerantzidis et al., 2022). In this context, our research hypothesis emerges as follows:

*H1: The female presence has a positive effect on corporate social performance.*

## **3 RESEARCH METHODOLOGY**

The present study examines Brazilian companies, since emerging contexts such as Brazil, China and India are responsible for a considerable number of imports of goods and services from developed economies. Additionally, environmental institutions and rules in Brazil are weak and economic and social relations are perceived as more corrupt (de Abreu et al., 2022). Therefore, studies that also bring value to other stakeholders, in addition to shareholders, are relevant. This research collected available information on corporate social performance, financial performance, and governance of Brazilian companies for 5 years, that is, from 2016 to 2020. 2016 was a year after the signing of the United Nations (UN) Global

Compact. 2020 was the most recent year for which data are available in the Thomson Reuters Eikon database.

The sample of 128 companies is segmented into 11 industry sectors: educational services (6 companies), basic materials (13 companies), cyclical consumption (15 companies), non-cyclical consumption (14 companies), energy (7 companies), finance (17 companies), health services (6 companies), industrial (17 companies), real estate (12 companies), technology (4 companies) and utilities (17 companies). The sectors with the highest representation in the sample are financial, industrial and utilities with 17 companies each. On the other hand, the sector with the lowest participation in the sample is the technology sector with only 4 companies.

The dependent variable of this study is corporate social performance, which was collected from the Thomson Reuters Eikon database and is measured on a scale from 0 (lowest corporate social performance) to 100 (highest corporate social performance). To calculate this variable, Thomson Reuters subdivides it into four pillars: workforce, human rights, community, and respect for the product. Each of these pillars also ranges from 0 (least performing) to 100 (highest performing). Table 1 presents the variables used in the study and their descriptions.

**Table 1.** Variables definition

Variables	Description
CSP	Corporate Social Performance: This metric ranges from 0 (low performance) to 100 (high performance). This variable measures the following pillars: workforce, human rights, community, and product responsibility.
GENDIV	Gender Diversity: Number of female directors/total number of directors on the board of directors.
CRITMAS	Critical Mass: Dummy variable that takes the value 1 if the boards have at least three women or 30%; 0 otherwise.
SHANINDEX	Shannon Index: It is calculated using the formula: $\sum_{i=1}^n P_i \ln P_i$ , where $p$ refers to the proportion of board directors in each male and female category and $n$ symbolizes the total number of directors on board.
ROA	Return on Assets: Net Income/Total Assets.
LEVERAGE	Leverage: Total Liabilities/Total Assets.
FIRMSIZE	Company Size: Natural log of total assets.
CSRCOMM	Corporate social responsibility committee: 1 = if the company has a CSR committee; 0 = otherwise.
INDUSTRY	Industry sector: This variable takes the value 1 if the company operates in a sector with a strong and direct environmental impact (energy, industrial, materials and utilities); 0 otherwise.

The independent variables are measured using three different metrics, to give more robustness to the results. Gender diversity represents the percentage of women on the board of directors. The critical mass is a dummy variable, which takes the value 1 if the company has 30% of women on the board or more and 0 otherwise. Shannon index is a diversity index that has been explored in studies about minorities and gender diversity. This index is like the Blau Index and is more sensitive to small differences in the gender composition of boards (Valls Martínez & Cruz Rambaud, 2019).

Drawing on past research, we considered several control variables that can affect corporate social performance (see Table 1). First, we control for profitability, as measured by return on assets. ROA was calculated using the ratio between net income and total assets. ROA

was included since more profitable companies tend to have more resources to invest in social actions, which can increase their corporate social performance (Long et al., 2020). The second control variable is financial leverage, which is calculated by the ratio between total liabilities and total assets. Leverage is often seen as an essential incentive for greater investment in social issues (Sheikh, 2019). The third control variable is firm size, which is measured by the natural log of total assets. Larger companies are more concerned with social performance, as they have a significant number of stakeholders (Romero et al., 2019).

We also control the presence of a corporate social responsibility committee. The existence of this type of committee in the structure of the board of directors helps the company to develop more effective policies in favor of sustainable development (Elmaghrabi, 2021). Finally, industry was also controlled using a dummy variable, in which companies operating in the energy, utilities, basic materials and industrial sectors received the value 1 and 0 otherwise. According to García-Meca e Martínez-Ferrero (2021), companies that deal directly with natural resources tend to have greater social responsibility, since their actions are sensitive to the preservation of natural resources.

We apply the dynamic GMM panel technique to the econometric models, as this technique accounts for unobservable heterogeneity, concurrency and the relationship between current corporate social performance and past gender diversity of the firm. Endogeneity arises due to the omission of unobservable characteristics of firms, which could affect gender diversity, resulting in spurious relationships between board diversity and corporate social performance (Ullah et al., 2018). We estimate models for each pillar of corporate social performance, as well as general models considering all corporate social performance, as illustrated below:

$$CSP_{it} = \beta_0 + \beta_1 GENDIV_{it} + \beta_2 CRITMAS_{it} + \beta_3 SHANINDEX_{it} + \beta_4 ROA_{it} + \beta_5 LEVERAGE_{it} + \beta_6 FIRMSIZE_{it} + \beta_7 CSRCOMM_{it} + \beta_8 INDUSTRY_{it} + \omega_{it} + \varepsilon_{it}$$

Where the variables that try to predict corporate social performance are GENDIV, CRITMAS and SHANINDEX. Also, the control variables are ROA, LEVERAGE, FIRMSIZE, CSRCOMM and INDUSTRY. “ $\omega$ ” refers to the unobserved component and “ $\varepsilon$ ” is the idiosyncratic error that changes across t (time) and i (firm). In addition to the main tests, we run additional tests to provide more confidence in the results (for example, Wald test, root-mean-square error (RMSE), akaike information criterion (AIC), and variance inflation factor (VIF)). All tests were performed using Stata® software, version 13.

## 4 RESULTS

In Table 2, we report the main descriptive statistics of all variables used in the study. In Table 2, we report the main descriptive statistics of all variables used in the study. Our dependent variable, corporate social performance, shows that the sample averages 52.26. The sample has companies that reported almost all indicators (96.36%) on workforce, human rights, community, and product responsibility. However, the sample has companies with a minimum of 0.45, which suggests a low level of corporate social performance.

**Table 2.** Descriptive Analysis

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
CSP	513	52.26	24.31	0.45	96.36
GENDIV	513	10.80	10.62	0.00	50.00
CRITMAS	513	0.06	0.24	0.00	1.00

SHANINDEX	512	0.14	0.14	0.00	0.69
ROA	510	0.04	0.13	-0.98	1.40
LEVERAGE	508	0.71	0.64	0.00	7.37
FIRMSIZE	508	9.70	0.66	7.39	11.64
CSRCOMM	513	0.59	0.49	0.00	1.00
INDUSTRY	513	0.44	0.49	0.00	1.00

Regarding the independent variables, gender diversity has an average of 10.80. The critical mass averages 0.06, suggesting that only 6% of the sample has 33% women on the board or more. The Shannon index averages 0.14. Additionally, the financial control variables show very distant minimums and maximums, which may indicate that the companies in the sample vary a lot in terms of size and financial resources. 59% of companies have a social responsibility committee and 44% of the sample operates in environmentally sensitive sectors.

In Table 3, we present the findings of the effect of the higher percentage of women on boards on corporate social performance and its dimensions. All models were globally significant (p-value < 0.01 in Wald  $\chi$ -square test) and did not present multicollinearity problems (VIFs < 5).

As can be seen, in all models the greater female presence has a positive influence on the workforce, human rights, community, product responsibility and consequently corporate social performance. The variable that measures leverage had a negative sign in four of our models and company size had a positive sign, indicating that larger companies tend to have higher corporate social performance. Additionally, the findings reveal that corporate social performance is higher when companies have a CSR committee and when they operate in environmentally sensitive sectors.

The data reveal that lower financial leverage can encourage greater corporate social performance. Brazilian companies may notice the lower presence of foreign investment and thus increase investment in social practices, to attract more external resources to invest in the expansion of their activities. The results found indicate that in Brazil the social practices carried out by companies are still not considered as relevant by investors, but that these companies use corporate social performance to attract more investments and legitimize their actions with stakeholders.

**Table 3.** Results for percentage of women on the board

Variables	Model 1 WORKFORCE	Model 2 HUMRIGHTS	Model 3 COMMUNITY	Model 4 PRODUCTRESP	Model 5 CSP
GENDIV	0.27***	0.37**	0.21**	0.23**	0.27***
ROA	0.02	-3.40	5.17	-2.67	-0.21
LEVERAGE	-2.75***	-2.58*	-1.21	-3.38**	-2.48**
FIRMSIZE	15.04***	18.18***	12.87***	9.24***	13.83***
CSRCOMM	27.23***	18.08***	12.05***	17.57***	18.73***
INDUSTRY	6.26***	6.55*	1.95	10.90***	6.42***
Observations	508	508	508	508	508
R <sup>2</sup>	0.4560	0.2913	0.1963	0.2615	0.4528
Wald $\chi^2$ test	719.39***	514.25***	161.95***	210.64***	637.17***
VIF	1.22	1.22	1.22	1.22	1.22
Root MSE	22.28	29.09	25.42	24.10	17.91



AIC	4609.00	4877.14	4743.26	4688.84	4387.55
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Note: \*\*\*p<0.01. \*\*p<0.05. \*p<0.10.

In Table 4, we have the results for the critical mass variable, which gives more robustness to our findings. The models continue to indicate that more women on the board positively affect social actions in relation to the workforce, human rights, respect for the product and consequently corporate social performance. However, for the female presence to have an impact on these social issues, a critical mass of at least 33% of women on the boards of Brazilian companies is required.

**Table 4.** Results for the critical mass of women on the board

Variables	Model 6 WORKFORCE	Model 7 HUMRIGHTS	Model 8 COMMUNITY	Model 9 PRODUCTRESP	Model 10 CSP
CRITMAS	4.21*	3.30*	-1.81	5.64*	2.83*
ROA	0.14	-3.44	4.81	-2.38	-0.21
LEVERAGE	-2.65***	-2.31	-0.83	-3.41**	-2.30**
FIRMSIZE	14.81***	17.85***	12.64***	9.07***	13.59***
CSRCOMM	27.82***	18.95***	12.66***	18.03***	19.36***
INDUSTRY	6.04***	6.18***	1.62	10.77***	6.15***
Observations	508	508	508	508	508
R <sup>2</sup>	0.4480	0.2789	0.1903	0.2560	0.4395
Wald x <sup>2</sup> test	771.51***	410.13***	171.00***	217.96***	729.62***
VIF	1.23	1.23	1.23	1.23	1.23
Root MSE	22.44	29.26	25.52	24.19	18.13
AIC	4616.43	4885.89	4747.04	4692.57	4399.79

Note: \*\*\*p<0.01. \*\*p<0.05. \*p<0.10.

Regarding the control variables, financial leverage has a negative effect on corporate social performance, while the size of the firm, the presence of the social responsibility committee and the industry in which the company operates showed a positive sign. The industry has a positive effect on the workforce, human rights and product responsibility and did not show significance for the community. One of the justifications may be that these environmentally sensitive companies are in regions far from large urban centers and therefore there is almost no community close to them.

Models 11 to 15 are reported in Table 5, which shows the effects of gender diversity through the Shannon index on corporate social performance and its pillars. The Shannon diversity index showed positive signs in all models. This means that greater diversity between men and women on boards favors companies' engagement with social issues.

**Table 5.** Results for the Shannon Index

Variables	Model 11 WORKFORCE	Model 12 HUMRIGHTS	Model 13 COMMUNITY	Model 14 PRODUCTRESP	Model 15 CSP
SHANINDEX	20.22**	27.03**	15.71**	17.32***	20.07***
ROA	0.01	-3.40	5.17	-2.67	-0.22
LEVERAGE	-2.76***	-2.59*	-1.22	-3.39**	-2.49**
FIRMSIZE	15.03***	18.16***	12.86***	9.23***	13.82***

CSRCOMM	27.22***	18.08***	12.04***	17.57***	18.73***
INDUSTRY	6.28***	6.57***	1.97	10.91***	6.43***
Observations	508	508	508	508	508
R <sup>2</sup>	0.5215	0.2913	0.1965	0.2616	0.4531
Wald x <sup>2</sup> test	717.28***	514.77***	162.01***	210.65***	636.30***
VIF	1.22	1.22	1.22	1.22	1.22
Root MSE	22.27	29.00	25.42	24.10	17.91
AIC	4608.78	4877.09	4743.13	4688.74	4387.31

Note: \*\*\*p<0.01. \*\*p<0.05. \*p<0.10.

The financial leverage variable showed a negative sign, which suggests that it has a negative influence on corporate social performance and its dimensions. The financial leverage variable showed a negative sign, which suggests that it has a negative influence on corporate social performance and its dimensions. As predicted, company size has a positive effect on corporate social performance and its pillars. In fact, larger companies, in general, have more resources to invest in social actions for shareholders and other stakeholders. The presence of the social responsibility committee and the industry in which the firm operates have a positive effect on corporate social performance.

We run additional models to check the stability of the results. For this, we removed companies from the financial sector from the sample, leaving 111 companies for the new analyses. Table 5 reports the sensitivity analysis results.

**Table 6.** Sensitivity analysis results

Variables	Model 16 WORKFORCE	Model 17 HUMRIGHTS	Model 18 COMMUNITY	Model 19 PRODUCTRESP	Model 20 CSP
GENDIV	0.23**	0.25**	0.23**	0.21**	0.23***
ROA	6.68	2.86	3.86	-16.48**	-0.76
LEVERAGE	-1.12	0.10	-2.80	-8.69***	-3.12***
FIRMSIZE	17.17***	21.09***	13.05***	2.17	13.37***
CSRCOMM	27.02***	15.73***	11.78***	19.27***	18.45***
INDUSTRY	3.92*	2.04	2.83	15.87***	6.17***
Observations	435	435	435	435	507
R <sup>2</sup>	0.4284	0.2376	0.2579	0.2477	0.3981
Wald x <sup>2</sup> test	414.77***	303.03***	137.42***	232.33***	565.13***
VIF	1.29	1.29	1.29	1.29	1.29
Root MSE	22.45	29.34	25.70	24.20	18.25
AIC	3955.61	4188.43	4073.22	4020.68	3775.28

Note: \*\*\*p<0.01. \*\*p<0.05. \*p<0.10.

Our results remained consistent with previous analyses. Therefore, women on the board play an important role in organizations' engagement in social responsibility actions. Leverage has a negative effect on product responsibility and corporate social performance. The size of the company showed a positive sign, as well as the variables that measure the social responsibility committee and the type of industry. Overall, the sensitivity analysis findings are in line with the findings of previous analyses, which provides greater consistency and reliability.

## 5 DISCUSSIONS AND THEORETICAL AND PRACTICAL IMPLICATIONS

This empirical investigation confirmed the hypothesis that the female presence on boards has a positive effect on the corporate social performance of Brazilian companies. The findings of this study are consistent with previous studies. Our results suggest that women are more socially aware and exhibit more social corporate behavior.

Our findings confirm previous studies (Fiador, 2023; Kinateder et al., 2021; Trinh et al., 2023), which also demonstrated that women play a critical role in the development of social responsibility policies and actions. One justification is that women have a closer look at all stakeholders and tend to have a more humanistic background, which makes it easier to introduce social and environmental issues into the corporate context (Pandey et al., 2020).

Additionally, our results confirm that companies with more financial resources are more socially responsible. Investing in corporate social performance initiatives can be a way to strengthen the competitive advantage and attract the attention of new national and foreign investors (Shabbir & Wisdom, 2020). The findings also highlight the importance of the presence of the social responsibility committee for achieving greater corporate social performance. This type of committee is responsible for formulating and implementing environmental and social strategies and policies (Radu & Smaili, 2022). Therefore, it is expected that companies that are concerned with social issues can adopt this committee in the structure of their boards.

Companies with a high risk of impact on the environment are subject to greater pressure from stakeholders than companies operating in industries that do not directly deal with natural resources. Companies in more sensitive sectors incur additional sustainability reporting costs to disclose their social and environmental actions. Companies with a high risk of impact on the environment are subject to greater pressure from stakeholders than companies operating in industries that do not directly deal with natural resources (Hamed et al., 2022).

The results have several interesting implications. While most studies on board diversity are based on data from developed countries, this research provides new insights into the relationship between gender diversity and corporate social performance, using data from an emerging country, Brazil. The discussion of the relationship between gender diversity and corporate social performance is especially important in Brazil, as it is considered one of the countries where women are most prejudiced in the workplace.

The research findings are in line with the Critical Mass Theory. A critical mass of women on the board can provide an effective balance, considering the diversity of backgrounds and experience between men and women. Just one woman on the board can mean representation and resistance, but with a critical amount, female directors can have a voice and help formulate strategies aimed at corporate social performance. This expands the study by Lefley and Janeček (2023), by showing that Critical Mass Theory also works in emerging contexts such as Brazil.

With gender balance on boards, female directors are able to show their care for all stakeholders, preventing corporate companies from undertaking activities that are negative towards workforce, human rights, community and product responsibility. Thus, a symbolic representation of women on corporate boards (less than 30%) does not lead organizations to improve their social performance, which makes it difficult to meet the expectations of their stakeholders.

In addition to theoretical implications, our findings have practical implications. Organizations that have an interest in being seen as socially responsible should incorporate female members on their boards. In addition, supplementing financial reports with non-

financial information draws the attention of regulators and shareholders, as it gives the company a communicative, transparent, and ethical image, increasing the company's competitive position and legitimacy. Companies can also create human resources policies for appointing women to senior management positions and a succession plan that values the talent that women bring to companies.

This study can help governments of emerging economies in the formulation of public policies that promote a win-win solution for the government and for companies. As the descriptive statistics showed, female participation on the boards of Brazilian companies is still low. In this sense, policy makers may consider implementing quotas to increase the number of women on boards, as exists in other countries (eg France, Italy, Norway and Spain).

Additionally, this paper can also be useful for NGOs. In their partnerships with companies, they must consider the improvement of not only environmental sustainability, but also its social pillar and gender equality. Finally, this empirical research expands the frontiers of knowledge and provokes greater discussions on the subject in emerging economies.

## 6 CONCLUSIONS

This article aimed to examine the effect of gender diversity on corporate social performance. Our analysis is based on a sample of 128 Brazilian companies over a period of 5 years: 2016 to 2020. Through the GMM technique, our findings showed that the female presence is important for companies to achieve greater corporate social performance. This result is in line with critical mass theory, finding that the governance role of female directors is stronger when they reach a critical mass on the board, that is, 30% or more. Therefore, boards with low gender diversity may be symbolic but not representative of achieving superior social performance.

Like any other work, our findings are not free from limitations. We used data from Brazilian companies, and it is not possible to generalize the results to other contexts. Additionally, these studies can examine other countries where greater gender-based discrimination exists. New metrics for measuring gender diversity can be useful to prove the assumptions of the Critical Mass Theory. Therefore, future studies may adopt variables such as age, education, and length of experience of women on boards as explanatory variables of corporate social performance. Gender issues in many cases are multidimensional, so studies that analyze more than one country should consider formal institutions (eg presence of a quota law for female participation on boards) and informal institutions (eg more masculine and patriarchal cultures).

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