

# The Influence of Board Gender Diversity on the Sustainable Development Goals Reporting: Evidence from Portuguese Companies

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**Abstract: Aim:** The aim of this paper is to analyze the influence of female presence on boards on the level of disclosure about the sustainable development goals (SDGs). **Methodology and Sample:** This study used a content analysis of the sustainability/integrated reports published by a sample of the largest Portuguese listed companies. A set of panel data regression analyses on the SDGs disclosure index from 2016 until 2020 was run. **Research Findings:** It was expected that there would be higher levels of SDGs-related disclosures in companies with female presence on boards. However, the results do not reveal any significant association with the dependent variable (SDG\_IND). Contrary to our expectation, the presence of female on boards does not influence the disclosure about the SDGs in the largest listed companies. **Theoretical/Academic Implications:** Little research has addressed the influence of females on SDGs reporting (Rosati & Faria, 2019b, Pizzi et al., 2021). To the best of our knowledge, this study provides a first insight at the influence of the board gender diversity on SDGs reporting in the Portuguese context. **Practitioner/Policy Implications:** This study helps to highlight the importance of women on boards' role by increasing awareness about UN 2030 Agenda and ensuring the transparency of SDGs-related disclosure. Thus, our findings could have implications for policy formulation, to encourage board gender diversity and its effects on SDGs reporting quality.

**Keywords:** Women on boards, Board gender diversity, Sustainable development goals, Reporting, Agenda 2030

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## 1. Introduction

Gender composition on the board is an important dimension of Corporate Governance, because women and men are traditionally, culturally, and socially different (Liao, Luo & Tang, 2015). At European Union (EU) level, women account just over a quarter of board members of publicly listed companies. In Portugal, after the entry into force of Law No. 62/2017, the percentage increase is notorious. As of 2018, 33.3% of the boards of directors and supervisory bodies of public companies will have to be occupied by women. In listed companies, the minimum is 20% and rises to 33.3% in 2020.

Several benefits of female representation on boards are provided by the literature. Literature provides arguments related to the female cognitive frame, suggesting that greater female board representation may improve the quality of board discussion and decision making, which generates a stronger financial performance. Thus, companies that do not include women to their boards are at risk of underperforming because they fail to make use of the intellectual and social capital that women offer (Campbell & Bohdanowicz, 2015).

Galbreath (2011) and Ben-Amar, Chang, and McIlkenny (2017) suggest that gender diversity enhances board effectiveness and promotes the adoption of sustainability initiatives. By other hand, Liao, Lin and Zhang (2016) argue that gender diversity might be seen as an indicator that companies have higher levels of social responsibility and management accountability.

The board is the main vehicle through which corporate governance occurs. Therefore, it is responsible for protecting the interests of the stakeholders (Quattrociochi, Mercuri & Sergiacomi, 2019) and for the company's accountability and transparency through information disclosure (Dias, Rodrigues & Russell, 2017). Board composition is a determinant factor for Corporate and Social Responsibility (CSR) disclosure, as it is influenced by the choices, motives and values of those involved in the decision-making process (Khan, Muttakin & Siddiqui, 2013). Female participation on boards favorably affects CSR/sustainability engagement and reporting and the establishment of social policies (Jizi, 2017).

For listed companies, several disclosure obligations are imposed on the company and its directors. However, information concerning sustainable development has a voluntary character. In 2015, the United Nations adopted the 2030 Agenda, containing 17 Sustainable Development Goals (SDGs). This agenda defines the priorities and requires global action by governments, business, and civil society. Among the goals of Agenda 2030, the target 12.6 encourages companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

Over the last few decades, reporting models have been developed to help assess and manage the current state of an organization's sustainability and communicate it to stakeholders. Since 1999, the Global Reporting Initiative (GRI) has published a set of guidelines for the preparation of sustainability reports, for voluntary adoption, initially contemplating performance indicators grouped by the economic, environmental and social areas. However, in 2016 the GRI Standards were published in response for UN target 12.6 that calls for corporate transparency mentioning the benefits of reporting sustainability actions. GRI remains the dominant global standard for sustainability reporting (KPMG, 2020).

In the last years, Integrated Reporting (IR) also emerges as a viable model to the business reporting process, making organizations' strategies and business models more transparent to stakeholders. It is intended to increase the relevance, consistency and comparability of the information disclosed, adding in the same report all the "capitals" (manufactured, intellectual and organizational, natural, human, social and relational) that contribute to business success and creating value over time (IIRC, 2013).

Organizations will need to assess their activities' impact on the SDG achievement and to review their strategies and practices. For that purpose, they need to be able to collect and report new data. Thus, it is important to align the organizations' strategy and corporate reporting with the SDGs. However, none of the above frameworks (GRI or IR) include specific guidance on SDGs-disclosures. Thus, the linkage of SDG into corporate reporting is at an embryonic stage and it is, therefore, necessary to promote their progress.

Empirical research in SDG reporting is still in its infancy and limited to few studies (Fonseca & Carvalho, 2019, Rosati et al., 2019a-b, Monteiro et al., 2020; Izzo et al., 2020a-b; Pizzi et al., 2021-2022, Elalfy et al., 2021, van der Waal & Thijssens, 2020, Tsalis et al., 2020, Haywood & Boihang, 2021, Erin & Bamigboye, 2021, Curtó-Pagès et al., 2021, Hummel & Szekely, 2021,). Empirical studies suggest that large companies from Europe are significantly more likely to report on the SDGs than companies in other countries. However, the numbers are currently too low to draw meaningful regional or sector conclusions (KPMG, 2018).

The sustainable development and commitment to the 2030 Agenda are more likely to exist in organizations characterised by strong internal governance (Martínez-Ferrero & García-Meca, 2020). However, the literature still has scarce evidence regarding how the strength of the board of directors affects the implementation of SDGs. A growing number of studies suggest there may be a link between gender balanced boards and CSR/sustainability disclosure (Ben-Amar, Chang, & McIlkenny 2017; Al-Shaer & Zaman, 2016; Jizi, 2017; Ong & Djajadikerta, 2018, Mahmood et al., 2018; Anazonwu, Egbunike & Gunardi, 2018, Cucari, De Falco, & Orlando, 2018; Correa-García, García-Benau & García-Meca, 2020). These studies support their findings in the agency theory and suggests that boards can contribute to the legitimacy claims of firms, by promoting broader voluntary sustainability disclosures.

As far as we know, little research has addressed the influence of female on SDGs reporting (Rosati & Faria, 2019b, Pizzi et al., 2021). Thus, the aim of this paper is to study the influence of female members on boards on the level of disclosure about the SDGs, in a sample of largest Portuguese listed companies.

After this introduction, the rest of the paper is organized as follows: the next section presents the theoretical background and our research hypothesis. The methodology and research design are described in the second section, including the sample and the methodology used. In the third section, the findings are presented and discussed. The final section summarizes the main conclusions of the study, the discussion of its limitations and implications for future research.

## 2. Theoretical background

In order to meet the goals proposed in Agenda 2030, companies need to assess how organizational practices can be developed and how to articulate the organizations' strategy and reporting with the SDG. Integrating the SDG into the reporting process is, therefore, one of the major challenges for the organizations.

To facilitate the integration of the SDGs into the reporting process, GRI has developed tools and initiatives that help enable a strong private sector role in measuring and achieving the SDGs. This include two key<sup>1</sup> documents, created in collaboration with UN Global Compact, that should be used together as part of the business reporting cycle.

It is not intended to create a new reporting structure, but to help companies to highlight their contribution to SDG and provide relevant information to stakeholders through qualitative and quantitative disclosures for the SDG targets (that are likely to be relevant to business, regardless of the size, sector, or location of operations). The document "Linking the SDGs and the GRI Standards" – helps companies to report on progress in support of the SDGs through the GRI Standards, covering the 17 SDGs and maps them against the Standards and disclosures that apply for each.

Adams (2017) considers <IR> Framework (IIRC, 2013) is the best approach to disclose the organizations' contribution to the SDG, by integrating them into the strategy and the organizational report. Organizations can illustrate how and for whom they create value and can develop strategies that contribute to the 17 SDG, through the 6 capitals of <IR>. The report "The Sustainable Development Goals Disclosure (SDGD) Recommendations", authored by Adams, Druckman and Picot, (2020), offers a new approach for organizations to address sustainable development issues aligned to the <IR> Framework, the Task Force on Climate-related Financial Disclosure (TCFD) and the GRI. These recommendations are an opportunity to establish a best practice for corporate reporting on the SDGs and enable more effective and standardized reporting and transparency on climate change, social and other environmental impacts.

As stated before, empirical research is still very embryonic in the scope of SDG reporting. The studies found that a minority of companies currently mention the SDGs in their reports (Schramade, 2017, KPMG, 2020, van der Waal & Thijssens, 2020, Haywood and Boihang, 2021).

Most SDG reporting literature is based on European countries. According to Gazzola et al. (2020), under government regulation, companies are increasingly adopting Agenda 2030. In fact, EU law (Directive 2014/95/EU) requires certain large companies to report on sustainability, and they increasingly include the SDGs in their reports. Non-financial disclosure European regulation positively impacts SDG reporting (Hummel & Szekely, 2021). Empirical studies suggest that large companies from Europe are significantly more likely to report on the SDGs than companies in other countries. However, the numbers are currently too low to draw meaningful regional or sector conclusions (KPMG, 2018).

In Portuguese context, a few studies have urged regarding SDGs disclosure. Fonseca & Carvalho (2019) carried out a study based on Portuguese certified companies, reported which SDGs were most mentioned among companies SR (SDG 12, 13, 9, 8 and 17). However, in this study it was found that only 23,8% of companies mention the SDGs in their sustainability reports. Monteiro et al. (2020) conclude that from a sample of 46 Portuguese listed companies in 2017, none published integrated reports. But 9 of those companies refer to the SDGs in their reports.

There are few studies related to the explanatory factors of SDGs reporting. Datta and Goyal (2022) identify three categories of determinants that impact SDG reporting: (a) firm-level: focusing on firm size, performance, sector etc., (b) report-level: focusing on the report type, framework, assurance, etc. and (c) regulation-level: focusing on governmental and other regulations. Determinants are often studied together and may need separate

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<sup>1</sup> UN Global Compact Network and GRI, "Integrating the Sustainable Development Goals into Corporate Reporting: A Practical Guide", [http://globalcompact.pt/images/pdf/Practical\\_Guide\\_SDG\\_Reporting\\_08\\_2018.pdf](http://globalcompact.pt/images/pdf/Practical_Guide_SDG_Reporting_08_2018.pdf) "Business Reporting the SDGs "Analysis of the Goals and Targets [https://www.globalreporting.org/resourcelibrary/GRI\\_UNGC\\_Business-Reporting-on-SDGs\\_Analysis-of-Goals-and-Targets.pdf](https://www.globalreporting.org/resourcelibrary/GRI_UNGC_Business-Reporting-on-SDGs_Analysis-of-Goals-and-Targets.pdf)

studies to isolate their combined impacts and different studies have highlighted contradictory findings on the impact of certain factors.

As stated before, several studies suggest a relationship between gender balanced boards and CSR/sustainability disclosure, but few studies explore specifically the linkage between the SDGs reporting and boards composition and/or gender diversity (Rosati & Faria, 2019b, Pizzi et al.2021, 2022). Thus, our study extends previous studies by analyzing the impact of board's female presence on SDGs-related disclosure.

Several theories, such as agency theory, stakeholder theory and legitimacy theory, are used in literature to explain why companies are involved in voluntary disclosures. These theories are used as a support for the link between corporate governance and disclosure behavior. The agency theory is the dominant theoretical framework in the context of corporate governance disclosure (Khairiddine et al., 2020). From the agency theory perspective, corporate disclosure is used to harmonize the interests of managers and shareholders (Khairiddine et al., 2020). Agency theory suggests that the monitoring role of boards influence firms to disclose sustainability information in capital markets to reduce agency costs and information asymmetry between managers and shareholders (Quattrociochi, Mercuri, & Sergiacomi, 2019). Galbreath (2011) finds that boards that have a strong complement of gender diversity are expected to offer more effective monitoring of agents, as well as lead to stronger enforcement of ethical conduct.

The legitimacy theory is also frequently used to explain the motivations for CSR disclosures. According to this theory the organization's top management is responsible for recognizing the legitimacy gap and developing and disclosing CSR practices in agreement with stakeholders, to ensure accountability. Thus, board composition is likely to play an important role in bridging the legitimacy gap through CSR disclosures (Khan et al., 2013). Legitimacy theory extends the principal-agent relationship to include a wider group of stakeholders representing societal interests (Shamil et al., 2014). The legitimacy theory suggests that non-financial disclosure allows firms to legitimize its performance and manage the perception of their stakeholders, preserving the status of legitimacy in society (Cucari, De Falco & Orlando, 2018).

It has been argued that a single theory approach is not adequate to explain the multifaceted nature of corporate reporting. Our study adopts a complementary approach to explain the association between board gender diversity and SDGs reporting. This paper focus on the mediating role of female on boards to produce completed sustainability/integrated reports regarding SDGs-related information, which results from the need for legitimize companies' practices to manage their own image and reputation (Legitimacy theory) and to reduce information asymmetry and cost problems (Agency theory).

According to empirical literature, female directors are likely to play unique roles in enhancing a firm's moral legitimacy through CSR activities (Post, Rahman & Rubow, 2011). "Females' participation on boards of directors encourages the establishment, implementation and reporting on energy efficiency policy, green building policy and climate change policy to enhance shareholders' social welfare and promote the good image of the firm" (Jizi, 2017: 652).

This discussion leads to the following research hypothesis: *"The presence of female members on the board influences the level of disclosure about the SDGs"*.

According to literature women in management boards, given their different psychological features, provide unique skills, knowledge, and experiences, with a positive impact in on firm's sustainability-orientation (Calabrese et al., 2018). In addition, gender-diverse boards improve the quality of public disclosure through better monitoring. Female participation in the boardroom enhances board effectiveness (Ben-Amar, Chang & McIlkenny, 2017) as a result of the improved quality of board discussion and deliberations (Campbell & Bohdanowicz, 2015) and better supervision of the firm's disclosures (Gul, Srinidhi & Ng, 2011).

We expect that the level of SDGs disclosure depends on gender diversity, but also that it is influenced by some firm attributes. Thus, we consider company size as control variable. Theoretical underpinnings suggest that managers of large firms are motivated to increase disclosures to reduce agency costs and claim legitimacy (Shamil et al., 2014).

### 3. Research design

#### 3.1 Sample

Larger companies are increasingly concerned with improving their public image and reputation before society, considering that communicating information about their sustainable performance is a good way to legitimize themselves. Previous studies indicate companies' size is a determinant factor for SDGs disclosure or SDGs-related information (Rosati & Faria, 2019a-b; Fonseca & Carvalho, 2019; Pizzi et al., 2021). Additionally, most studies consider listed companies in their samples (Izzo et al., 2020 a-b; Monteiro et al., 2020; van der Waal & Thijssens, 2020; Haywood & Boihang, 2021).

Moreover, concerning corporate governance, listed companies have several disclosure obligations, imposed on the company and its directors. In this sense, the starting sample was selected from a special edition of Exame magazine "500 Maiores & Melhores empresas portuguesas" published in December of 2020. Thus, from the 500 largest companies we selected the entities listed in the Portuguese stock exchange on 31 December 2021, in a total of 9 companies eligible for this empirical study (Ttable 1). The small sample reflects the Portuguese business context, with few large companies listed in the Euronext Lisbon Market.

**Table 1:** Sample characterization

Company	Turnover	nº employees	Board size	% women on board
EDP - ENERGIAS DE PORTUGAL, S.A.	2 968 760 000.0	581	9	22,00%
THE NAVIGATOR COMPANY, S.A.	2 422 451 231.0	594	14	0,00%
CTT - CORREIOS DE PORTUGAL, S.A.	522 297 558,6	10870	11	18,18%
TEIXEIRA DUARTE - ENGENHARIA E CONSTRUÇÕES, S.A.	377 183 739.0	3 418	5	0,00%
MOTA-ENGIL- ENGENHARIA E CONSTRUÇÃO, S.A.	326 696 954.5	2164	21	23,80%
AMORIM CORK, S.A.	281 909 842.6	868	6	33,00%
ALTRI ABASTECIMENTO DE MADEIRA, S.A.	259 262 119.0	0	7	28,50%
GALP ENERGIA, S.A.	123 855 701.7	515	19	15,79%
MARTIFER - CONSTRUÇÕES METALOMECÂNICAS, S.A.	81 965 336.0	733	8	25,00%

#### 3.2 Methodology

Sustainability reports or integrated reports (that integrates financial and non-financial information) are the primary source for companies to highlight their alignment to 2030 Agenda by reporting on SDGs (Datta & Goyal, 2022). Sustainability reports that disclose a firm's sustainability initiatives, impact the adoption of SDGs and have been also used to measure a company's alignment towards UN SDGs (Izzo et al., 2020a). Romero, Ruiz and Fernandez-Feijoo (2019) argue that higher reporting quality exists in sustainability reports than integrated reports and integrated reports disclose higher quality information than annual reports.

Pizzi et al (2021) demonstrated a positive relationship between standalone reports and the SDG disclosure quality. Thus, for our study, we collected the sustainability reports and/or integrated reports since 2016, which corresponds to the first period after for the UN 2030 approval. The collected data was extended until 2020 for a longitudinal perspective, like Curtó-Pagès et al. (2021) in the Spanish context.

In this study a qualitative methodology was adopted through the content analysis of the non-financial reports, in order to verify the presence or absence of a reference to the SDGs.

We analyze the SDGs reported in the 9 largest Portuguese listed companies, during the period 2016-2020. The observations are treated as panel data, in order to control for omitted/unobserved variable bias. Panel data provides an efficient and cost-effective means to measure changing behaviors and attitudes over time. The content analysis aims to identify the fastest and best adopters of SDGs reporting and the evolution of the SDGs reporting during that period 2016-2020. The content analysis technique to collect the data is an approach successfully advocated in the empirical literature review. This technique consists in the codification of qualitative information related to the SDG into pre-defined categories of analysis (Krippendorff, 2013), in our case, the 17 SDGs.

To measure the degree of SDGs disclosure, a non-weighted disclosure index (SDG\_IND) was created, following criteria: 1 if the company discloses information about the SDG in question and 0 if it does not. The total SDGs\_IND value is the result of the division of the total score obtained by each company by the maximum number of assigned points (17), as described in Table 2.

**Table 2:** SDG disclosure index determination formula

$SDG\_INDj = \sum_{n=1}^i SDGn/i$	SDG_IND j	SDG disclosure Index - Company Total j
	SDG <sub>n</sub>	SDG <sub>n</sub> under analysis. Dichotomous dummy variable with value 1 if the company discloses information about the SDG and value 0 if the company does not disclose information about the SDG
	i	Maximum number of SDGs (17)

To analyze the influence of the female presence on boards on the level of SDGs disclosure, we developed a multiple linear regression model, using the disclosure index as dependent variable, as described in table 3. Beside the board gender diversity, we have introduced in our empirical model a firm-specific variable, the company size, as control variable, with the intention of enhancing the accuracy of predictions and the reliability of the inference from the analysis.

**Table 3:** Multiple Linear Regression Model

(1) $SDG\_IND = \alpha_0 + \beta_1 GEND + \beta_2 Size + e_i$
SDG_IND: SDG disclosure Index
GEND: Board gender diversity (% of female members on board)
SIZE– Company size (asset logarithm)

We used a content analysis where we only confirm whether or not the SDGs were disclosed, but we did not analyse the extent of its content or the quality of the information. In addition, the content analysis technique is somewhat subjective and involves value judgements. This can be pointed as a limitation of the methodology.

#### 4. Results and discussion

After consulting the websites of the 9 companies, we observed that not all of them had a sustainability report or an integrated report for the entire analysed period. Thus, 35 reports were collected (Table 4), making a total of 35 observations, to be treated as panel data. It should be noted that in 2018 and 2019, all companies published one of these types of reports (although, with a clear preference for the sustainability report).

**Table 4:** Non-financial reports published (2016-2020)

Year	Sustainability report	Integrated report	Total	% (n=9)
2016	2	0	2	22,22
2017	7	0	7	77,78
2018	7	2	9	100
2019	7	2	9	100
2020	6	2	8	88,89
	29	6	35	100%

We started by analyzing whether the SDGs were mentioned in the reports. We observed that from the 35 reports analyzed, in 29 reports there is such mention. We observed a clear increase in the number of reports with SDGs-related disclosures. Moreover, in 2020 all companies with a published report disclose about the SDGs. Findings are in line with Curtó-Pagès et al. (2021), who found Spanish listed companies that publish non-financial reports are increasingly reporting on the SDGs. From those 29 reports with SDGs-related disclosures, in 20 reports the SDGs prioritization by companies was made. During the period 2016-2020, there is an increase in the number of reports that disclosure the priority SDGs. In 2020, this information is present in all published reports (Table 5).

**Table 5:** SDG reporting (2016-2020)

Year	Disclosure about SDGs		Total	% (n=29)	Disclosure about priority SDGs	% (n=29)
	Along the reporting	Specif section				
2016	1	-	1	50	1	100
2017	2	2	4	57,14	2	50
2018	5	3	8	88,89	4	50
2019	7	1	8	88,89	5	62,5
2020	8	0	8	100	8	100
	29				20	

We also analyze which SDGs were most referred to in the reports (Table 6). We observed that SDG 8 – “Decent work and economic growth” and SDG 12 – “Responsibility, consumption and production” are the ones mentioned in a larger number of reports (65.52%). These were followed by SDG 13 – “Climate action”, SDG 9 – “Industry, Innovation and Infrastructure” and SDG 4 “Quality Education” (55,17% and 51,72%, 44,83, respectively), while SDG 1 – “No poverty”, SDG 2 – “Zero hunger” and SDG 14 – “Life below water” were not mentioned in any of the reports. Similar results were obtained by Gazzola et al. (2020): goals like gender equity, decent work, economic growth, and responsible consumption and production were present in almost all Italian company’s non-financial information reports, while others— like no poverty and life below water—are present only in a minimal percentage.

The Portuguese report on the implementation of the 2030 Agenda for Sustainable Development presented in 2017 defined as priorities, in the Portuguese case, SDGs 4, 5, 9, 10, 13 and 14. The results obtained in our study indicate that, in general, the priority of companies in relation to relation to the fulfilment of the SDGs is in line with the national strategy.

**Table 6:** SDGs prioritization

SDG	2016	2017	2018	2019	2020	Total	% (n=29)
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	1	1	3	4	9	31,03
4	1	2	2	4	4	13	44,83
5	0	0	1	1	4	6	20,69
6	0	0	1	1	2	4	13,79
7	0	1	2	3	5	11	37,93
8	1	2	3	5	8	19	65,52
9	1	1	3	4	6	15	51,72
10	0	0	0	0	1	1	3,45
11	0	0	2	2	4	8	27,59
12	1	1	4	5	8	19	65,52
13	1	2	4	3	6	16	55,17
14	0	0	0	0	0	0	0
15	1	1	2	2	4	10	34,48
16	0	1	0	1	2	4	13,79
17	1	1	3	2	2	9	31,03
<b>Reports- SDGs disclosure</b>	<b>1</b>	<b>4</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>29</b>	

Subsequently, we calculated the average SDGs disclosure index obtained by each company, in the period under analysis (Table 7). Apart from the company Martifer, where there aren’t any SDGs-related disclosures, we observe a clear evolution between the index values presented in 2016 and those presented in 2020. We also observe that Navigator is the company that presents the highest average value during period (SDG\_IND=0.86), followed by CTT and Galp (0.61 and 0.6, respectively).

**Table 7:** SDG disclosure Index

Company	2016	2017	2018	2019	2020	Average
EDP - ENERGIAS DE PORTUGAL, S.A.	0.00	0.94	0.53	0.53	0.65	0.53
THE NAVIGATOR COMPANY, S.A.	0.82	0.82	0.82	0.82	1.00	0.86
CTT - CORREIOS DE PORTUGAL, S.A.	0.00	0.41	0.88	0.88	0.88	0.61
TEIXEIRA DUARTE - ENGENHARIA E CONSTRUÇÕES, S.A.	0.00	0.00	0.65	0.47	0.88	0.40
MOTA-ENGIL- ENGENHARIA E CONSTRUÇÃO, S.A.	0.00	0.00	1.00	1.00	0.94	0.59
AMORIM CORK, S.A.	0.00	0.65	0.71	0.65	0.65	0.53
ALTRI ABASTECIMENTO DE MADEIRA, S.A.	0.00	0.00	0.76	0.53	0.82	0.42
GALP ENERGIA, S.A.	0.00	0.00	1.00	1.00	1.00	0.60
MARTIFER - CONSTRUÇÕES METALOMECÂNICAS, S.A.	0.00	0.00	0.00	0.00	0.00	0.00

Table 8 allows us to make a comparison between the SDG\_IND average and the presence (%) of women on the board. Contrary to what was expected, we observe that the top companies concerning the SDGs disclosure are not those with the highest female representation on boards. On the contrary, the top 3 companies (Navigator, CTT and Galp) are among those with the lowest percentage of women.

**Table 8:** SDG disclosure Index versus women on board

	SDG_IND average (2016-2020)	% women on board
THE NAVIGATOR COMPANY, S.A.	0,86	0,00%
CTT - CORREIOS DE PORTUGAL, S.A.	0,61	18,18%
GALP ENERGIA, S.A.	0,60	15,79%
MOTA-ENGIL- ENGENHARIA E CONSTRUÇÃO, S.A.	0,59	23,80%
EDP - ENERGIAS DE PORTUGAL, S.A.	0,53	22,00%
AMORIM CORK, S.A.	0,53	33,00%
ALTRI ABASTECIMENTO DE MADEIRA, S.A.	0,42	28,50%
TEIXEIRA DUARTE - ENGENHARIA E CONSTRUÇÕES, S.A.	0,40	0,00%
MARTIFER - CONSTRUÇÕES METALOMECÂNICAS, S.A.	0,00	25,00%

Based on the previously delineated linear regression model, panel data treatment was used, using the 35 observations, and the results were estimated considering the random effects model<sup>2</sup> (Table 9).

**Table 9:** Results of the Multiple Regression Model

Random-effects GLS regression	Number of obs	=	35
Group variable: A	Number of groups	=	9
R-squared:	Obs per group:		
Within = .	min =		2
Between = 0.1053	avg =		3.9
Overall = 0.0412	max =		5
corr(u_i, X) = 0 (assumed)	Wald chi2(2)	=	0.60
	Prob > chi2	=	0.7406

  

IND_DIV	Coefficient	Std. err.	z	P> z	[95% conf. interval]
log_ativo	.0205415	.0624837	0.33	0.742	-.1019244 .1430074
GEN_CA	-.4961623	1.006388	-0.49	0.622	-2.468647 1.476323
_cons	.3038132	1.360521	0.22	0.823	-2.362758 2.970384
sigma_u	.26470978				
sigma_e	.29764849				
rho	.44162779	(fraction of variance due to u_i)			

As can be seen in Table 9, for a significance level of 5%, the variables SIZE and GENDER do not have significant association with the dependent variable (SDG\_IND). Contrary to our expectation, the presence of female members on the board does not influence the disclosure about the SDGs in the largest listed companies. Thus, and it is not possible to validate the hypothesis. Having female directors in the boards may not be an effective governance mechanism to provide higher levels of voluntary disclosures, such as SDGs disclosures. These results are in line with Calabrese et al. (2018), who found that the fact that a women’s participation in management is not directly link to a sustainable-oriented approach.

Gazzola et al. (2020) show that under the non-financial reporting European regulation, companies are increasingly adopting Agenda 2030 as non-financial disclosure regulation positively impacts SDG reporting. The Portuguese Decree-Law n.º. 89/2017, which transposed the Directive 2014/95/EU, requires that large companies that are entities of public interest with more than 500 employees (including companies listed on the stock exchange) disclose non-financial information (information related, at least, to environmental, social and worker-related issues, to respect for human rights, corruption fighting and bribery attempts). Monteiro et al. (2021) provide evidence on board-gender diversity as a determinant factor of this mandatory non-financial reporting, in the Portuguese context. Our findings help to highlight the importance of reinforce the women on boards' role, in order to increase SDGs-related voluntary disclosures.

<sup>2</sup> The random effects model considers the individual effects as resulting from a series of random and unobservable factors and, therefore, does not consider the existence of an unobservable individual effect for all periods. This model is based on two assumptions: the unobserved individual effects are random, and the explanatory variables are strictly exogenous. This means that the error terms are not correlated with the past, present and future values of the regressors (Hsiao, 2003).

## **5. Conclusion**

The target 12.6 of Agenda 2030 encourages organizations to adopt sustainable practices and to integrate sustainability information into their reporting cycle. Thus, transparent and relevant reports on SDGs are important to communicate to stakeholders how companies are meeting their set goals. Empirical studies suggest that business interest in the SDG has grown quickly since their launch in 2015. However, there is not yet an established process, benchmark, or standard for reporting on the SDGs. The GRI Standards are the world's most widely used for sustainability reporting, and GRI has developed some resources to assist companies to report on SDGs' progress.

The composition of corporate boards and board diversity has been a growing research field (Cucari, De Falco, & Orlando, 2018). Campbell and Bohdanowicz (2015) provides arguments related to the female cognitive frame, suggesting that greater female board representation may improve the quality of board discussion and decision making. From an agency theoretical perspective, a balanced mix of capabilities and experiences is essential for the board to exercise an effective monitoring function, and to encourage the disclosure of several information to stakeholders.

Prior studies show female members promote sustainability and CSR reporting. Female directors may improve the connections between all stakeholders, persuading board members to establish sustainable practices and, ultimately, may encourage the disclosure of SDGs information. Female directors reduce information asymmetry and cost problems (Agency theory), mitigating pressures from key stakeholders and satisfying the demands of different stakeholders (Stakeholders Theory).

Thus, we have empirically tested the expected relationship between female presence on board and the SDGs reporting, based on a sample of the largest Portuguese listed companies.

Considering a total of 35 sustainability/integrated reports, published in the period 2016-2020, we observed disclosures about SDGs in 29 reports. These data agree with others already accomplished demonstrating that the number of companies mentioning the SDGs in their sustainability reporting is still below a desirable level (Rosati & Faria, 2019b). However, we observed a clear growth in the number of reports with SDGs-related disclosure during the period under review.

There is a consensus in literature that women care more about sustainable development issues. Thus, it was expected higher levels of SDGs-related disclosures in companies with female presence on boards. However, the results do not reveal any significant association with the dependent variable (SDG\_IND). Contrary to our expectation, our findings do not support empirical evidence of the role of women in boards as a driver of SDGs reporting.

This study has some limitations that could be addressed in future research studies. The sample being analyzed includes a limited number of companies. The small sample reflects the Portuguese business context, with few large companies listed in the Euronext Lisbon Market. In the future, we should include non-listed largest companies to compare SDGs-related disclosure practices.

We do not have available data for considering some personal attributes of the women in the sample (e.g. age, educational levels), which could be an interesting moderator variable of the relationship studied here. This study was limited to examining the impact of board gender diversity in the Portuguese context. Further studies may investigate other corporate governance characteristics (such as board size, board independency, CSR committees, etc.) which may extend the understanding of how corporate governance characteristics determine SDGs reporting practices in Portugal.

Nevertheless, the contributions of this paper to the literature are several. There is a paucity of research on determinant factors of SDGs reporting and commonly do not consider corporate governance variables. Thus, the paper extends prior empirical research regarding corporate governance and organizational disclosure, which mainly focus on CSR/sustainability disclosures. Empirically, this study provides comprehensive insights specifically on SDGs-related disclosure practices over time. The paper contributes to the country-level analysis of SDG reporting by performing a longitudinal analysis over the 5-year period encompassing 2016 to 2020, after the UN Agenda 2030 approval.

Our findings could have implications for policy formulation, to encourage board gender diversity and its effects on SDGs reporting quality. The SDG reporting frameworks already developed SDGs reporting are still at a very embryonic stage and it is therefore necessary to improve their maturity.

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