

What are the drivers behind Portuguese companies' reporting on sustainable development goals?

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Abstract

Objective: This study examines how the largest Portuguese companies integrate information on the Sustainable Development Goals (SDGs) in their non-financial reports, and analyses some potential drivers of SDG reporting (SDGR).

Methodology: Standalone non-financial reports were collected from 2016 to 2022, resulting in a total of 161 reports from 41 companies. Through content analysis, a disclosure index was developed to assess the level of SDGR.

Results: There is an upward trend in SDGR among Portuguese companies, albeit at a slow and modest pace. On average, they report on half of the 17 SDGs. We find that listing, industry, adoption of the GRI framework and external assurance by a Big Four firm are the driving factors for SDG disclosure. Conversely, firm size, ISO certification, a sustainability committee and extended reporting have no impact on the disclosure of SDG information by Portuguese companies.

Limitations: Our study has two main limitations: the small sample size and the fact that the SDG Disclosure Index only measures whether information on the SDGs is disclosed, without assessing its content, scope, or quality.

Practical implications: Businesses seeking to improve their SDG disclosure should consider adopting the GRI framework or seeking assurance from a Big Four firm. Regulators can use our findings when designing policies aimed at promoting SDG reporting.

keywords: Sustainable Development Goals (SDGs); 2030 Agenda; sustainability reporting; SDG reporting; ESG information

JEL Codes: M41

1. Introduction

Since 1992, the United Nations (UN) has held several conferences to promote international commitments to sustainable development. The adoption of the 2030 Agenda in 2015 marked a significant step in this path. It defines 17 goals –the Sustainable Development Goals (SDGs)– to be achieved by 2030. These goals are intended to be universal, calling on all actors to work together to leave a better and more sustainable world for future generations. A number of specific targets have been defined for each SDG (169 in total), allowing for the monitoring and disclosure of progress towards each goal.

Companies have an essential role to play in achieving the SDGs by integrating them into their strategies (García-Sánchez et al., 2022). In particular, target 12.6 “encourages companies to adopt sustainable practices and integrate sustainability information into their reporting cycle” (UN, 2015). In this regard, reporting can be instrumental in disclosing companies’ contributions to the SDGs and their progress towards the 2030 Agenda, thereby increasing corporate transparency and accountability (García-Sánchez et al., 2023a).

Although the level and quality of corporate reporting on the SDGs has increased over time (Bose & Khan, 2022), it varies significantly across countries and industries (García-Sánchez et al., 2023a). According to the latest Sustainable Development Report (UN, 2023), with the exception of Norway and the UK, the 20 most sustainable countries are from the European Union (EU), a region that has been very active in promoting corporate sustainability and transparency by establishing a regulatory framework for sustainability disclosure (García-Sánchez et al., 2023b). Among European countries, Portugal, together with Spain, occupies a leading position as the most committed countries to the SDGs (Monteiro et al., 2023). The latest UN report ranks Portugal as one of the most sustainable countries in the world, with an overall score of 80, 18th out of 166 countries assessed (UN, 2023). The Portuguese government defined SDGs 4 (“quality education”), 5 (“gender equality”), 9 (“industry, innovation, and infrastructure”), 10 (“reducing inequalities”), 13 (“climate action”), and 14 (“life under water”) as strategic priorities for Portugal (Ministry of Foreign Affairs, 2017). The report “Agenda 2030 Indicators for Portugal 2015/2022”, published by the National Institute of Statistics of Portugal, provides insights into Portugal’s progress towards achieving the SDGs, based on a total of 170 relevant indicators. When analyzed by SDG, the majority of indicators show good progress or are on target. There are only three SDGs (5, 14 and 15) where less than 50% of the indicators show positive progress. The results of Firoiu et al. (2022) predict that Portugal will achieve 57.50% of the SDG targets, placing it among the top performers in the EU in terms of sustainable development and the transition to a low-carbon economy.

Nevertheless, while numerous studies have analyzed the SDG disclosure practices of Spanish firms and their determinants (Aguado-Correa et al., 2023; Gutiérrez-Ponce, 2023), little previous research on non-financial reporting has considered the link with the SDGs in the Portuguese context. As a result, there is a lack of knowledge on how Portuguese companies integrate information on the SDGs into their non-financial reports and what factors drive such disclosure. This is an important gap in the literature, as concerted and effective action towards sustainable development requires understanding how companies around the world are aligning their activities with the 2030 Agenda and what initiatives they are taking to achieve the SDGs (Berrone et al., 2023). Furthermore, to measure progress on target 12.6, it is essential to comprehend how the high sustainability scores achieved by Portuguese firms are reflected in their sustainability reports. Similarly, to adopt measures to promote corporate transparency on the SDGs, it is necessary to understand which factors favor such disclosure by Portuguese firms.

With the aim of addressing this gap in the literature, this article examines how the largest Portuguese companies report on the SDGs and identifies the factors driving SDGR. To achieve these objectives, we collected the non-financial reports of the 41 largest Portuguese businesses between 2016 and 2022, resulting in a total of 161 reports. Through a content analysis of the SDG information disclosed in these

reports, we developed a disclosure index to measure the level of SDGR. The results indicate an upward trend in reporting on the SDGs, although at a slow and modest pace. Additionally, we found that listing status, industry membership, adoption of the GRI framework and external assurance of reports by a Big Four firm were determinants of SDG disclosure. Contrary to our expectations, firm size, ISO certification, sustainability committees and the length of reports were not significantly correlated with the extent of SDGR.

This study contributes to the literature in two significant ways. Firstly, it enhances the analysis of SDGR at the country level by providing empirical evidence from a European country, Portugal, which demonstrates genuine commitment to the 2030 Agenda (UN, 2023), yet lacks sufficient empirical evidence. By doing so, we present an initial understanding of the SDGR practices, including the format and level of disclosure, among large Portuguese companies, thus enriching the global context of SDG reporting. Secondly, we aim to complement the existing literature by introducing new evidence on the factors driving companies to disclose information on the SDGs. Specifically, we contribute to the literature by examining variables (such as ISO certification) that have not been previously explored, thereby broadening the scope of factors analyzed.

Following this introduction, the remaining sections are structured as follows: the second section provides a general background on SDGR and outlines the development of research hypotheses. The empirical study design is explained in the third section. Sections 4 and 5 present and discuss the findings, respectively. The main theoretical and practical implications of the study are outlined in the sixth section. Finally, the study's conclusions, limitations and avenues for further research are presented.

2. Background and research hypotheses

2.1. Literature review

Previous research on SDGR can be categorized into two main groups (Zamponi et al., 2024). The first group is concerned with elucidating companies' approaches to addressing the SDGs in their reports and indicates that although companies have intensified their SDG-related disclosure, it remains largely superficial (Heras-Saizarbitoria et al., 2022) and lacks the desired depth (Rosati & Faria, 2019). As a result, SDGR is often unbalanced and lacks alignment with business objectives. According to this strand of research, SDGR lacks quantitative and forward-looking data, although the quality has improved over time (Hummel & Szekely 2022). Missing negative impacts, lack of uniformity, variety of criteria, and poor comparability are also notable features of SDGR (Diaz-Sarachaga, 2021). Research also shows a trend towards the prioritization of certain goals. Thus, the SDGs 8, 12, 13, and 5 are among the most reported (Izzo et al., 2020), while the SDGs 2, 14, 15, and 16 are less addressed in corporate reports (Gutiérrez-Ponce, 2023).

A second set of studies examines the determinants of SDGR, with a focus on large companies and developed countries. Researchers have identified the following groups of factors that drive SDGR (Pizzi et al., 2021): company-level factors, governance-level factors, reporting-level factors, and regulatory-level factors. Regarding the first group, firm characteristics have been shown to be important determinants of voluntary social and environmental disclosure (Monteiro & Aibar-Guzmán, 2010). In particular, variables such as firm size and industry affiliation are potential drivers of SDGR (Rosati & Faria, 2019; García-Sánchez et al., 2022). In addition to firm characteristics, corporate governance mechanisms have been shown to influence companies' sustainability disclosure practices (Velte, 2017). Several board characteristics have been found to influence SDGR (Martínez-Ferrero & García-Meca, 2020; Gutiérrez-Ponce & Wibowo, 2023). Report characteristics, such as length, external assurance or adherence to a reporting framework, have also been found to influence SDGR (Rosati & Faria, 2019). Finally, regulatory level factors also explain differences in sustainability reporting among firms located in different countries (Gallego-Álvarez et al., 2017). In this sense, Gutiérrez-Ponce et al. (2022) and García-Sánchez et al. (2023b) show that the EU sustainability reporting regulation encourages the disclosure of sustainability information by European companies. However, studies show conflicting results regarding the impact of specific factors (Datta & Goyal, 2022), highlighting the need for additional research to identify the drivers of SDGR (Curtó Pagès et al., 2021).

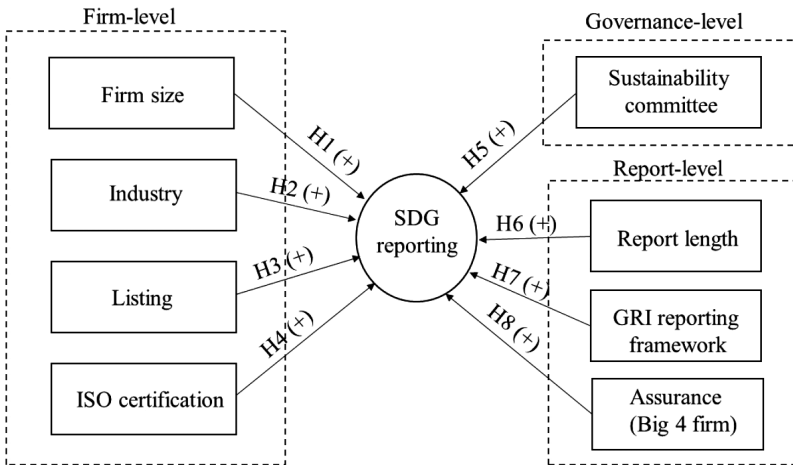
From a theoretical perspective, one of the dominant theories explaining the motivations for sustainability disclosure is legitimacy theory. It suggests that in order to continue operating successfully, companies must align their practices with what society deems acceptable in terms of sustainability behavior. Companies will therefore seek to align their activities with the values of society. Thus, according to this theory, companies disclose information to their stakeholders with the expectation that they will be considered acceptable and legitimate by stakeholders and society as a whole (Gutiérrez-Ponce & Wibowo, 2023). Another widely used theory is institutional theory, which posits that organizations tend to adopt common practices and conform to widely held values and norms, leading to homogeneity with other organizations in the same field (isomorphism). According to this theory, SDGR could represent a corporate response to the institutional pressures that firms face with respect to sustainable development (García-Sánchez et al., 2023a). Finally, stakeholder theory emphasizes the need for companies to deliver value to stakeholders and thus meet their expectations, not only to be successful but also as a moral imperative toward them. It recognizes the existence of a wide range of stakeholders who have an interest in how companies operate in terms of sustainability (García-Sánchez et al., 2023a). In summary, according to these theories, SDGR appears to be a corporate reaction to both institutional and stakeholder pressures that companies face in order to gain legitimacy. Since the use of a single theoretical approach is considered insufficient to comprehensively explain the multifaceted nature of corporate reporting, this research uses a multi-theoretical framework that combines the postulates of

these three theoretical frameworks to develop the research hypotheses regarding the determinants of SDGR.

2.2. Research hypotheses

Based on the literature review, we have identified eight potential drivers of SDGR: four company-level factors (size, industry, listing status, and ISO certification), one governance-level factor (the presence of a board sustainability committee), and three report-level factors (report length, reporting framework, and external assurance). The resulting research model is shown in Figure 1.

Figure 1. Research model



Source: Own elaboration.

Firm size: large and small firms differ in several ways that influence their likelihood of disclosing SDG information. Firstly, larger businesses have greater visibility and are subject to more scrutiny from stakeholders compared to their smaller counterparts (Monteiro & Aibar-Guzmán, 2010). Additionally, they are more concerned about their reputation and image than small companies. Therefore, according to legitimacy and stakeholder theories, large firms are expected to report information on the SDGs to satisfy the growing stakeholder interest in the 2030 Agenda and to convey the image that they are committed to sustainable development, thereby legitimizing themselves in the eyes of stakeholders and society at large (Datta & Goyal, 2022). Furthermore, as SDGR is often associated with increased costs, smaller companies may face challenges in allocating resources to prepare and disclose SDG-related information (Arena et al., 2023). The positive effect of firm size on

SDGR has been documented both at the international level (e.g., Rosati & Faria, 2019; Arena et al., 2023) and in the Portuguese context (e.g., Carvalho et al., 2018; Fonseca & Carvalho, 2019). Therefore, based on the above arguments and previous empirical evidence, we predict that firm size will positively affect SDGR. Thus, we hypothesize that:

H1: Larger firms have higher levels of SDGR.

Industry affiliation: from an institutional theory perspective, industry affiliation affects the institutional pressures that a firm faces. Firms operating in socially and environmentally exposed sectors are under greater regulatory scrutiny, both in terms of sustainability performance and reporting (Gutiérrez-Ponce, 2023). Additionally, the social and environmental impact of the sector in which a company operates affects stakeholder interest in its sustainability performance and, therefore, the strength of stakeholder pressure that companies in that industry face in this regard (García-Sánchez et al., 2022). Therefore, according to institutional, stakeholder and legitimacy theories, this would lead to higher levels of sustainability disclosure.

Several studies have considered a company's industry as a potential driver of SDG disclosure, although empirical findings are mixed. Most studies (e.g., Pizzi et al., 2021) document a significant impact and find that SDGR varies widely across sectors (García-Sánchez et al., 2023a). In this regard, some authors find that SDGR is higher for businesses operating in more contested sectors and those with higher environmental impacts (Whittingham et al., 2023). Indeed, companies operating in sectors related to natural resource extraction are more committed to the SDGs and prioritize SDGR (Gutiérrez-Ponce, 2023). Based on the above discussion, we predict that the likelihood of a company disclosing information about the SDGs will be influenced by the industry in which it operates. Specifically, we expect that companies in industries that suffer from negative externalities or that are environmentally sensitive will have higher levels of SDGR and hypothesized that:

H2: The sector in which a business operates affects the level of SDGR

Listing: listed businesses are subject to more stringent and extensive disclosure requirements, both in terms of the type and quality of information that must be disclosed (Monteiro & Aibar-Guzmán, 2010). Consequently, listing may have a positive impact on sustainability disclosure. Furthermore, as shown by García-Sánchez et al. (2022), key financial agents, such as institutional investors and analysts, positively influence the disclosure of SDG information.

Regarding previous research, Elalfy et al. (2021) find that listed businesses are more inclined to include SDG information in their reports, while Pizzi et al. (2021) find that Italian listed companies report more SDG disclosures than non-listed companies. Therefore, we predict a positive relationship between listing and the level of SDGR and hypothesize that:

H3: Listed companies have higher levels of SDGR.

Certification: companies that have implemented environmental or social management systems meeting the requirements of international standards are more likely to communicate this fact to stakeholders (Monteiro & Aibar-Guzmán, 2010).

Environmental management systems (EMS) are powerful tools contributing to the sustainability of organizations' daily operations. Literature suggests that the adoption of an EMS, especially one certified according to international standards, facilitates the disclosure of environmental information. Several studies have focused on sustainability disclosure by certified companies (Carvalho et al., 2019a, 2019b; Fonseca & Carvalho, 2019). According to institutional theory, ISO certification enhances legitimacy (Barros & Monteiro, 2012). Based on the above, we expect to find a positive relationship between having ISO certification and the level of SDGR. Therefore, we hypothesize that:

H4: ISO-certified companies have higher levels of SDGR.

Sustainability committee: Liao et al. (2014) suggest that having a sustainability committee can balance the financial and non-financial objectives of the firm and mitigate the potentially conflicting expectations of different stakeholders. The key characteristics influencing the role of the board in relation to sustainability reporting are sustainability knowledge and expertise (Velte, 2017). In this sense, the creation of a sustainability committee not only reflects the company's orientation towards sustainability issues, but also enhances the board's ability to address them (García-Sánchez et al., 2022). Therefore, better sustainability performance and higher quality sustainability reporting are often associated with having a sustainability committee. Some scholars (García-Sánchez et al., 2022; Zampone et al., 2024) report a positive effect of the existence of sustainability committees on SDGR, while Pizzi et al. (2021) find no significant effect. Considering these arguments, our research hypothesis is as follows:

H5: Companies with a sustainability committee have higher levels of SDGR.

Report length: report characteristics also affect the extent of sustainability disclosure. Sustainability report length is often used as a proxy for its coverage and quality (Datta & Goyal, 2022). In this sense, companies respond to institutional pressures by issuing longer reports to influence stakeholders' impressions of their sustainability performance. Regarding SDGR, Pizzi et al. (2021) found that SDGR scores are positively influenced by report length. Therefore, we predict that more extensive reporting will lead to higher levels of SDG disclosure:

H6: Companies that produce longer reports have higher levels of SDGR.

GRI Reporting framework: the GRI is the leading framework for sustainability reporting. Since 2000, the GRI has published several sustainability reporting guidelines. Their purpose is to promote corporate transparency and motivate companies to be accountable for their sustainability impacts. In the Portuguese context, Gomes et al. (2015) find that the quality of companies' reports improves as a result of applying the GRI framework. The design of the GRI framework facilitates the embedding of the SDGs in companies' day-to-day activities and disclosure practices (Gutiérrez-Ponce, 2023). Empirical evidence supports a positive association between the adoption of the GRI framework and SDGR (Gutiérrez-Ponce, 2023). Elalfy et al. (2021) show that businesses are more likely to engage in SDG reporting when they follow international sustainability guidelines. Pizzi et al. (2020) and Curtó-Pagès et al. (2021) also report a positive influence of adherence to the GRI reporting framework on SDG reporting. Therefore, we hypothesize the following:

H7: Adopting the GRI framework influences the level of SDGR.

Assurance: companies resort to external assurance of their sustainability reports as a sign of transparency and commitment to sustainability (Datta & Goyal, 2022). By hiring sustainability assurance services, companies can validate the credibility of their sustainability information (Ruíz-Barbadillo & Martínez Ferrero, 2020). Portuguese businesses prefer Big Four auditors to assure their sustainability reports (Gomes et al., 2015), and the use of their assurance services has a positive impact on the quality of the reports (Sierra-García et al., 2022). Previous studies have shown that external assurance has a positive impact on sustainability disclosure and SDGR (Rosati & Faria, 2019; Elafy et al., 2021). Sierra-García et al. (2022) show that Spanish firms that have their sustainability reports assured are more likely to disclose SDG-related information, and this likelihood is higher when the assurance provider is a Big Four firm. In the light of these findings, our hypothesis is as follows.

H8: Assurance of reports by a Big Four audit firm has an impact on the level of SDGR.

3. Study design

3.1. Sample selection

Consistent with prior research, our focus is on large companies, as they are more likely to be actively involved in sustainability initiatives (García-Sánchez et al., 2023a), including reporting and SDGR. To select the sample, we referenced the Exame magazine “500 Largest & Best Portuguese companies”, published in December 2020, following a similar approach used by Monteiro and Aibar-Guzmán (2010). The study period covers 2016-2022.

We specifically targeted stand-alone non-financial reports available on company websites. Among the 500 largest Portuguese companies listed, only 41 had published some form of separate non-financial report (e.g., sustainability/integrated reports, or CRS reports) during the study period. This resulted in an unbalanced data panel comprising 161 observations. The majority of these businesses operate in the industrial sector (51.2%), with 24.4% listed on the Euronext Lisbon stock market and 78% certified to at least one ISO standards.

3.2. Methodology

Initially, for each year within the study period, the non-financial reports of the 41 companies in the sample were downloaded from their respective websites. Subsequently, information was obtained through content analysis, a widely utilized method in empirical studies to evaluate sustainability disclosure. This method entails establishing a coding procedure to capture information from the reports (Gutiérrez-Ponce & Wibowo, 2023). The analysis was conducted independently by two researchers, who

examined and coded the 161 reports, subsequently reconciling any differences. A similar approach was adopted by Monteiro and Aibar-Guzmán (2010).

Following the methodology outlined by Fonseca and Carvalho (2019) and Zampone et al. (2024), an unweighted disclosure index (SDG_IND) was formulated to assess the level of SDGR within corporate reports. This index comprises 17 items, each corresponding to a specific SDG. Figure 2 depicts the 17 SDGs as defined by the UN.

Table 1 displays the criteria utilized to compute the value of the SDGR_IND index. The total SDGR_IND score is determined by dividing each company's total score by the maximum number of points attainable (17). Consequently, the SDGR_IND score ranges from 0 (no SDGs disclosed) to a maximum of 1 (all 17 SDGs disclosed).

The model presented in Table 2 was proposed to test the hypotheses. Due to the censored nature of the SDGR_IND index, a linear regression with random effects¹ was used with STATA software.

4. Results

4.1. SDG reporting by large Portuguese companies

Over the seven-year period analyzed, the largest Portuguese companies demonstrate a clear bias in favor of sustainability reports, followed by integrated reports

Figure 2. The SDGs of the 2030 Agenda



Source: <https://sdgs.un.org/goals>.

¹ It does not consider the existence of an unobservable individual effect for all years, but treats the individual effects as resulting from a set of random and unobservable factors. It assumes that the unobserved individual effects are random and that the explanatory variables are strictly exogenous.

Table 1. SDGR index

	$SDGR_IND_j$	SDGR Index - Company Total j
$SDGR_IND_j = \sum_{n=1}^i SDGn/i$	SDG_n	Dummy variable: if the company discloses information about the SDG under analysis, it takes the value 1. If the SDG is not disclosed, it takes the value 0.
	i	Maximum number of SDG (17)

Source: Own elaboration.

Table 2. Empirical model and variables

$SDGR_IND = \alpha_0 + \beta_1 CERT + \beta_2 SIZE + \beta_3 LIST + \beta_4 SECT + \beta_5 COM + \beta_6 LENG + \beta_7 ASSUR + \epsilon_i$	
SDGR_IND	SDGR Index (2016-2022)
CERT	ISO Certification: dichotomic variable that takes the value 1 if the company has a management system certification, and 0 otherwise.
SIZE	Firm size of, measured by the logarithm of total assets.
LIST	Stock market Listing: dichotomic variable that takes the value 1 if it is a listed company and 0 otherwise.
SECT	Activity sector: dichotomic variable that takes the value 1, if the company operates in a sensitive industry and 0 otherwise.
COM	Sustainability Committee: dummy variable that takes the value 1 if the company has a CSR/sustainability committee and 0 otherwise.
FRAM	GRI Reporting Framework: dichotomic variable, which takes the value 1 if the company's report follows the GRI standards, and 0 otherwise.
LENG	Report length: measured by the number of pages.
ASSUR	Assurance: dichotomic variable that takes the value 1 if the assurance company is a Big Four company, and 0 otherwise.
α_0	Constant.
α_i	Residual random variable.

Source: Own elaboration.

(68.1% and 20.2%, respectively). This observation aligns with the findings of Monteiro et al. (2022), indicating that most firms rely on sustainability reports to disclose non-financial information. Out of the 161 reports, 127 mention the SDGs (78.9%). Moreover, the number of reports containing disclosures on the SDGs has increased over the years. These findings are in line with other studies indicating that since 2016, businesses producing non-financial reports have increasingly reported on the SDGs (Gutiérrez-Ponce & Wibowo, 2023).

Table 3 shows the value of the SDG disclosure index (SDGR_IND) over the study period and Figure 3 shows its evolution.

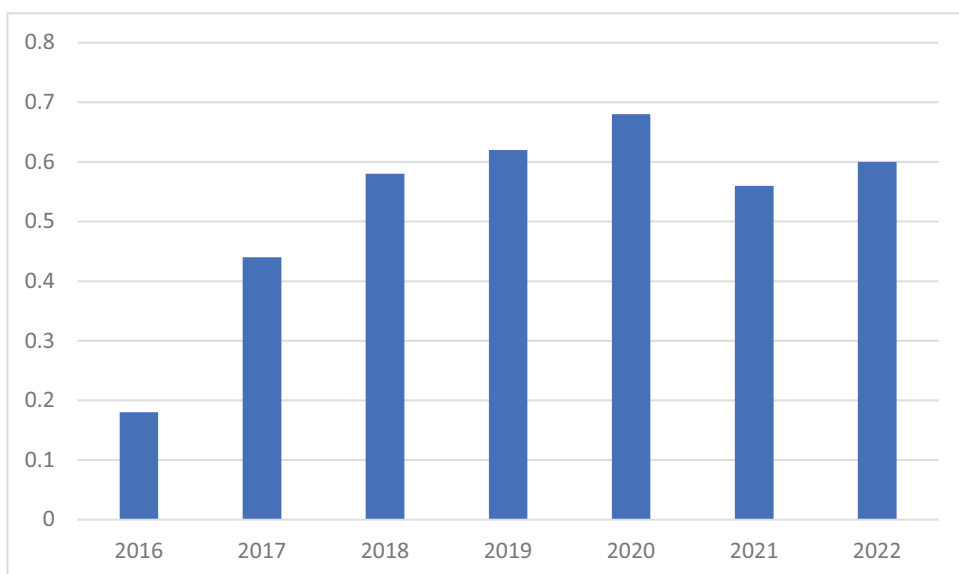
It can be seen a clear upward trend between the index values presented in 2016 and those presented in 2022. There is a decrease in 2021, probably influenced by the COVID-19 pandemic. The disclosure index varies between 0 (minimum value) and 1 (maximum value), with an average value of 0.53 over the period 2016 to 2022.

Table 3. SDG Disclosure Index Evolution (2016-2022)

	Minimum	Maximum	Average
SDGR_IND ₂₀₁₆	0	0.82	0.18
SDGR_IND ₂₀₁₇	0	1	0.44
SDGR_IND ₂₀₁₈	0	1	0.58
SDGR_IND ₂₀₁₉	0	1	0.62
SDGR_IND ₂₀₂₀	0	1	0.68
SDGR_IND ₂₀₂₁	0	1	0.56
SDGR_IND ₂₀₂₂	0	1	0.60
SDGR_IND₂₀₁₆₋₂₀₂₂	0	1	0.53

Source: Own elaboration.

Figure 3. SDGs_IND evolution



Source: Own elaboration.

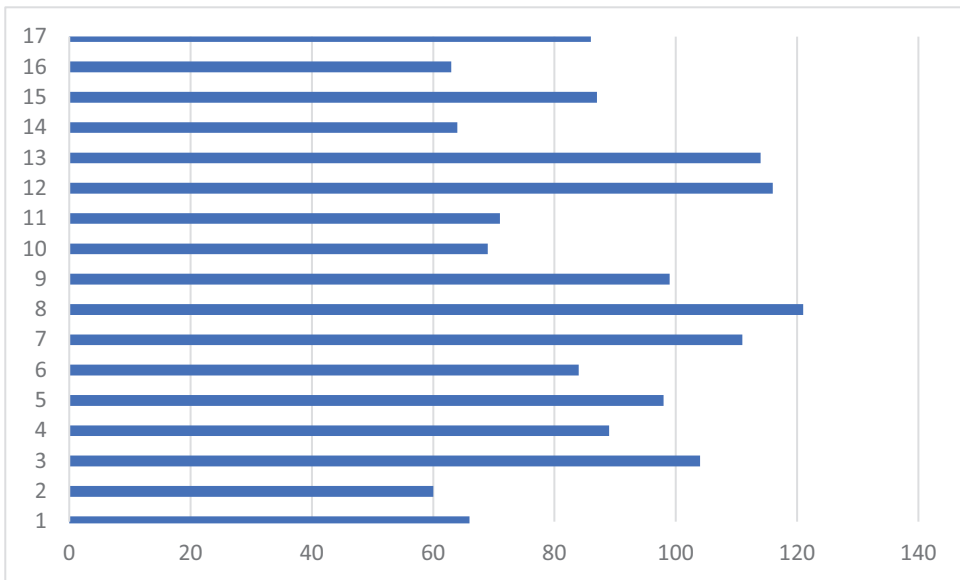
As shown in Figure 4, the most frequently mentioned SDGs are SDGs 3, 8 and 12 (88.9%). These goals are included in two of the five pillars of the 2030 Agenda, namely prosperity (SDG 8) and planet (SDGs 12 and 13). Conversely, SDG2 is one of the least mentioned goals.

4.2. Validation of the research hypotheses

The results of the regression model are presented in Table 4. At the 5% significance level, the variables LIST, SECT, ASSUR and FRAM show a statistically significant association with the level of SDGR as measured by the SDGR_IND index. However, contrary to our expectations, the variables CERT, SIZE, COM and LENG exhibit no significant association with the SDGR_IND index. The overall model's validity can be assessed by the significance level of the Wald Chi2 and F tests. Therefore, the estimated model adequately describes the relationship between the explanatory variables and the dependent variable. Nevertheless, considering the R² values, overall, the random effects model explains 22.85% of the variability of SDGR_IND, 28.06% of the differences between businesses, and 21.94% of the variations over time within the same business.

Concerning hypothesis H1, which states that larger firms have higher levels of SDGR, we could not establish its statistical significance in the case of large

Figure 4. SDGs disclosure



Source: Own elaboration.

Table 4. Main results

Variable	Coeff. (Std. Deviation)
CERT	-0.0680166 (0.1718759)
SIZE	-0.011153 (0.0546182)
LIST	-0.4287772* (0.1781452)
COM	0.289859 (0.2178883)
SECT	-0.345706*** (0.1079872)
FRAM	0.2375302** (0.0824452)
LENG	0.0012581 (0.0007825)
ASSUR	0.3363357** (0.131218)
Constant	1.455718 (1.032004)
Rho = 0.39542366	
Wald chi2(4) = 31.26	
Prob > chi2 = 0.0001	
Significance: *** p < 0.01; ** p < 0.05; * p < 0.10	

Source: Own elaboration.

Portuguese companies, although most previous studies report that firm size is a key explanatory factor for SDGR (Carvalho et al, 2019a; García-Sánchez et al., 2022). However, our findings confirm those of Gutiérrez Ponce and Wibowo (2023), who also find that firm size does not affect the disclosure of SDG-related information by Indonesian listed firms. Regarding hypothesis H2, which states that industry affiliation affects the level of SDGR, the results show a positive and significant effect of this variable on the SDGR_IND, which allows us to accept this hypothesis. Our results are consistent with those obtained by several researchers (e.g., García-Sánchez et al., 2022). We also find a positive and significant relationship between listing and SDGR_IND, which allows us to validate H3. Thus, similar to Pizzi et al. (2021) for the Italian context, we demonstrate that Portuguese listed companies have higher levels of SDGR.

Regarding hypothesis H4, which states that certified companies have higher levels of SDGR, our results show that ISO certification has no significant effect on the SDGR_IND score. Therefore, this hypothesis cannot be accepted. Our findings align with those of Carvalho et al. (2018), who highlight the lack of information on the SDGs disclosed on the websites of certified companies in the Portuguese context. Regarding hypothesis H5, which suggests that companies with a sustainability committee are more likely to have a higher level of SDG disclosure, the empirical results show that this variable does not significantly affect the value of SDG_IND, and therefore this hypothesis cannot be accepted. Our results are consistent with those of Pizzi et al. (2021), who also document no significant effect of the presence of sustainability committees on SDGR, while they are in contrast with those of Hamad et al. (2023) and Zampone et al. (2024), who report a significant positive effect.

Regarding the report-level factors, our results do not support hypothesis H6, which states that we should expect to find higher levels of SDGR disclosure in longer reports. This contrasts with the results of Pizzi et al. (2021), who demonstrate that report length has a positive effect on SDGR. Our results also indicate a positive and significant effect of GRI adherence on SDGR, in line with Curtó-Pagès et al. (2021), Pizzi et al. (2020) and Gutiérrez-Ponce (2023). This allows us to confirm hypothesis H7. Finally, the results indicate that having sustainability reports assured by a Big Four audit firm has a significant and positive impact on the level of SDGR and therefore, hypothesis H8, which states that having reports audited by a Big Four firm has a positive and significant impact on the level of SDGR, can be accepted. This result is consistent with the results obtained by Rosati and Faria (2019) and Ealfy et al. (2021).

5. Discussion of results

Regarding the level of SDGR, the results indicate an upward trend in reporting on the SDGs, albeit at a slow and modest pace. This finding aligns with the results obtained by Zampone et al. (2024). Moreover, similar to findings by Curtó-Pagès et al. (2021), Haywood and Boihang (2021), and Gutiérrez-Ponce and Wibowo (2023), we observe an increase in the number of businesses reporting on the SDGs in their non-financial reports.

The average value of the SDGR_IND index for 2016 to 2022 is 0.53, indicating that, on average, companies disclose information on half of the 17 SDGs. This value is comparable to that found by Zampone et al. (2024) and higher than in other previous studies (e.g., Hummel & Szekely, 2022). Therefore, it can be inferred that the SDGs have become integrated into the mindset of Portuguese businesses. SDGR serves the dual purpose of legitimizing the company's position in society and responding to institutional and stakeholder pressures generated by the 2030 Agenda (Zampone et al., 2024).

Sustainability reports are the most utilized reporting format (70.2%), suggesting that Portuguese companies prefer them as a means to disclose information on the SDGs. Similar findings are documented by Izzo et al. (2020) and Haywood and Boihang (2021), while Datta and Goyal (2022) find that, along with sustainability reports, integrated reports are preferred by businesses to demonstrate their commitment to the 2030 Agenda and provide updates on their progress towards achieving the SDGs. The most frequently mentioned SDGs in the non-financial reports of Portuguese companies are SDGs 3, 8 and 12, which is consistent with findings documented in previous studies, both internationally (e.g., Nicolò et al., 2023; Monteiro et al., 2023) and within specific countries (e.g., García-Sánchez et al. (2020) in Spain, Caldana et al. (2022) in Brazil, and, Gutiérrez-Ponce & Wibowo (2023) in Indonesia).

Regarding the drivers of SDGR, we find that industry membership, listing, adoption of the GRI framework, and external assurance of reports by a Big Four firm are determinants of SDG disclosure. The positive impact of industry membership on SDGR (H2) is consistent with the principles of institutional and legitimacy theories, confirming that institutional pressures at the industry level led companies to higher levels of SDGR to achieve legitimacy. The positive effect of listing on SDGR (H3) suggests that listed firms are more inclined to disclose SDG-related information to fulfill their responsibilities to stakeholders, thereby maintaining their reputation and legitimacy in the public eye. This result also aligns with the tenets of institutional theory. Following the implementation of the European Directive 2014/95/EU, several disclosure requirements on environmental and social issues are imposed on European listed companies. These mandatory disclosure requirements serve as a source of coercive pressure for listed companies (Gutiérrez-Ponce et al., 2022). Moreover, listed companies are subject to greater stakeholder attention.

We also find that businesses using international standards for sustainability reporting (such as the GRI framework) are more likely to report on the SDGs (H7), as suggested by Elalfy et al. (2021) and Gutiérrez-Ponce (2023). This positive effect could be explained by the strong link between the GRI framework and the SDGs and the fact that the GRI encourages companies to disclose information on their commitment to the SDGs in their sustainability reports (Gutiérrez-Ponce, 2023). For example, the GRI 2016 Standards were published in response to target 12.6 of the SDGs, which calls for business transparency and highlights the benefits of sustainability reporting. Furthermore, in 2018, the GRI developed guidelines that link the goals and targets of the 2030 Agenda to the GRI indicators. The positive impact of external assurance of sustainability reports on SDGR (H8) confirms the role of external assurance in improving corporate sustainability reporting, especially when the assurance provider is a Big Four firm (Sierra-García et al., 2022), and suggests that while companies can rely on the assurance of sustainability reports to gain legitimacy, the involvement of a Big Four audit firm tends to promote SDGR, at least to some extent.

Contrary to our expectations, firm size, ISO certification, sustainability committees and the publication of longer reports are not significantly correlated with the

level of SDGR. In the case of firm size (H1), the non-significant effect contradicts most previous empirical evidence, but may be due to the fact that the sample consists of the largest and best Portuguese firms. Similarly, the result related to the impact of ISO certification on SDGs (H4) may be owing to the fact that 78% of the companies have some type of ISO certification, which may have influenced our results. Similarly, only 5 companies have a sustainability committee. This limited number of observations may explain why this variable was not statistically significant, leading to the rejection of H5.

6. Theoretical implications and practical implications

This research contributes to the literature by providing empirical data from a country (Portugal) that has been understudied, thus improving the understanding of the drivers of SDGR by extending the limited empirical evidence available. By confirming the effect (or lack thereof) of some factors widely analyzed in the literature, such as size, industry or reporting framework, in the Portuguese context, and examining the effect of previously unanalyzed factors, such as ISO certification, the study adds depth to the theoretical understanding of SDGR. From a theoretical perspective, the results support the notion that SDGR is a response to both institutional and stakeholder pressures that firms face to gain legitimacy, thereby aligning with the tenets of institutional, stakeholder, and legitimacy theory.

The findings of this study have several practical implications for policy makers and companies. Firstly, they can help managers and decision makers understand the key factors positively correlated with the SDGs. Companies interested in increasing their level of SDG disclosure can benefit from following the GRI framework or engaging a Big Four firm to assure their sustainability reports. Additionally, Portuguese regulators could consider our findings when designing policies aimed at improving SDGR within the country. Our findings highlighting the lack of impact of sustainability committees and ISO certification on the disclosure of SDG related information may encourage Portuguese companies and regulators to reflect on the role of these factors in the context of the 2030 Agenda and potentially explore alternative strategies to enhance SDGR.

7. Conclusion

The 2030 Agenda represents a pivotal milestone in the journey towards a more sustainable world, urging all actors to collaborate in achieving the SDGs. This paper addresses recent calls for insights into how businesses are incorporating the SDGs into their reporting practices, by analyzing the drivers of SDGR among large Portuguese businesses. The focus on the Portuguese context is justified, given its status as one of the most sustainable countries in the world (UN 2023). Despite this, empirical

studies focusing on Portugal are scarce, highlighting a gap in understanding how Portuguese businesses integrate the SDGs into their corporate reporting and the factors influencing this process.

The findings reveal a positive trajectory in SDGR over the years, mainly through sustainability reports, with an average disclosure on half of the 17 SDGs. In terms of determinants of SDGR, listing, industry, adherence to the GRI framework, and external assurance of reports by a Big Four firm were found as drivers of SDG disclosure in our sample. However, firm size, ISO certification, the presence of a sustainability committee and extended reporting did not show significant associations with SDGR.

Despite the significance and utility of our findings, several limitations warrant consideration for future research. The small sample size is a notable constraint, and the SDG_IND index only assesses whether information on the SDGs is disclosed, without analyzing the depth or quality of the content. Future studies could explore how businesses embed the SDGs into their corporate strategy and develop specific performance metrics. Additionally, targeting small and medium-sized enterprises, which constitute the majority of Portuguese companies and investigating online disclosure practices for the SDGs could further enhance our understanding of SDGR dynamics.

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