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Reporting on Sustainable Development Goals in the European Union: what drives companies' decisions?

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Abstract

Purpose – This paper aims to identify the changes in the share of large public interest entities (PIEs) in European Union (EU) Member States providing Sustainable Development Goal (SDG) reporting prior to (2017) and after (2019) the implementation of Directive 2014/95/EU and the factors that influence their decisions to provide SDG reporting in 2019.

Design/methodology/approach – The authors use the multilevel theory of social change in organizations as the theoretical background. The sample consists of 341 PIEs based in the EU Member States, for which reports published in 2017 and 2019 are available in the global reporting initiative sustainability disclosure database. The authors analyzed the data using the statistical significance test of equal proportions and the logistic regression model.

Findings – The study findings allow to identify a significant positive change in the share of companies providing a reference to SDGs in 2019 compared with 2017. The research confirms that companies' engagement in United Nations Global Compact and previous experience in sustainability reporting positively influences the decision to report on SDGs in 2019. Contrary to the expectations, industry, size, SDG implementation score, future orientation of government and corporate governance score do not seem to be relevant factors influencing PIEs' disclosures.

Originality/value – The paper adds to the understanding of the differences in SDG reporting within the EU, which is seen as a frontrunner in implementing the 2030 Agenda and the SDGs.

Keywords Nonfinancial reporting, Sustainability, Directive 2014/95/EU, GRI, SDGs

Paper type Research paper

1. Introduction

With less than eight years left, an ambitious effort is underway to deliver the 2030 promise. The global community is at a critical moment in its pursuit of the 17 Sustainable Development Goals (SDGs) adopted by the United Nations Member States in 2015 (UN, 2015). According to the *Sustainable Development Goals Report 2021* (UN, 2021), the world

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has been making progress – although uneven and insufficient – toward meeting the SDGs, although advances have been disrupted by the COVID-19 pandemic (UN, 2020).

Sustainable development has been at the heart of European Union (EU) policy for a long time, anchored in the European Treaties (EU, 2020a). According to the latest Eurostat report (Eurostat, 2021), over the past five years – based on the mean scores of the selected indicators – the EU has, on average, made progress toward almost all 17 SDGs. However, while European countries lead globally on the SDGs, none of them had achieved the SDGs before the start of the COVID-19 pandemic. Moreover, none was on track to achieving all SDGs by 2030. In regard to particular countries, Finland tops the 2020 Europe SDG Index, followed by two other Nordic countries – Sweden and Denmark – while Bulgaria, Greece and Romania rank last (SDSN, 2020). It should be noted that, according to Carvalho *et al.* (2020), Finland, Sweden and Denmark are countries, which generally occupy the best positions in social indices and are characterized by social dialogue, successful policies on social well-being and quality of life. Concerning human development, Finland remains prominent. Doyle and Perez Alaniz (2020) also indicate Finland, Sweden and Denmark as the best performers in sustainable-competitiveness terms.

Despite the fact that SDG achievement is often discussed in the context of particular countries, it does depend only on governmental and societal goodwill. Governments do not have enough resources to provide all the solutions necessary to achieve the SDGs (Sullivan *et al.*, 2018); the role businesses play in this process is also crucial. As Mio *et al.* (2020) argue, businesses' contributions to achieving the SDGs have already been recognized in the literature (Haffar and Searcy, 2018; Sullivan *et al.*, 2018; Wicki and Hansen, 2019; García-Sánchez *et al.*, 2020; Tsalis *et al.*, 2020), and multinational corporations' inputs are especially seen as essential to success in pursuing sustainable development. By making SDGs align part of their strategies and business models, proactive, sustainable companies can generate new revenue, increase supply chain resilience, recruit and retain talent, spawn investor interest and ensure licenses to operate (Busco, 2020). Contributing to SDG achievement helps them increase their awareness regarding the resources they use and the impact of their activities on stakeholders (Busco, 2020). The rising awareness of the SDGs among companies is also reflected in their reporting. According to the latest KPMG (2020) report, SDGs' influence on reporting has increased significantly between 2017 and 2020. Nearly three-quarters of the companies (72%) considered in the PwC (2019) *SDGs Challenge 2019* study publicly mentioned the SDGs in their reporting publications.

As regard, the nonfinancial (or sustainability) corporate reporting regulation within the EU, Directive 2014/95/EU, implemented in December 2016, has been the most significant EU legislative initiative on nonfinancial disclosure in almost a decade (FEE, 2016; Krasodomska *et al.*, 2021). Since 2018, approximately 6,000 large public interest entities (PIEs [1]) in the EU have started disclosing nonfinancial information on their practices regarding environmental, social and labor issues, respect for human rights and anti-corruption and anti-bribery matters. Companies should also identify risks and implement policies related to these issues, which implies changes in their business models. The Directive aimed to enhance the transparency, consistency and comparability of sustainability-related information disclosed throughout the EU. According to some authors (Ottenstein *et al.*, 2022), this aim has been reached as both the quantity and quality of disclosures increased after the new rules had been implemented in PIEs' practice.

The text of the Directive 2014/95/EU refers to the *United Nations system* and *United Nations Global Compact* (UNGC) (EU, 2014, Introduction par. 9.11) but not directly to the SDGs. Although it is not obligatory, they may link the provided disclosures, especially related to strategies, targets and performance measurements, to particular SDGs. Therefore, SDG disclosures fall under the scope of nonfinancial (or sustainability) reporting. According to Rosati and Faria (2019a, p. 4), SDG reporting can be defined as "the practice of reporting

publicly on how an organization addresses the SDGs." In line with this approach, in this paper, we understand the term "SDG reporting" as the voluntary provision of information on one or more SDGs in nonfinancial (or sustainability)-related communication.

The problem investigated in this paper is the change of companies' reporting in response to the implementation of the Directive 2014/95/EU. Our study conceptualizes the implementation of SDG reporting as a social change and attempts to empirically test. Aguilera *et al.'s* (2007) multilevel theory of social change in organizations. Even though the decision to mention SDGs in the company's report might not be a direct result of the Directive, we expect that this regulation could have raised companies' overall awareness of sustainability and triggered changes in their reporting practices. The move toward SDG reporting in the EU is in line with Goal 12.6, which requires the UN Member States to "Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle."

The paper aims to identify the changes in the share of PIEs located in EU Member States providing SDG reporting prior to (2017) and after (2019) the implementation of Directive 2014/95/EU and the factors that influence their decisions to provide SDG reporting in 2019. We formulate the following research questions (*RQ*):

RQ1. Did the share of large PIEs providing SDG reporting change after the implementation of Directive 2014/95/EU?

RQ2. Which factors influence large PIEs' decisions to provide SDG reporting?

Our paper contributes to the literature on sustainability reporting as it provides new insights into the SDG reporting by PIEs located in the EU countries. Our study uses a sample size smaller than Pizzi *et al.*'s (2021). However, it uses two data sets – for 2017 and 2019. The timeframe covers the critical change in the sustainability reporting landscape in the EU introduced by Directive 2014/95/EU, which entered into force on January 1, 2017. This approach allows us to answer *RQ1* and state that the share of companies providing SDG reporting increased significantly in 2019 (after the implementation of the Directive) compared with the time before the implementation (in 2017). When it comes to the factors influencing large PIEs' decisions to provide SDG reporting (*RQ2*), we claim that relevant factors are transnational mechanisms for the provision of SDG reporting by selected EU-based companies in 2019, captured by UNGC engagement. SDG reporting is also positively influenced by previous experience in voluntary sustainability reporting, as well as the provision of SDG reporting in 2017.

The remainder of this paper unfolds as follows. The ensuing section presents the most important developments regarding SDG reporting within the EU. Next, the theoretical background is provided, followed by the literature review and hypothesis development. Then, the method used for empirical research is explained, as well as the research findings. The paper concludes by indicating the overall contribution of the study, and its limitations and suggesting recommendations for future research.

2. Sustainable Development Goals in the context of nonfinancial reporting in the European Union

On November 22, 2016, in response to the global 2030 Agenda (UN, 2015), the European Commission published its communication on "The next steps for a sustainable European future." The communication stressed that the EU is fully committed to being a frontrunner in implementing the 2030 Agenda and the SDGs, together with its Member States, in line with the principle of subsidiarity. The document refers to the particular SDGs, and

regarding the reporting process, mentions that the EC "will contribute by monitoring, reporting and reviewing progress toward the Sustainable Development Goals in an EU context" and that it will launch "initiatives to simplify environmental reporting" (EC, 2016).

The year 2017 was the first year under the new reporting regime introduced by Directive 2014/95/EU. Since the disclosure requirements were formulated rather broadly, it was announced that the EC will "prepare nonbinding guidelines on the methodology for reporting non-financial information, including non-financial KPIs, general and sectoral, with a view to facilitating relevant, useful and comparable disclosure of non-financial information by undertakings." (EU, 2014, article 2). The EC published two sets of such guidelines in 2017 and 2019.

In the 2017 "Guidelines on non-financial reporting (methodology for reporting non-financial information)" (EC, 2017), the EC states that "The disclosure requirements arising from the Directive make an important contribution toward the Sustainable Development Goals, for example, Goal 12 [2] on ensuring sustainable consumption and production patterns and Goal 5 [3] on achieving gender equality and empowering all women and girls. These requirements contribute to implementing the Paris Climate Agreement; notably, greater transparency is expected to lead to financial flows that are more consistent with a pathway toward low greenhouse gas emissions and climate-resilient development." UN SDGs and the 2030 Agenda were also used by the EC when preparing the guidelines, as the principles and contents described in the document were said to be built largely on these frameworks (EC, 2017).

The guidelines on climate-related disclosure, published in 2019 (EC, 2019), do not refer to particular SDGs, such as SDG 13 [4]; however, the SDGs are mentioned in the first sentence of the introduction, where EC states that:

> The 2015 Paris Agreement on Climate Change, the United Nations' Sustainable Development Goals and the Special Report of the Intergovernmental Panel on Climate Change (October 2018) all call for accelerated and decisive action to reduce greenhouse gas (GHG) emissions and to create a low-carbon and climate-resilient economy. The EU has agreed to ambitious targets for 2030 regarding GHG emission reductions, renewable energy and energy efficiency and has approved rules on GHG emissions [. . .].

It seems that the above EU declarations came true only partially. In fact, the EU might be seen as a frontrunner in implementing the 2030 Agenda and the SDGs. According to the 2020 Global SDG Index, all 10 countries closest to achieving the SDGs are European, as are 17 of the top 20 countries. This is a remarkable performance from an international perspective (SDSN, 2020). At the same time, according to the Alliance for Corporate Transparency and Frank Bold (2019) report, with the exception of Austria, Belgium, Denmark, Spain and Sweden, only a minority of companies make any reference to the SDGs in their reports across the rest of the EU. On a global level, in regard to connecting sustainability activity with SDGs within the providing disclosures, Japanese companies lead the way. They are followed by Germany and France, with the USA and China next in line (KPMG, 2020).

The differences in regard to SDG reporting within the EU might be linked to the fact that, despite being under the same regulatory regime, Member States are not the same. The EU consists of different institutional and legal environments, with divergent levels of economic development, population sizes, religious affiliations, cultural backgrounds, languages and ethical frameworks (Panfilo and Krasodomska, 2022; Steurer *et al.*, 2011). Moreover, the mere fact that EU countries are ranked high in regard to reaching the SDGs does not necessarily mean they are advanced with respect to SDG reporting. For example, Finland,

which tops the 2020 Europe SDG Index, is not included among the countries acknowledged by a report prepared by the Alliance for Corporate Transparency and Frank Bold (2019).

3. Theoretical background

While discussing the corporate sustainability drivers, Lozano (2013, p. 34) states that "in the corporate context, the study and management of change is most relevant." We consider moving toward SDG reporting as a positive social change, and we use the multilevel theoretical model developed by Aguilera *et al.* (2007) as our theoretical background.

The model was originally developed to explore "why corporations around the world might trigger positive social change by engaging in corporate social responsibility (CSR) initiatives" (Aguilera *et al.*, 2007, p. 836). SDG reporting, the focus of our paper, similar to CSR initiatives, is a result of corporations being pressured by internal and external actors to meet changing expectations about business and its responsibilities. Aguilera *et al.* (2007) distinguish four levels of CSR: transnational, national, organizational and individual.

As Aguilera *et al.* (2007) posit, transnational actors that push firms to enact CSR policies include advocacy institutions and intergovernmental organizations, such as the EU. They follow instrumental motives, for example, the aim of the Lisbon Strategy, launched in 2000 by the EU, was to make Europe "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (ECON, 2021). They also follow relational (through multiparty relationships, partnerships with companies, information networks, coalitions that coordinate strategies) and moral (e.g. altruism-driven with respect to non-governmental organizations) motives. We assume that similar forces will drive SDG achievement as it is a global challenge which requires collective actions on an international level. As regard SDG reporting, which is voluntary, significant pressure may be exerted by transnational organizations such as the UNGC or global reporting initiative (GRI), which issue reporting guidelines. According to Post (2012), the UNGC is an important milestone in the history of global CSR. However, there are also some critical voices regarding its role in enhancing companies' CSR efforts (Sethi and Schepers, 2014; Berliner and Prakash, 2014). GRI provides the most widely used and cited sustainability standards globally (KPMG, 2020) and is championing the institutional field of sustainability reporting. Nevertheless, despite the acknowledgment of the importance of the international standards for the CSR development, Aguilera *et al.* (2007) note that their coverage may not be as broad as the laws passed by governments on the national levels.

"Government action - both enacting laws and enforcing them is an important factor influencing firms to implement CSR initiatives and so become agents of social change" (Aguilera *et al.*, 2007, p. 848). Governments' motivations to establish high standards for CSR can be identified as instrumental (establishing competitive business environments), relational (promoting social cohesion) and moral (companies have a collective responsibility to contribute to a better society). Governments are the first called on to make fundamental changes in consumption and production patterns, mentioned in the Agenda 2030 (UN, 2015, par. 28). The role of national parliaments in ensuring accountability for the effective implementation of agenda commitments is also acknowledged (par. 45). Governments and public institutions are encouraged to cooperate with other stakeholders and decide how global targets should be incorporated in national planning processes, policies and strategies. The important role of nation-level institutions as a driver of companies' social performance was identified by e.g. Ioannou and Serafeim (2012). According to the study findings, the political system, followed by the labor and educational systems impact the variation in companies' social performances.

On the organizational level, companies are under pressure exerted by different actors to adopt socially responsible initiatives. Firms operate in industry institutional settings that

shape their strategic decisions. Again, there are instrumental (increasing competitiveness of the firm), relational (answering stakeholder expectations) and moral (attempting to bring about a fairer world) motives behind their pursuit of CSR. Specific norms, values and beliefs shape the behavior of companies operating in a given industry, some of which are enacted into law. According to Silva (2021), joint industry initiatives can facilitate and align contributions to the SDGs of companies in the same industry.

According to Aguilera *et al.*'s (2007) model, employees are crucial stakeholders in any organization. On the individual level, employees might push companies to engage in CSR initiatives. If a company has a general concern for justice and equality, employees may assume that chances are conditions will be fair for them, satisfying their need for control (instrumental motives). CSR fosters positive social relationships, and therefore, relational needs become highly relevant. Following moral motives, employees will seek to work for companies whose strategies are consistent with their ethical frameworks. Aguilera *et al.* (2007) believe that an organization's social actions (positive or negative) provide employees with critical information to use in judging the fairness of the organization. When we consider the social change toward a sustainable global economy, such information about the corporate actions addressed to employees, and other stakeholders takes the form of SDG reporting.

4. Literature review and hypothesis development

Several studies have examined the factors influencing companies' decisions to provide a reference to SDGs in corporate reports. The most common source of information about SDG reporting was the GRI's Sustainability Disclosure Database (Rosati and Faria, 2019a, 2019b; Elalfy *et al.*, 2021, hereafter GRI database). Most studies used international samples, and one took the Italian perspective (Pizzi *et al.*, 2020). Usually, the data set was based on one year, except for the Elalfy *et al.* (2021) study. The studies referred to theories such as stakeholder theory, legitimacy theory and signaling theory and were able to identify several factors that positively influence corporate SDG reporting decisions. Studies' findings confirm that the highest percentages of SDG reporting come from South America and Europe (Elalfy *et al.*, 2021) and from large companies (Rosati and Faria, 2019b; Elalfy *et al.*, 2021; García-Sánchez *et al.*, 2021). Long-term orientation and indulgence (Rosati and Faria, 2019a; Pizzi *et al.*, 2021) seem to be the most impactful cultural values out of all proposed by Hofstede (2022). Sustainability frameworks, guidelines and standards, as well as expertise with nonfinancial reporting, were also found to positively impact corporate SDG reporting (Rosati and Faria, 2019b; Elalfy *et al.*, 2021; Pizzi *et al.*, 2020). Some aspects of corporate governance mechanisms (Rosati and Faria, 2019b; Pizzi *et al.*, 2020; García-Sánchez *et al.*, 2021), as well as the decision to use external assurance (Rosati and Faria, 2019b; Elalfy *et al.*, 2021), were also found to be important. Table 1 presents information about the determinants of SDG reporting identified by the selected studies.

In the current study, we use the multilevel theory of social change in organizations (Aguilera *et al.*, 2007), and we focus on four levels of pressures important for the development of SDG reporting, namely, on the transnational level (international institutions and organizations), country level (related to government), organizational level (industry profile) and individual level (experience in reporting caused by the need to meet employees' and other stakeholders' information needs).

According to Rosati and Faria (2019b), companies' engagement in voluntary sustainability programs such as the Carbon Disclosure Project or the UNGC can positively impact their decision to provide SDG reporting. In 1999, Kofi Annan, then Secretary-General of the UN, announced a new initiative, the UNGC. Since its launch in July 2000, it has sought to promote global economic development that is beneficial to society (Waddock, 2004; Janney *et al.*, 2009). The UNGC is a voluntary initiative based on CEO commitments to

Table 1.
Selected studies on the SDG reporting determinants

Author (year)	Theoretical underpinning	Research sample	SDG reporting proxy	Factors positively influencing companies' decision	Other factors analyzed
Rosati and Faria (2019b)	Stakeholder theory, legitimacy theory, and signaling theory	408 sustainability reports, 11 countries plus "others" category	GRI database (2016)	Size, level of intangible assets, commitment to sustainability frameworks, external assurance, share of female directors, age of board of directors	Economic performance
Rosati and Faria (2019a)	None	2,413 sustainability reports, 90 countries	GRI database (2016)	Levels of climate change vulnerability, national corporate social responsibility, company spending on tertiary education, indulgence and individualism, level of market coordination, employment protection	Political and legal system, environmental policy, economic development, economic freedom, ownership concentration, human development, civic engagement, level of masculinity, uncertainty avoidance, spending on R&D, university-industry collaboration in R&D, innovation capacity, technological knowledge, level of education, density of trade unions, environmental performance, sustainable development, climate adaptation readiness
Elalfy *et al.* (2021)	Legitimacy theory	14,308 reports were provided by 9,397 companies located in Africa, Asia, Europe, Latin America and The Caribbean, Northern America and Oceania between 2016 and 2017	GRI database (2016, 2017)	Size, status (listed), industry (higher sustainability impacts), region, international sustainability guidelines and standards, external assurance	Organization type

(*continued*)

Author (year)	Theoretical underpinning	Research sample	SDG reporting proxy	Factors positively influencing companies' decision	Other factors analyzed
Pizzi *et al.* (2020)	None	153 reports of Italian PIEs	SDG Reporting Score (SRS) based on the SDG Compass Guidelines (2018)	Sustainability risk, the presence of independent directors on the board, expertise with nonfinancial reporting, and length of the report	Status (listed/unlisted), financial performance, size, sector (financial/nonfinancial, board size, women on board, number of board meetings, CSR committee, standalone report, adoption of GRI standard
Pizzi *et al.* (2021)	None	873 reports of PIEs, 28 countries	Alliance for Corporate Transparency dataset (2020)	Long-term orientation and indulgence	Individualism, masculinity, power distance, uncertainty avoidance
Garcia-Sánchez *et al.* (2021)		1,535, 53 countries	SDG Compass strategy adoption	The level of the legal system development, cost of capital, analyst coverage, firm size, CEO education and training in CSR issues, board size, CSR committee	Industry, cultural values, firm age, integration of sustainability-related targets in CEO compensation, board diversity

Table 1.

implement universal sustainability principles and to take steps to support UN goals (Pereira *et al.*, 2019; Elia *et al.*, 2020). We argue that engagement in UNGC, due to the closest relations with the UN Agenda 2030 and SDGs, might be a particularly relevant factor with regard to SDG reporting. It is worth noting that in 2018, the GRI and UNGC set up a joint initiative [i.e. reporting on the SDGs (GRI, 2021; UNGC, 2018)] aimed at enabling "businesses to incorporate SDG reporting into their existing processes, empowering them to act and make the achievements of the SDGs a reality" (UNGC, 2018; Rosati and Faria, 2019a). Given the above, we formulate the following hypothesis:

H1. Company engagement in the UNGC positively influences the decision to report on SDGs.

SDG implementation is a long-term project, with the deadline set in the Agenda for 2030. It is a future-oriented, strategic plan (Pizzi *et al.*, 2021). Several studies have focused on the impact of a long-term orientation as one of Hofstede's (2022) cultural dimensions on corporate sustainability-related disclosures (Panfilo and Krasodomska, 2022; Bradley *et al.*, 1999; Orij, 2010; García-Sánchez *et al.*, 2016; Khlif, 2016). Studies that explicitly focus on SDGs have found that an orientation toward the future is positively associated with companies' decisions to report on SDGs (Pizzi *et al.*, 2021; Rosati and Faria, 2019a). The reason for this is that societies with long-term orientations are more interested than those focusing on the present in adopting strategies based on the long run (Rosati and Faria, 2019a). At the same time, the achievement of the SDGs represents one of the main long-term challenges for governments due to the global pressures made by worldwide stakeholders. The future orientation of governments implies that it sees the need to build long-term and strategic competitive advantages. Therefore, we expect that firms operating in countries in which governments are more future-oriented would more likely provide references to SDGs and inform stakeholders about their impacts on the common future. Accordingly, we develop the following hypothesis:

H2. Future orientation of the government positively influences companies' decisions to report on SDGs.

Industry was found to be an important determinant of sustainability reporting (Fifka, 2013; Gamerschlag *et al.*, 2011; Ho and Taylor, 2007; Salehi *et al.*, 2019), and higher levels of disclosure are linked to sensitive industry sectors (Al Farooque and Ahulu, 2017). According to Elalfy *et al.* (2021), companies operating in industries with higher expected environmental and social impacts tend to report on the SDGs more frequently than those in industries with lower impacts. Firms representing manufacturing and energy sectors, which are associated with high environmental externalities, report on their sustainability performance in a way that addresses societal needs. Therefore, we posit that:

H3. Companies' industry sensitivity positively influences the decision to report on SDGs.

One of the factors that influence sustainability (or nonfinancial) reporting is the pressure of some groups of stakeholders (e.g. employees, customers, investors and environment) (Fernandez-Feijoo *et al.*, 2013) and companies' obligation to consider and respond to stakeholder information needs is stressed in the literature (Zarzycka and Krasodomska, 2022).

In regard to this type of disclosure, the reporting companies can be divided into two groups: early adopters and late adopters. The main difference between them is related to their awareness and degrees of orientation to sustainability issues (Pizzi *et al.*, 2020). Early adopters are typically more interested in nonfinancial (sustainability) disclosures because

they began providing them earlier than their peers on a voluntary basis (Luo *et al.*, 2017). Before the introduction of Directive 2014/95/EU, most companies in the EU provided sustainability-related disclosures voluntarily and started to do so at various points in time. Therefore, they have a different experience in this regard. Experience in sustainability (or nonfinancial) reporting was found to be crucial for further reporting practices and decisions (Lock and Seele, 2016; Ruhnke and Gabriel, 2013; Albertini, 2013; Pizzi *et al.*, 2020). We assume that companies that had already practiced sustainability reporting, particularly on SDGs, will be more likely than others to disclose their contribution to the SDGs in the following years. Accordingly, we develop the following hypothesis:

H4. Companies' previous experience in sustainability-related reporting positively influences the decision to report on SDGs.

5. Research design

5.1 Data set

Data collection was performed in the period July–October 2020 with the use of the GRI database, which was also used in previous studies (Rosati and Faria, 2019a, 2019b; Elalfy *et al.*, 2021). The GRI database stored and tracked critical reporting and associated organizational data. Advanced search functionality allowed filtering and sorting of reports and organizations by multiple criteria, revealing trends and patterns in reporting practices. Every organization that published a sustainability/integrated report that was included in the database had an Organization Profile page. When the data was collected, the information on whether the report addressed any of the SDGs was also available as a part of the companies' profiles, along with other report characteristics (e.g. external assurance or standards used).

The 7,329 reports included in the GRI database and published in 2017 were the primary source of the data. Out of these, we selected large PIEs based in 27 EU Member States (Austria, Belgium, Denmark, Finland, Germany, Greece, Hungary, Ireland, Luxembourg, The Netherlands, Portugal, Sweden, Bulgaria, Croatia, the Republic of Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Spain, Italy and France). After that, we identified companies which published their reports also in the year 2019. We observed differences among the countries when it comes to the data available for both years. For example, large PIEs located in Bulgaria, Malta, the Republic of Cyprus and Slovakia did not submit their reports published in 2019 to the GRI database. Therefore, we had to exclude these companies from the sample. In total, 19.9% of the sample companies are in Sweden, 14.7% in Germany, 10.0% in Finland and 9.1% in Spain. The share of Italy, Greece, France, Poland and Austria is between 5% and 6.2%. Other countries account for 17.2% of all the companies in the data set. Our final data set comprises 341 companies and two subsets of information: one for the publication year 2017 (before the Directive 2014/95/EU came into force) and the other for 2019. The companies' characteristics according to country of location are presented in Appendix. The data was transferred manually from the GRI database to an observation sheet.

5.2 Research approach

To answer the *RQ1*, we apply the statistical significance test of equal proportions. To examine the hypotheses linked to the *RQ2*, we use the logistic regression model given by the equation:

$$P(y_i = 1|X_{1i}, \ldots, X_{ki}) = \frac{\exp(\beta_0 + \beta_1 X_{1i} + \ldots + \beta_k X_{ki})}{1 + \exp(\beta_0 + \beta_1 X_{1i} + \ldots + \beta_k X_{ki})}, i = 1, \ldots, \ n$$

where y_i is the dependent variable, $X_{1i}, \ldots, X_{ki}$ are explanatory variables and $\beta_0, \beta_1, \ldots, \beta_k$ are coefficients. The model is used for the analysis of a binary dependent variable and allows the researcher to determine which explanatory variables influence the probability that the dependent variable takes the value of 1. In particular, the model can express the probability of a company's decision to report on SDGs in 2019 (described by the dependent variable: 1 – a decision to report on SDGs, 0 – a decision not to report on SDGs) depending on some characteristics of that company.

We use the stepwise both-direction algorithm, which chooses the best model according to *the Akaike information criterion* (*AIC*). By minimizing the *AIC*, the algorithm leads to the model with a set of explanatory variables describing the dependent variable best. To examine the goodness of fit of the models, we calculate *McFadden's pseudo-R^2*. To evaluate the prediction power of the models, we use (cf. Pawełek *et al.*, 2017) *the sensitivity measure* calculated as a percentage of the companies providing SDG reporting in 2019 correctly classified by the model; *the specificity measure*, which is a percentage of the companies not providing SDG reporting in 2019 correctly classified by the model; *the accuracy measure*, which is a percentage of the companies correctly classified by the model into one of the groups mentioned above; and *the area under the curve measure* – an area under the receiver operating characteristic curve that presents the sensitivity as a function of 1-specificity (cf. Birdsall, 1973). To make the results generalizable, we used nonparametric bootstrap method. We generated R = 10,000 resamples obtained by independent sampling with replacement from the empirical distribution (cf. Davison and Hinkley, 1997; Chernick, 2008). We used the R environment to perform the calculations.

5.3 Dependent, independent and control variables

In our study, the dependent variable was the decision to report on SDGs in 2019 (SDG2019). It is a binary variable coded with the use of the GRI database as a source of information. The variable takes a value equal to 1 if the company's report published in 2019 explicitly referenced any of the SDGs.

To explain the decision on SDG reporting in 2019 by companies in our data set, we consider the independent and control variables presented in Table 2. The independent variables are taken from the GRI database, *Global Competitiveness Report* (WEF, 2019) and the *Sustainable Development Report* (Sachs *et al.*, 2021). The sources ensure comparability of the data measurement across countries.

The future orientation of the government (FUTU) is a variable based on the Global Competitiveness Report (WEF, 2019). This report is based on various sources of information, as well as the Executive Opinion Survey, and has been used in previous studies (Ioannou and Serafeim, 2012; Rosati and Faria, 2019a). The FUTU variable is comprising seven indicators derived from the Executive Opinion Survey, such as:

(1) government ensuring policy stability;
(2) responsiveness to change;
(3) long-term vision;
(4) legal framework's adaptability to digital business models;
(5) energy efficiency regulation;
(6) renewable energy regulation;
(7) environment-related treaties in force; and
(8) The variable value is from 0 to 100.

Variable name	Variable description	Data source
Dependent variable		
SDG2019	*SDG reporting in 2019* Binary, measured as 1 if any of the SDGs is explicitly referenced in company's 2019 report and 0 otherwise	GRI database
Independent variables		
FUTU	*Future orientation of the government* Measure covers such aspects as government ensuring policy stability, responsiveness to change, long-term vision, legal framework's adaptability to digital business models, energy efficiency regulation, renewable energy regulation, environment-related treaties in force. Value 1–100	The Global Competitiveness Report (WEF, 2019)
UNGC	*Company's membership in UNGC* Binary, measured as 1 if UNGC is explicitly referenced in report and 0 otherwise	GRI database
EXPE	*Company's experience in nonfinancial reporting*, measured as the number of sustainability reports included in the GRI database	GRI database
SDG2017	*SDG reporting in 2017* Binary, measured as 1 if any of the SDGs is explicitly referenced in company's 2017 report and 0 otherwise	GRI database
ENER, PROD, OTHER	*Industry sensitiveness* Three indicator variables; each equals 1 when firm belongs to energy (ENER), production (PROD) and other (base category) industry sectors and 0 otherwise	GRI database
Control variables		
SIZE	*Firm size.* Logarithm of the total assets	GRI database
IMPL	*SDG implementation score* The overall score which measures a country's total progress toward achieving all 17 SDGs. Value 1–100	The Sustainable Development Report (Sachs *et al.*, 2021)
CORP	*Corporate governance score* Measure covers such aspects as the strength of auditing and accounting standards, conflict of interest regulation, shareholder governance. Value 1–100	The Global Competitiveness Report (WEF, 2019)

Table 2.
Variables used in the logistic regression model

Company engagement in UNGC (UNGC) and experience in sustainability reporting (EXPE) are retrieved from the GRI database, and the decision to refer to SDGs in corporate reporting in 2017 (SDG2017). The GRI database provides information about whether UNGC is explicitly referenced in a report. The database also allows identifying the number of reports prepared, published and submitted to GRI by a company, as well as finding out if SDGs are explicitly referenced in the company's report in a particular year. In our study, the variable SDG2017 captures if any of the SDGs is referenced in the company's 2017 report.

Following Elalfy *et al.* (2021), we view the energy and production (ENER, PROD) industries as being more exposed to environmental and social risks. Therefore, we expect companies operating in these industries to perceive a greater need to provide SDG reporting.

Following the literature, we include such control variables as size (SIZE) (Rosati and Faria, 2019b; Elalfy *et al.*, 2021) and SDG implementation score (IMPL) (Rosati and Faria, 2019a). Size is measured as a logarithm of the total assets, and SDG implementation score is the overall score which measures a country's total progress toward achieving all 17 SDGs available in the *Sustainable Development Report* (Sachs *et al.*, 2021). The score can be interpreted as a percentage of SDG achievement. A score of 100 indicates that all SDGs have been achieved. To capture the corporate governance impact, we used the country-level corporate governance score (CORP). This measure, as the future orientation of the government (FUTU), is provided in the *Global Competitiveness Report* (WEF, 2019). It covers aspects such as the strength of auditing and accounting standards, conflict of interest regulation and shareholder governance. The measure is based on the World Bank Group data and Executive Opinion Survey. It takes value from 0 to 100.

6. Research results

6.1 Sustainable Development Goal reporting in 2017 and 2019

According to our findings, 143 companies, which constitute 41.94% of our sample, provided SDG reporting in 2017. In 2019, reporting on SDGs was carried out by 178 companies (52.20%). As mentioned before, the companies might have changed their SDG reporting decision in both directions. Table 3 presents the differences in the share of companies that decided to provide SDG reporting in the total number of companies for both years.

Only 100 companies (29.32%) reported SDGs in both 2017 and 2019. In regard to the companies that changed the reporting decision, 78 companies (22.87%) that did not report SDGs in 2017 decided to include a reference to them in 2019. However, in the case of 43 companies (12.61%), SDG reporting stopped, although SDGs were referenced in corporate reports published in 2017. The remaining 120 companies (35.19%) did not provide SDG reporting in either 2017 or 2019. This result supports the Alliance for Corporate Transparency and Frank Bold (2019) findings, according to which many companies in EU countries do not make any reference to the SDGs in their reports.

Figure 1 shows the companies' decisions on SDG reporting in analyzed years by country. The companies in different countries changed their decision in different ways. Particularly, we observe a decrease in the number of companies reporting SDGs in 2019 compared to 2017 in Sweden, France and Denmark. There are also companies located in Estonia, Slovenia, Lithuania, Latvia and the Czech Republic which do not report on SDGs in any analyzed year. All other countries have experienced an increase in the number of companies reporting on SDGs.

To assess the significance of the identified differences, we use the statistical significance test of equal proportions. Based on the results, we can conclude that the percentage of companies providing SDG reporting in 2019 is significantly higher (at a significance level of 0.01) than that in 2017. Despite the fact that few EU-based companies decided to report on

Table 3.
Share of companies that provided SDG reporting in 2017 and 2019 (341 = 100%)

	SDG reporting provided in 2017 (%)	No SDG reporting provided in 2017 (%)
SDG reporting provided in 2019	29.32	22.87
No SDG reporting provided in 2019	12.61	35.19

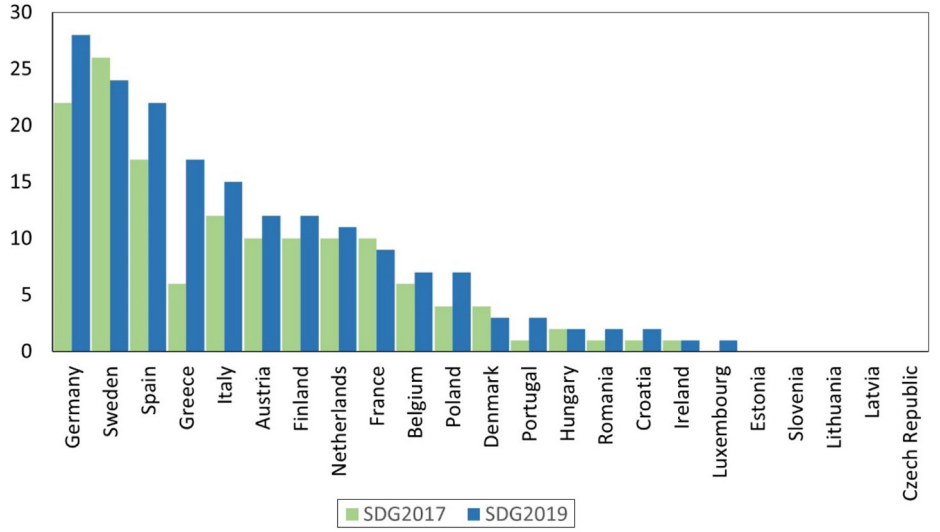

Figure 1. Number of companies that report SDGs in 2017 (green) and 2019 (blue) by country

SDGs, we can identify a significant positive change in this regard between 2017 and 2019. The implementation of the most important legislation related to sustainability disclosures – Directive 2014/95/EU – among other factors might have contributed to this change.

6.2 Determinants of Sustainable Development Goal reporting in 2019

6.2.1 Descriptive statistics. Table 4 presents the descriptive statistics of the variables used in the study (minimum value, maximum value, average, standard deviation and median). In the case of binary variables, the percentage of 1 value is presented as a mean. The information provided in Table 4 is also complemented by Figure 2, which presents the boxplots with the medians (thick horizontal lines) and the means (black circles).

As already mentioned, in 2017, 41.94% of companies in our sample provided SDG reporting, and in 2019, it was 52.20%. 47.5% of the companies declared their engagement in UNGC. About 29% of the companies belonged to the production sector, 12.6% – to the energy sector and 58.4% – to other industry sectors. Accordingly, the future orientation (FUTU) of the countries where sample companies were located varies between 46.4 (Croatia)

Variable	Minimum	Maximum	Mean	SD	Median
SDG2019	0	1	0.522	–	–
SDG2017	0	1	0.420	–	–
UNGC	0	1	0.475	–	–
ENER	0	1	0.126	–	–
PROD	0	1	0.290	–	–
FUTU	46.40	81.30	67.64	9.99	71.60
CORP	55.70	74.60	67.14	5.67	69.30
IMPL	74.31	84.72	80.65	3.12	80.77
SIZE	2.02	13.83	8.23	2.20	8.21
EXPE	3	21	10.93	4.08	10.00

Table 4. Descriptive statistics of variables used in the study

and 81.3 (Luxemburg) and their corporate governance scores (CORP) are between 55.7 (Hungary) and 74.6 (Austria). The boxplot shows that the distribution of FUTU is left-skewed, and the companies located in countries with values of that indicator higher than 67.6 (the mean) are predominant (i.e. the median is higher than the mean). The distribution of CORP is left-skewed, too. More than 50% of the companies are located in countries with CORP values higher than 67.1 (the mean). The implementation level of SDGs (IMPL) is rather high – mean value equals 80.7 (the minimum value is 74.3 and the maximum value is 84.7, for Luxemburg and Sweden, respectively). The boxplot of IMPL shows weak left-side skewness of the distribution. The average of that indicator (80.7) is almost equal to the median (80.8). These boxplots demonstrate that the data set includes companies from countries with fairly high indicators in these three areas (captured by FUTU, CORP, IMPL). These findings seem to be positive as they suggest that, on average, the governments in the EU countries are future-oriented, corporate governance mechanisms are sound and they are advanced when it comes to the achievement of all the 17 SDGs. The last boxplot shows that the distribution of company size (SIZE) is nearly symmetric, with the median (8.2) being equal to the mean (8.2).

In the study, the company experience in sustainability reporting (EXPE) varies between 3 and 21 years, with an average of almost 11 years (see Table 4). The boxplot of EXPE depicts that 50% of the companies had an experience between 10 (the median) and 21 years. The distribution is right-skewed. Thus, there is a slight predominance of the companies with less than 11 years' experience (the mean) in our data set (see Figure 3).

6.2.2 Logistic regression analysis. We investigate the impact of the variables described above on the companies' decisions on SDG reporting in 2019 using the logistic regression model. We use the model to determine a set of explanatory variables influencing the probability of SDG reporting in 2019 and the direction of their influence. As mentioned before, to make the results generalizable, we used the ordinary bootstrap method with R = 10,000 replicates. Thus, we considered 10,000 logistic regression models estimated on bootstrap samples. In each sample, we use the stepwise algorithm with the *AIC* for selecting a set of explanatory variables in the logistic model. The variables that remain in the model are those with a significant impact on the probability of SDG reporting in 2019. However, not all variables remain in all 10,000 models considered. Analyzing the frequency of variable occurrences, we can determine to which extent they contribute to the decision on SDG reporting in 2019. Table 5 presents the mean values of the coefficients and the percentage of

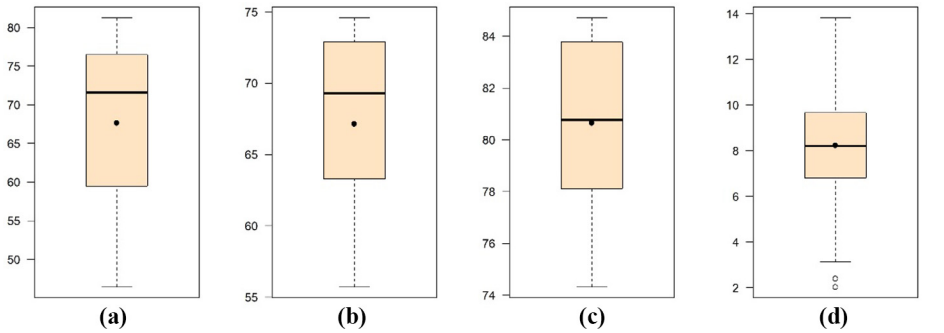

Figure 2.
Boxplot of (a) the future orientation of the government (FUTU), (b) the corporate governance score (CORP), (c) the SDG implementation score (IMPL) and (c) company size (SIZE), with the median (a thick horizontal line) and the mean (a black circle)

models in which a variable has stayed among all obtained models and the percentage corresponding to a positive and negative influence on the analyzed probability.

The results indicate that the variables UNGC, EXPE and SDG2017 are crucial in almost all models (100%, 89.77% and 97.97%, respectively, see Table 5) to explain the probability of SDG reporting in 2019. Moreover, these variables have a positive influence on the analyzed probability. Companies that are members of the UNGC (UNGC) and, similarly, those with greater experience in nonfinancial reporting (EXPE) or those providing a reference to SDGs in 2017 (SDG2017) are more willing to provide SDG reporting in 2019. Therefore, we are able to support *H1*, according to which companies' engagement in the UNGC positively influences the decision to report on SDGs. Consequently, we support Aguilera *et al.* (2007) claim that transnational actors that push firms to change their social and environmental policies include advocacy institutions and intergovernmental organizations. Incorporating SDGs into existing processes is a global challenge and requires global actions. UNGC is an organization that represents the coordinated, cross-country movement toward making the SDG achievement a reality. It seems that in the EU context, its impact is crucial. Therefore, we also add a positive voice to the debate around the UNGC impact on how businesses practice CSR (Berliner and Prakash, 2014; Sethi and Schepers, 2014).

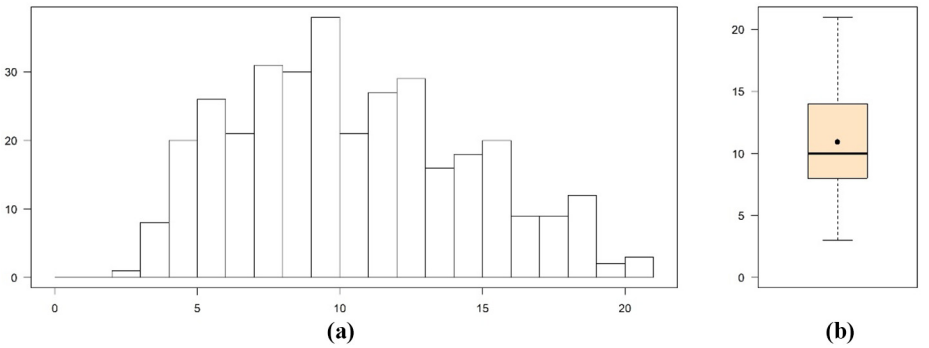

Figure 3.
Histogram (a) and the boxplot (b) of companies' experience in nonfinancial reporting (EXPE)

Variable	Mean of coefficient	Frequency with which a variable is included in the model	Frequency with which a variable is included in the model with a positive influence	Frequency with which a variable is included in the model with a negative influence
Intercept	7.933	100.00	99.99	0.01
FUTU	0.041	47.89	47.48	0.41
UNGC	1.311	100.00	100.00	0.00
EXPE	0.105	89.77	89.76	0.01
SDG2017	0.996	97.97	97.97	0.00
ENER	−0.767	30.45	2.48	27.97
PROD	−0.639	50.27	0.35	49.92
SIZE	−0.124	31.20	1.71	29.49
$IMPL^2$	−0.002	99.84	0.00	99.84
CORP	0.062	29.81	28.17	1.64

Table 5.
Results of the logistic regression model based on 10,000 bootstrap samples

The findings are also in line with the *H4*, which states that a company's previous experience in sustainability-related reporting positively influences the decision to report on SDGs. Stakeholder pressure is another important factor that shapes corporate reporting practices (Zarzycka and Krasodomska, 2022), and employees are one of the most important stakeholder groups (Aguilera *et al.*, 2007). Addressing their information needs results in voluntary sustainability (or nonfinancial) reporting and SDG reporting. Early adopters are more aware of and more orientated to sustainability issues (Pizzi *et al.*, 2020). Therefore, they are more experienced and eagerly disclose their contribution to the SDGs to inform their employees and other stakeholders. The EU is the most advanced but not homogenous region when it comes to sustainability issues and related disclosures. The differences between the EU member states' approaches were the main driver of the introduction of the Directive 2014/95/EU (Panfilo and Krasodomska, 2022). It seems that despite the ambition to establish a "level playing field" regarding sustainability reporting in the EU, the differences which are rooted in pre-Directive times differentiate the companies' approaches to SDG reporting.

Aguilera *et al.* (2007) posit that specific norms, values and beliefs shape the behavior of companies operating in a given industry. Regarding sustainability reporting, the need to provide disclosures is greater in sensitive industry sectors (Al Farooque and Ahulu, 2017), with higher expected environmental and social impacts (Elalfy *et al.*, 2021). These industries are expected to have greater motivation to report on SDGs. However, the company's membership in the industry sectors considered in the study has an ambiguous influence on the probability of SDG reporting in 2019. Thus, *H3* is not supported. The frequencies of variables occurring with a significant impact, predominantly with a negative sign, equals approximately 50.27% (PROD) and only 30.45% (ENER) of the logistic regression models. The companies from production or energy sectors may be less likely or as likely to provide SDG reporting in 2019 compared with the base category, which contains companies from all other industry sectors.

We obtain less conclusive results with respect to the other variables. Aguilera *et al.*'s (2007) model assumes that governments are important agents of social change, and their actions are driven by certain instrumental, relational and moral motives. This assumption, combined with the literature on the impact of the long-term orientation on SDG reporting (Pizzi *et al.*, 2021; Rosati and Faria, 2019a) allowed us to expect that companies operating in countries in which governments are more future-oriented would be more likely to provide references to SDGs in their reports. The future orientation of the government (FUTU) has an important and positive influence in approximately 44.39% of models on the probability of SDG reporting in 2019. The percentage of models in which the variable has a negative influence is only approximately 0.5%. The increase in the future orientation of the government may increase the probability of SDG reporting in 2019 by companies. However, due to staying in approximately 44.89% of the models, the variable is not necessarily the most important determinant of SDG reporting in 2019 but should be considered a potentially relevant determinant. Therefore, we cannot support *H2*, which states that the future orientation of the government positively influences companies' decision to report on SDGs. This finding is surprising, especially considering the European context. As mentioned earlier, European Governments are considered to be the most aware of the importance of the SDGs achievement. According to our study findings, they are also, on average, future-oriented. However, this does not have an impact on the companies' SDG reporting decisions.

Somewhat surprising is the result that company size (SIZE, measured as the logarithm of total assets) appears in only 31.20% of the models as a variable that influences the considered probability. The impact of this variable is positive in 1.71% of the models but

negative in the remaining 29.49% of the models. In contrast to previous studies (Rosati and Faria 2019b; Elalfy *et al.*, 2021), we can conclude that SIZE, in the case sample companies, does not help explain companies' decisions to refer to SDGs in 2019. In the preliminary study, we also consider taking the square of this variable, but we do not obtain more informative results. The reason for such a result might stem from the fact that our sample companies are all large companies; therefore, firm size might not be a relevant factor when explaining the differences in their reporting decisions.

We receive a thought-provoking result in the case of the variable describing the SDG implementation score (IMPL). After the preliminary study, we decide to include this variable as the square of IMPL (i.e. $IMPL^2$) in the logistic regression model. The result obtained suggests that the variable may be one of the substantial factors in deciding to refer to SDGs in corporate reporting or not. The coefficient of the square of IMPL is negative in almost all of the models (99.84%, see Table 5). Thus, up to a certain level of the SDG implementation score, companies are more determined to refer to SDGs, but over a certain level, they are less likely to refer to SDGs in nonfinancial reports in 2019. The impact of the square of the implementation score on the probability of SDG reporting in 2019 is not large; however, it is relevant.

The variable describing corporate governance (CORP) stays in only approximately 29.81% of the logistic regression models predominantly with a positive influence on the considered probability (28.17%). However, there are approximately 70% of the models in which the variable does not appear relevant to explain the analyzed phenomenon. This means that higher CORP values may be associated with a higher probability of SDG reporting in 2019 or may not affect it at all.

Table 6 presents the average values of the measures of the goodness of fit. In each step, we choose the best model in the sense of minimizing the *AIC*. McFadden's *pseudo-*R^2 (0.21, on average) indicates that the quality of the obtained logistic regression models is satisfactory. Additionally, the prediction power (*in-sample*) of the models is at an acceptable level. The sensitivity measure indicates that approximately 73.86% of companies (on average) were properly classified by the model into the group of entities referring to SDGs in 2019. On the other hand, the specificity measure indicates that approximately 71.21% of companies (on average) were properly classified by the model into the group of entities not referring to SDGs in 2019. The overall classification accuracy indicates that approximately 72.74% of companies (on average) are properly classified by the model into one of the abovementioned groups of entities. All these features considered, the model is relevant to describe the probability of the company's decision on SDG reporting in 2019 depending on the set of variables applied in our study.

7. Conclusion

Many proposed and existing EU policies aim to achieve the Agenda 2030, even though they may not be explicitly framed in terms of SDGs. According to the SDSN (2020), there is no

Table 6.
Average values of the measures of the goodness of fit of the logistic regression model based on 10,000 bootstrap samples

Mean of *AIC*	Mean of *pseudo-*R^2	Mean of *AUC*	Mean of *accuracy*	Mean of *sensitivity*	Mean of *specificity*
383.70	0.21	72.54	72.74	73.86	71.21

need to launch a new EU-wide SDG strategy process. However, there is a pressing need to maintain a strong political commitment to the SDGs, to track progress and to communicate (to Europeans and others) how the EU and its Member States are working to achieve them. On the company level, integrating sustainability material into reporting cycles in the form of SDG reporting is a natural way to share information on their work toward the achievement of the goals and, at the same time, is in line with SDG 12, target 12.6.

According to our findings, SDG reporting differs within the EU. Out of all companies included in our sample, Germany, Sweden and Spain are the countries where the highest number of companies provided SDG reporting in both analyzed years (2017, 2019). Finding Sweden among the top three countries is not surprising since it is acknowledged as advanced regarding SDG achievement and related reporting (SDSN, 2002; Alliance for Corporate Transparency and Frank Bold, 2019). Spain was also indicated in Alliance for Transparency and Frank Bold (2019) report as one of the top reporters. The relatively significant increase in SDG reporting in Greece between 2017 and 2019 is noticeable. It should be noted that Greece, together with Bulgaria and Romania, were ranked last as regard the SDG implementation (SDSN, 2020). Our findings also show that companies operating in several EU member states are not engaged in SDG reporting, as they provided no reference to them in both years.

Before mapping their initiatives to the 17 colorful icons that represent the SDGs in their reports, companies might need to substantially change their strategies and business models to be able to undertake these initiatives in the first place. Afterward, subsequent changes need to be made in their reporting systems. Therefore, we propose approaching the voluntary implementation of SDG reporting as a social change. Following Aguilera *et al.* (2007), we posit that there are different agents who have the explicit power to trigger such a change and that there are four levels of pressure important for the provision of this type of disclosure (transnational, national, organizational and individual). Our findings allow us to identify the significant influence of pressure exerted by actors on two of them: transnational (international institutions and organizations) and individual (experience in reporting caused by the need to meet employees' and other stakeholders' information needs).

Our study findings support the importance of transnational mechanisms for the provision of SDG reporting by selected EU-based companies. Companies' engagement in UNGC seems to be a relevant factor explaining their decisions to report on SDGs in 2019, which supports our *H1*. These findings are in line with Rosati and Faria (2019b) study, according to which organizations committed to voluntary sustainability disclosure programs and frameworks were found to be more likely to address the SDGs in their reports. We believe that the UNGC, due to its close relation to the SDGs, is especially relevant. On the transnational level, we are also able to state that the share of companies providing SDG reporting significantly increased in 2019 compared with 2017. Given that the major change in the nonfinancial reporting landscape in the investigated period was due to the implementation of Directive 2019/45/EU, we can associate our finding with the positive impact of this regulation on SDG reporting. However, this finding should be interpreted with caution, as our study does not cover all large EU-based PIEs and does not capture specific country- and corporate-related factors that might have impacted the sample companies' decisions. SDG reporting is also found to be positively influenced by the overall experience in voluntary sustainability reporting, as well as SDG reporting in 2017. Therefore, *H4* is also supported. Our results for companies based in EU Member States are in line with the study by Pizzi *et al.* (2020), who found a positive influence of Italian companies' experience in nonfinancial reporting on SDG disclosure.

Because SDG implementation is considered a societal change with results to be met in the future, we assumed that the future orientation of the government would be a relevant factor explaining corporate reporting decisions. Despite the acknowledged responsibility of national governments for meeting Agenda 2030, *H2*, which assumes the relationship between the future orientation of the government and SDG reporting, is not supported. We also cannot state this relationship in regard to industry sensitivity (*H3*), which is contrary to previous literature findings (Elalfy *et al.*, 2021). The obtained result is ambiguous, but it is more pronounced for companies from the production sector than those from the energy sector. To summarize, based on the logistic regression model results, we can expect that a large PIE that reported on SDGs in 2017 would report on SDGs in 2019 with the highest probability provided it is experienced in nonfinancial reporting, is a member of UNGC, preferably represents industries other than energy or production, is located in one of the EU countries which has the SDG implementation score at a middle level (not very high, not very low) but not necessarily the government with high future orientation or high corporate governance score.

We believe that our study makes a significant contribution to the sustainability reporting literature, with a particular focus on SDG reporting. First, we can state that, despite being to some extent homogenous, EU Member States differ when it comes to SDG reporting. Therefore, we add to the previous studies, which focused on large, global (e.g. Rosati and Faria, 2019a, 2019b) or small, one-country (Pizzi *et al.*, 2020) samples and do not provide the EU-focused insights. Second, we identified transnational pressures as important determinants of SDG reporting. Our findings suggest that significant pressure on companies to disclose SDGs is executed by UNGC, a transnational organization supporting SDGs achievement. Third, contrary to previous studies on SDG reporting in the EU (Pizzi, 2021), we used the two data sets (2017 and 2019) prior to and after the Directive 2014/95/EU implementation. This allowed us to identify a change in the number of SDGs reporters between these two years. Fourth, we add new determinants to our analysis, such as the future orientation of the government and corporate governance score. We consider such determinants especially useful in studies examining SDG reporting on a country-level. Even though we could not identify their significant influence, we consider them worthy of interest in future studies (using different samples and different timeframes).

Our study also has practical implications. Since the UNGC is an important actor in regard to social change toward the SDGs, particular attention should be given to further promoting this organization in EU Member States. According to the UNGC website (UNGC, 2021), it has local networks in only 14 EU Member States and is not present in countries such as Belgium, Hungary, Ireland, Luxembourg, Republic of Cyprus, Czech Republic, Estonia, Latvia, Lithuania, Malta, Romania, Slovakia and Slovenia. We believe that expanding the network to these countries could contribute to the development of SDG reporting.

In this study, we refer to the major change in the EU reporting landscape, namely, the Directive 2014/95/EU. Even though some authors acknowledge it had a positive impact on sustainability reporting (Ottenstein *et al.*, 2022), there are also critical voices, suggesting that the harmonization of nonfinancial reporting practices has not been achieved yet (Venturelli *et al.*, 2020; Venturelli and Pizzi, 2020; Caputo *et al.*, 2021). The reasons for a lack of comparability of corporate disclosures were insufficiently detailed Directive requirements, myriad of overlapping and sometimes inconsistent private nonfinancial reporting frameworks and standards, as well as the lack of enforcement (EU, 2020c). Therefore, the new Corporate Sustainability Reporting Directive (CSRD) was proposed in April 2021. The main changes proposed in the CSRD include the application of the new rules to a wider

range of companies, namely all large and listed companies, more detailed reporting requirements and assurance of reported information (EU, 2022). The CSRD would also oblige companies under the scope of the regulation to report in compliance with the new EU nonfinancial reporting standards. It is worth adding that apart from the forthcoming CSRD, the other two regulations also introduce sustainability-related changes in the companies' reporting in the EU, namely, *Taxonomy* and *Sustainable Finance Disclosure Regulations*. Article 8 of the *Taxonomy Regulation* (EU, 2020b) obliges companies covered by Directive 2014/95/EU to disclose the proportion of their turnover, their capital expenditure ("CapEx") and their operating expenditure ("OpEx") related to environmentally sustainable activities. The *Sustainability Finance Disclosure Regulation* (EU, 2019) is addressed to financial market participants (e.g. fund managers, pension providers, insurance-based investment product providers and credit institutions) and financial advisers, including certain insurance intermediaries and providers of investment advice, but it will also have an indirect impact on nonfinancial companies. By enforcing these additional reporting requirements, both regulations aim to channel capital flows toward sustainable investments, contributing this way to SDGs achievement within the EU.

Given the above, further stakeholder education regarding SDGs, especially employees, is also important. According to the theoretical model, employees are relevant agents of social change (Aguilera *et al.*, 2007). The need to meet their information needs should motivate companies to provide voluntary SDG disclosures. Considering that experience in sustainability reporting positively impacts SDG reporting, not only large PIEs but also small and medium entities should be encouraged to provide information. In this context, the proposal of the new CSRD, which extends the scope of entities required to provide sustainability disclosure to all large and listed companies, should be assessed positively (EU, 2022). Their experience in sustainability reporting gained as a result of this institutional pressure might encourage them to provide SDG reporting voluntarily.

Our study is not free from limitations. We are able to state that the share of companies providing SDG reporting increased significantly in 2019 compared with 2017, and we associate it with the implementation of the Directive 2014/95/EU. However, the EU firms might also be influenced by other factors, such as the direct demand for information from investors rather than the EU Directive itself. We also rely on the information included in the GRI database to capture the provision of SDG reporting. Despite being used in previous studies (Rosati and Faria, 2019a, 2019b, Elalfy *et al.*, 2021), this measure is not perfect, as it does not inform about the number of SDGs mentioned in the report or the extent or quality of the SDG disclosures provided. The reports are also uploaded by the companies themselves, and due to ongoing data collection and the delays involved, the database is not complete. Therefore, we were able to use the data set of only 341 companies, which might not reflect the approach to SDG reporting by all EU-based large PIEs. To overcome this limitation, we applied the bootstrap method, which allows us to achieve more general results.

Further research could follow our approach to investigate how the new CSRD, European EU's *Taxonomy* and *Sustainable Finance Disclosure Regulations* would influence corporate SDG reporting in the nearest future. Qualitative approaches would be also useful to provide more insights into managers' approaches to SDGs, including strategies for their achievement, progress made and challenges related to reporting. The negative phenomenon of "SDG washing," in which organizations figuratively drape themselves in the colorful SDG icons to distract stakeholders, also

requires further investigation. We believe that companies' reliable and transparent SDG reporting is important for the whole collaborative effort undertaken to meet Agenda 2030 goals and build our common sustainable future.

Notes

1. PIEs with more than 500 employees and either a balance sheet total of more than EUR 20m or a net turnover of more than EUR 40m.
2. Target 12.6: "Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle."
3. Target 5.5: "Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life."
4. SDG 13: "Take urgent action to combat climate change and its impacts."

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Appendix. Companies in the data set according to country

Country	No. of observations	(%)
Austria	17	5.0
Belgium	8	2.3
Croatia	3	0.9
Czech Republic	1	0.3
Denmark	7	2.1
Estonia	2	0.6
Finland	34	10.0
France	21	6.2
Germany	50	14.7
Greece	21	6.2
Hungary	5	1.5
Ireland	4	1.2
Italy	21	6.2
Latvia	2	0.6
Lithuania	1	0.3
Luxembourg	1	0.3
The Netherlands	14	4.1
Poland	20	5.9
Portugal	6	1.8
Romania	2	0.6
Slovenia	2	0.6
Spain	31	9.1
Sweden	68	19.9
Total	341	100.0%

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