Gender diversity and SDG disclosure: the mediating role of the sustainability committee

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Abstract

Purpose – The study examines the association between board gender diversity and Sustainable Development Goal (SDG) disclosure from an international and longitudinal perspective. It also investigates the role of the Sustainability Committee (SC) as a possible factor that can mediate the relationship between board gender diversity and SDG disclosure.

Design/methodology/approach – The authors focused on the annual Communication on Progress (CoP) prepared annually by a sample of 526 companies from 39 countries and ten industry sectors along the 2017–2020 period to evaluate the SDG disclosure. Baron and Kenny's (1986) three-step model is estimated to test the impact of the presence of an SC on the SDG disclosure level and the mediating effect exerted by the SC on the relationship between board gender diversity and SDG disclosure.

Findings – Findings shed light on the usefulness of the CoP as an alternative reporting tool to communicate progress against SDGs achievement, especially regarding SDGs 13 and 8. This study evidences that board gender diversity positively influences SDG disclosure. The relationship between board gender diversity and SDG disclosure is not only direct but also mediated by the presence of an SC.

Research limitations/implications – Companies need to consider the role of women in enhancing the effectiveness of their governance mechanisms and their ability to meet stakeholder information needs. Establishing a specific SC represents a valid mechanism that ensures greater transparency about corporate actions tackled to contribute toward SDGs and enhances the relationship between board gender diversity and SDG disclosure among International companies.

Practical implications – The study's findings offer stimuli for policy-makers and regulators to reflect on the relevance of the CoP as a possible alternative communication tool to provide SDGs information and overcome the limitations of the Sustainability Reports.

Originality/value – This is the first study that examines companies' SDG disclosure practices focusing on CoPs. Further, to the best of the authors' knowledge, this is the first study that tests the relationship between gender diversity and SDG disclosure, considering the mediating effect of an SC committee.

Keywords Sustainable development goals, SDGs, Gender diversity, Corporate governance, Sustainability committee, Mediation analysis

Paper type Research paper

Introduction

The recent launch of the 2030 Agenda for Sustainable Development (hereafter, The 2030 Agenda) adopted by the United Nations (UN) in 2015 has represented a breakthrough

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moment for all public and private sector organisations (Deloitte, 2017; PwC, 2018, 2019). Under the *motto* "no one left behind", the 2030 Agenda has proposed a holistic plan of action based on 17 Sustainable Development Goals (SDGs) and 169 related targets aimed at addressing the world's most relevant sustainability challenges and creating a better society for present and future generations (Pizzi *et al.*, 2020; Silva, 2021). The 2030 Agenda introduction has created unprecedented social and political pressures on companies from all sectors to take a leading role in contributing to achieving the SDGs (Deloitte, 2017; van der Waal and Thijssens, 2020; Silva, 2021).

Private sector companies play a pivotal role in generating inclusive economic growth, productivity and job creation (Deloitte, 2017; Pizzi *et al.*, 2020; van der Waal and Thijssens, 2020). Accordingly, they have been prompted to harness their potential in terms of innovation and creativity to address the socio-environmental challenges imposed by the 2030 Agenda and create a "win-win" paradigm with society (Deloitte, 2017; van der Waal and Thijssens, 2020). As a result, incorporating SDG priorities into the business model, strategies and core operations and communicating progress against the attainment of SDGs has become essential for companies to preserve their legitimacy and meet emerging stakeholders' expectations (Bebbington and Unerman, 2018; Heras-Saizarbitoria *et al.*, 2022). Reporting on SDGs paves the way for companies to enhance the understanding of their activities' positive and negative impacts on key sustainability issues and demonstrate their business case to stakeholders (PwC, 2019; Izzo *et al.*, 2020). However, despite recent advancements in non-financial reporting, such as the Directive 2014/95/EU and the Corporate Sustainability Reporting Directive (CSRD), SDG reporting remains mainly a voluntary practice (Hummel and Szekely, 2021). Early surveys (e.g. OXFAM *et al.*, 2018; PwC, 2018, 2019) have demonstrated that while general awareness of the relevance of the goals is emerging, companies are still far from fully embracing SDGs into their business strategies and reporting practices. Companies still struggle to harmonise SDG ambitions with their primary purpose of generating shareholder value (van der Waal and Thijssens, 2020; García-Meca and Martinez-Ferrero, 2021; Nicolò *et al.*, 2022a). It follows that boilerplate, vague and symbolic information on SDGs prevails within corporate non-financial reports, mainly driven by the purpose of influencing stakeholders' perceptions positively and creating a rhetorical image of a company committed to the 2030 Agenda (García-Meca and Martinez-Ferrero, 2021; Silva, 2021; Heras-Saizarbitoria *et al.*, 2022).

Previous literature emphasised the role of the board of directors as a fundamental corporate governance mechanism (Michelon and Parbonetti, 2012; Rao and Tilt, 2016). Besides its primary controlling and monitoring function, the board is expected to enhance the dialogue between a company and its stakeholders by promoting better accountability and transparency about financial and non-financial issues (Michelon and Parbonetti, 2012; Martínez-Ferrero *et al.*, 2021; Nicolò *et al.*, 2022b). An adequate board's composition is pivotal to defining objectives and strategies within the firm's social contract boundaries and harmonising social and environmental responsibility with company economic benefits (Michelon and Parbonetti, 2012; Chan *et al.*, 2014; Martínez-Ferrero *et al.*, 2021). In particular, an emerging body of literature pointed out that higher gender diversity in the board's composition is essential to ensure the correct fulfilment of environmental, ethical and social obligations and increase the company's responsiveness towards stakeholders and society at large (Rao and Tilt, 2016; Wasiuzzaman and Wan Mohammad, 2020; Nicolò *et al.*, 2022b; Issa *et al.*, 2022). Board gender diversity has increasingly been considered a synonym for good corporate governance and an enabler mechanism of higher transparency and accountability (Rao and Tilt, 2016; Arayssi *et al.*, 2020; Wasiuzzaman and Wan Mohammad, 2020). Consistently, several scholars provided empirical evidence demonstrating that a higher presence of women on boards is conducive to greater levels of Corporate Social Responsibility (CSR) and Environmental, Social and Governance (ESG) disclosure (e.g. Rao and Tilt, 2016; Arayssi *et al.*, 2020; Wasiuzzaman and Wan Mohammad, 2020; Nicolò *et al.*, 2022b; Issa *et al.*, 2022).

However, despite its relevance, there is still much to learn about the contribution of board gender diversity in stimulating SDG disclosure practices. Specifically, little is known about how women's presence on the board may affect the extent to which companies incorporate SDGs within their reporting practices. Prior studies on SDGs reporting are mainly normative or descriptive, offering limited insights into the factors potentially influencing SDG disclosure. In several cases, the country-specific nature of the study impaired the ability to provide large-scale empirical insights into how companies disclose their contributions toward SDGs.

Against this background, the present study attempts to bridge the research gap by providing manifold contributions to the existing SDG disclosure and corporate governance literature.

Firstly, this study extends our knowledge about corporate SDG disclosure behaviours from an International and longitudinal perspective in an innovative way. While prior research (e.g. García-Sánchez *et al.*, 2020, 2022; Pizzi *et al.*, 2021) examined the extent and quality of SDG disclosure mainly relying upon the SDGs Compass guidelines, the present study focuses on the annual Communication on Progress (CoP) prepared annually by a sample of 526 companies coming from 39 worldwide countries and ten industry sectors for the period 2017–2020. The CoP represents a public report drafted annually by business participants in the UN Global Compact (UNGC) to report to stakeholders on the progress achieved in implementing the UNGC principles and the SDGs. In particular, it contains a specific section devoted to the SDGs.

Secondly, drawing upon a multi-theoretical framework connecting stakeholder, legitimacy and resource dependence theory, the present study examines the association between board gender diversity and SDG disclosure.

Last, this study also examines the Sustainability Committee (SC) role as a possible contingent factor that can mediate the relationship between board gender diversity and SDG disclosure. Corporate governance literature has emphasised the role of CSR/Sustainability committees as incubators of managers holding specific competencies and skills that help companies in assuming socially responsible behaviours and a proactive commitment toward sustainability issues (Michelon and Parbonetti, 2012; Amran *et al.*, 2014; Martínez-Ferrero *et al.*, 2021). Creating such committees as board sub-commissions is also fundamental to stimulating the provision of non-financial disclosure that meets stakeholders' expectations (Martínez-Ferrero *et al.*, 2021). Accordingly, based on Baron and Kenny's (1986) three-step procedure, this paper examines the impact of the presence of an SC on the SDG disclosure level and the mediating effect exerted by the SC on the relationship between board gender diversity and SDG disclosure.

Findings shed light on the usefulness of the CoP as an alternative reporting tool to communicate progress against SDGs achievement, especially regarding SDGs 13 and 8. This study provides evidence about the role of women in overcoming firms' resistance to providing SDGs information, stimulating more accountability. Attuned, establishing a specific SC represents a valid mechanism that ensures greater transparency about corporate actions tackled to contribute toward SDGs and enhances the relationship between board gender diversity and SDG disclosure among International companies.

The remainder of this article is structured as follows. First, the relevant SDG literature is reviewed, and the hypotheses are presented. Second, the research methodology is explained concerning sample construction, variables definition and model specification. Third, the results are reported and discussed. Finally, the conclusions, implications and directions for further research are presented.

Literature review and hypothesis development

SDG reporting

Prior research has underlined that SDG reporting might be an important driver to embrace a full commitment to integrate SDGs into the strategies and operations and communicate the efforts towards their achievement to stakeholders (Fonseca and Carvalho, 2019; Rosati and Faria, 2019a, b). On this point, target 12.6 of SDG 12 (Responsible Consumption and Production) encourages companies to adopt sustainability practices and integrate sustainability information in their reporting cycles. Hence, organisations are expected to measure, understand and communicate against their commitment to the SDGs, disclosing how their strategies, business models, programs and initiatives reflect priority SDGs and related targets (Bebbington and Unerman, 2018; Fonseca and Carvalho, 2019).

Considering the growing stakeholders' pressure to improve the efforts and engagement in achieving the SDGs, disclosing information on SDGs has become fundamental for companies to seek legitimacy and preserve their "license to operate" (Deegan, 2002; Silva, 2021; Heras-Saizarbirtoria *et al.*, 2022; Nicolò *et al.*, 2022a). Organisations are part of a broader social system with no inherent right to operate (Deegan, 2002, 2019). They have to earn this right by demonstrating that they are moving within the society's boundaries by aligning their core operations and processes with broader societal expectations (Lindblom, 1994; Deegan, 2002; Michelon and Parbonetti, 2012). As such, corporate disclosure is considered one of the best ways companies may adopt to evidence the symmetry between their behaviours and the system of social norms, beliefs and principles established by the society (or community) in which they operate (Deegan, 2002, 2019; Chan *et al.*, 2014; Silva, 2021). In particular, considering the social and political pressures surrounding companies to take a primary role in achieving the SDGs, communicating their commitment and the actions implemented to achieve the SDGs has begun a crucial part of the dialogue between companies and society, and, thus, a vehicle to gain legitimacy (Silva, 2021; Heras-Saizarbirtoria *et al.*, 2022).

Nevertheless, the question of stakeholder influence remains partially unexpressed under the lens of legitimacy theory. While the latter discusses society's expectations at large, stakeholder theory provides a more refined resolution by referring to particular stakeholder groups within society (Deegan and Blomquist, 2006; Michelon and Parbonetti, 2012). Since these two theories overlap (Gray *et al.*, 1996), their complementary use allows for a better understanding of the SDG disclosure relevance (Chan *et al.*, 2014).

The Stakeholder theory (Freeman, 1984; Gray *et al.*, 1996) provides a lens to analyse the relationship between the organisation and its stakeholders. According to this perspective, companies should engage *vis a vis* with the needs of the stakeholders' groups that provide them with the crucial resources necessary for their survival (Deegan and Blomquist, 2006). So, the disclosure of financial, social and environmental information plays an important role for companies to demonstrate that they incorporate stakeholders' expectations and demands within their processes (Gray *et al.*, 1996; Chan *et al.*, 2014; Fuente *et al.*, 2017). As SDGs primarily focus on the needs of several stakeholders in society (UNGC, 2015), firms might disclose their efforts towards the global goals to discharge their accountability and gain stakeholders' approval and support (Rosati and Faria, 2019a; Erin and Bamigboye, 2022; Nicolò *et al.*, 2022a).

Prior empirical studies on SDG accounting and reporting practices can be divided into two groups.

The first group of studies has focused on investigating the contents of corporate SDG disclosure practices, outlining certain trends on which goals have been prioritised more than others in the reports. The SDGs 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), 12 (responsible consumption and production), and 13 (climate action) are the most addressed by companies within their reports (Fonseca and Carvalho, 2019; Gunawan *et al.*, 2020; Izzo *et al.*, 2020; Yu *et al.*, 2020; Heras-Saizarbirtoria *et al.*, 2022). Overall, scholars detected an inadequate level of SDG disclosure provided by companies (Fonseca and Carvalho, 2019; Tsalis *et al.*, 2020; Hummel and Szekely, 2021; Pizzi *et al.*, 2021; Erin and Bamigboye, 2022). Some studies have also evidenced that companies tend to adopt a symbolic rather than substantive disclosure approach to the SDGs without changing their business models (van der Waal and Thijssens, 2020; Silva, 2021; Nicolò *et al.*, 2022a; Manes-Rossi and Nicolò, 2022). They also remain superficial in describing their approach to tackling the SDGs in their reports (Heras-Saizarbirtoria *et al.*, 2022).

The second group of studies includes a limited number of research investigating the determinants of organisations' SDG adoption or disclosure. In this field, Rosati and Faria (2019a) have conducted an earlier study highlighting that the organisations that address the SDGs in the Sustainability report belong to a group with specific characteristics: large size, high level of intangibles, adoption of external assurance, a high proportion of young and women directors in the boardroom (Rosati and Faria, 2019a). In a following work (i.e. Rosati and Faria, 2019b), they have demonstrated that firms addressing SDGs are more likely to belong in countries with specific characteristics. Also, García-Meca and Martinez-Ferrero (2021) noted that integrating SDGs in Sustainability Reports leads to higher market performance within controversial and environmentally sensitive sectors. García-Sanchez *et al.* (2020) found that, among different types of institutional investors, the presence of foreign investors, pension funds and other investors positively affects how International companies integrate SDGs indicators within their Sustainability Reports. Similarly, García-Sánchez *et al.* (2022) noted that larger firms with higher capital costs, larger boards and monitored by a higher number of financial analysts are more likely to integrate indicators of their contribution to the SDGs within their non-financial information system.

Furthermore, by focusing on the determinants of the SDG disclosure levels, Fonseca and Carvalho (2019) observed that in the Portuguese context, firms with higher business volume, participating in the UNGC and publishing online a Sustainability Report tend to provide a greater extent of SDG disclosure. As well, van der Waal and Thijssens (2020) noted that the SDG involvement of the largest stock-listed corporations worldwide is positively linked to their size, reports' assurance and commitment to other sustainability-related initiatives like GRI and UNGC. Last, Pizzi *et al.* (2021) evidenced that the quality of SDG disclosure of Italian Public Interest Entities is positively affected by the firms' expertise with non-financial reporting, reports' length, independent directors on boards and the involvement in environmental-sensitive sectors.

Board gender diversity and SDG reporting

There is an emerging body of governance literature contending that boards should be composed in such a way as to collocate social, ethical and environmental concerns at the forefront of the corporate agenda (Gallego-Álvarez and Pucheta-Martínez, 2020; Martínez-Ferrero *et al.*, 2021; Uyar *et al.*, 2020). Particular attention has been devoted to gender diversity as a vector that enables the board of directors to assume a privileged outlook toward CSR and sustainability issues in line with emerging expectations of stakeholders and society at large (Rao and Tilt, 2016; Martínez-Ferrero *et al.*, 2021; Issa *et al.*, 2022). Therefore, women's presence on the board has been widely interpreted as a signal of good governance and a driver for more transparency and accountability about non-financial issues (Manita *et al.*, 2018; Wasiuzzaman and Wan Mohammad, 2020).

Academics advocate that no single theory can fully account for the relationship between board gender diversity and corporate non-financial disclosure practices (Rao and Tilt, 2016; Amorelli and García-Sánchez, 2020; Wasiuzzaman and Wan Mohammad, 2020). Accordingly, this study examines the impact of board gender diversity on the disclosure of sustainability information drawing on a multi-theoretical framework. This combines the legitimacy theory

(Dowling and Pfeffer, 1975; Lindblom, 1994), stakeholder theory (Freeman, 1984) and resource dependence theory (Salancik and Pfeffer, 1978; Pfeffer and Salancik, 2003). Sharing a similar ontological view (Chen and Roberts, 2010) and being all part of the system-oriented theories (Gray *et al.*, 1996; Deegan, 2019), these three theories can be considered complementary in analysing how board gender diversity influences corporate SDG disclosure practices.

Based on the stakeholder theory perspective, women bring unique characteristics to the boards in terms of experiences, skills, viewpoints and networks that are likely to improve the internal decision-making process and the firms' ability to address multiple stakeholders' needs (Manita *et al.*, 2018; Zahid *et al.*, 2019). Compared to their men counterparts, women are more stakeholder-oriented and have more democratic and participative leadership styles (Manita *et al.*, 2018; Zahid *et al.*, 2019; Wasiuzzaman and Wan Mohammad, 2020). Accordingly, women manifest a greater propensity to communicate the values, purposes and importance of the organisation's mission, along with a greater sensibility to stakeholders' concerns (Manita *et al.*, 2018). In a nutshell, women directors play a vital role within the board of directors, and they promote and endorse decisions supporting the community, environment and social responsibility for the sake of stakeholders (Hillman and Dalziel, 2003; Wasiuzzaman and Wan Mohammad, 2020).

From a legitimacy theory standpoint, the company's activities should reflect the community's social values, norms and expectations (Dowling and Pfeffer, 1975; Gray *et al.*, 1995). Communities are more likely to consider a diverse board legitimate and confer this legitimacy to the firm (Groening, 2019). If a firm's board does not comply with societal norms that expect diversity, a legitimacy gap may arise, hampering firms' license to operate (Groening, 2019). From this standpoint, according to Hillman *et al.* (2007), the appointment of women on boards increase firms' legitimacy by conveying a positive message to female employees, the market, potential recruits and society at large that they are making maximum efforts to conform with society's expectations and norms.

The importance of women in the boardroom can be further explained by wearing the theoretical lenses of the resource dependence theory (Salancik and Pfeffer, 1978; Hillman *et al.*, 2007; Amorelli and García-Sánchez, 2020). The resource dependence theory postulates that the company operates in a wider open system where it needs to exchange and acquire certain strategic resources to survive (Salancik and Pfeffer, 1978; Hillman *et al.*, 2007; Amorelli and García-Sánchez, 2020). Accordingly, the board of directors is responsible for defining the corporate strategic direction and providing access to those external resources that help firms reduce dependency on the external environment (Salancik and Pfeffer, 1978; Hillman *et al.*, 2007; Amorelli and García-Sánchez, 2020). From this standpoint, a more diverse board regarding women's presence increases firms' connections with the external environment and the likelihood of having access to critical sources of external dependency (Pfeffer and Salancik, 2003; Hillman *et al.*, 2007; Lu and Herremans, 2019). Attuned, the heterogeneity of resources brought by a higher presence of women positively impacts the internal decision-making processes and increases firms' ability to address the different stakeholders' needs through greater disclosure (Albitar *et al.*, 2020; Wasiuzzaman and Wan Mohammad, 2020).

Based on these theoretical arguments, several scholars provided empirical evidence demonstrating that a higher presence of women on boards is conducive to greater levels of CSR and ESG disclosure (e.g. Rao and Tilt, 2016; Arayssi *et al.*, 2020; Qureshi *et al.*, 2020; Wasiuzzaman and Wan Mohammad, 2020; Nicolò *et al.*, 2022b; Issa *et al.*, 2022). However, evidence on the interplay between board gender diversity and SDGs is still scant. Only Rosati and Faria (2019a) found that a higher share of female directors positively influences the inclusion of SDGs within SRs. In contrast, Pizzi *et al.* (2021) failed to detect any significant association between board gender diversity and SDG disclosure quality in the Italian context.

Therefore, based on theoretical arguments and previous corporate governance literature empirical evidence, the following hypothesis is posited.

H1. Board gender diversity positively influences the level of SDG disclosure.

The role of the sustainability committee

Specific committees within the board of directors are usually established to verify that the company's actions are suitable to meet the stakeholders' expectations regarding CSR and sustainability issues (García-Sánchez *et al.*, 2019b; Uyar *et al.*, 2020). Among these bodies, the presence of an SC represents a vehicle through which the company's boardroom promotes sustainability practices, thus allowing a permanent dialogue with stakeholders (Michelon and Parbonetti, 2012; Gallego-Álvarez and Pucheta-Martínez, 2020; Uyar *et al.*, 2020).

Being composed of members with knowledge, capabilities and specific experiences in sustainability, the SC acts to incorporate sustainability into the organisations' strategic direction and operations (Martínez-Ferrero *et al.*, 2021). It is in charge of reviewing policies, programs and conducts regarding the company's principles and its commitment to sustainability concerns, ensuring, in turn, that sustainability is translated into concrete actions (Michelon and Parbonetti, 2012; Amran *et al.*, 2014). Furthermore, SCs should supervise the quality and reliability of sustainability information disclosed by companies (Fuente *et al.*, 2017; García-Sánchez *et al.*, 2019a). For these reasons, it is considered a means to engage with stakeholders and preserve the legitimacy of corporate operations (Michelon and Parbonetti, 2012).

Prior studies generally provide evidence of a positive relationship between the presence of a CSR/Sustainability committee and the level of non-financial disclosure (e.g. Michelon and Parbonetti, 2012; Amran *et al.*, 2014; Liao *et al.*, 2015; Fuente *et al.*, 2017; Helfaya and Moussa, 2017; Gallego-Álvarez and Pucheta-Martínez, 2020). In particular, both García-Sanchez *et al.* (2020, 2022) observed that a CSR committee positively affects how companies integrate SDGs within their non-financial information systems.

In addition, a number of studies analysed the moderating and mediating (García-Sánchez *et al.*, 2019b; Martínez-Ferrero *et al.*, 2021) role of the SC in influencing the adoption of sustainability practices. Specifically, they provided evidence of the mediating role played by the SC in the cause-effect relationship between board independence and the adoption of a GRI-IFC strategy (García-Sánchez *et al.*, 2019b), as well as the existence of a mediating relationship of the SC on the relationship between board cultural diversity and CSR performance (Martínez-Ferrero *et al.*, 2021).

Therefore, we contend that establishing a specific SC may serve as a conscious strategy to integrate SDGs concretely within corporate activities and reporting practices. This, in turn, will increase firms' ability to respond to stakeholders' and society's expectations. In a nutshell, creating an SC may represent a valid means to fully incorporate the SDGs' spirit. Attuned, we contend that a higher proportion of women on the board may prompt companies to adopt proactive sustainability strategies and discharge more accountability towards stakeholders. So, we expect that an SC may help women coordinate and maximise their efforts, offering them fertile ground to exert their leadership and promote more attention toward SDG disclosure.

For these reasons, it is expected that the existence of an SC may positively affect the levels of SDG disclosure provided by companies and mediate the relationship between board gender diversity and SDG disclosure.

H2a. The presence of an SC positively influences the level of SDG disclosure.

H2b. The presence of an SC acts as a mediating variable in the relationship between board gender diversity and the level of SDG disclosure.

Research methodology

Sample

The sampling process consists of the following three-step process.

First, the 2,000 largest international companies were identified according to the Forbes Global 2000 list. Forbes Global 2000 list is annually provided by *Forbes Magazine* and classifies the largest companies based on their sales, profits, assets and market value. It has been commonly used in accounting research, including studies addressing SDGs (Freedman and Jaggi, 2009; van der Waal and Thijssens, 2020).

Second, we matched the 2,000 companies selected according to the Forbes Global list with a second database, the UNGC. The UNGC's primary aim is to help companies align their operations and strategies with ten human rights, labour, environment and anti-corruption principles and the 17 SDGs (UNGC, 2021a). Thus, among the 2,000 companies initially identified, we restricted the sample to those signatories of the UNGC as they are expected to be particularly committed to achieving the SDGs and integrating SDG disclosure in their reporting systems (van der Waal and Thijssens, 2020).

Therefore, from the intersection between companies included in Forbes 2000 list and those participating in the UNGC initiative, we obtained an initial sample of 661 firms for the 2017–2020 period. This period was deemed appropriate because 2017 represents the first year in which most sampled companies released their CoP, while 2020 is the most recent year that allowed us to obtain the highest number of observations from both databases. However, 112 firms were excluded because they did not publish the CoP during the period under inquiry.

The third step consisted of gathering data on independent variables – necessary for testing our hypotheses – from the Thomson Reuters database. Hence, 23 firms were further erased from the sample due to the lack of data on independent variables.

After completing the selection process, the resulting sample is an unbalanced panel including 526 companies from 39 world's countries and 10 industry sectors over the period 2017–2020. The sample composition is detailed in Table 1.

As reported in Table 1, the most represented country is Japan (314 firm-year observations, 17.78%), followed by the USA (292, 16.53%) and France (158, 8.95%). According to Refinitiv Eikon's industry classification, financials account for 19.03% of the sample, with 336 firm-year observations. It is followed by Industrials (266, 15.06%), Consumer Non-Cyclicals (224, 12.68%) and Technology (215, 12.17%) sectors, as resumed in Table 2.

Variables

Dependent variable

Among various approaches, previous literature used the GRI-SDG Compass framework to capture the level of SDG disclosure (García-Sánchez *et al.*, 2020, 2022; Pizzi *et al.*, 2021). Such an approach focuses on aligning the indicators of the GRI-based reports and the SDGs, providing a guide for integrating the SDGs into sustainability reports.

Unlike previous literature, in constructing an empirical proxy for a company's SDG disclosure, this study is based on UNGC CoP reports. The CoP represents a public report that business participants must submit within one year of joining the UNGC (2015, 2021b). Participants that fail to submit a COP by their deadline will be classified as "non-communicating". If they remain "non-communicating" for more than one year, they will be expelled from the UNGC (2015, 2021b). The CoP assumes pivotal relevance as an accountability instrument for UNGC participants. Through the COP, companies give an account to stakeholders on the progress achieved in implementing the UNGC principles and the SDGs (UNGC, 2015, 2021b). The CoP assumes the form of a self-assessment questionnaire in which a dedicated section is devoted to reporting on the activities tackled to attain one or more SDGs.

Countries	Freq.	Percent
Australia	45	2.55
Austria	18	1.02
Belgium	12	0.68
Brazil	1	0.06
Canada	52	2.94
Chile	6	0.34
China	27	1.53
Cyprus	4	0.23
Denmark	34	1.93
Finland	34	1.93
France	158	8.95
Germany	112	6.34
Greece	5	0.28
Hong Kong	8	0.45
Hungary	4	0.23
India	47	2.66
Ireland; Republic of	17	0.96
Israel	11	0.62
Italy	49	2.77
Japan	314	17.78
Kenya	4	0.23
Korea, Republic of (South Korea)	28	1.59
Luxembourg	4	0.23
Mexico	7	0.40
Netherlands	45	2.55
Norway	25	1.42
Philippines	5	0.28
Portugal	16	0.91
Qatar	3	0.17
Russia	22	1.25
Singapore	24	1.36
South Africa	11	0.62
Spain	52	2.94
Sweden	73	4.13
Switzerland	82	4.64
Thailand	13	0.74
Turkey	2	0.11
United Kingdom	100	5.66
USA	292	16.53
Total	1,766	100.00

Table 1. Sample description: distribution by country

Sector	Freq.	Percent
Basic Materials	194	10.99
Consumer Cyclicals	192	10.87
Consumer Non-Cyclicals	224	12.68
Energy	108	6.12
Financials	336	19.03
Healthcare	113	6.40
Industrials	266	15.06
Real Estate	41	2.32
Technology	215	12.17
Utilities	77	4.36
Total	1,766	100.00

Table 2. Sample description: distribution by sector

Thus, we conducted a content analysis focused on the "Sustainable Development Goals" section of the CoP questionnaire to examine the extent to which sampled companies disclose information about SDGs. Carney (1972, p. 21) defines content analysis as a "research technique for making the inference by objectively and systematically identifying specified characteristics of messages.". It is one of the most widespread research methods used in accounting studies to examine public information and codify texts in a reliable and replicable manner (Michelon and Parbonetti, 2012; Chan *et al.*, 2014). We constructed a disclosure index based on an unweighted approach to process and quantify the information collected through content analysis (e.g. Fonseca and Carvalho, 2019; Manes-Rossi *et al.*, 2021; Erin and Bamigboye, 2022). This approach minimises potential biases from attributing subjective weights to one or more items and favours easy comparisons between different research (Manes-Rossi *et al.*, 2018, 2021). The SDG disclosure index (SDGI) comprises 17 items linked to the 17 SDGs (Fonseca and Carvalho, 2019). Specifically, a score of (1) was assigned if, in the CoP, the company disclosed information related to an item (SDG) included in the checklist. Otherwise, a score of (0) was assigned. Through this approach, the SDGI was computed as follows:

$$SDGI = \frac{\sum_{i=1}^{n} d_i}{n}$$

Where d = 1 if one or more activities related to the SDG included in the checklist were disclosed and 0 otherwise; n = the maximum number of items (17 items).

Hence, the SDGI score ranges from 0 (no SDGs disclosed) to a maximum of 100 (information on all 17 SDGs were disclosed).

Model

Baron and Kenny's (1986) three-steps procedure has been followed to test the hypotheses. Within such a procedure, it is possible to ascertain whether an independent variable (BGD) influences a dependent variable (SDGI) through a third mediating variable (SC). The usage of this procedure is widespread in sustainability disclosure literature (García-Sánchez *et al.*, 2019b; Orazalin, 2019).

Thus, the following steps were followed (Step 1) the influence of the independent variable (BGD) on the mediator variable (SC) was tested. (Step 2a) the influence of the independent variable (BGD) on the dependent variable (SDGI) was tested. (Step 2b) the effect of mediating variable (SC) on the dependent variable (SDGI) was tested. (Step 3) the influence of both the independent variable (BGD) and mediating variable (SC) on the dependent variable (SDGI) was tested. According to Baron and Kenny's (1986) procedure, to analyse the existence of a mediating effect, the following three conditions must be respected: first, the independent variable influences the mediating variable; second, the independent variable affects the dependent variable; third, the effect of the independent variable on the dependent variable is lower in Step 3 than in Step 2, and the mediating variable is significant from an econometric standpoint. In a nutshell, the predictive power of the independent variable (BGD) will be lower in the model in which both the dependent and the mediating variables are included.

In this respect, based on the three above steps, the following three models are proposed to test the hypotheses and the mediating effect of SC on the relationship between BGD and SDGI.

Model 1 (Step 1).

$$\begin{aligned} SC = {} & \beta_0 + \beta_1 \boldsymbol{BGD} + \beta_2 BoardSize + \beta_3 BoardActivity + \beta_4 CEODuality \\ & + \beta_5 BoardIndependence + \beta_6 Size + \beta_7 Performance + \beta_8 Leverage + \varepsilon \end{aligned}$$

Model 2a (Step 2a).

$$SDGI = \beta_0 + \beta_1 \boldsymbol{BGD} + \beta_2 BoardSize + \beta_3 BoardActivity + \beta_4 CEODuality + \beta_5 BoardIndependence + \beta_6 Size + \beta_7 Performance + \beta_8 Leverage + \varepsilon$$

Model 2b (Step 2b).

$$SDGI = \beta_0 + \beta_1 \boldsymbol{SC} + \beta_2 BoardSize + \beta_3 BoardActivity + \beta_4 CEODuality + \beta_5 BoardIndependence + \beta_6 Size + \beta_7 Performance + \beta_8 Leverage + \varepsilon$$

Model 3 (Step 3).

$$SDGI = \beta_0 + \beta_1 \boldsymbol{BGD} + \beta_2 \boldsymbol{SC} + \beta_3 BoardSize + \beta_4 BoardActivity + \beta_5 CEODuality + \beta_6 BoardIndependence + \beta_7 Size + \beta_8 Performance + \beta_9 Leverage + \varepsilon$$

The variables in the above equations are defined as follows.

SDGI is the disclosure index calculated based on the SDGs reported in the CoP questionnaire. BGD is the board gender diversity expressed as the percentage of female directors on total directors. SC represents the presence of a Sustainability Committee. It is a binary variable that assumes the value of 1 if the SC is present and 0 otherwise. In addition, several control variables were added to the model to mitigate the omitted variable bias effect. The influence of these variables on sustainability disclosure was already tested by previous literature (e.g. Chan *et al.*, 2014; Fuente *et al.*, 2017; Helfaya and Moussa, 2017; Arayssi *et al.*, 2020). They include: BOARDSIZE, BOARDACTIVITY, CEODUALITY, BOARDINDEPENDENCE, SIZE, PROFITABILITY and LEVERAGE.

BOARDSIZE is measured as the number of directors sitting on the boards. BOARDACTIVITY is measured as the number of board meetings per year. CEODUALITY represents the CEO duality situation, expressed by a dichotomous variable equal to 1 if the CEO is also chairman and 0 otherwise. BOARDINDEPENDENCE is proxied by the percentage of independent directors on total directors sitting on the boards. SIZE is proxied as the natural logarithm of the company's total assets. PERFORMANCE is measured as the ratio of net income to total assets (ROA), LEVERAGE is measured as the ratio of total debt to total assets, and ε is the specific error term.

Taking into account the nature of the variables and the period of four years, Probit and Tobit regression models were used (García-Sánchez *et al.*, 2022; Martínez-Ferrero *et al.*, 2021). Due to the dummy nature of the SC variable, a Probit regression was used for Model 1, whereas a Tobit regression was used for the other models, considering that SDGI is a censored variable.

To control endogeneity probloems, a one-period lag in the independent and control variables was considered. Moreover, YEAR_FE, COUNTRY_FE and SECTOR_FE limited variables are included to control the variation across time, country and sector, respectively.

Results and discussion

Descriptive statistics

Descriptive statistics for dependent and independent variables are shown in Table 3.

Regarding the independent variables, the mean of BGD is 0.24 (SD: 0.14), indicating that women form about a quarter of the board of directors. Also, about 91.68% of sampled companies have established an SC.

Concerning control variables, the mean for the BOARDSIZE variable is 12.54, suggesting that at least 12 directors are on the board on average. BOARDACTIVITY variable witnesses that each company's board organises – on average – about 10.46 meetings per year. The mean for BOARDINDEPENDENCE is about 0.62, i.e. more than half of board directors are

Table 3.
Descriptive statistics for dependent and independent variables

Continuous variables	Obs	Mean	Std. Dev.	Min	Max
SDGI	1,766	0.54	0.32	0	1
BGD	1,766	0.24	0.14	0	0.64
BOARDSIZE	1,766	12.54	3.47	4	28
BOARDACTIVITY	1,766	10.46	5.20	1	56
BOARDINDEPENDENCE	1,766	0.62	0.26	0	1
SIZE	1,766	25.78	2.39	21.29	33.76
PERFORMANCE	1,766	0.06	0.07	−0.26	0.49
LEVERAGE	1,766	0.24	0.15	0	0.79
Limited variables	**Obs**	**0**	**1**	**0 (%)**	**1 (%)**
SC	1,766	147	1,619	8.32	91.68
CEODUALITY	1,766	1,142	624	64.67	35.33

independent on average. Also, in approximately 35.33% of sampled companies, the CEO is the chairman of its board of directors. Lastly, the mean of sampled companies' size is about 25.78, while the mean values of performance and leverage are about 0.06 and 0.24, respectively.

As concerns the dependent variable, the mean of SDGI is about 0.54 (with a standard deviation of 0.32), indicating that, on average, sample companies disclose more than half of 17 SDGs in their CoPs. This result is higher than that observed in prior similar research (e.g. Fonseca and Carvalho, 2019; Tsalis *et al.*, 2020; Hummel and Szekely, 2021; Pizzi *et al.*, 2021). It evidenced the usefulness of the CoP as a communication tool to extend the corporate dialogue with stakeholders about the SDGs and gain legitimacy by addressing broader societal expectations about firms' commitment towards the SDGs (Deegan, 2002; Wasiuzzaman and Wan Mohammad, 2020). Such results are integrated by a longitudinal perspective offered in Table 4. Table 4 shows the magnitude of changes in SDG disclosure provided by sample companies through CoPs during the 2017–2020 period. Accordingly, it emerges how the level of SDG disclosure constantly increased from 2017 to 2020. This signals the growing attention companies have devoted to conveying SDG information to legitimise their societal position and fulfil the social and political pressures arising from the 2030 Agenda's introduction. So, in line with prior studies (Manes-Rossi and Nicolò, 2022), we confirmed how SDGs had become part of the business mindset after the first period of endorsement.

Table 5 provides the average disclosure for each SDG. It is possible to observe that, in line with previous studies (e.g. Fonseca and Carvalho, 2019; Gunawan *et al.*, 2020; Izzo *et al.*, 2020; Yu *et al.*, 2020), the SDG 13 (Climate Action) and SDG 8 (Decent work and economic growth) are the most disclosed. On the contrary, SDG 14 (Life below water), SDG 2 (Zero hunger) and SDG 1 (No poverty) represent the less reported.

In addition, Figure 1 evidences the disclosure trend for each SDG during the 2017–2020 period. Such a figure corroborates – from a longitudinal perspective – the results previously outlined. Specifically, it graphically highlights how companies have devoted increasing attention to disclosing information on each SDG, privileging SDGs 13 and 8. It is worth noting that also the less disclosed SDGs, such as 14 and 2 have observed a mounting disclosure trend from 2017 to 2020.

Table 6 presents the pairwise correlations matrix.

Table 4.
SDG disclosure. A longitudinal perspective

Variable	2017	2018	2019	2020	Total
SDGI (%)	0.43	0.53	0.57	0.63	0.54

SDG	Mean
SDG1	0.35
SDG2	0.32
SDG3	0.63
SDG4	0.58
SDG5	0.69
SDG6	0.49
SDG7	0.59
SDG8	0.78
SDG9	0.62
SDG10	0.45
SDG11	0.50
SDG12	0.68
SDG13	0.78
SDG14	0.30
SDG15	0.45
SDG16	0.45
SDG17	0.57

Table 5. Descriptive statistics for SDGs

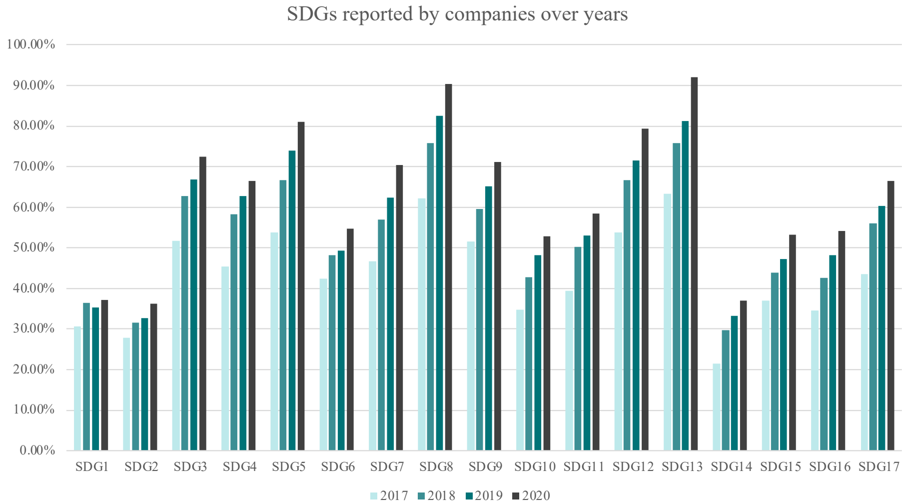

Figure 1. SDG disclosure trend

All correlations are far below the critical threshold of 0.8 (Gujarati, 2009), suggesting that multicollinearity is not a crucial problem in this analysis.

Multivariate and mediation analysis

Table 7 illustrates the multivariate results for the hypotheses proposed.

The Pseudo R^2 and the other regression diagnostic parameters of the Probit and Tobit regressions estimations show a good regressions fit. In addition, multicollinearity between explanatory variables was tested by using the VIF test (Table 8). The VIF test shows values lower than 2 in all the cases.

Regression results evidence a positive and significant association between BGD and SC (ρ-value<0.01). This suggests that the presence of an SC is encouraged by women on the board of directors. This result may be motivated by the higher women's aptitude for non-financial issues and greater stakeholder sensitivity. Compared to men, women are more

Table 6.
Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) SDGI	1									
(2) BGD	0.040*	1								
(3) SC	0.152***	0.065***	1							
(4) BOARDSIZE	0.096***	0.039*	0.131***	1						
(5) BOARDACTIVITY	0.049**	−0.099***	0.000	−0.029	1					
(6) CEODUALITY	0.014	0.056**	−0.035	0.013	−0.126***	1				
(7) BOARDINDEPENDENCE	−0.156***	0.395***	−0.039*	−0.258***	−0.253***	0.074***	1			
(8) SIZE	0.218***	−0.487***	0.043*	0.155***	0.352***	−0.125***	−0.467***	1		
(9) PERFORMANCE	−0.066***	0.010	0.017	−0.165***	−0.179***	0.071***	0.008	−0.216***	1	
(10) LEVERAGE	0.028	0.005	0.058**	−0.025	−0.023	0.064***	0.114***	−0.147***	−0.034	1

Note(s): ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Explanatory variables	Model 1 (Step 1) SC	Model 2 (Step 2A) SDGI	Model 3 (Step 2B) SDGI	Model 4 (Step 3) SDGI
BGD	1.205***	0.199***		0.172**
	(0.402)	(0.0716)		(0.0713)
SC			0.170***	0.165***
			(0.0301)	(0.0301)
Control Variables				
BOARDSIZE	0.0782***	0.00354	0.00302	0.00198
	(0.0161)	(0.00250)	(0.00246)	(0.00250)
BOARDACTIVITY	−0.00667	−0.00253	−0.00186	−0.00242
	(0.00890)	(0.00171)	(0.00168)	(0.00170)
CEODUALITY	−0.0971	0.0360**	0.0404**	0.0392**
	(0.0951)	(0.0171)	(0.0170)	(0.0170)
BOARDINDEPENDENCE	0.0392	−0.0963**	−0.0695*	−0.0976**
	(0.231)	(0.0400)	(0.0380)	(0.0397)
SIZE	0.0582**	0.0312***	0.0250***	0.0297***
	(0.0255)	(0.00450)	(0.00403)	(0.00447)
PERFORMANCE	1.245*	−0.106	−0.160	−0.146
	(0.665)	(0.124)	(0.123)	(0.123)
LEVERAGE	1.053***	0.171***	0.132**	0.144***
	(0.319)	(0.0557)	(0.0553)	(0.0555)
YEAR_FE	Included	Included	Included	Included
COUNTRY_FE	Included	Included	Included	Included
SECTOR_FE	Included	Included	Included	Included
Constant	−1.378*	−0.338**	−0.292**	−0.421***
	(0.780)	(0.136)	(0.125)	(0.136)
Observations	1,766	1,766	1,766	1,766
Log likelihood	−467.74015	−754.26309	−742.12744	−739.22698
LR χ^2(11)	76.82	240.30	264.57	270.38
Prob > χ^2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0759	0.1374	0.1513	0.1546

Table 7. Board gender diversity, sustainability committee and SDGs: multivariate and mediation analysis

committed to social and environmental initiatives and have deep concerns for the welfare of the people, society and the environment (Manita *et al.*, 2018; Zahid *et al.*, 2019; Wasiuzzaman and Wan Mohammad, 2020). Accordingly, their presence influences the creation of a specific SC in which sustainability issues are at the centre of the corporate agenda.

Results also highlight that SDGI is positively influenced by BGD (ρ-value<0.01) and SC (ρ-value<0.01). Thus, as expected, the presence of women on the company's board encourages SDG disclosures. This result is in line with stakeholder theory which postulates that female directors provide the board with peculiar characteristics in terms of experiences, skills, viewpoints and networks that improve the internal decision-making process and the firms' ability to address multiple stakeholders' needs through SDG disclosure (Manita *et al.*, 2018; Zahid *et al.*, 2019). This result also validates the legitimising effect of appointing women on the board of directors, enabling companies to send a positive message to stakeholders regarding the attention paid to society's expectations (Hillman *et al.*, 2007). Likewise, it confirms resource dependence theory arguments that consider a heterogeneous board – in terms of gender diversity – a valid mechanism to increase firms' connections with the external sources of vital resources from which the company seeks legitimacy (Pfeffer and Salancik, 2003; Hillman *et al.*, 2007; Lu and Herremans, 2019). This, in turn, enhances firms' ability to address the different stakeholders' needs through greater disclosure of SDGs (Albitar *et al.*, 2020; Wasiuzzaman and Wan Mohammad, 2020). Thus, we confirmed that board gender diversity is a crucial corporate

Table 8.
Board gender diversity, sustainability committee and SDGs: VIF analysis

Variables	VIF	1/VIF
BGD	1.566	0.638
SC	1.043	0.958
BOARDSIZE	1.188	0.842
BOARDACTIVITY	1.24	0.806
CEODUALITY	1.043	0.959
BOARDINDEPENDENCE	1.618	0.618
SIZE	1.813	0.552
PERFORMANCE	1.133	0.883
LEVERAGE	1.068	0.937
Year FE	1.03	0.971
Country FE	1.182	0.846
Sector FE	1.011	0.989
Mean VIF	1.245	

governance mechanism to enhance company accountability and transparency. Their presence may overcome companies' recognised resistance to disclosing information about the activities tackled to address the SDGs. Therefore, H1 is accepted.

In line with expectations, findings also provide evidence that the existence of an SC positively influences SDG disclosure levels. This result is consistent with prior studies observing a positive association between the presence of a CSR/Sustainability committee and the level of sustainability (e.g. Michelon and Parbonetti, 2012; Amran *et al.*, 2014); CSR (Gallego-Álvarez and Pucheta-Martínez, 2020); environmental (Helfaya and Moussa, 2017); and greenhouse gas disclosure (Liao *et al.*, 2015). Accordingly, we can extend prior research evidence on the importance of establishing a specific SC committee to increase transparency on sustainability, as we found that SC committees behave similarly when they have to address SDGs in the UNGC participants' context. In particular, this positive association lets us highlight that UNGC companies recognise the SC's pivotal role in institutionalising SDGs within the corporate agenda and translating related ambitions into concrete programs and actions (Michelon and Parbonetti, 2012; Amran *et al.*, 2014). We confirmed the assertion that, being composed of members with knowledge, capabilities and specific experiences in sustainability, the SC plays a pivotal role in supporting companies in incorporating sustainability into their strategic direction and operations (Martínez-Ferrero *et al.*, 2021). This, in turn, facilitates organisations in enhancing the dialogue with their stakeholders by providing a greater amount of information explaining how they have undertaken specific activities to contribute toward the SDGs. Therefore, H2a is accepted.

Finally, results witness the influence of BGD (independent variable) and SC (mediating variable) on the disclosure of SDGs, corroborating the abovementioned considerations. Furthermore, it serves as a precondition to ascertain a mediating effect of the SC in the BGD-SDGI relationship. Indeed, as aforementioned, there is a positive relationship between BGD and SC, as required by the first condition. In addition, the coefficient of BGD reported in Model 4 ($\beta_1 = 0.172$; ρ-value<0.5) is lower than the coefficient of BGD reported in Model 2 ($\beta_1 = 0.199$; ρ-value<0.01). In this respect, a Sobel test (Sobel, 1982) was conducted to ascertain whether the indirect effect is significant. The obtained results ($z = 2.406$, $p < 0.01$) confirm that BGD has an indirect effect through SC on SDGI. Therefore, based on these results, it is possible to accept H2b. From the above findings, it can be suggested that the relationship between the BGD and SDGI is not (only) direct but also mediated by the presence of an SC. This confirms that the existence of an SC may support women in coordinating and maximising their efforts to stimulate more accountability and transparency about SDGs. Accordingly, this result lets us state that the specific non-financial aptitudes and sensitivity towards stakeholders' concerns characterising women directors can be condensed within the creation of *ad hoc* SCs. Such SCs act as vectors for conveying more transparency and accountability on firms' commitment toward SDGs.

Last, about the effects of control variables on the disclosure of SDG disclosure, looking at Table 7 it is possible to detect a positive impact exerted by CEODUALITY (ρ-value<0.05), SIZE (ρ-value<0.01) and LEVERAGE (ρ-value<0.05) on SDGI. On the contrary, the BOARDINDEPENDENCE exerts a negative influence (ρ-value<0.01) on SDGI.

Additional analyses

In order to mitigate the omitted variable bias, an alternative dependent variable was included in the model specification. It is the sum of SDGs disclosed by the company (SDGISUM) that can take values between 0 (no SDGs is disclosed) to 17 (all SDGs are disclosed).

$$SDGISum = \sum_{i=1}^{17} SDGs$$

Table 9 reports the results of introducing the alternative SDG disclosure variable. Albeit with a lower Pseudo R^2, the sign of the coefficient of BGD leads to accepting H1 in all models.

Explanatory variables	Model 1 (Step 1) SC	Model 2 (Step 2A) SDGISum	Model 3 (Step 2B) SDGISum	Model 4 (Step 3) SDGISum
BGD	2.285***	3.142**		2.632*
	(0.408)	(1.424)		(1.417)
SC			3.168***	3.092***
			(0.597)	(0.598)
Control Variables				
BOARDSIZE	0.0303**	0.0681	0.0540	0.0384
	(0.0136)	(0.0498)	(0.0491)	(0.0498)
BOARDACTIVITY	−0.000174	−0.0510	−0.0408	−0.0494
	(0.00996)	(0.0340)	(0.0335)	(0.0338)
CEODUALITY	0.0522	0.683**	0.766**	0.745**
	(0.0908)	(0.341)	(0.339)	(0.339)
BOARDINDEPENDENCE	−0.00508	−1.791**	−1.402*	−1.825**
	(0.219)	(0.795)	(0.756)	(0.789)
SIZE	0.0749***	0.646***	0.547***	0.618***
	(0.0245)	(0.0901)	(0.0811)	(0.0896)
PERFORMANCE	−0.845	−2.277	−3.264	−3.048
	(0.605)	(2.447)	(2.435)	(2.435)
LEVERAGE	0.465	3.153***	2.481**	2.662**
	(0.293)	(1.109)	(1.102)	(1.105)
Year FE	Included	Included	Included	Included
Country FE	Included	Included	Included	Included
Sector FE	Included	Included	Included	Included
Constant	−1.943***	−8.263***	−7.834***	−9.806***
	(0.730)	(2.724)	(2.508)	(2.723)
Observations	1,766	1,766	1,766	1,766
Log likelihood	−551.75874	−4822.6814	−4811.0325	−4809.3077
LR χ^2(11)	232.09	233.16	256.46	259.91
Prob > χ^2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.1738	0.0236	0.0260	0.0263

Table 9. Board gender diversity, sustainability committee and SDGs: additional analyses

Likewise, H2a is also accepted since the sign of the coefficient of SC is positive and significant. Furthermore, the mediating effect of SC in the relationship between BGD and the disclosure of SDGs (H2b) is confirmed as all Baron and Kenny's (1986) three-step procedure conditions were respected.

Conclusions

After introducing the 2030 Agenda and its 17 SDGs (UNGC, 2015), growing awareness of the most urgent global sustainability issues emerged. An increasing number of studies related to SDGs adoption, engagement and disclosure have begun to emerge in the academic world, providing initial knowledge on the global goals and their inclusion in the non-financial reporting systems (Bebbington and Unerman, 2018; Erin and Bamigboye, 2022).

While several studies have investigated the impact of specific firm-level characteristics and external context variables on the company's decision to mention or report information about its SDGs commitment, there is still much to learn about the role that corporate governance, in terms of board composition, may play in stimulating SDG disclosure. Moreover, prior research stagnated on investigating SDG disclosure practices through GRI-based Sustainability Reports, neglecting the existence of other communication tools that may improve the dialogue between companies and stakeholders about SDGs.

Mindful of this, the present paper attempted to bridge the research gap by providing manifold contributions to the existing SDG disclosure and corporate governance literature.

Accordingly, by investigating a sample of 526 companies from 39 countries and ten industry sectors for 2017–2020, this study shed light on the usefulness of alternative communication tools to Sustainability and Annual reports, such as the CoP prepared by participating companies in the UNGC to increase accountability for SDGs. In particular, we demonstrated that this tool might overcome companies' recognised reluctance to integrate SDGs in traditional financial and non-financial reporting systems, allowing them to enhance their legitimacy and address emerging stakeholders' needs. Also, this study provided empirical evidence supporting stakeholder, legitimacy and resource dependency theory arguments about the positive role exerted by the board gender diversity on corporate non-financial disclosure. Specifically, the study's results reveal that companies appointing more women on their boards are more attentive to providing information about the actions taken to address the SDGs. In such a way, this study confirms that the variety of opinions, perspectives, skills, competencies, leadership styles, experiences and relationships ensured by the presence of women in the boardroom improves the quality of discussion and the internal decision-making processes. This enhances companies' abilities to deal better with the interests of the stakeholders' groups through higher SDG disclosure levels.

Attuned, the study's results also aid understanding of an SC's pivotal role in influencing SDG disclosure and mediating its relationship with board gender diversity. In particular, we provided empirical evidence demonstrating that creating a specific SC may pave the way to institutionalising the SDG spirit. The SC establishment stimulates the provision of a greater extent of information that informs stakeholders about how the firms are making efforts to put the SDGs at the core of the corporate agenda. The existence of an SC also offers room for women to coordinate their efforts systematically to stimulate the board in better addressing stakeholders' needs through greater transparency about SDG commitment.

The implications of this study are not limited to the academic circles but are also of use for the corporate sector, investors, standard-setter and policy-makers.

From a corporate perspective, these results aim to support managers and decision-makers in better understanding key factors positively related to SDG disclosure. The empirical results suggest that companies might appoint a certain proportion of women in the boardroom to promote gender equality, in line with SDG 5 and constitute an SC. Moreover, the study's findings also offer stimuli for policy-makers and regulators to reflect on the relevance of the CoP as a possible alternative communication tool to provide SDGs information and overcome the limitations of the Sustainability Reports.

This study's findings should also be interpreted mindful of the following limitations that provide avenues for future investigations. First, the research did not consider external context variables that, in conjunction with those included in this analysis, might affect the disclosure of SDGs differently. Second, being the sample composed of the largest worldwide companies, the empirical evidence provided can not be generalised to small and medium enterprises (SMEs). It would be interesting to test this relationship in the SMEs context in the future. Third, this analysis did not operate any differentiation by sector. Since different sectors could influence the disclosure of specific SDGs differently, additional future studies may address this gap. Last, this paper deliberately focused on CoPs as communication tools to derive unprecedented insight into companies' SDG disclosure behaviours. Mindful of this, future research might consider comparing different non-financial reporting documents, including Sustainability or Integrated reports and CoPs, to obtain additional insights.

References

Albitar, K., Hussainey, K., Kolade, N. and Gerged, A.M. (2020), "ESG disclosure and firm performance before and after IR: the moderating role of governance mechanisms", *International Journal of Accounting and Information Management*, Vol. 23 No. 3, pp. 289-307.

Amorelli, M.F. and García-Sánchez, I.M. (2020), "Critical mass of female directors, human capital, and stakeholder engagement by corporate social reporting", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 1, pp. 204-221.

Amran, A., Lee, S.P. and Devi, S.S. (2014), "The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality", *Business Strategy and the Environment*, Vol. 23 No. 4, pp. 217-235.

Arayssi, M., Jizi, M. and Tabaja, H.H. (2020), "The impact of board composition on the level of ESG disclosures in GCC countries", *Sustainability Accounting, Management and Policy Journal*, Vol. 11 No. 1, pp. 137-161.

Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research. conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.

Bebbington, J. and Unerman, J. (2018), "Achieving the United Nations sustainable development goals: an enabling role for accounting research", *Accounting, Auditing and Accountability Journal*, Vol. 31 No. 1, pp. 2-24.

Carney, T.F. (1972), *Content Analysis: A Technique for Systematic Inference from Communications*, University of Manitoba Press, Winnipeg.

Chan, M.C., Watson, J. and Woodliff, D. (2014), "Corporate governance quality and CSR disclosures", *Journal of Business Ethics*, Vol. 125 No. 1, pp. 59-73.

Chen, J.C. and Roberts, R.W. (2010), "Toward a more coherent understanding of the organisation–society relationship: a theoretical consideration for social and environmental accounting research", *Journal of Business Ethics*, Vol. 97 No. 4, pp. 651-665.

Deegan, C. (2002), "Introduction: the legitimising effect of social and environmental disclosures–a theoretical foundation", *Accounting, Auditing and Accountability Journal*, Vol. 15 No. 3, pp. 282-311.

Deegan, C. (2019), "Legitimacy theory: despite its enduring popularity and contribution, time is right for a necessary makeover", *Accounting, Auditing and Accountability Journal*, Vol. 32 No. 8, pp. 2307-2329.

Deegan, C. and Blomquist, C. (2006), "Stakeholder influence on corporate reporting: an exploration of the interaction between WWF-Australia and the Australian minerals industry", *Accounting, Organisations and Society*, Vol. 31 Nos 4-5, pp. 343-372.

Deloitte (2017), "2030 Purpose: 'Good business and a better future Connecting sustainable development with enduring commercial success, United Kingdom'", available at: https://www2.deloitte.com/global/en/pages/about-deloitte/articles/purpose-2030-good-business-better-future.html (accessed 10 January 2022).

Dowling, J. and Pfeffer, J. (1975), "Organisational legitimacy: social values and organisational behavior", *Pacific Sociological Review*, Vol. 18 No. 1, pp. 122-136.

Erin, O.A. and Bamigboye, O.A. (2022), "Evaluation and analysis of SDG reporting: evidence from Africa", *Journal of Accounting and Organizational Change*, Vol. 18 No. 3, pp. 369-396.

Fonseca, L. and Carvalho, F. (2019), "The reporting of SDGs by quality, environmental, and occupational health and safety-certified organisations", *Sustainability*, Vol. 11 No. 20, pp. 5797-5817.

Freedman, M. and Jaggi, B. (2009), "Global warming and corporate disclosures: a comparative analysis of companies from the European Union, Japan and Canada", *Sustainability, Environmental Performance and Disclosures*, Emerald Group Publishing, Bingley.

Freeman, R.E. (1984), *Strategic Management: A Stakeholder Approach*, Marshfield, Pitman.

Fuente, J.A., García-Sanchez, I.M. and Lozano, M.B. (2017), "The role of the board of directors in the adoption of GRI guidelines for the disclosure of CSR information", *Journal of Cleaner Production*, Vol. 141 No. 1, pp. 737-750.

Gallego-Álvarez, I. and Pucheta-Martínez, M.C. (2020), "Corporate social responsibility reporting and corporate governance mechanisms: an international outlook from emerging countries", *Business Strategy and Development*, Vol. 3 No. 1, pp. 77-97.

García-Meca, E. and Martínez-Ferrero, J. (2021), "Is SDG reporting substantial or symbolic? An examination of controversial and environmentally sensitive industries", *Journal of Cleaner Production*, Vol. 298 No. 1, 126781.

García-Sánchez, I.M., Aibar-Guzmán, B., Aibar-Guzmán, C. and Somohano-Rodríguez, F.M. (2022), "The drivers of the integration of the sustainable development goals into the non-financial information system: individual and joint analysis of their influence", *Sustainable Development*, Vol. 30 No. 4, pp. 513-524.

García-Sánchez, I.M., Gomez-Miranda, M.E., David, F. and Rodríguez-Ariza, L. (2019a), "The explanatory effect of CSR committee and assurance services on the adoption of the IFC performance standards, as a means of enhancing corporate transparency", *Sustainability Accounting, Management and Policy Journal*, Vol. 10 No. 5, pp. 773-797.

García-Sánchez, I.M., Gómez-Miranda, M.E., David, F. and Rodríguez-Ariza, L. (2019b), "Board independence and GRI-IFC performance standards: the mediating effect of the CSR committee", *Journal of Cleaner Production*, Vol. 225 No. 1, pp. 554-562.

García-Sánchez, I.M., Rodríguez-Ariza, L., Aibar-Guzmán, B. and Aibar-Guzmán, C. (2020), "Do institutional investors drive corporate transparency regarding business contribution to the sustainable development goals?", *Business Strategy and the Environment*, Vol. 29 No. 5, pp. 2019-2036.

Gray, R., Kouhy, R. and Lavers, S. (1995), "Corporate social and environmental reporting", *Accounting, Auditing and Accountability Journal*, Vol. 8 No. 2, pp. 47-77.

Gray, R., Owen, D. and Adams, C. (1996), *Accounting and Accountability: Changes and Challenges in Corporate Social and Environmental Reporting*, Prentice-Hall, London.

Groening, C. (2019), "When do investors value board gender diversity?", *Corporate Governance*, Vol. 19 No. 1, pp. 60-79.

Gujarati, D.N. (2009), *Basic Econometrics*, Tata McGraw-Hill Education.

Gunawan, J., Permatasari, P. and Tilt, C. (2020), "Sustainable development goal disclosures: do they support responsible consumption and production?", *Journal of Cleaner Production*, Vol. 246 No. 1, 118989.

Helfaya, A. and Moussa, T. (2017), "Do board's corporate social responsibility strategy and orientation influence environmental sustainability disclosure? UK evidence", *Business Strategy and the Environment*, Vol. 26 No. 8, pp. 1061-1077.

Heras-Saizarbitoria, I., Urbieta, L. and Boiral, O. (2022), "Organisations' engagement with sustainable development goals: from cherry-picking to SDG-washing?", *Corporate Social Responsibility and Environmental Management*, Vol. 29 No. 2, pp. 316-328.

Hillman, A.J. and Dalziel, T. (2003), "Boards of directors and firm performance: integrating agency and resource dependence perspectives", *The Academy of Management Review*, Vol. 28 No. 3, pp. 383-396.

Hillman, A.J., Shropshire, C. and Cannella, A.A. Jr (2007), "Organisational predictors of women on corporate boards", *Academy of Management Journal*, Vol. 50 No. 4, pp. 941-952.

Hummel, K. and Szekely, M. (2021), "Disclosure on the sustainable development goals–evidence from Europe", *Accounting in Europe*, Vol. 18 No. 1, pp. 1-38.

Issa, A., Zaid, M.A.A., Hanaysha, J.R. and Gull, A.A. (2022), "An examination of board diversity and corporate social responsibility disclosure: evidence from banking sector in the Arabian Gulf countries", *International Journal of Accounting and Information Management*, Vol. 30 No. 1, pp. 22-46.

Izzo, M.F., Ciaburri, M. and Tiscini, R. (2020), "The challenge of sustainable development goal reporting: the first evidence from Italian listed companies", *Sustainability*, Vol. 12 No. 8, p. 3494.

Liao, L., Luo, L. and Tang, Q. (2015), "Gender diversity, board independence, environmental committee and greenhouse gas disclosure", *The British Accounting Review*, Vol. 47 No. 4, pp. 409-424.

Lindblom, C.K. (1994), "The implications of organisational legitimacy for corporate social performance and disclosure", *Critical Perspectives on Accounting Conference*, New York.

Lu, J. and Herremans, I.M. (2019), "Board gender diversity and environmental performance: an industries perspective", *Business Strategy and the Environment*, Vol. 28 No. 7, pp. 1449-1464.

Manes-Rossi, F. and Nicolò, G. (2022), "Exploring sustainable development goals reporting practices: from symbolic to substantive approaches—evidence from the energy sector", *Corporate Social Responsibility and Environmental Management*, Vol. 29 No. 5, pp. 1799-1815.

Manes-Rossi, F., Tiron-Tudor, A., Nicolò, G. and Zanellato, G. (2018), "Ensuring more sustainable reporting in Europe using non-financial disclosure—De facto and de jure evidence", *Sustainability*, Vol. 10 No. 4, p. 1162.

Manes-Rossi, F., Nicolò, G., Tiron Tudor, A. and Zanellato, G. (2021), "Drivers of integrated reporting by state-owned enterprises in Europe: a longitudinal analysis", *Meditari Accountancy Research*, Vol. 29 No. 3, pp. 586-616.

Manita, R., Bruna, M.G., Dang, R. and Houanti, L. (2018), "Board gender diversity and ESG disclosure: evidence from the USA", *Journal of Applied Accounting Research*, Vol. 19 No. 2, pp. 206-224.

Martínez-Ferrero, J., Lozano, M.B. and Vivas, M. (2021), "The impact of board cultural diversity on a firm's commitment toward the sustainability issues of emerging countries: the mediating effect of a CSR committee", *Corporate Social Responsibility and Environmental Management*, Vol. 28 No. 2, pp. 675-685.

Michelon, G. and Parbonetti, A. (2012), "The effect of corporate governance on sustainability disclosure", *Journal of Management and Governance*, Vol. 16 No. 3, pp. 477-509.

Nicolò, G., Zanellato, G., Tiron-Tudor, A. and Tartaglia Polcini, P. (2022a), "Revealing the corporate contribution to sustainable development goals through integrated reporting: a worldwide perspective", *Social Responsibility Journal*, forthcoming.

Nicolò, G., Zampone, G., Sannino, G. and De Iorio, S. (2022b), "Sustainable corporate governance and non-financial disclosure in Europe: does the gender diversity matter?", *Journal of Applied Accounting Research*, Vol. 23 No. 1, pp. 227-249.

Orazalin, N. (2019), "Do board sustainability committees contribute to corporate environmental and social performance? The mediating role of corporate social responsibility strategy", *Business Strategy and the Environment*, Vol. 29 No. 1, pp. 140-153.

OXFAM, Mhlanga, R., Gneiting, U. and Agarwal, N. (2018), "*Walking the talk: assessing companies' progress from SDG rhetoric to action*", Oxford, United Kingdom, available at: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620550/dpwalking-the-talk-business-sdgs-240918-en.pdf

Pfeffer, J. and Salancik, G.R. (2003), *The External Control of Organisations: A Resource Dependence Perspective*, Stanford University Press, California.

Pizzi, S., Rosati, F. and Venturelli, A. (2020), "The determinants of business contribution to the 2030 agenda: introducing the SDG reporting score", *Business Strategy and the Environment*, Vol. 30 No. 1, pp. 404-421.

Pizzi, S., Venturelli, A. and Caputo, F. (2021), "The 'comply-or-explain' principle in directive 95/2014/ EU. A rhetorical analysis of Italian PIEs", *Sustainability Accounting, Management and Policy Journal*, Vol. 12 No. 1, pp. 30-50.

Price Waterhouse Coopers Scott, L. and McGill, A. (2018), "From promise to reality: does business really care about the SDGs? And what needs to happen to turn words into action", available at: https://www.pwc.com/sdgreportingchallenge

Price Waterhouse Coopers Scott, L. and McGill, A. (2019), "Creating a strategy for a better world. How the Sustainable Development Goals can provide the framework for business to deliver progress on our global challenges", available at: https://www.pwc.com/sdgchallenge (accessed 10 January 2022).

Qureshi, M.A., Kirkerud, S., Theresa, K. and Ahsan, T. (2020), "The impact of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: the moderating role of industry sensitivity", *Business Strategy and the Environment*, Vol. 29, pp. 1199-1214.

Rao, K. and Tilt, C. (2016), "Board diversity and CSR reporting: an Australian study", *Meditari Accountancy Research*, Vol. 24 No. 2, pp. 182-210.

Rosati, F. and Faria, L.G.D. (2019a), "Business contribution to the Sustainable Development Agenda: organisational factors related to early adoption of SDG reporting", *Corporate Social Responsibility and Environmental Management*, Vol. 26 No. 3, pp. 588-597.

Rosati, F. and Faria, L.G.D. (2019b), "Addressing the SDGs in sustainability reports: the relationship with institutional factors", *Journal of Cleaner Production*, Vol. 215 No. 1, pp. 1312-1326.

Salancik, G.R. and Pfeffer, J. (1978), "A social information processing approach to job attitudes and task design", *Administrative Science Quarterly*, Vol. 23, pp. 224-253.

Silva, S. (2021), "Corporate contributions to the Sustainable Development Goals: an empirical analysis informed by legitimacy theory", *Journal of Cleaner Production*, Vol. 292, pp. 1-14.

Sobel, M.E. (1982), "Asymptotic confidence intervals for indirect effects in structural equation Models", *Sociological Methodology*, Vol. 13, pp. 290-312.

Tsalis, T.A., Malamateniou, K.E., Koulouriotis, D. and Nikolaou, I.E. (2020), "New challenges for corporate sustainability reporting: United Nations' 2030 Agenda for sustainable development and the sustainable development goals", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 4, pp. 1617-1629.

United Nations Global Compact (UNGC) (2015), "Global compact communication on progress policy", available at: https://www.unglobalcompact.org/library/1851 (accessed 15 January 2022).

United Nations Global Compact (UNGC) (2021a), *UN Global Compact Strategy 2021-2023*, UNGC, New York, NY, available at: https://ungc-communications-assets.s3.amazonaws.com/docs/about_the_gc/UN-GLOBAL-COMPACT-STRATEGY-2021-2023.pdf

United Nations Global Compact (UNGC) (2021b), *Policy on Communication on Progress*, 2021, available at: file:///C:/Users/giuse/Downloads/UNGC_CoP_Policy__effective_2023_%20(2).pdf

Uyar, A., Kilic, M., Koseoglu, M.A., Kuzey, C. and Karaman, A.S. (2020), "The link among board characteristics, corporate social responsibility performance, and financial performance: evidence from the hospitality and tourism industry", *Tourism Management Perspectives*, Vol. 35, 100714.

Van der Waal, J.W. and Thijssens, T. (2020), "Corporate involvement in sustainable development goals: exploring the territory", *Journal of Cleaner Production*, Vol. 252 No. 1, 119625.

Wasiuzzaman, S. and Wan Mohammad, W.M. (2020), "Board gender diversity and transparency of environmental, social and governance disclosure: evidence from Malaysia", *Managerial and Decision Economics*, Vol. 41 No. 1, pp. 145-156.

Yu, S., Sial, M.S., Tran, D.K., Badulescu, A., Thu, P.A. and Sehleanu, M. (2020), "Adoption and implementation of sustainable development goals (SDGs) in China—agenda 2030", *Sustainability*, Vol. 12 No. 15, p. 6288.

Zahid, M., Rehman, H.U., Ali, W., Khan, M., Alharthi, M., Qureshi, M.I. and Jan, A. (2019), "Boardroom gender diversity: implications for corporate sustainability disclosures in Malaysia", *Journal of Cleaner Production*, Vol. 241 No. 1, pp. 1-8.

Further reading

EU Commission (2020), "Inception impact assessment 'sustainable corporate governance'", available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance (accessed 9 January 2022).

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