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GENDER DIVERSITY ON CORPORATE
BOARDS: HOW ASIAN AND AFRICAN
WOMEN CONTRIBUTE ON SUSTAINABILITY
REPORTING ACTIVITY

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Gender diversity on corporate boards: How Asian and African women contribute on sustainability reporting activity

Gender
diversity on
corporate
boards

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Abstract

Purpose – This study aims to investigate the influence of organisations' board gender diversity on the adoption of the United Nations sustainable development goals (SDGs) and on the use of external assurance.

Design/methodology/approach – The paper combines data from the Global Reporting Initiative's Sustainability Disclosure Database and the Orbis database from Bureau van Dijk. The study uses logit models based on a sample of 366 large Asian and African companies which have addressed the SDGs in their sustainability reports published in 2017.

Findings – The results reveal that board gender diversity is positively associated with sustainability reporting and the involvement of an external assurance provider.

Originality/value – This study adds to the growing literature on the relationship between women's participation on corporate boards and SDG reporting. Additionally, it addresses the understudied question of how the gender diversity of board resources affects the adoption of the external assurance of sustainability reporting.

Keywords Female directors, Sustainability reporting, Board gender diversity, External assurance

Paper type Research paper

1. Introduction

Over the past few years, sustainability disclosure has become a promising and growing trend amongst developing countries (Jamali and Karam, 2018).

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JEL classification – L2, M14, P48, Q01



This is partly due to governments' recognition of the importance of sustainability in supporting the long-term growth and development of these countries where social and environmental problems are unique and significant (Tilt *et al.*, 2020). Both local and foreign investors increasingly set a high value on transparency and allocate capital based on sustainability considerations. Therefore, the importance of sustainability reporting is growing and the need to ensure the attractiveness of developing countries where investment opportunities are accompanied by higher degrees of uncertainty and even controversy.

Due to the weakness of the institutions, firms operating in developing countries are often the most vulnerable to unethical corporate practices (Yasser *et al.*, 2017). Sustainability activities and practices make companies more responsible not only towards the shareholders but also towards other affected stakeholders which have started to exert pressure on firms to behave appropriately. Furthermore, sustainability practices signal firms' competitiveness and improves the reputation, legitimacy and social acceptance they need to be successful (Bear *et al.*, 2010; Hahn and Kühnen, 2013).

This translates into greater value (Kuzey and Uyar, 2017) and better performance (Ameer and Othman, 2012).

Policymakers in Africa and Asia have started promoting sustainable business practices through the adoption of new mechanisms (e.g. the establishment of a Corporate Social Responsibility [CSR] Committee which members have an exclusive focus on targets and deliverables) and strategic frameworks aimed at achieving inclusive and sustainable development to ensure better governance and sustainability (Mahmood *et al.*, 2018).

Both African and Asian countries have committed to implement the sustainable development goals (SDGs) of the United Nations (UN) through national development plans aimed at raising awareness amongst government officers, members of Parliaments, civil society and private sector actors; thereby translating these goals into tangible outcomes.

Introduced in 2015 by the UN Procurement Division, the SDGs consist of a set of 17 global goals structured into 169 ambitious targets to be reached by 2030. An initiative taken in 2018 by two of the major providers of sustainability reporting guidance has allowed companies to incorporate SDGs into their existing reporting processes (Global Reporting Initiative, 2018).

As a consequence, an increasing number of companies on these territories are actively demonstrating their social commitment and responsibility in behaviour through sustainability reporting (Tilt *et al.*, 2020).

As previous studies have shown, having more women on boards positively influence firms' reporting activities because of their greater sensitivity to social and ethical issues and their increased awareness of environmental risks (Girón *et al.*, 2020). Unlike prior research on gender effects in sustainability practices which are predominantly based on developed countries, there is a paucity of research on the impact of board gender diversity on sustainability reporting in developing countries, especially in African and Asian regions (Tilt *et al.*, 2020).

These regions represent an interesting context for the research on sustainability reporting for the following reasons.

Firstly, like most developing countries, Africa and Asia are characterised by historical gender inequalities in many areas of life, such as health, education, employment and earnings. The patriarchal nature of these societies, especially in low- and middle-income countries, poses obstacles to women's economic development and confines them to domestic and familial roles (World Economic Forum, 2018).

Although an increasing number of women are serving on the boards of companies, empirical evidence shows that female boardroom appointments in most Asian and African countries continue to be very low compared to Western nations. In Africa, women are barely present in boardrooms where 95% of Chief Executive Officer (CEO) are men. Only 25% of

women access board committees, only 24% of women hold middle-management positions and only 12.7% of women hold the board seats in Africa's top listed companies (Fraser-Moleketi *et al.*, 2015). Gender diversity is improving across businesses in the Asian emerging markets. Women hold 9.3% of board seats and fill 4.2% of board chair positions, an increase of 1.5% and 1.6% from 2016, respectively (Deloitte, 2019).

In particular, in the Philippines, the number of companies without female directors fell significantly from 26% in 2019 to 14% in 2020. The number of Taiwanese companies with male-only boards shrank by 5% in 2020. In China, the average percentage of women on boards has remained low; 13.0% in 2020 signifying only 1.6% more than in 2019.

Secondly, because of different institutional, political, social and cultural contexts, the effects of corporate governance attributes such as board gender diversity on sustainability reporting are expected to vary between developed and developing countries. The latter is also facing increasing pressures from foreign investors, international media and stakeholders to improve governance implementation and to initiate sustainability policies and procedures consistent with those adopted in developed economies (Ali *et al.*, 2017).

Given the paucity of empirical evidence, investigating board gender diversity in emerging countries is crucial to providing a deep understanding of the impact that board gender diversity has on sustainability reporting practices.

In light of this, the purpose of this study is to investigate how board gender diversity influence the adoption of new sustainability reporting practices (i.e. SDG reporting) by large companies in the lower-middle-income countries in Asia and Africa [1].

Additionally, this article addresses the understudied question of how the gender diversity of board resources affects the adoption of the external assurance of sustainability reporting made by professional accountants which can enhance the credibility of sustainability reports and increase stakeholders' confidence (Peters and Romi, 2015).

To the best of our knowledge, this paper is the first to provide recent evidence on the effect of board gender diversity on sustainability reporting and external assurance in large organisations in the low and middle-income countries in Asia and Africa.

Through its findings, this work makes it possible to identify the characteristics that differentiate the African and Asian environment from other environments with regard to the firms' choice to adopt an external assurance for sustainability reports. It also contributes to the agency and stakeholder theories by showing how the corporate governance characteristics and stakeholders' pressure influence firms in their choice to voluntarily assure sustainability reports.

2. Theoretical background

2.1 Gender diversity on boards and sustainability reporting

Over the past years, the literature has recognised that gender diversity on the board of directors (BoD) plays a vital role in firms' choice of sustainability engagement (Velte, 2017; Nguyen *et al.*, 2020). Corporate boards with greater gender diversity are more socially responsible. Even the presence of a single female board member can make a difference, especially in male-dominated industries (Zaichkowsky, 2014).

Firstly, female directors differ from male directors in terms of personality, educational background and career experience (Liao *et al.*, 2015).

Women have different communication and leadership styles compared to their male counterparts (Bear *et al.*, 2010); they are more ethically sensitive and empathetic and more socially responsible than men (Setó-Pamies, 2015), who are generally more performance-oriented (Rao and Tilt, 2015).

Gender-diverse boards exhibit greater concern for social and ethical issues and are more engaged in corporate philanthropy and in corporate social behaviour and responsibility including charitable giving, social investments, community involvement and outside recognition of employee benefits (Williams, 2003). Post *et al.* (2011) show that boards composed of three or more female directors are more likely to implement environmental governance structures or processes. In its study, Haque (2017) reveals that board gender diversity has a positive association with carbon reduction initiatives launched by non-financial UK firms over the period 2002–2014. Relying on stakeholder and institutional theory, Yasser *et al.* (2017) investigate the relationship between board gender diversity and corporate social performance of firms across the Asia Pacific emerging economies. The authors find that female directors have a greater communal orientation and stronger moral standards and ethical stances than male directors. Thus, greater gender diversity on the BoD enhance firms' adoption of CSR.

Furthermore, greater female participation in the BoD is associated with a significantly higher value of sustainability-related investments and greater efficiency in reporting. According to Arayssi *et al.* (2016), this increases firms' performance and reduces their risks. McGuinness *et al.* (2017) analyse the relationship between the top-management officer gender and CSR performance in Chinese firms. The authors show that board gender diversity promotes firms' social performance and that stronger incremental rating effects emerge when female leadership accompanies board gender mix.

Secondly, female directors are more stakeholder-oriented; therefore, their presence increases the ability of boards to recognise and satisfy the interests of a variety of stakeholder groups, thus positively affecting the quality (Harjoto *et al.*, 2015; García-Sánchez *et al.*, 2019) and quantity (Rao *et al.*, 2012; Fernandez-Feijoo *et al.*, 2014a, 2014b) of information disclosed by companies in their sustainability reporting.

Harjoto *et al.* (2015) show that board diversity enhances US firms' ability to satisfy the needs of their broader groups of stakeholders, thereby significantly increasing CSR performance. Analysing a sample of companies listed on the Pakistan Stock Exchange, Mahmood *et al.* (2018) reveal that a large board size mostly made up of female directors, along with the presence of a CSR Committee improves management decisions regarding sustainability issues by ensuring a better sustainability disclosure. Using an international sample of 273 firms, García-Sánchez *et al.* (2019) reveal that a greater female representation on the BoD increases the quality of sustainability reporting in terms of balance, comparability and reliability of the information, especially in firms located in more stakeholder-oriented countries. Fernandez-Feijoo *et al.* (2014a, 2014b) find empirical evidence that countries with a higher proportion of BoD with at least three women produce higher levels of CSR reporting. By examining the annual reports of firms listed on the Australian Stock Exchange, Rao *et al.* (2012) find a significant positive relationship between the extent of environmental reporting and the proportions of female directors on boards. Similarly, Elmagrhi *et al.* (2016) show that UK firms with greater director gender diversity tend to disclose more corporate governance information voluntarily. In a recent study, Issa and Fang (2019) find a significant relationship between the number of female directors and the level of CSR disclosure in the Arab Gulf states.

The participation of women members on corporate boards encourage the effectiveness of the firm's monitoring and increasing the efficiency of social disclosure (Arayssi *et al.*, 2016). This enhances public perceptions of the board's legitimacy and trustworthiness, improves the credibility of corporate reports and strengthens the reputation of the company. Using data from the US, Bear *et al.* (2010) reveal that the number of women on the board has a positive impact on firms' CSR ratings and contributes to enhancing corporate reputation.

Gender diversity in the BoD is also associated with proactive social and environmental policies, practices and reporting (Glass *et al.*, 2015). According to Glass *et al.* (2015), firms

with a greater proportion of women leaders (i.e. women CEOs and women on the BoD) are more likely to pursue environmentally-friendly strategies. [Kiliç et al. \(2015\)](#) find that the presence of female directors increases CSR disclosure in the Turkish banking industry. Similarly, [Jizi \(2017\)](#) finds that UK firms with higher female participation tend to establish ethical policies and are more engaged in sustainability reporting. [Anazonwu et al. \(2018\)](#) confirm the positive influence of female managers on sustainability reporting in a sample of Kenyan banks and Nigerian manufacturing companies, respectively.

In a recent study, [Rosati and Faria \(2019\)](#) reveal the existence of a positive relationship between a high share of female directors and the early adoption of SDG reporting in a sample of 408 organisations worldwide.

Thirdly, women are generally more risk-averse than men ([Jianakoplos and Bernasek, 1998](#)) and are more inclined to engage in less risky activities ([Adams and Ferreira, 2009](#)). In the sphere of sustainability reports, this translates into greater information transparency and a lower risk of manipulating corporate financials or other disclosures ([Barua et al., 2010](#); [Ho et al., 2014](#)).

Moreover, gender-diverse boards tend to have a higher perception of environmental risks and take actions to reduce stakeholders' perceived risks ([Liao et al., 2015](#)).

In their study, [García-Sánchez et al. \(2019\)](#) find that the lower risk aversion of female directors, along with their conservative approach and their ethical commitment, decrease the risk of impression management strategies in sustainability disclosure by reducing the risk of alteration of information. Female directors are indeed positively associated with more balanced and reliable information. [Gul et al. \(2011\)](#), argue that female directors exhibit greater risk aversion and ethical behaviour. They are also better at obtaining voluntary information contributing to a reduction of information asymmetry.

[Liao et al. \(2015\)](#) find that large companies in the UK with greater board gender diversity are more likely to disclose extensive reports on greenhouse gas emissions to reduce stakeholders' perceived risks. Based on a sample of listed Canadian firms, [Ben-Amar et al. \(2017\)](#) find evidence of greater risk awareness of women directors whose presence increases firms' likelihood to voluntarily disclose information about climate change-related risks.

In their study, [Saggar and Singh \(2017\)](#) show that board gender diversity positively affects voluntary disclosure of risk information in the annual reports of Indian listed companies. Female directors are also more averse to litigation and reputation loss and therefore are likely to act more decisively than their male counterparts in improving corporate sustainability ([Srinidhi et al., 2011](#)). The results from the study of [Tauringana et al. \(2017\)](#), for example, suggest that the presence of a woman on the board decreases the likelihood of a firm being convicted of an environmental offence in the UK. By analysing the link between women on boards of directors and corporate sustainability, [Galbreath \(2011\)](#) finds that board gender diversity promotes "good" governance; thereby minimising the effects of subversion or misappropriation of shareholder funds.

Despite their individual limitations, these studies collectively reveal that the presence of women on the BoD encourages firms to ethically manage their social responsibilities and sustainable reporting practices.

Despite the growing literature on sustainability practices, the relationship between board gender diversity and sustainability reporting is a relatively unexplored area amongst developing countries, especially in the Asian and African regions ([Tilt et al., 2020](#)).

Much attention should therefore be paid to the relationship between these two concepts which are closely related to each other.

Hence, consistent with the previous literature review and its findings, this paper explores the impact of board gender diversity on SDG reporting by proposing the following hypothesis:

H1: Organisations that contain a higher proportion of women on the BoD are more likely to address the SDGs in their sustainability reports.

2.2 Gender diversity on boards and external assurance

To ensure transparency and enhance the credibility of their sustainability reports, companies may voluntarily choose to assure their reports through external assurance services designed to result in published conclusions on the quality of the report and the information included within it ([Global Reporting Initiative, 2013](#)).

External assurance services are a type of independent professional service aimed at improving the robustness, accuracy and trustworthiness of information disclosed in sustainability reports. These services are typically provided by certified or chartered providers with expertise and competency in sustainability management processes and disclosures.

External assurance service providers are generally divided into three groups: accountancy firms, engineering firms and small consultancy firms.

Accountancy firms (e.g. Deloitte, Ernst and Young, KPMG, Lloyds and PricewaterhouseCoopers) are large consulting firms connected to a global network of professional services consisting of firms both owned and managed independently. These firms are specialists in financial and non-financial reporting and normally have their own systems, controls and audit/assurance procedures. Engineering firms offer technical certifications and engineering expertise. These firms usually understand complex processes and are used to risk-based analysis. Finally, small consultancy firms (also called *boutiques*) are smaller than the other assurance providers and offer a limited number of services to a relatively local client base. The assurance process is an integral part of the whole reporting process. The role of the assurance provider is to provide external verification of reporting and the processes behind reporting through the drafting of an assurance report or statement that may be disclosed as part of the sustainability reporting process. About 40% of sustainability reports issued by large corporations on an international level are assured by external independent experts ([Kolk and Perego, 2010](#)). Sustainability reports that have been externally assured are seen as more robust and reliable ([Simnett et al., 2009](#)).

The literature on sustainability reporting analysing the effect of board gender diversity on the adoption of external assurance is in its infancy and academic contributions are still rare ([Velte and Stawinoga, 2017](#)).

[Liao et al. \(2018\)](#), for example, examine the association between corporate boards and a company's decision to obtain CSR assurance. The authors find that Chinese listed firms with more female directors are more likely to engage in CSR assurance. In a sample of international firms, [García-Sánchez et al. \(2019\)](#) find empirical evidence that female directors show a greater orientation towards the provision of assurance statements in CSR reports to increase their credibility.

Previous literature shows that a greater presence of women in the BoD increases firms demands to audit efforts and managerial accountability ([Adams and Ferreira, 2009](#)).

Therefore, we expect firms with more female directors to be more likely to engage in external assurance.

Thus, we hypothesise that:

H2: Organisations that contain a higher proportion of women on the BoD are more likely to adopt external assurance of their sustainability reports.

3. Data and methodology

3.1 Data sources and sample

This paper explores the relationship between board gender diversity and SDG reporting in Africa and Asia using hand-collected data from two sources: The Global Reporting Initiative's (GRI's) Sustainability Disclosure database and the Bureau van Dijk's Orbis database.

The GRI database displays all types of sustainability reports, whether GRI guidelines-based (e.g. G3, G3.1 and G4) or otherwise and relevant information related to the reporting organisations, indicating for each of them the presence of any explicit reference to the SDGs. This allowed us to extract data about large organisations in low and middle-income countries in Asia and Africa (i.e. countries with a GNI per capita between \$996 and \$3,895) which have published a sustainability report following the G4 Sustainability Reporting Guidelines in the year 2017 [2]. From the GRI database, we obtained an initial sample of 369 organisations with full information about their name, the sector, the originating country and the explicit reference to or the application in the sustainability reports of the following standards and principles:

- the IFC (International Finance Corporation) performance standards on environmental and social sustainability;
- the UNGC (United Nations Global Compact) and its 10 principles in the areas of human rights (Principles 1 and 2), labour (Principles 3, 4, 5 and 6), environment (Principles 7, 8 and 9) and anti-corruption (Principle 10);
- the ISO 26000 clauses addressing the following seven core subjects of social responsibility: organisational governance, community involvement and development, human rights, consumer issues, labour practices, the environment and fair operating practices;
- the UN SDGs.

Finally, we collected information about the adoption of external assurance of sustainability reports.

The names of the 369 organisations extracted from the GRI database were then matched with entries in the Orbis database to gather data on the organisations' corporate governance (i.e. the number of employees, the number of directors on the board, the percentage of female directors and the average age of the BoD) and on their economic and financial performance (i.e. total assets [*ASSET*], market capitalisation [*CAP*], operation revenue, return on equity [*ROE*], return on assets [*ROA*], Tobin's Q and profit margins [*PMs*]). After combining the two databases, we obtained a final sample of 366 observations.

The characteristics of the sample by region, country and industry, are presented in [Table 1](#).

3.2 Method of analysis

To measure the relationship between board gender diversity and the adoption of SDG reporting and external assurance, we run two logit models with the following specification:

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Region	N (%)
Asia	316 (86)
Africa	50 (14)
<i>Country</i>	
Bangladesh	4 (1.09)
Cambodia	1 (0.27)
Cote d'Ivoire	2 (0.55)
Egypt	3 (0.82)
India	39 (10.66)
Indonesia	42 (11.48)
Kenya	1 (0.27)
Madagascar	1 (0.27)
Mainland China	68 (18.58)
Malaysia	15 (4.1)
Marocco	1 (0.27)
Nigeria	5 (1.37)
Pakistan	4 (1.09)
Philippines	11 (3.01)
South Africa	33 (9.02)
Sri Lanka	39 (10.66)
Thailand	61 (16.67)
Turkey	20 (5.46)
Uganda	1 (0.27)
Viet Nam	12 (3.28)
Zimbabwe	3 (0.82)
<i>Industry</i>	
Agriculture	6 (1.64)
Automotive	15 (4.1)
Aviation	5 (1.37)
Chemicals	9 (2.46)
Commercial services	2 (0.55)
Computers	1 (0.27)
Conglomerates	15 (4.1)
Construction	12 (3.28)
Construction materials	9 (2.46)
Consumer durables	1 (0.27)
Energy	28 (7.65)
Energy utilities	11 (3.01)
Equipment	2 (0.55)
Financial services	90 (24.59)
Food and beverage products	17 (4.64)
Forest and paper products	3 (0.82)
Health-care products	8 (2.19)
Health-care services	3 (0.82)
Household and personal products	1 (0.27)
Logistics	8 (2.19)
Media	3 (0.82)
Metals products	8 (2.19)
Mining	23 (6.28)
Other	24 (6.56)
Public agency	1 (0.27)
Railroad	1 (0.27)
Real estate	10 (2.73)
Retailers	5 (1.37)
Technology hardware	3 (0.82)
Telecommunications	23 (6.28)
Textiles and apparel	12 (3.28)
Tobacco	1 (0.27)
Tourism/leisure	1 (0.27)
Waste management	1 (0.27)
Water utilities	4 (1.09)
<i>Total</i>	<i>366 (100)</i>

Table 1.
Characteristics of the
sample

$$SDGs = \begin{cases} 1 & \text{if } \beta_0 + \beta_1(\text{size}) + \beta_2(\text{eper}) + \beta_3(\text{tobq}) + \beta_4(\text{sus}) + \beta_5(\text{gov}) + \varepsilon \\ 0 & \text{otherwise} \end{cases}$$

$$EXTASS = \begin{cases} 1 & \text{if } \beta_0 + \beta_1(\text{size}) + \beta_2(\text{eper}) + \beta_3(\text{tobq}) + \beta_4(\text{sus}) + \beta_5(\text{gov}) + \varepsilon \\ 0 & \text{otherwise} \end{cases}$$

The dependent variable of the first model is “SDGs” – a dichotomous variable denoting 1 for organisations addressing the UN SDGs in their sustainability report and 0 otherwise.

The dependent variable of the second model is “EXTASS” (external assurance statement) – a dummy variable denoting 1 when organisations decide to assure voluntarily their sustainability reports through external assurance providers and 0 otherwise.

Prior studies have suggested that larger companies need to meet higher expectations of the public by exhibiting a greater inclination towards more sustainable initiatives compared to smaller companies (Zhang, 2012; Arayssi *et al.*, 2016). Therefore, we include three variables to represent the size and importance of the organisations (*size*): total assets (“ASSET”); number of employees (“EMP”); and market capitalisation (“CAP”). We expect that organisations with a larger size are more likely to adopt sustainability reporting and external assurance, given the greater pressure they face from stakeholders (Reverte, 2009).

Several studies have indicated that sustainability reporting is positively associated with companies’ financial performance (Hahn and Kühnen, 2013). High profitability increases the company ability to bear the costs of sustainability reporting and to face any negative consequences related to the disclosure of harmful information.

Therefore, we use three proxies for firm financial performance (*eper*):

- (1) profit margins (“PM”), is the ratio of the net income to the revenue and measures a company’s earnings (or profits) relative to its revenue;
- (2) Return on Assets (“ROA”), is the ratio of net income to the book value of the firms’ assets; and
- (3) Return on Equity (“ROE”), is the ratio of net income to the value of the total shareholders’ equity.

We use Tobin’s *q* (“TOBQ”) to represent the organisations’ market-based performance (*tobq*). Tobin’s *Q* is the ratio of the market value of a company’s assets to the replacement value of those assets and measures the wealth generated by a company for its shareholders. It compares how much more a company is worth when compared to the book value of its assets. A Tobin’s *Q* above one indicates that the company is worth more than the sum of its assets.

All these variables have been extensively used in the empirical literature as a proxy for firm performance (Zhang, 2012; Arayssi *et al.*, 2016; amongst others).

A number of dummy variables were used to represent the organisations’ commitment to additional sustainability standards and frameworks (*sus*) that can influence the adoption of SDGs reporting and external assurance: “UNGC”, “IFC” and “ISO”.

Some of the most important corporate governance variables mentioned in the literature were used to represent the diversity in the BoD (*gov*): “FEMALE” (measured as the percentage of women on the BoD), “CEODUA” (CEO duality), “BSIZE” (the number of directors on the board), “AGE” (the average age of the BoD).

As women tend to have more ethical behaviours and demand a higher level of sustainability (Issa and Fang, 2019), we expect a higher proportion of female directors to increase the likelihood of organisations addressing the SDGs in their sustainability reports and adopting external assurance.

According to the agency theory, the characteristics of the board can affect the decision of a company to engage in sustainability reporting (Jizi, 2017).

Therefore, we consider the duality of functions of CEO and Chairman of the board by including the variable “*CEODUA*” – a dummy variable equals to 1 whether the chairman of the BoD is also the CEO and 0 otherwise. The presence of a single individual holding the role of both the CEO and chairman of the board could compromise the effectiveness of board monitoring and influence managers to disclose less information (Sellami *et al.*, 2019). Based on the above arguments, we expect the combined roles of CEO and chairman to adversely affect sustainability reporting quality and external assurance.

According to previous studies, the smaller size of BoDs ensures better communication between the participants and a greater commitment to sustainability (Arayssi *et al.*, 2016; Osazuwa *et al.*, 2016). We, therefore, include the “*BSIZE*” (board size) variable measured by the number of directors on the board, expecting to find a positive relationship between a lower number of directors on the board and the adoption of sustainability reporting and external insurance.

Finally, we consider the effect that board age can have on sustainability reporting and external assurance by including the variable “*AGE*” measured by the average age of the members of the BoD. In line with the literature (Post *et al.*, 2011; Rosati and Faria, 2019), we expect that the presence of younger directors has a positive influence on the adoption of SDGs practices and external assurance as younger individuals tend to be more sensitive to environmental issues.

To account for potential differences in the adoption of sustainability reporting and external assurance, we include two dummy variables relating to organisations’ regions of provenance (“*ASIA*” and “*AFRICA*”).

Previous studies showed that the industry has a significant effect on the environment and therefore can influence the sustainability reporting practices of the companies that operate there (Branco and Rodrigues, 2008; Simnett *et al.*, 2009).

In industries considered riskier to the environment, stakeholders exert strong pressure on companies which consequently tend to increase the level of transparency of their sustainability reports compared to companies in other sectors (Lattemann *et al.*, 2009; Broberg *et al.*, 2010; Fernandez-Feijoo *et al.*, 2014a).

In the same way, some previous studies (Cho *et al.*, 2014; Sellami *et al.*, 2019) showed that companies belonging to environmentally sensitive industries are more prone to assure their sustainability reports to improve their image and ability to deal with the greater pressure from consumers to sustainability concerns.

Thus, we control the industry effect by including the following variables:

- “*CPI*” (Customer Proximity Industries) – a dummy variable equals to 1 for organisations operating in industries with high consumer closeness (i.e. energy utilities, financial services, food and beverage products, healthcare, household and personal products, retailers, telecommunications, textiles and apparel, waste management and water utilities), and 0 otherwise;
- “*ESI*” (Environmentally Sensitive Industries) – a dummy variable equals to 1 for organisations operating in industries that have an important impact on the environment (i.e. agriculture, automotive, aviation, chemical, construction, construction materials, energy, energy utilities, forest and paper products, logistics,

metal products, mining, railroad, waste management and water utilities) and 0 otherwise.

Data sources and variables' descriptions are presented in [Table 2](#).

[Table 3](#) reports the summary statistics. As shown in the table, only 33% of the organisations used SDGs guidelines and a very low percentage of organisations used the UNGC, CDP and IFC standards and principles (25%, 12% and 0.03%, respectively). Moreover, 86% of the organisations in the sample are located in Asia (only 14% in Africa), 40% operate in customer proximity industries, whilst 60% operate in environmentally sensitive industries.

Variable	Symbol	Description	Data sources
<i>Dependent variable</i>			
SDGs	<i>SDG</i>	Dummy variable equals to 1 whether the organisation reports with addressing SDGs and 0 otherwise	GRI
External assurance statement	<i>EXTASS</i>	Dummy variable equals to 1 whether the sustainability reporting is verified by an external assurance provider and 0 otherwise	GRI
<i>Explanatory variables</i>			
Employees	<i>EMP</i>	Number of employees	Orbis
Asset	<i>ASSET</i>	Total assets	Orbis
Capitalisation	<i>CAP</i>	Market capitalisation	Orbis
Profit margins	<i>PM</i>	Profit margins	Orbis
CEO duality	<i>CEODUA</i>	Dummy variable equals to 1 whether the chairman of the board of directors is also the CEO and 0 otherwise	Orbis
ROE	<i>ROE</i>	Return on equity	Orbis
ROA	<i>ROA</i>	Return on assets	Orbis
Tobin's Q	<i>TOBQ</i>	Market capitalisation/total assets	Orbis
Board Size	<i>BSIZE</i>	Number of directors on the board	Orbis
UNGC	<i>UNGC</i>	Dummy variable equals to 1 whether the organisation reports with addressing UNGC and its principles and 0 otherwise	GRI
IFC	<i>IFC</i>	Dummy variable equals to 1 whether the organisation uses IFC standards and 0 otherwise	GRI
ISO	<i>ISO</i>	Dummy variable equals to 1 whether the organisation uses ISO clauses and 0 otherwise	GRI
Customer proximity industries	<i>CPI</i>	Dummy variable equals to 1 whether the organisation operates in industries with high consumer closeness and 0 otherwise	GRI
Environmentally sensitive industries	<i>ESI</i>	Dummy variable equals to 1 whether the organisation operates in industries with a high impact on the environment and 0 otherwise	GRI
Africa	<i>AFRICA</i>	Dummy variable equals to 1 whether the organisation is located in Africa and 0 otherwise	GRI
Asia	<i>ASIA</i>	Dummy variable equals to 1 whether the organisation is located in Asia and 0 otherwise	GRI
Female	<i>FEMALE</i>	Percentage of female members on BoD	Orbis
Number of female directors	<i>nFEM</i>	Number of female members on BoD	Orbis
Age	<i>AGE</i>	The average age of members of BoD	Orbis

Table 2.
Description of
variables and data
sources

Table 3.
Summary statistics

Variable obs.	N	Mean	Std. dev	Min	Max
<i>SDGs</i>	366	0.327869	0.470079	0	1
<i>EXTASS</i>	366	0.363388	0.481634	0	1
<i>TOBQ</i>	268	0.801791	1.504502	0	15.52
<i>EMP</i>	243	27,081.65	62,661.88	3	449,296
<i>BFSIZE</i>	365	37.37475	30.74684	1	150
<i>ASSET</i>	257	3,810,426	1.41E + 07	24.81	1.99E + 08
<i>CAP</i>	268	6,933.292	18,419.16	2.35	208,120.3
<i>PM</i>	326	15.75015	19.79561	-84.71	90.75
<i>ROE</i>	328	17.15576	44.15562	-337.94	512.68
<i>ROA</i>	329	4.243161	6.832613	-13	60
<i>UNGC</i>	366	0.254098	0.435949	0	1
<i>IFC</i>	366	0.032787	0.178322	0	1
<i>ISO</i>	366	0.15847	0.365681	0	1
<i>CPI</i>	366	0.3945205	0.489418	0	1
<i>ESI</i>	366	0.6054795	0.489418	0	1
<i>AFRICA</i>	366	0.863013	0.344304	0	1
<i>ASIA</i>	366	0.136986	0.344304	0	1
<i>FEMALE</i>	366	0.14987	0.110712	0	1
<i>AGE</i>	352	58.42898	5.783419	41	71

4. Results

Table 4 shows the results of the econometric analysis with the dependent variable “SDG” (Model 1) and “EXTASS” (Model 2).

H1 predicts that the presence of women on the BoD fosters organisations’ adoption of SDGs in sustainability reports. The results indicate the gender of the directors is significantly related to the likelihood that large organisations in the low and middle-income countries in Asia and Africa address SDGs in their sustainability reports. Specifically, results show that a higher percentage of women directors in the BoD strengthens the adoption of SDG reporting (Female, $b = 0.15$, $p < 0.1$) supporting *H1*.

Our findings confirm previous studies on board gender diversity according to which a greater female representation on BoDs increases the adoption of new sustainability reporting practices (Setó-Pamies, 2015; Arayssi *et al.*, 2016).

H2 predicts that the presence of women on the BoD fosters organisations’ decision to voluntarily include external independent assurance in their sustainability reports. In line with previous studies (Al-Shaer and Zaman, 2016), our results indicate that a higher percentage of women directors is positive and statistically significant related to the organisations’ decision to adopt external assurance of their sustainability reporting (Female, $b = 0.11$, $p < 0.05$). Hence, *H2* is also supported.

Furthermore, our findings suggest that increased board size has no influence on SDG reporting; however, it encourages the adoption of external assurance. Looking at the average age of the BoD, we find a positive and statistically significant relationship with both dependent variables. This means that younger boards of directors (on average) are more prone to adopt SDG reporting and external assurance. Finally, we do not find statistically significant empirical evidence that CEO duality influences the adoption of SDG reporting and external assurance.

Regarding the control variables, our results are generally consistent with those obtained from previous studies. In line with the stakeholders’ theory and previous studies

Table 4.

Results of statistical analysis

Independent variables	Model 1 SDGs	Model 2 EXTASS	Robustness check (Model 1) SDGs	Signs predicted	Robustness check (Model 2) EXTASS	Signs predicted
<i>FEM</i>	0.1531223* (0.0425299)	0.1086442** (0.5016859)	0.1549532* (0.0468549)	+	0.1163569** (0.5133716)	+
<i>CEODUA</i>	-0.0374401 (0.2938991)	0.0116731 (0.2799343)	-0.0348594 (0.2924452)	+	0.0119365 (0.2801951)	+
<i>EMP</i>	0.1081344 (0.1939226)	0.0246532 (0.1735671)	0.1102573 (0.1915472)	+	0.0279931 (0.1768955)	+
<i>ASSET</i>	0.0630528* (0.1322854)	0.0335867* (0.1408563)	0.0646879** (0.1298745)	+	0.0378566* (0.1396596)	+
<i>PM</i>	0.0469957** (0.0197352)	0.0206862** (0.0098756)	0.0478865** (0.0213547)	+	0.0237994** (0.0116589)	+
<i>BSIZE</i>	0.0096249 (0.0141454)	0.0248965* (0.0049878)	0.0102334* (0.0168452)	+	0.0256113* (0.0085652)	+
<i>ROA</i>	-0.0941452* (0.0585094)	0.02493327 (0.0729844)	-0.0953201* (0.0568514)	-	0.0216569* (0.0688965)	-
<i>ROE</i>	0.0484118* (0.0235586)	0.01496533* (0.0399985)	0.0492354* (0.0245236)	+	0.0186647* (0.0423233)	+
<i>TOBQ</i>	0.1443527* (0.1745933)	0.1018957 (0.1844965)	0.1479653* (0.1723265)	+	0.0113236 (0.1936536)	+
<i>CAP</i>	-0.0198818* (0.0123558)	0.0098659* (0.0103565)	-0.0199931* (0.0135248)	-	0.0081769* (0.0196354)	-
<i>AGE</i>	0.0066081** (0.0012564)	0.01396589* (0.0109663)	0.0084502** (0.0014569)	+	0.0169941* (0.0114963)	+
<i>UNGC</i>	0.8809067** (0.2696426)	0.55068863* (0.3089665)	0.8849866** (0.2765438)	+	0.5633989* (0.3194318)	+
<i>IFC</i>	0.54368518 (0.4168518)	0.7768989 (0.4846569)	0.5513659 (0.4054837)	+	0.7956371 (0.4996537)	+
<i>ISO</i>	-0.2998531 (0.3487315)	0.1186598 (0.4088659)	-0.2963251 (0.3596524)	+	0.1235964 (0.4179846)	+
<i>CPI</i>	1.4269857** (0.8087712)	0.6496662** (0.4796589)	1.4396555** (0.8235369)	+	0.6536533** (0.4913615)	+
<i>ESI</i>	1.5719654** (0.8793254)	0.7386598** (0.5089656)	1.5946537** (0.8917366)	+	1.7388961** (0.5133497)	+
Country control	controlled	controlled				
Robustness			controlled		controlled	
Check by regions						
Pseudo R^2	0.047	0.052				
p -value	0.000	0.00				

Notes: * p value < 0.1 and ** p value < 0.05

(Fernandez-Feijoo *et al.*, 2014a; Sellami *et al.*, 2019) who confirm that the pressure of customers enhances the level of transparency of sustainability reporting, our results show that the CPI variable influences SDG reporting and sustainability assurance demand. Organisations in industries with high consumer closeness are likely to enhance their reputation by adopting SDG reporting and external assurance.

In the same vein, our results reveal that the ESI variable is positively and significantly correlated with both dependent variables. This confirms that organisations may decide to adopt SDG reporting and sustainability assurance to reduce the public awareness of the larger effect of the industry on the environment.

Regarding financial performance, we find a significant positive correlation between PM, SDGs and external assurance. This can be due to the use of high technology or smart marketing by organisations that leads to higher commitment and sustainable development. ASSET and the ROE have a significant positive impact on both dependent variables. The results relating to CAP show a mixed relationship with our dependent variables. Finally, we

find a direct and positive relationship between Tobin's q and SDG reporting. These results confirm several studies in the prior literature (see, for example, [Cohen et al., 2012](#); [Sharif and Rashid, 2014](#)).

We run the robustness check to control coefficient estimates' behaviour when adding regions ([Neumayer and Plümper, 2017](#)). Following [Lu and White \(2014\)](#), we use the "Checkrob" command on Stata. Our findings show that the coefficients do not change much. The region has a minimal positive impact on all coefficients except for CAP and ROA. The very small changes in the coefficients confirm that the results are valid and robust. The coefficients explain the dependent variables by plausible arguments. As we expect from the previous results, board resources' gender diversity affects the adoption of SDG reporting and the external assurance of sustainability reporting. Also, we control for the country.

Finally, to verify the robustness of our findings we carried out an additional analysis by using the number of women on the board "*nFEM*" instead of the percentage as the main independent variable. Models 3 and 4 show that our results hold when we use a different variable for women on boards ([Table 5](#)). When we run the robustness check, the coefficients do not change much.

5. Discussion and conclusions

Sustainability reporting and its external assurance has acquired growing importance on organisations, especially for those operating in developing countries which are often the most vulnerable to unethical corporate practices. As the issuance of sustainability reporting has grown significantly over the past few decades, customers, investors and other stakeholders are increasingly demanding more transparency on the information disclosed by organisations in their reports. From this perspective, the assurance process, aimed at the verification of sustainability reports by external independent experts, becomes more and more a fundamental requirement to reduce information asymmetry and strengthen stakeholders' confidence in the reliability and credibility of corporate disclosure ([Bepari and Mollik, 2016](#)). Because of their psychological and emotional characteristics, women tend to be more socially oriented and more sensible towards the interests of others than men ([Tourigny et al., 2017](#)).

Therefore, the presence of women directors can influence firms' engagement in sustainable business practices, social reputation and stakeholder needs ([Issa and Fang, 2019](#)).

In this study, we set out to investigate the relationship between the board gender diversity and the adoption of new sustainability reporting practices (i.e. SDG reporting) and external assurance in large organisations operating in low and middle-income countries in Asia and Africa. In particular, the goal of this study is to understand whether a higher proportion of female directors could represent an opportunity for large Asian and African organisations to raise the quality of their ethical behaviour.

Our paper presents some major findings and provides some new theoretical insights, as discussed below.

Firstly, this study contributes to the growing literature on sustainability reporting providing evidence from large companies in the lower-middle-income countries in Asia and Africa.

Although prior research provides valuable discussions of the potential benefits of female directors on firms' ethical behaviour, the impact of board gender diversity on SDGs and external assurance in African and Asian lower-middle-income countries has not yet been investigated ([Tilt et al., 2020](#)).

Table 5.
Results of statistical analysis

Independent variables	Model 3 SDGs	Model 4 EXTASS	Robustness check (Model 3) SDGs	Signs predicted	Robustness check (Model 4) EXTASS	Signs predicted
<i>nFEM</i>	0.1443749** (0.0493233)	0.0909356** (0.0644969)	0.1449346** (0.0494937)	+	0.0939691** (0.0665151)	+
<i>CEODUA</i>	-0.0226118 (0.1872746)	0.0100653 (0.2786662)	-0.0246632 (0.1893799)	+	0.0136969 (0.2833129)	+
<i>EMP</i>	0.0899653 (0.1722685)	0.0263589 (0.1703566)	0.0934598 (0.1749668)	+	0.0293323 (0.1743561)	+
<i>ASSET</i>	0.0619874** (0.1239658)	0.0433849** (0.0906965)	0.0643265** (0.1316659)	+	0.0491603** (0.0928694)	+
<i>PM</i>	0.0389565** (0.0449856)	0.0341356** (0.0239564)	0.0395656** (0.0436294)	+	0.0371965** (0.0259659)	+
<i>BSIZE</i>	0.03492537** (0.0176568)	0.0545563* (0.0306959)	0.0377656* (0.0192429)	+	0.0548965* (0.0310063)	+
<i>ROA</i>	-0.1143781* (0.0765895)	0.0513356* (0.0409635)	-0.1196113* (0.0810065)	-	0.0518553* (0.0418659)	-
<i>ROE</i>	0.0786596** (0.0642989)	0.0538895* (0.0340697)	0.0819668** (0.0696772)	+	0.0559659* (0.0349659)	+
<i>TOBQ</i>	0.1244634* (0.1467731)	0.0696632 (0.1009346)	0.1300651* (0.1516894)	+	0.0715232 (0.1058751)	+
<i>CAP</i>	-0.0104195* (0.0094532)	0.01433635* (0.0117961)	-0.0109333* (0.0106639)	-	0.01426356* (0.0117565)	-
<i>AGE</i>	0.0101585** (0.0119658)	0.0142362* (0.0129695)	0.0126859** (0.0129333)	+	0.0143901* (0.0136589)	+
<i>UNGC</i>	0.7868579** (0.3839971)	0.5098563* (0.2930965)	0.7973874** (0.4006354)	+	0.5119087* (0.3003561)	+
<i>IFC</i>	0.5906598 (0.4909689)	0.8144361 (0.5369697)	0.5999123 (0.5063561)	+	0.8168956 (0.546595)	+
<i>ISO</i>	-0.2086661 (0.2579965)	0.0811569 (0.3711068)	-0.2139954 (0.2668568)	+	0.08496596 (0.3733633)	+
<i>CPI</i>	1.5147627** (1.0096325)	0.9439989** (0.7631568)	1.5295353** (1.0865966)	+	0.9563441** (0.7865602)	+
<i>ESI</i>	1.6886326** (0.9539965)	1.0400391** (0.7583232)	1.6985658** (0.9556541)	+	1.0596503** (0.7709161)	+
Country control	controlled	controlled				
Robustness Check by regions			controlled		controlled	
Pseudo R ²	0.047	0.052				
p-value	0.000	0.00				

Notes: * p value < 0.1 and ** p value < 0.05

In line with the stakeholders' theory and previous studies (Sellami *et al.*, 2019), our study robustly demonstrates that a higher percentage of women directors in the BoD strengthens the adoption of SDG practices and external assurance of sustainability reporting. Furthermore, our findings reveal that organisations operating in industries sensitive to the environment and with high consumer closeness are more likely to adopt SDG reporting and external assurance to enhance their reputation and reduce the public awareness of the larger effect that their activity has on the environment.

Secondly, this study contributes to the corporate governance literature by investigating the impact of corporate governance factors – including the board gender diversity – on sustainability reporting and external assurance in low and middle-income countries in Asia and Africa. Overall, the analysis in our paper provides evidence that board gender diversity has a positive significant association with sustainability reporting practices and external assurance. This is consistent with the view that female board representation affects corporate reporting activity.

Finally, this study addresses the understudied question of how board gender diversity affects the adoption of external assurance, providing suggestions for further research in the field of assurance of sustainability reporting.

Whilst we are careful to keep in mind that there are limitations to the generalisability of our results outside of this context, they provide some preliminary practical insights for organisations and policymakers to overcome the gender inequalities in the BoD that the prior literature has documented and promote sustainability reporting practices amongst large organisations in Africa and Asia.

Our research has important implications for organisations and their corporate governance practices.

Sustainability reports and their external assurance are considered as key tools in defining sustainability policies whilst representing organisational control mechanisms able to foster the strategic incorporation of sustainability into the firms (Kuzey and Uyar, 2017).

Our findings are useful for the director selection process as the results highlight the importance of considering the board gender diversity. As women's decisions tend to be more socially oriented than men's, they contribute to a more effective address to sustainability practices and stakeholder needs. Therefore, a greater presence of women in the BoD could provide support to the challenges faced by the top management of large Asian and African organisations in ensuring their increasing engagement in sustainability initiatives whilst acting in the best interest of the company and its stakeholders. Hence, organisations should establish policies concerning boardroom gender diversity and set measurable objectives for their implementation.

A second implication emerges from this study.

The results show that board diversity has benefits to firms with respect to SDG reporting and external assurance regardless of region and that Asian and African women are equally capable of improved firm performance. Therefore, governments should remove the barriers at the root of the historic inequality in women board representation in the African and Asian regions. A greater presence of women on the BoD would increase organisations' commitment to sustainability practices especially in countries such as Asia and Africa where the absence of sufficiently binding national regulations often turns into unethical behaviour and business practices.

Furthermore, as an understanding of the concept and importance of sustainability is still lacking amongst certain developing countries, governments should promote the incorporation of sustainability practices in companies' values and culture whilst empowering local communities and transforming them into legitimate and powerful stakeholders.

Going forward, future research could expand the experimental setting of our study by including other factors such as the socioeconomic-cultural context and investigate whether our results continue to hold in different contexts, particularly in emerging funding contexts. Furthermore, future research could investigate other factors related to the adoption of external assurance of sustainability reporting such as the quality of the assurance, the assurance level or the type of assurance providers.

Notes

1. Organisations are classified as "large" based on the European (EU) definition of size, i.e. organisations with a headcount of at least 250, an annual turnover greater than €50m or a balance sheet total of more than €43m. According to the World Bank classification, lower-middle-income economies are defined as those with a gross national income (GNI) per capita, calculated using the World Bank Atlas method, between \$996 and \$3,895.

2. Amongst the major providers of sustainability reporting guidance, the GRI's Sustainability Reporting Standards are the most adopted frameworks for voluntary reporting worldwide (Brown *et al.*, 2009).

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