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Board Attributes and Corporate Social Responsibility Disclosure: A Meta-Analysis

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Abstract: Many studies have examined the relationships between board attributes (board independence, CEO duality, board size, and women on boards) and corporate social responsibility disclosure (CSRD) as a means to improve a firm's reputation. This research was performed in various international settings and uneven outcomes were obtained. We therefore meta-analyzed 88 studies to summarize scattered evidence and found that CEO duality had a significantly negative relationship with CSRD, while board independence, board size and women representation had a significantly positive relationship with CSRD. These relationships were more significant in countries with low levels of commitment to sustainable goals. Thus, our study revealed differences in the relationship between board attributes and CSRD, and that these differences were conditioned by the institutional contexts in which firms operate. Our research has practical implications for practitioners and policy makers alike as we offer guidelines on the most suitable corporate governance mechanisms to achieve lower capital costs and better access to finance.

Keywords: corporate governance; board of directors; sustainability; institutional context; meta-analysis; sustainable goals

1. Introduction

The sustainable development concept was introduced in the seminal Brundtland Report [1] three decades ago. In the global sustainable development agenda's most recent recapitulation, the United Nations (UN) embraced 17 Sustainable Development Goals (SDGs) that are projected to "stimulate action over the next 15 years in areas of critical importance for humanity and the planet". The popularity of these SDGs has grown rapidly among a wide range of actors beyond the 193 UN member states who unanimously endorsed them, including public policy bodies, non-governmental organizations, and many public organizations and professional business bodies. Boards of directors (BoDs) play a key role in implementing SDGs in the private sector as they are responsible for translating these values into their firm's strategies. In doing so, not only must firms act in a sustainable manner, but also let these actions be highly visible through the reporting of the firms' corporate social responsibility (CSR). This is vital for improving reputation and value creation.

CSR can be defined as a company's voluntary contribution to sustainable development that goes beyond legal requirements [2–5]. CSR is key in the internal decision-making process given that it permits measuring the value of long-term relationships and assets by identifying strengths and weaknesses across the whole corporate responsibility spectrum [6].

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Corporate social responsibility disclosure (CSRD), defined as a range of documents intended to inform all stakeholders on CSR company actions [7], is regarded as a strategic tool to enhance firms' reputations and improve their access to finance [8]. CSRD addresses stakeholder concerns and maximizes shareholder wealth [9,10]. In line with this view, previous studies have shown that better reported CSRD is associated with reduced cost of capital, higher valuation [10,11], and greater access to finance [12]. Moreover, CSRD has acquired major importance for a variety of reasons: it enhances the entity's position and image [13,14]; it promotes customer, community and government relations [14,15]; it legitimizes their activities [16]; and it reduces information asymmetry between the entity's managers and its stakeholders [15]. Furthermore, CSRD improves the image of a company in the eyes of its major stakeholders [17].

The board of directors, a major internal governance mechanism, can influence CSR decisions, including CSRD [18,19]. Disclosure is generally one of the board of directors' chief tasks [20–24]: boards have the essential role of controlling the organizations' CSR behavior and are accountable to all the different interest groups [25]. For that reason, even more studies have focused on the relationships between BoDs and CSRD [26–28]. Previous studies have analyzed how some board attributes, such as CEO duality, lead to concentrating managerial power, thus enabling managers to suspend CSR investments when regarded as wasteful [29,30]. In this sense, it is also to be expected that an independent board will question management more thoroughly and promote the disclosure of information [25,31]. Other studies have also linked corporate governance to CSRD [32,33], suggesting that the separation of chairman and CEO roles may lead to monitoring improvements when making critical decisions about stakeholder responsiveness [34] or that larger boards usually represent different groups and will potentially enable the firm to reach out to its different stakeholders [35].

Despite the existence of a significant quantity of literature on the link between boards of directors and CSRD, empirical evidence is markedly scattered: different studies seem to suggest diverging or inconclusive relationships [18,28,36–38].

The present meta-analysis aimed at reconciling these conflicting results by dealing with various weak points in the extant literature. It must be remembered that the main objective of this study consists in collecting studies that relate board characteristics with CSRD in order to clarify inconclusive results, regardless of the theoretical frameworks used. Specifically, rather than simply examining the relationship between board of director variables and CSRD, we also considered the conditions prone to altering this relationship. We suggest that previous contradictory results are conditioned by country-level factors. For example, in the line of preceding studies [39–41], we took into account the degree of compliance with the United Nations (UN) Sustainable Development Goals (SDGs) of every country in our sample. This degree of compliance could have an impact on these relationships by encouraging companies to follow corporate social responsibility principles while also promoting sustainable economic development within emerging countries' general environmental and human development. Consequently, we examined whether the levels of companies' sustainable development in different countries could explain these mixed results.

In spite of the recent swift development of meta-analysis as a research method in the corporate governance field, fresh research is still needed due to two matters. Firstly, as the topic is new and has quickly grown, only a limited number of studies have been reviewed by prior works [42–44]. Empirical evidence is growing rapidly, complemented by new samples and new institutional contexts, which require more and new meta-analyses. Secondly, the majority of meta-analyses concerning BoDs have focused on the strong effect that BoD features have on firm performance [45–48], but it remains unclear whether boards' characteristics are related to CSRD. Thus, this study presents a more up-to-date and far-reaching review of the links between BoDs and CSRD. Furthermore, the present study is the first to specifically focus on the relationships between BoDs and CSRD.

Our two main contributions are as follows: first, we provided updated and comprehensive evidence on the relationship between some BoD's characteristics (board independence, CEO duality, board size and women on boards) and CSRD based on a wide-ranging sample (we summarized the

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results of 88 studies, having 233 correlations and with a total sample size of 31,725 companies). Second, we examined to what extent global efforts regarding sustainable development (as a country-level contextual factor) had an impact on the effectiveness of the relationships between these two sets of variables.

Our results are threefold. First, we found significant relationships between all board variables under study (board independence, CEO duality, board size and women on boards) and CSRD. Second, a country's commitment to the UN agenda was found to be a relevant factor: different results emerged when we focused on different contexts with varying levels of commitment to sustainable goals. Third, whereas board independence, CEO duality and board size had less influence (positive or negative) on CSRD when the country was more strongly committed to sustainability, the influence of female directors on CSRD could only be studied in countries that were highly committed to SDGs, given the lack of studies focusing on countries showing a low level of commitment to sustainability.

2. Literature Review

Much progress has been made in the use of meta-analysis as a research technique in the finance and management fields in the last few years [42,49–52]. The technique is particularly relevant because it allows the exploration of relationships among variables and to reach deeper and finer-grained insights than in the case of single studies [53]. Meta-analysis is particularly suitable for two reasons: firstly, potentially divergent empirical results are synthesized leading to better and more reliable estimations of relationships; secondly, it enables exploring the importance of concrete variables, so likely discrepancies can be addressed through identifying moderating effects [54].

Our study focused specifically on board attributes—CEO duality, board independence, board size, and women on boards—and their relationships with CSRD. In the following section we describe the relationship of each board attribute with CSRD. Diverging results are exposed: the relationships were either positive, negative or non-existent.

2.1. The Relationship between the BoD's Leadership Structure and CSRD

CEO duality is widely studied in corporate governance literature [55]. CEO duality occurs when a single person fills the positions of both CEO and board chair [56]. This is an odd situation as the CEO is being monitored by him/herself, which leads to the consolidation of power in only one person and, potentially, opportunistic behavior [57].

CEO duality concentrates managerial power [30] enabling the CEO to adopt a selfish behavior using CSR to raise his public image [58]. For example, Barnea and Rubin (2010) [58] as well as Malmendier and Tate (2005) [59] found that overpowered CEOs tend to overinvest in CSR activities in order to boost their reputation as good social citizens. Conversely, a study conducted by Li, Li and Minor (2016) [60] found that firms' level of commitment to CSR activities decreased as CEO power increased; furthermore, they also showed that CSR activities help to create value for the company, rebutting the overinvestment hypothesis. This argument is supported by other authors such as Hong et al. (2016) [61] as well as Jo and Harjoto (2011) [27]. A possible explanation of these results is that CEOs tend to suspend CSR investments when they regard them as wasteful [30].

CSRD used as a communication channel of environmental and social information is revealed by some studies as a mechanism that supports company performance in the eyes of stakeholders, disclosing the information that they demand [31,62]. According to Li, Pike and Haniffa [63], the separation of chairman and CEO roles may lead to improved quality of critical decisions about stakeholder responsiveness. Conversely, when an individual holds both key positions, power may be excessively consolidated in one person shutting out diverging views from groups representing different interests. Forker [64] (p. 117) noted that "a dominant personality commanding a company may be detrimental to the interest of shareholders"—this may result in neglecting participation in CSR activities and hence the reporting of this participation [28]. Moreover, non-duality can improve

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stakeholder representation within boards and positively influence CSRD [64]. In sum, these studies also support the separation of these roles regarding CSRD.

No conclusive results regarding duality and CSRD have been found in previous research. A first group of studies suggested an absence of relationship between the variables [21,23,26,28,65]. An explanation for these inconclusive results may be the impact of country factors on the meaning of CEO duality as a governance mechanism. For example, in India, Turkey and Bangladesh, CEO/chair duality may not have significant implications since both positions are often filled by relatives [28]. A second group of studies revealed that duality was positively related to disclosure [26,66,67]. According to Jizi et al. [67], CEOs' selfish motivations, such as embellished reputation, work prospects, and pay, as well as less scrutiny by financial markets, BoDs, or regulators, could explain these results.

Lastly, several studies have found that CEO duality was negatively associated with disclosure [22,68–70]. In order to minimize control from the outside by financial analysts, investors and even the financial press, it is reasonable to think that CEOs restrict voluntary disclosure, also regarding CSR [63,71].

No clear relationship between CEO duality and CSRD seems to arise from the literature review. Results are inconclusive since we find positive, negative or even non-existent relationships between both variables.

2.2. The Relationship between Board Independence and CSRD

The independence of boards is a key attribute of corporate governance [72]. Independent directors are considered to represent a mechanism of accountability as they are expected to address the interests of all stakeholders, not simply those of shareholders [24].

One of the main functions of independent directors is to watch the practices of executive directors and prevent opportunism [29]. Due to their close contacts with insiders and executive officers, they sometimes lose sight of their main role: that of supervision. [73]. In this sense, independent board directors should increase the quality of monitoring: they are neither company officers nor employees and they represent shareholders' interests. Moreover, independent directors can reduce conflicts of interest amongst stakeholders [74] and also foster board effectiveness [75,76]. They may also affect the entities' CSR activities. Strandberg (2005) also suggests that decision making gains in quality with the presence of independent directors, especially in CSR policy [77]. In this sense, firms with more board independence are more likely to provide compensation to executives in the form of CSR activity incentives [61]. What is more, Hong, Li and Minor (2016) [61] suggest that CSR activities are more likely to be beneficial to shareholders, as opposed to agency costs. A study conducted by Huang (2010) [78] found that independent directors brought about a major increase in a firm's CSR performance regarding different actors in society.

Board members' level of independence has a significant impact on information disclosure because of the key role of external directors [21,79,80]: their presence guarantees that shareholder interests are being fulfilled [24,81,82]. Assuming the board needs to play a major part in determining a firm's CSRD practices [65], the independent directors' function of representing the interests of shareholders [57] and other stakeholders [25] is especially relevant. Therefore, it is to be expected that an independent board would more thoroughly question management and encourage the disclosure of information.

Despite the relevant links between board independence and CSRD, the literature shows mixed results concerning the association between both variables. Firstly, results of studies do not show a consistent relationship between independent directors and CSRD [18,27,37,76,82,83]. Some studies have found that these effects may be conditioned by the governance environment [28]. For example, research conducted in developing countries has generally led to questioning whether independent directors had any impact on CSR decision making in the presence of strong family control [84,85]. In Europe, mainly on the continent, independent institutional directors who play a key role in corporate governance [86] have a notable influence on strategic board decisions such as CSR reporting. The effects of board independence on CSRD may also depend on firm size. Large companies are usually associated

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with high levels of CSRD because of the greater visibility and societal pressure they are exposed to [87]. Finally, the media plays a major role in companies' activities such as CSRD as a highly influential stakeholder that puts pressure on companies to engage in CSR [88].

A second group of studies showed that board independence was negatively associated with CSR disclosure [89,90]. Considered as an organizational collective, their reputational concerns may lead them to the adoption of risk-avoidance behaviors. Regarding voluntary reporting, independent directors will look closely at what risks a CSR strategy—the veracity and credibility of which are uncertain—may present for their reputation. In other words, to reduce any financial or reputational risks associated with social and environmental issues, they may minimize the reporting of social and environmental contents [21] that lack credibility or reliability. Given that independent directors do not work within the company, they do not dispose in-depth knowledge of the measures taken to ensure social and environmental performance [91]. Consequently, independent directors may be misled by the information provided by managers for lack of expertise [92]. Such information therefore presents risks for their reputation and future in other firms [57]. Independent director behaviors may be guided by personal interests [93] and the preservation of their career prospects, i.e., they may simply prefer not to take any risk by disclosing CSR [94]. Both factors can therefore be found to have a negative association. Some studies have found that voluntary disclosure is negatively related to the number of non-executive board directors [22,65,95].

To finish, other studies indicate that independent directors promote CSR activities [72]. Strandberg (2005) [77] pointed out that appointing independent directors boosts a firm's CSR activities. More responsible firms, which tend to employ a greater number of independent directors, usually consider wider-ranging issues of sustainability when reviewing their governance codes. Independent directors also put pressure on firms to disclose CSR information in order to make corporate decisions that are more legitimate from a social perspective [24,96]. The result is that the presence of independent directors improves a firm's CSR performance [75]. Independent directors may engage in better dialogues with stakeholders and this ought to be reflected in further transparency. Independent directors help companies to adopt broader approaches to their work in society, potentially generating higher levels of unambiguous disclosure and CSR [97].

Several studies have found that a bigger share of independent directors on boards has a significant and positive correlation with increased CSRD [21,22,38,65,72,75,79,88,90,98–103].

In the light of this, the results of the studies do not seem to indicate a clear relationship between board independence and CSRD. While some show a positive association, others find a negative correlation and even the absence of a relationship between the variables.

2.3. The Relationship between Board Size and CSRD

Two opposite stances regarding board size and efficiency can be found in the literature. One views large boards positively while the other advocates smaller boards. Large boards may enhance the board's monitoring capabilities and reduce the discretionary power of managers [74]. Large boards may also reflect a range of backgrounds, contributing broader knowledge and different ideas to the discussion [104].

On the other hand, larger boards take more time over exchanges, decisions and reaching a consensus. This reduces the efficiency of their monitoring role. However, these benefits may be offset by the slower communication and less efficient decision making typical of large groups. The lack of a cohesive framework may actually cause conflict within the group and thus diminish the board's monitoring capacity [105]. In this sense, Jensen [106] found that bigger boards are less coordinated and thus more susceptible to CEO control. Small boards, on the contrary, are deemed more efficient for decision making but are influenced by managers [106].

According to Benson, Pfeffer and Salancik [107], a greater board size has an impact on links with the external environment. Larger boards reflect a wider range of stakeholders. Luoma and Goodstein conducted a study on publicly traded US firms, finding that stakeholders were better represented

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in larger firms [35]. Several studies highlight that large boards allow companies to connect better with their environment [108]. For example, the literature shows that BoD's key role is to legitimize and boost a firm's public image [109] and to build external relationships [110]. Prior research also suggests that firms with larger boards show better governance disclosure [111], and better disclosure of compensation practices [112].

Board size is a corporate governance attribute commonly used in CSRD studies [75,89]. However, the relationship between disclosure and board size has not been fully resolved and further empirical research is required [38]. A first line of research has shown that board size has no impact on CSR reporting [36,113]. Similarly, Chen and Courtenay [21] found no connection between the board's size and voluntary disclosure. Said, Zainuddin and Haron [76] concluded that board size does not affect CSRD but that there are other contingencies that do affect the relationship between the two. Specifically, using a sample of Malaysian publicly listed companies, they found that the existence of an effective audit committee, government ownership and ownership concentration were positively and significantly correlated with the level of CSRD. Another of the contingencies that may affect the relationship between size and CSRD is the regulatory environment. In this sense, the study conducted by Haji (2013) [104] highlighted that following the Good Governance Code change, the positive relationship between size and CSRD was significantly intensified. Studies in Australia and the USA had previously shown a rise in social disclosures following changes in the business environment such as social and environmental crises [114,115].

A second line of work proposes that large boards cause a lack of communication and coordination, slow decision making, a lack of unanimity and a risk of excessive manager control [74]. In this sense, ineffective coordination in communication and decision making lead to poor disclosure quality since BoDs are unable to carry out their roles efficiently. Byard, Li and Weintrop [116] revealed a negative relationship between board size and the accuracy of voluntary earnings forecasts in US corporations.

A last group of studies highlights the positive impact of large boards on CSRD [13,75,89,117,118]. More sizeable boards have richer combinations of expert knowledge and vested interests, which can ultimately positively contribute to a firm's prestige. Another consequence is increased CSR demand and thus greater transparency. Larger boards are associated with greater diversity of expertise, experience, and stakeholder representation, which can enhance corporate reputation and image. The presence of a diversity of stakeholders on larger boards can lead to greater demand for CSR activities and therefore larger boards can be expected to engage in CSRD [118]. For example, Frias-Aceituno, Rodriguez-Ariza and Garcia-Sanchez [119] found a positive correlation between board size and dissemination of information. The latter supports the view that larger boards facilitate the fulfilment of stakeholder's expectations, thus promoting transparency and disclosure. Donnelly and Mulcahy [26] noted that board size and transparency were positively associated in Irish companies. Abeysekera [120] stated that bigger boards can contribute to compensating a lack of board competence regarding more discretionary disclosures about future earnings. In their study, Chambers, Chapple, Moon and Sullivan [121] found that due to broader exchanges of ideas and experiences, a larger board size could lead to better CSR activity appreciation and involvement, hence its disclosure in annual reports.

Based on the above discussion, large boards have been both positively and negatively associated with CSRD, while in other cases no relationship between board size and CSRD has been found. Therefore, it is not possible to draw clear conclusions on the influence of board size on CSRD.

2.4. The Relationship between Women on Boards and CSRD

Gender issues are becoming increasingly relevant in corporate governance research. According to the literature, gender aspects can affect the efficiency and functioning of corporate boards [122–124].

Previous research has found that female presence on corporate boards brings about qualitative improvements to board duties [125], such as CSR performance controls. An explanation commonly put forward is that women naturally have a more social outlook so they are better at making CSR decisions [126,127]. At the same time, an increasing number of fields of study are considering gender

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as a main variable in CSR results. There is no consensus, however, on the use of a unique theoretical framework because gender cannot be regarded as a single phenomenon but rather as a complex one.

Fehr-Duda, De Gennaro, and Schubert (2006) [128], argue that women have better multi-tasking skills and communication abilities than their male counterparts. In this line, Burke (1997) [129] pointed out that women's presence enriches board information, perspectives, debates and decision making. Women on boards potentially project an image of legitimacy to existing and future staff, and also symbolize career opportunities [130,131]. Furthermore, customer-oriented businesses are more inclined to appoint female directors to their boards, as this legitimates their activity and enhances relations with customer and stakeholders [132].

Regarding the link between gender and CSRD, the literature recognizes that the impact of companies' attitudes towards sustainability goes beyond shareholders and creditors' interests, as the environment and society are a common good per se.

Most research in this field links women on boards to positive impact on the quality of CSRD. In line with these arguments, Frias-Aceituno et al. [119] examined 568 companies from 15 countries and found that the presence of women on boards was a key factor regarding integrated dissemination of information. Furthermore, Liao, Luo and Tang [133] noted that with the growing presence of female directors in British firms, there was an increasing tendency to be ecological and transparent. Expanding the scope to an international context, Fernandez-Feijoo, Romera and Ruiz [134] found that boards with three or more women were decisive for CSRD and that their presence moderated the effects of cultural characteristics on CSR reporting. Moreover, Zhang, Zhu and Ding [135] interpreted CSR performance as the extent of the firm's moral legitimacy, relating female directors with improved CSR practice according to a firm's economic sector. Finally, gender on boards has been found to promote Chinese firms' social performance [117]. According to these authors, appointing women officers to top-level posts increases CSR ratings. In China, ratings in firms with gender diverse boards and female leaders were found to be even greater.

Nevertheless, despite the findings mentioned above, other studies did not find that CSR disclosure had any relationship with the presence of women on director boards [68,72,136–138]. All in all, the literature review produced diverging findings regarding the influence of women's board presence on CSRD.

2.5. The Moderating Effect of the Institutional Environment: The Degree of Compliment with SDGs

Institutional factors can either enhance corporate social performance or inhibit it [139]. These factors affect both the costs of investing in corporate social performance and the benefits, such as more transparency, broader stability, less market abuse, better access to finance and improved cost of capital [8]. In line with this argument, Cai, Shen and Liu [140] found that based on a sample of more than 2600 companies from 36 countries, country factors explained variations in Corporate Social Performance ratings to a much greater extent than a firm's characteristics.

When accounting for these institutional factors regarding sustainable development commitments, the UN should be considered as one of the major and most powerful intergovernmental organizations. The UN-SDGs were established in 1945, at the end of World War II, with the objective of acting as a forum for member countries, facilitating global agreements and the joint resolution of problems (www.un.org/en/sections/about-un/overview/index.html, accessed 14 November 2018.). Since then, the UN has the authority and is formally responsible for creating conditions for equitable and environmentally sustainable forms of development. To achieve this goal, countless initiatives, such as conferences (Stockholm, 1972; Rio, 1992; Johannesburg, 2002; Rio+20, 2012; and Paris, 2015), international agreements, working groups, goal-setting publications and associated activities and their ramifications have taken place (e.g., the OECD, the World Bank and the International Monetary Fund) (See Bebington et al. 2001 [141] who trace the history and relevance of these initiatives for reporting.). These SDGs thus represent one of the biggest international commitments to sustainable development ever made and, according to the UN, these SDGs should be included in the business

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strategies of major private corporate governance bodies such as CEOs and BoDs. The academic world has also initiated SDG-related research in several disciplines, such as business and management [142], innovating corporate accounting and reporting [143], and responsible management [144], among others. A number of studies focus on how adopting an SDG framework stimulates and guides organizations' policies and practice. Other studies, on the other hand, claim that they may also be at times utilized to hide a firm's usual activity behind SDG-based discourse [145].

Regarding compliance with SDGs, levels of compliance of member countries has so far been unequal, leading to disparate institutional environments across the group of countries. In this sense, Allen et al. (2018) [41] found that the measures recommended by highly committed countries were far from being implemented in recent practices that could influence board performance. In line with Boubakri, El Ghoul, Wang, Guedhami and Kwok [146], we expected that the relationship between board attributes and CSRD would be influenced by the quality of the home country's institutional environment. For instance, if the firm is based in a country where demand for CSRD is high (high commitment to sustainable goals), there is hardly any motivation to engage in a greater amount of CSRD than that of other firms in the country. Finally, evidence was even found that some businesses barely recognize the importance of their boards of directors having a sustainable ethic and that they have often undermined these goals (i.e., avoiding corporate taxes or committing fraud as revealed by the Panama Papers leaks) [147].

Conversely, in countries with low institutional requirements (low levels of commitment to sustainable goals) board members can show great motivation in increasing CSRD, as the impact would be greater. Consequently, BoD's attributes can act as effective mechanisms to compensate the weakness of countries' involvement in CSRD.

Identifying different patterns of BoD behavior could require the analysis of the moderating factor exerted by a country's level of commitment to SDG. In this vein, we propose classifying the results of studies according to the country of compliance with global SDGs.

3. Methodology

Meta-analysis is now broadly accepted in business research [49–52,148–152]. Meta-analysis is employed to sum up the size of an average effect over multiple studies and permits researchers to combine the results of a number of independent studies by working out an average estimate of the relationship between two variables of interest [153–155]. The value of meta-analysis as a research method is due to two specifically relevant aspects: potentially divergent empirical results can be synthesized while the role of a specific set of variables can be explored at the same time.

So, by using meta-analysis, our work means to test and summarize the results of previous studies that have examined the connections between each variable and CSRD, while introducing the institutional context as a moderator of the different proposed relationships.

To identify the relevant literature eligible for the review, we combined six databases: (1) Institute for Scientific Information (ISI) Web of Knowledge, a platform that includes the references of the main scientific publications of all knowledge disciplines; (2) ABI/INFORM collection, a comprehensive international business database containing thousands of journals, doctoral theses and other key publications; (3) Business Source Complete-Ebsco, one of the most complete databases of academic articles available; (4) ScienceDirect, which provides access to a large database of scientific research and hosts over 12 million items of content from 3500 academic journals and 34,000 e-books; (5) Emerald, a cross-disciplinary journal database offering peer-reviewed, international research in specialist fields including Business and Management; and (6) SSRN, one of the main open access research repositories in the world. We also consulted major accounting and finance journals that typically publish this type of research (*Corporate Governance*; *Journal of Accounting and Public Policy; Corporate Governance*: An International Review; Managerial Auditing Journal; International Journal of Disclosure and Governance; *Journal of Applied Accounting Research*; *Journal of Business Ethics*; *Corporate Social Responsibility and Environmental Management*). We focused our search on articles in academic journals up to 2017, with no

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lower timeframe limit. With a view to identifying the pertinent empirical studies, we used diverse combinations of keywords: ("duality"; "CEO-chairman duality" or "dual leadership"), ("board size"), ("outside directors", "supervisory directors" or "independent directors") and ("women on board", "female directors" or "gender diversity on board") as well as four CSRD-linked terms ("disclosure level", "disclosure score", "CSRD level" and "CSR reporting").

We limited the literature review to articles published in peer-reviewed journals. After, we manually examined these papers to verify that they included quantitative analysis and/or correlation matrices. When studies informed of effect size statistics other than correlations, we converted them into an r value [156]. This decreased the initial sample from 101 to 88 usable studies that probed the effect of board attributes and CSRD (with 233 correlations and a total sample size of 31,725 firms). Table 1 provides an overview of the studies included in our analysis.

Table 1. Studies included in the meta-analysis.

Author	Year	Journal	Context Arab Emirates Ghana	
Adawi M. and Rwegasira, K.	2011	International Journal of Disclosure and Governance		
Agyei-Mensah, B.K.	2017	Corporate Governance		
Agyei-Mensah, B.K.	2016	Corporate Governance	Sub-Saharan Africa	
Ahmed Haji, A. and Anum Mohd Ghazali, N.	2013	Humanomics	Malaysia	
Akbas, H.E.	2016	South East European Journal of Economics and Business,	Turkish	
Alazzani, A., Hassanein, A., and Aljanadi, Y.	2017	Corporate Governance	Malaysia	
Allegrini, M. and Greco, G.	2013	Journal of Management and Governance	Italy	
Alotaibi, K.O. and Hussainey, K.	2016	International Journal of Disclosure and Governance	Saudi Arabia	
Al-Shaer, H., Salama, A. and Toms, S.	2017	Journal of Applied Accounting Research	UK	
Amran, A., Lee, S.P. and Devi, S.S.	2014	Business Strategy and the Environment	Asia-Pacific region	
Appuhami, R. and Tashakor, S.	2017	Australian Accounting Review	Australia	
Ashfaq, K., Zhang, R., Munaim, A. and Razzaq, N.	2016	International Journal of Economics and Financial Issues	Pakistan	
Barakat, A. and Hussainey, K.	2013	International Review of Financial Analysis	Europe	
Barakat, F.S.Q., López-Pérez, M.V. and Rodríguez-Ariza, L.	2014	Review Managerial Science	Palestine and Jordan	
Ben Kwame Agyei-Mensah	2017	Corporate Governance	Sub-Saharan Africa	
Ben-Amar, W., Chang, M. and McIlkenny, P.	2017	Journal Business Ethics	Canadian	
Cerbioni, F and Parbonetti, A.	2007	European Accounting Review	Europe	
Chen, C.J-P. and Jaggi, B.	2000	Journal of Accounting and Public Policy	Hong Kong	
Chen, Y., Knechel, W.R., Marisetty, V.B., Truong, C. and Veeraraghavan, M.	2017	Auditing: A Journal of Practice & Theory	USA	
Cheng, E. C. M., and Courtenay, S. M.	2006	The International Journal of Accounting	Singapore	
Cuadrado-Ballesteros, B., Rodríguez-Ariza, L., and García-Sánchez, I.S.	2015	International Business Review	Multisample	
Depoers, F. and Jeanjean, T.	2013	European Accounting Review	France	
Deumes, R. and Knechel, W.R.	2008	Auditing: a journal of practise and theory	Netherlands	
Donnelly, R. and Mulcahy, M.	2008	Corporate Governance: An International Review	Ireland	
Elmagrhi, M.H., Ntim, C.G. and Wang, Y.	2016	Corporate Governance	UK	
Elshandidy, T. and Neri, L.	2015	Corporate Governance: An International Review	UK and Italy	
Eng, L.L. and Mak, I.T.	2003	Journal of Accounting and Public Policy	Singapore	
Esa, E. and Ghazali, N.A.M.	2012	Corporate Governance	Malaysia	
Fasan, M. and Mio, C.	2017	Business Strategy Environment	Multisample	

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Table 1. Cont.

Author	Year	Journal	Context	
Ferrero-Ferrero, I., Fernández-Izquierdo. M.Á. and Muñoz-Torres, M.J.	2015	Corporate Social Responsibility and Environmental Management	Multisample	
Frias-Aceituno, J.V., Rodriguez-Ariza, L. and Garcia-Sanchez, I.M.	2013	Corporate Social Responsibility and Environmental Management	Multisample	
García-Sánchez, I.M. Rodríguez- Domínguez, L. and Gallego-Álvarez, I.	2010	Accounting, Auditing & Accountability Journal	Spain	
Giannarakis, G. Konteos, G. and Sariannidis, N.	2014	Management Decision	USA	
Giannarakis, G., Konteos, G., Sariannidis, N. and Chaitidis, G.	2017	International Journal of Law and Management	USA	
Ginesti, G. Sannino, G. and Drago, C.	2017	Corporate Governance	Italy	
Gul, F.A. and Leung, S	2004	Journal of Accounting and Public Policy	Hong Kong	
Habbash, M.	2016	Social Responsibility Journal	Saudi Arabia	
Haddad, A.E., AlShattarat, W.K., AbuGhazaleh, N.M. and Nobanee, H.	2015	Eurasian Business Review	Jordan	
Haniffa, R.M. and Cooke, T.E.	2002	ABACUS	Malaysia	
Hidalgo. R.L., García-Meca, E. and Martínez, I.	2011	Journal of Business Ethics	Mexico	
Ho, S.S.M. and Wong, K. S.	2001	Journal of Financial Economics	Hong Kong	
Holm, C. and Schøler, F.	2010	Corporate Governance: An International Review	Denmark	
Hossain, M., Al Farooque, O., Momin, M.A. and Almotairy, O.	2017	Social Responsibility Journal	Multisample	
Huafang, X. and Jianguo, I.	2007	Managerial Auditing Journal	China	
Isabel-María García-Sánchez, Luis Rodríguez-Domínguez and José-Valeriano Frías-Aceituno	2015	Journal Business Ethics	Multisample	
Jizi, M.I., Salama, A. Dixon, R. and Stratling, R.	2014	Journal Business Ethics	USA	
Juhmani, O.	2017	Journal of Applied Accounting Research	Bahrain	
Kabongo, J.D., Chang, K. and Li, Y.	2013	Journal Business Ethics	USA	
Kanapathippillai, S., Mihret, D. and Johl, S.	2017	Journal of Business Ethics	Australia	
Kathyayini, K., Tilt, C.A. and Lester, L.H.	2011	Corporate Governance	Australia	
Katmon, N. and Al Farooque, O.	2017	Journal Business Ethics	UK	
Kaymak, T. and Bektas, E.	2017	Corporate Social Responsibility and Environmental Management	Turkey	
Khalil, A. and Maghraby, M.	2017	Managerial Auditing Journal	Egypt	
Khan, A., Muttakin, M.B., and Siddiqui, J.	2013	Journal Business Ethics	Bangladesh	
Leung, S. and Horwitz, B.	2010	Rev Quant Fina-tra Acc	Hong Kong	
Li, J. Pike, R. and Haniffa, R.	2008	Accounting and Business Research	UK	
Liao, L., Luo, L. and Tang, Q.	2015	The British Accounting Review	UK	
Lidro, L.	2009	Corporate Governance: An International Review	Multisample	
Lima Rodrigues, L., Tejedo-Romero, F. and Craig, R.	2016	International Journal of Disclosure and Governance	Portugal	
Liu, Y., Valenti, A. and Chen, Y-J.	2016	Journal of Management & Organization	Taiwan	
Lo, A.W.Y. and Wong R.M.K.	2011	Journal of Accounting and Public Policy	China	
Lone, E.J., Ali, A. and Khan, I.	2016	Corporate Governance	Pakistan	
Lopatta, K., Jaeschke, R., Tchikov, M. and Lodhia, S.	2017	European Management Review	Multisample	
Mallin, C., Faraga, H. and Ow-Yong, K.	2014	Journal of Economic Behavior & Organization	Iran and Turkey	
Martínez-Ferrero, J. and Frías-Aceituno, J.V.	2015	Business Strategy and the Environment	Multisample	
Merve Kılıç and Cemil Kuzey	2018	Managerial Auditing Journal	USA	
Iiras-Rodriguez, M.M. and Escobar-Pérez, B. 2		Revista de Administração de Empresas	Brazil and Spain	
Miras-Rodriguez, M.M. and Escobar-Perez, B.	2010	,	Spain	

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Table 1. Cont.

Author	Year	Journal	Context	
Nancy Harp, Mark Myring and Rebecca Toppe Shortridge	2014	Journal Business Ethics	USA	
Naseem, M.A., Riaz, S., Rehman, R.U., Ikram, A. and Malik, F.	2017	The Journal of Applied Business Research	Pakistan	
Ntim, G.C., Soobaroyen, T. and Broad, M.J.	2017	Accounting, Auditing & Accountability Journal	UK	
Nurunnabi, M. and Hossain, M.A.	2010	Journal of Asian Business Studies	Bangladesh	
Oliveira Carvalho, A., Lima Rodrigues, L. and Castelo Branco, M.	2017	Voluntas	Portugal	
Prado-Lorenzo, J.M. and Garcia-Sanchez, I.M.	2010	Journal of Business Ethics	USA	
Rahman, A.A. and Hamdan, M.D.	2017	Journal of Applied Accounting Research	Malaysia	
Roufa, Md. A.	2011	Business and Economics Research Journal	Bangladesh	
Roy, A. and Ghosh, S.K.	2017	IUP.	India	
Saha, A.K. and Akter, S.	2013	Journal of Applied Management Accounting Research	Bangladesh	
Sengupta, P. and Zhang, S.	2015	Contemporary Accounting Research Vol.	USA	
Sharif, M. and Rashid, K.	2014	Qual Quant	Pakistan	
Siddiqui, J.	2009	Corporate Governance	Malaysia	
Torchia, M. and Calabrò, A.	2016	Corporate Governance	Italy	
Wang, M. and Hussainey, K.	2013	Journal of Accounting and Public Policy	UK	
Wang, Z., Jahangir Ali, M. and Al-Akra, M.	2013	Managerial Auditing Journal	China	
White, G., Lee, A. and Tower, G.	2007	Journal of Intellectual Capital	Australia	
Xiao, J.Z., Yang, H. and Chow, C.W.	2004	Journal of Accounting and Public Policy	China	
Yekini, K. and Jallow, K.	2012	Sustainability Accounting, Management and Policy Journal	UK	
Yuen, D.C.I., Liu, M., Zhang, X. and Lu, C.	2007	Asian Journal of Finance & Accounting	Shanghai	

3.1. Description

Here, we illustrate the operationalization of the key variables that our study has used. We found that the "board independence" construct had different operational definitions. In order to calculate board independence, we had to take into account the fact that director independence is defined in various ways across studies: while the majority of authors referred to non-executive directors, i.e., those who did not belong to the executive management team, others used a stricter understanding of this term to specify supervisory board members, members who did not represent large shareholders, or external directors without any participation in the ownership. CEO duality (CEO duality takes the value of 1 in some studies when the CEO is at the same time the chair of the board, and 0 otherwise, while in other studies this is coded 1 if the chair is not the CEO. We recoded these latter studies with a view to consistency) refers to cases where CEOs also hold the position of board chairman, which is usually measured through a dummy variable. Board size measured the number of directors. Regarding female directors, in most articles women on boards were measured as the percentage (or diversity) of women directors. Other studies used a dichotomous variable conditioned by the presence of women. Corporate social responsibility disclosure (CSRD) was measured in the studies that were part of our meta-analysis by using metrics based on databases, such as the Association of Investment Management and Research AIMR indexes and self-constructed measures. Although there could be three possible categories of information (financial, environmental and social), most articles did not distinguish between them. We only considered, therefore, the "voluntary disclosure" category [42].

To finish, we used Agenda 2030 and the 17 SDGs for the institutional environment. The UN, in collaboration with the private sector, elaborated a global performance measure for 157 countries all over the world (SDG index) based on the achievement of these objectives. This instrument shows the degree of compliance with those main sustainability objectives, ranking countries according to global

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performance from 0 to 100 points. Based on this index, we constructed a categorical variable that had value 1 for countries above the average value of the index (64 points), and value 0 for countries which were below this average. When it was not possible to establish a classification because of the wide range of countries, a value of 2 was assigned.

3.2. Analytical Procedure

To summarize the correlation between two variables, meta-analysis counts on computing the size effect. To measure this size effect means weighting the correlation between board attributes and CSRD conditional on sample size and afterward summarizing the results (Table 2 presents the summary). In accordance with the guidelines of Hunter and Schmidt [154], we utilized the following formula for the sample size adjusted mean (size-weighted average of individual correlations): $\bar{r} = \sum Ni \ ri/\sum Ni$. We likewise followed Quintana and Minami's [157] guidelines to work out an aggregate effect size, in spite of potential sources of heterogeneity, in order to demonstrate the robustness of the association between ownership structure and board independence. Although the results showed relatively high Qs (Q is distributed as a chi-squared statistic with k (number of studies) minus 1 degree of freedom. The power of Q as a test of heterogeneity critically depends on the number of studies, this power being higher as the number of studies reviewed increases [129,130].), these parameters were not surprising given the large number of studies in our sample.

A major obstacle to understanding the true relationship between different aspects of empirical corporate finance is the endogeneity problem. Given that variables are typically endogenous, reverse causality relations or omitted variables easily arise in corporate governance studies [158]. Therefore, we measured whether there were differences in our sample between studies that controlled for endogeneity and those that did not (see Table 2). Based on the subset of samples that included endogeneity controls, we found that female representation had almost identical results (0.132 vs. 0.133). Similar results were observed for size (0.169 vs. 0.193), independence (0.106 vs. 0.090), and duality (-0.042 vs. -0.045). Thus, we concluded that the endogeneity variable did not moderate the focal relationship, indicating that endogeneity did not affect our results.

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Table 2. Meta-analysis of the links between board attributes and corporate social responsibility disclosure and the influence of the level of commitment to sustainable goals.

		k	N	Mr	95%CI-	95%CI+	SE	Q	Qw	Qb
	CSR disclosure	43	8999	-0.042	-0.061	-0.024	0.000	289.873 **		
	Measures of CSR								270.702 **	19.171 **
	0 (low commitment) notcommitment)	9	1256	-0.145	-0.195 -0.044	-0.093	0.000	119.833 **		
CEO Duality	1 (high commitment)	31	7743	-0.023	-0.04	-0.002	0.030	149.822 **		
	Endogeneity control	9	1905	-0.045	-0.087	-0.004	0.032	32.600 **		
	Impact Factor control	23	6155	-0.01	0.033	-0.012	0.364	87.205		
	CSR disclosure	80	17,317	0.106	0.093	0.120	0.000	897.491 **		
	Measures of CSR								858.202 **	39.290 **
	0 (low commitment) notcommitment)	18	2014	0.110	0.068	0.151	0.000	15.580 **		
Independence	1 (high commitment)	55	15,303	0.089	0.074	0.104	0.000	518.570 **		
	Endogeneity control	30	8723	0.090	0.070	0.110	0.000	372.090 **		
	Impact Factor control	43	11,949	0.124	0.107	0.141	0.000	548.380 **		
	CSR disclosure	58	11,625	0.169	0.154	0.184	0.000	517.943 **		
	Measures of CSR								492.063 **	25.880 **
	0 (low commitment) notcommitment)	13	1374	0.159	0.110	0.208	0.000	50.870 **		
Size	1 (high commitment)	37	10251	0.147	0.128	0.165	0.000	403.152 **		
	Endogeneity control	21	5743	0.193	0.168	0.216	0.000	102.830 **		
	Impact Factor control	30	11,073	0.170	0.153	0.187	0.000	407.180 **		
	CSR disclosure	33	7953	0.132	0.115	0.149	0.000	218.651 **		
	Measures of CSR								215.423 **	3.228
Women representation	0 (low commitment) notcommitment)	1	0	0.110	-0.174	0.377	0.449	0.000		
on Board	1 (high commitment)	25	7953	0.140	0.121	0.159	0.000	204.606 **		
	Endogeneity control	12	6040	0.133	0.113	0.154	0.000	138.97 **		
	Impact Factor control	24	7169	0.133	0.115	0.151	0.000	207.48 **		

k = number of effect sizes; n = total sample size; Mr = effect size; 95%CI-+ = confidence interval; SE: significance level; Q = homogeneity test statistic (with k-1 degrees of freedom); Qw = Q statistic of the within-group means; Qb = Q statistic of the between-group means; I2 = scale-free index of heterogeneity; P = probability of Q** <math>p < 0.01; * p < 0.05.

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4. Results

The first row in Table 2 indicates the results of the CEO duality and CSRD relationship. The coefficient (-0.042) showed that there was a weak (but statistically significant) negative relationship between the two variables. The following set of rows shows the results concerning the potential moderating effect of the level of commitment to sustainable goals on this relationship. These results imply that the impact that CEO duality has on CSRD becomes more significant (the effect is increased) in countries with a low level of commitment to sustainability (-0.145). The within-group Q and between-group Q statistics were statistically significant (Qw = 270.702, p < 0.01; Qb = 19.171, p < 0.01), which corroborates the differences between the effect sizes of both groups of countries. Thus, non-duality arose as a powerful governance mechanism to compensate countries' lower commitment to sustainable goals.

We also observed that board independence had a positive relationship with CSRD, given its significant effect (0.106). As to the potential moderating effect of the level of commitment to sustainable goals on the relationship, the within-group Q and between-group Q statistics proved to be significant but weak (Qw = 858.209, p < 0.01; Qb = 39.29, p < 0.01), as the values of the relationship did not change significantly in comparison with that of the reference effect. Nevertheless, the mechanism appeared to increase the effect in low-commitment countries (0.110 versus 0.089).

The relation between board size and CSRD was found to be positive, with a high and significant coefficient (0.169). As in the case of the previous effects relating to board independence, the level of commitment to sustainable goals had a weak moderating effect (Qw = 492.063, p < 0.01; Qb = 25.880, p < 0.01) suggesting minor differences between the effect sizes of both groups of countries. Although the effect in countries with low levels of commitment was not very different (0.159 and 0.147), it was barely stronger in the case of countries with low-level commitment.

Moreover, we measured whether there were differences between studies present in the Journal Citation Reports (JCR) ranking and those that were not (see Table 2). Based on the subset of samples included in JCR journals, we found that women on board and size had almost identical and significant results (0.170 vs. 0.169; 0.133 vs. 0.132). We also observed that results relating to independence were slightly higher in journals included in the ranking (0.124 vs. 0.106). Lastly, we found that results on duality were not significant.

Finally, Table 2's bottom set of rows shows the results for women's representation on boards. We found that there was a positive link with CSRD (0.132). Notwithstanding this result, it is not possible to analyze this relation within the framework of the institutional context given the insufficient number of studies on the subject in countries with a low level of commitment to sustainability.

5. Discussion and Conclusions

The present study examined the role of BoDs in CSRD, understanding CSRD as a main pillar for firms to legitimate their activities through their contributions (and accountability) to society. The UN has addressed the private sector and government bodies to foster intergenerational sustainability. CSRD is also key for firms to improve their reputation and increase their market value. Therefore, we examined the extent to which the implementation of SDGs influenced BoD performance in terms of corporate, social and environmental reporting. Specifically, we provided fresh evidence of the relationship between board attributes (board independence, CEO duality, board size and women on boards) and CSRD, these being two of the principal pillars of corporate governance and social responsibility. Due to the mixed results from previous research on the topic, meta-analysis was a relevant technique: it summarizes the results which emerge from a huge number of (at times, conflicting) studies. Our first result was that while CEO duality has a significantly negative relationship with CSRD, board independence, board size and women representation have a positive relationship with CSRD. Regarding the potential moderating effect of commitment to sustainable goals on these relationships, all previous relationships were found to be accentuated in low sustainability commitment countries except for results on women representation. The framework of the institutional context did

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not allow analyzing this given the insufficient number of relevant studies in countries with low levels of commitment to sustainability. Thus, powerful mechanisms of corporate governance (non-duality, board independence and board size) seem to exist that allow compensating for countries' lower levels of commitment to sustainability.

One of the most relevant theoretical implications was related to the key role played by board attribute configurations in determining the level of a firm's CSRD. Specifically, our study indicates that different postulates—e.g., agency theory and stakeholder theory—are applicable when board and CSRD relationships are analyzed. Regarding agency theory, the degree of a CEO's power (in terms of leadership structure and independent directors) determines the tendency to engage in CSRD practices: a submissive board would lead to diminished transparency and disclosure, resulting in fewer CSR efforts. On the other hand, the arguments put forward in stakeholder theory help to explain that board characteristics (in terms of board size and women on boards) lead to attributing greater importance to stakeholder needs and focusing on CSRD. As a result, the concerns of different stakeholders would be thoroughly considered.

In practical terms, our research has managerial implications for companies trying to achieve high CSRD by designing their corporate governance mechanisms. We suggest that the appropriateness of a board configuration depends on the institutional context and, more precisely, on the country's level of commitment to sustainable goals. Regarding CSRD, no universal, optimal model of corporate governance and specific board attributes seems to exist. The degree to which board attributes influence CSRD depends on the commitment to sustainability of the country in which the company is located. Both practitioners and policy-makers must exert caution in the international arena because different levels of country commitment affect the type of boards of directors that companies must use to have an economic, social and environmental impact.

In spite of the widespread use of meta-analysis in business research, our study also has this technique's inherent limitations. We found a (negative or positive) relationship between board attributes and CSRD but were not able to affirm the direction of causality, e.g., whether more board independence increased CSRD or whether more CSRD favored board independence.

Based on the accumulated evidence, our meta-analytic assessment has also allowed us to identify future lines of research. The analysis of further BoD attributes is one of them. Until now, a large amount of meta-analysis research relating to boards has focused on impacts on firm performance. Comprehensive studies addressing how other BoD dimensions (education, activity, expertise, etc.) might affect CSRD are lacking.

The differences that emerged in the board attributes—CSRD relationships between the two sets of countries with different levels of commitment to sustainable goals led us to pertinent conclusions. Yet, future studies could center on assessing if these different relationships are merely due to sustainability concerns or to other macro-environmental characteristics. Given the results obtained, future research could focus on countries with low levels of commitment to sustainable goals and, by studying their political, institutional and specific economic profiles, clarify the role of corporate governance and the functioning of boards in CSR fields.

Regarding sample selection, the relationship between board independence and CSRD could vary across different industries. Regulatory and economic differences between industries bring about systematically different board–CSRD patterns. A further issue is that board–CSRD relationships could differ according to the kind of organization under study. Although the majority of the articles included in our sample were based on data which came from large corporations, future research could theoretically and empirically address these differences as a greater number of studies of small companies become available.

Another limitation to this study lies in the different methods used to measure independence, women on boards and social responsibility disclosure in the literature. The term "independence" bore a variety of meanings. As explained in the section on the operationalization of key variables, we found that the construct of board independence had different operational definitions in the literature.

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Although most authors referred to non-executive directors, others used this term to refer to supervisory board members, members who did not represent large shareholders, or external directors who did not have any participation in the ownership. In many studies, information on measurement was insufficient or not detailed enough, so we were unable to consider all the definitions used in the management literature. Therefore, we considered that the term "board independence" commonly used in this literature referred to non-executive directors. The same applied to the measurement of the representation of women on boards. Regarding female directors, in most of the articles included in our meta-analysis, women on boards were measured as the percentage (or diversity) of female directors on boards, or by using a dichotomous variable conditioned by the presence of women. Nevertheless, a number of studies measure this variable used other proxies, such as board diversity.

Furthermore, regarding firm size as a main control variable in most corporate governance studies, we found that the measure could affect dependent and independent variables [159]. Therefore, further research is needed to rationalize the impact of different firm size measures in the literature.

To finish, the proposed relationships have been suggested in the literature to be non-linear [13,15,99]. As only a limited number of studies have examined these relationships, the results are not yet fully reliable. Nonetheless, future studies might explore other types of relationships.

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