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DO BOARD GENDER DIVERSITY AND DIRECTOR TYPOLOGY IMPACT CSR REPORTING?

Abstract

By studying female directors and their typology, this paper contributes to the empirical evidence relating to board gender diversity and the disclosure of corporate social responsibility (CSR) information. An ordered random effect probit model was applied to a panel of Spanish non-financial and non-insurance listed firms over the 2009-2013 period. The analyses revealed that a higher percentage of women in boardrooms and in groups of outside and independent directors imply better CSR disclosure. These results hold for corporations with a critical mass of three women on the board and among outside directors.

Key words: Corporate social reporting, board gender diversity, director typology

Introduction

The business case for corporate social responsibility (CSR) has been an important topic of discussion that has provided rational justifications for CSR initiatives from a primarily corporate economic and financial perspective (Carroll and Shabana, 2010). Engaging in and publicising CSR activities can be a major benefit to a company’s reputation and legitimacy (Brammer and Pavelin, 2004; Kurucz *et al.*, 2008). Many companies have decided to issue specific reports on their economic, environmental and social performance, but reporting may not be sufficient. Stakeholders must be made aware of companies’ CSR activities and overcome their initial scepticism, which means that the way in which this information is communicated will be vital (Du *et al.*, 2010).

In view of CSR's relevance, there are good reasons to study any factors affecting CSR activities and CSR reporting in particular. As previous works state, it is necessary to examine corporate governance mechanisms – and particularly board composition – and their influence on both CSR actions and disclosure (Brennan and Solomon, 2008; Rao and Tilt, 2016). In this context, current figures and diversity initiatives demonstrate the importance and timeliness of studying diversity on boards (Miller and Triana, 2009). This paper focuses on directors' gender, as it is one of the most significant sources of diversity (Lückerath-Rovers, 2013). Additionally, the current unstable economic environment has created renewed awareness of CSR, corporate governance, and the (gender) composition and roles of boards of directors (Huse *et al*., 2009).

Current figures reveal a lack of representation of women on boards, as only 23% of board members of the largest publicly listed companies are women, and the figure for Spain is 20%[1]. There is still much progress to be made, but a significant increase of 11 percentage points has been achieved since 2010 when the European Commission first put this issue high on the political agenda. The EU's proposal for a Directive on Improving the Gender Balance Among Directors of Companies Listed on Stock Exchanges and Related Measures[2] in the EU Parliament is still pending approval. Meanwhile, a number of EU member-states have taken measures at the national level. In the case of Spain, the Law on Effective Equality[3] recommended that those companies with more than 250 workers and a turnover exceeding €22m a year include on their boards a number of women who will allow them to reach a balanced presence of women and men – between 40% and 60% – by 2015. However, that objective has not been reached and remains somewhat distance, as only 12% of the members of the affected boards were women as of 2016 (Informa D&B, 2016). As in other countries,

[1] The data were collected in April 2016 and covered the largest publicly listed companies from the 28 Member States of the EU. Information is available at: http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/business-finance/supervisory-board-board-directors/index_en.htm

[2] COM (2012) 614 final.

[3] Approved March 22, 2007.

such as the UK (Martin *et al.*, 2008), it must be noted that female directors are generally found in smaller firms. Another recommendation along these lines was recently included in the Spanish Good Governance Code of listed companies approved by the Board of the Comisión Nacional del Mercado de Valores (CNMV) in 2015, which stated that the director selection policy should pursue the goal of having at least 30% of all board positions occupied by women before 2020. This is a voluntary good governance recommendation, and it is still too early to assess its impact on women's representation on boards.

We have just illustrated the way in which gender representation is central in contemporary debates (Seierstad, 2016). Some efforts are being made to help women attain board positions, finding justification in utility, mainly the "business case", and individual justice arguments (Seierstad, 2016). According to Labelle *et al*. (2015), public policy on this issue should be introduced gradually and voluntarily, as a coercive, regulatory approach may negatively affect the relation between gender diversity and performance. However, it is not only corporate financial performance but also social performance that is at stake, as social performance can also be linked to board composition. In this regard, a stated need exists for more academic research addressing the ways in which demographic diversity in general and gender diversity in particular relate to board effectiveness and CSR (Zhang, 2012).

As Byron and Post (2016) mentioned in their meta-analysis, boards of directors and corporate governance scholars have increasingly directed their attention towards finding ways to increase corporate social performance (Rahim, 2012). One oft-recommended solution has been to increase the number of women on boards, based on the idea that the experience and values of female directors may positively impact CSR and reputation (Adams *et al.*, 2015; Terjesen *et al*., 2009). Women are more concerned with ethical behaviour (Ford and Richardson, 1994) and environmental issues (Diamantopoulos *et al*., 2003). Moreover, men

are more comfortable with profitable activities, while women are more comfortable with community activities (Bernardi and Arnold, 1997; Betz *et al*., 1989). Thus, having more women on a board increases its welfare activity and is expected to encourage higher CSR disclosures (Sundarasen *et al*., 2016) and CSR reporting quality (Amran *et al*., 2014). Most previous studies have focused on the impact of female directors on corporate social performance in general (e.g., Hafsi and Turgut, 2013; Setó-Pamies, 2015; Zhang, 2012) or certain aspects of it (e.g., environmental performance in Ciocirlan and Pettersson, 2012, Glass *et al.*, 2016 or Walls *et al.*, 2012, and philanthropic contributions in Bernardi and Threadgill, 2010; Jia and Zhang, 2013 or Marquis and Lee, 2013). However, as stated in a recent literature review by Rao and Tilt (2016) as well as in Fernández-Feijoo *et al.* (2014), studies focusing on female directors and their impact on CSR disclosure are still very limited. These authors suggest that more qualitative and quantitative studies are needed to examine whether gender diversity really matters to CSR disclosure decisions.

This paper aims to contribute to this strand of literature through a novel analysis of the specific effect of gender diversity among directors on CSR reporting. Thus, compared to other works at the international level and particularly in Spain, this research uses a more recent period of time to extend a step further by considering not only the representation of women on the board (both as a percentage and a critical mass) but also director typology to uncover the relevance of having female outside directors and female independent directors.

Agency theory and resource dependence theory constitute the main lenses through which we studied this topic. Frynas and Yamahaki (2016) conducted an exhaustive review of the theories that have been utilised to explain CSR, and they revealed that various studies have investigated the role of board members in setting CSR strategies from the perspective of both theories. Following the recommended adoption of a multilevel approach (Aguinis and Glavas,

2012), we have simultaneously considered an individual characteristic – gender – within an organisational characteristic, i.e., the distribution of board positions between inside/outside directors and proprietary/independent directors.

Agency theory aids in understanding the relation between owners and managers, the consequent agency problem and the ways it can be overcome through different governance mechanisms of which boards of directors are one. Board composition and diversity will affect the way management is monitored in relation to CSR issues. Additionally, resource dependence theory emphasises that directors must help their organisations acquire the critical resources they need, and board gender diversity can provide some of those resources, such as personal ties, knowledge or even values that will positively affect the firm's social performance. Furthermore, opting for outside and independent directors when adjusting board composition can affect CSR initiatives and disclosure (e.g., Brammer and Pavelin, 2008; Ibrahim *et al.*, 2003; Johnson and Greening, 1999; Prado-Lorenzo *et al.*, 2009b) and it may also be interesting to examine the importance of the gender diversity of directors in those specific groups. Finally, critical mass theory was also used in the analysis to examine a specific aspect of the research question: the expected consequences on CSR disclosure of having female directors may depend not only on their representative percentage but also on reaching an appropriate threshold number.

The empirical analysis is based on a panel of Spanish non-financial and non-insurance listed firms over the 2009-2013 period and tries to control for a possible endogeneity problem by using lag values of the explanatory variables, which has not always been considered in this type of study. Some of the previous studies related to CSR disclosure and gender have focused on the financial sector (Barako and Brown, 2008; Khan, 2010; Kilic *et al.*, 2015), while the majority of the studies related to non-financial companies examine the USA (Frias-

Aceituno *et al*., 2013; Giannakaris *et al*., 2014; Mallin *et al.*, 2013), international samples (Amran *et al.*, 2014; Fernández-Feijoo *et al*., 2012) or developing Asian countries such as Pakistan (Lone *et al*., 2016) or Malaysia (Sundarasen *et al*., 2016). Thus, there is a dearth of studies at the European level. Moreover, the specific context of Spain[4] may be of interest, as it represents a scenario in which voluntary recommendations are being published and incentives such as access to public contracts are becoming more common to promote a more balanced composition of boards, unlike other countries with more severe regulations (Lückerath-Rovers, 2013).

The rest of the article is structured as follows. Section 2 poses the hypotheses to be tested based on a review of the literature. The data, measurement of the variables and the methodology are described in Section 3, and the results appear in Section 4. Finally, in Section 5, a number of conclusions are drawn with their implications, and some future lines of study are suggested.

Theoretical Framework

As stated by Bear *et al*. (2010), two organisation theories, agency theory and resource dependence theory, provide the broad theoretical underpinnings addressing the ways in which composition and board diversity affect CSR.

Agency theory (Berle and Means, 1932; Jensen and Meckling, 1976) studies the dilemma that occurs when a person called a "principal" employs another person called an "agent" who will be able to make decisions on the principal's behalf. As a conflict of interest between both parties may arise and the agent could be motivated to act in his/her own interest, some type of

[4] Only three previous studies have analysed the Spanish case thus far, but besides using a less recent period of time, none of them analysed the combined effect of gender and directors' typology. Moreover, Prado-Lorenzo *et al.* (2009b) did not consider the isolated gender effect but instead employed a diversity measure that included gender as one of several components. Cabeza-García *et al.* (2013) only focused on IBEX35 companies and not on all the Spanish listed companies, and García-Sánchez *et al*. (2014) simply considered women on board as a control variable.

monitoring may be required. This type of relationship can be found between owners and managers of large publicly owned firms, with boards of directors assuming the function of supervising management to prevent them from making decisions contrary to shareholders' interests. CSR has been considered a self-serving behaviour of managers that ultimately hurts shareholders by generating lower profits (Friedman, 1962), but it has also been viewed as conducive to improved financial performance[5]. Some agency studies investigated how board composition and the individual characteristics of board members affect CSR-related decision making (e.g., Bear *et al*., 2010; Wang and Coffey, 1992). Specifically, the way in which the distribution of the board posts, including outside and independent directors, can be relevant to effectively monitoring management regarding CSR issues will be described below. Moreover, boards need certain skills to properly accomplish their mission, and later in this section, the idea will be proposed that gender diversity in director resources can help provide these skills. This is where agency theory might demonstrate some limitations. According to Frynas and Yamahaki (2016: 272), "agency theory may be most appropriately applied in conjunction with another theoretical perspective to provide a holistic picture of individual level phenomena and their interactions with other levels of analysis". In this regard, we believe that agency theory finds in resource dependence theory a good compliment with which it can approach the research question of how board gender diversity affects decisions on CSR-related issues.

Resource dependence theory (Pfeffer and Salancik, 1978) emphasises the dependence of organisations on their surroundings for the acquisition of critical resources that guarantee their survival. The perspective of resource dependence theory highlights the role of the board of directors in ensuring the flow of critical resources (knowledge, personal ties or legitimacy) to the firm, and several studies have proven how diversity on the board has a positive effect on

[5] See Wang et al. (2015) for a meta-analytic review of CSR and corporate financial performance.

the firm's social performance (Frynas and Yamahaki, 2016). Board gender diversity is the case under discussion here, and some solid arguments about the contribution women can make to improve the way boards address CSR issues in general and CSR disclosure in particular can be found below.

Finally, the representation of women on boards can be considered as a percentage in the corresponding group, but critical mass theory states that a sufficient number of people is needed to create an influential body to provoke real changes. In the case of boards, if only one seat is held by a woman, she will probably be considered a token and less competent, making her status lower than that of the men (Bear *et al.*, 2010). Thus, her opinions will not be taken seriously and she will not have a significant impact on corporate decision making (Jia and Zhang, 2013). Furthermore, social pressure creates a certain tendency to conform to the opinions of the majority (Asch, 1955), and only when a critical mass is established does it become easier to overcome such pressure. Therefore, critical mass theory will be needed when introducing some of the hypotheses to be tested.

Board Gender Diversity

Boards are not groups of people with a shared opinion of how business should be done (Useem, 1986), and demographic diversity is promoted for the purpose of improving problem-solving skills and developing more efficient leadership (Robinson and Dechant, 1997). Of the different variables that affect diversity on boards such as ethnicity, gender, age or tenure, the attention in this paper is focused on director gender. Although gender per se is unlikely to be a predictor of leadership effectiveness (Eagly *et al.*, 1995), most studies addressing gender differences argue that there are significant differences in values, perceptions and beliefs between men and women in general (Eagly *et al.*, 1995; Powell, 1990). Women provide unique perspectives, experiences and work styles to their boards

(Daily and Dalton, 2003). We will explain how having women on the board can influence the way in which a firm addresses CSR issues, as there seems to be a general consensus in the existing literature regarding the positive impact of the number of female board members on CSR. There may be various reasons for this.

First, female directors tend to have different educational and professional backgrounds outside of business than male directors, which helps to increase the perspectives on and issues considered by the board (Hillman *et al.*, 2002; Singh *et al.*, 2008). Specifically, sensitivity to CSR initiatives may benefit from the presence of female directors (Bear *et al.*, 2010). In addition to their occupational backgrounds, female directors possess certain psychological traits that make them more willing to focus on and value certain stakeholders' claims (Zhang *et al.*, 2013). Among these communal traits are affection, helpfulness, kindness, sympathy, interpersonal sensitivity and concern about others' welfare (Eagly *et al.*, 2003). Since women are more socially oriented than men and are more considerate of the needs of others, they are likely to actively promote a more prominent role for the firm's stakeholders and to contribute to more effective decision making on CSR issues (Burges and Tharenou, 2002; Nielsen and Huse, 2010a).

Moreover, female directors' different values are positively associated with women's contributions to board decision making (Nielsen and Huse, 2010b), and participative communication among board members can be expected to increase as the number of women on a board grows (Eagly *et al.*, 2003). Open conversations and a broader perspective may enhance the board's ability to value the needs of diverse stakeholders and effectively address CSR (Bear *et al.*, 2010).

Finally, interactions with different stakeholder groups will be easier if those in positions of responsibility in a company hold a broad range of social network relationships (Beckman and

Haunschild, 2002). This seems to be the case with demographically diverse boards with a strong presence of women and minorities (Ibarra, 1993).

Thus far, we have not focused on any specific CSR issue. We now emphasise information transparency regarding the topic of sustainability. As stated above, few papers have empirically tested the idea that incorporating female members into the board will be associated with greater CSR information transparency[6]. Table 1 reviews the works found in the literature that have specifically addressed CSR disclosure in relation to board member gender. Rao and Tilt (2016) state that the arguments in previous studies focused on that relationship are the same arguments found in other works linking board diversity and CSR.

Insert Table 1 about here

Apart from the percentage of women on the board, critical mass theory incorporates an additional aspect to be considered for a full explanation of the impact of gender diversity on corporate issues (Torchia *et al.*, 2011). Three has been regarded as an appropriate threshold number and has been used as the minimum number of women required to exert significant power and cause fundamental changes in the boardroom (Jia and Zhang, 2013; Konrad *et al.*, 2008; Kramer *et al.*, 2006). Similarly, Fernández-Feijoo *et al.* (2012) found that three or more female board members act as determinants for CSR disclosure, offer better explanations of CSR strategy and include assurance statements. Women refuse to sit on boards as "ornamental directors" (Rowley *et al.*, 2015), and a critical mass can help to avoid such a situation. We will apply this threshold number to test the possible effects on CSR disclosure.

Based on all the previous arguments, we propose the following hypotheses:

[6] Previous literature also suggests that female directors can be the driver of financial disclosure. For example, women on boards are less likely to manipulate financial reporting and other disclosures (Heminway, 2007), they have a positive effect on the supervision of financial statements and on the board members' behaviour (Abbott *et al.*, 2012; Schwartz-Ziv, 2011). Moreover, a higher percentage of women on audit committees reduces the probability of qualifications due to errors, non-compliance or omission of information (Pucheta-Martínez *et al.*, 2016) and it improves financial reporting quality since the supervision of the financial statements is enhanced (Gul *et al.*, 2008).

Hypothesis 1a: The proportion of female directors is positively related to CSR reporting.

Hypothesis 1b: A critical mass of at least three women on a board of directors is positively related to CSR reporting.

Typology of Female Directors

Previous works have focused on the importance of gender diversity on boards of directors with regard to making decisions and reporting on CSR. Additionally, director typology, differentiating between outside directors (independent or proprietary directors) and executive directors, has also been considered as a possible determinant of the company's attitude towards CSR. However, as far we are aware, none of the analyses carried out up to this point have taken into account these two lines of research simultaneously in the field of CSR disclosure.

The following subsections consider the potential impact on CSR reporting of outside directors and independent directors. The arguments presented for both groups of directors will be combined with those presented above addressing gender diversity, which will lead to the corresponding hypotheses regarding female outside directors and independent female directors positively affecting CSR disclosure.

Outside directors

While inside directors are more likely to trade ethical standards and social responsibility for profit maximisation and increased shareholder value (Coffey and Wang, 1998; Zhang, 2012), outside directors are intended to act as a check and balance mechanism to ensure that companies act in the best interests of not only owners but also other stakeholders (Haniffa and Cooke, 2005). This special sensitivity to social demands by outside directors may be partly explained by the reduced pressure they feel from competitors compared to executive directors

(Sonnefeld, 1981). Furthermore, some characteristics of outside directors, such as a broader range of experience, greater knowledge of the outside word or independence from the CEO and other top executives, are especially significant in corporate social activities (Hafsi and Turgut, 2013). Consequently, outside directors tend to be more aware than insiders of the philanthropic components of corporate responsibility (Ibrahim and Angelidis, 1995; Ibrahim *et al.*, 2003) and may be more interested in complying with environmental standards (Johnson and Greening, 1999).

In general, the board of directors manages the content of annual reports, meaning that the board composition may affect disclosure (Haniffa and Cooke, 2002). Moreover, according to Michelon and Parbonetti (2012) and Hertz *et al.* (2012), the disclosure of CSR information comes from the board. The expectation of voluntary disclosure activism is higher for outside directors because of their better alignment with the views of external groups (Brammer and Pavelin, 2008). In this sense, non-executive directors may be seen as providing "additional windows on the world" (Tricker, 1984, p. 171).

Despite this theoretical reasoning favouring a positive relation between outside directors and corporate social disclosure, not all previous empirical studies have confirmed it. While Barako and Brown (2008), Prado-Lorenzo *et al.* (2009b) and Garcia-Sánchez *et al.* (2014) all obtained a positive relation, Haniffa and Cooke (2005) and Brammer and Pavelin (2008) found it to be negative, and Cabeza-García *et al.* (2013) and Frias-Aceituno *et al.* (2013) did not find any significant relation.

In line with the arguments presented in the previous section, the expected influence of female outside directors should be positive. Ibrahim and Angelidis (1994) even suggested that women are positively oriented towards CSR because they are usually outside directors. This relation is proposed in two hypotheses:

Hypothesis 2a: The proportion of female outside directors is positively related to CSR reporting.

Hypothesis 2b: A critical mass of at least three women in the group of outside directors is positively related to CSR reporting.

Independent directors

Weisbach (1988) classifies as outside directors those that are independent from CEOs and represent owners. They can be further classified into proprietary (or nominee) directors and independent directors. The former are on the board because they are the most important shareholders, they represent these shareholders and/or they have a personal or professional relationship with them. Compared with companies in the UK or the USA, those in Spain have a more concentrated shareholding structure, and it is common for there to be one or more significant shareholder(s). By contrast, independent directors are not influenced by the company's shareholders or managers, and their personal and professional qualities determine their appointment as representatives of the interests of shareholders with small holdings.

If we focus on CSR reporting, Prado-Lorenzo *et al.* (2009a) claim that a greater number of independent directors representing the interests of a dispersed ownership is equivalent to a more dispersed ownership, as top shareholders will have less influence, implying that such firms will disclose more information. The image and reputation of independent directors are largely determined by the ethical and responsible behaviour of the firm, which is why they are especially motivated to promote socially responsible behaviour and compliance with regulations (Zahra and Stanton, 1988). If we bring both ideas together, independent directors can be expected to improve CSR disclosure. Although Prado-Lorenzo *et al.* (2009a) could not prove this relation, they demonstrated the important influence of independent directors at every stage in the improvement of a CSR report (Prado-Lorenzo *et al.*, 2009b). Moreover, Khan *et al.* (2013) found empirical evidence supporting the notion that the greater the board's

independence, the more likely it is that companies will disclose more CSR activities. Finally, Garcia-Sanchez *et al.* (2014) specified that independent directors are interested in standardised information disclosure about CSR practices. However, these authors also conclude that this positive effect could be reduced if the company comes under major media pressure because independent directors are afraid of bad press that could damage their professional reputation.

Combining these arguments with those presented on gender diversity, we now propose the corresponding hypotheses related to a positive effect of female independent directors on CSR reporting:

Hypothesis 3a: The proportion of female independent directors is positively related to CSR reporting.

Hypothesis 3b: A critical mass of at least three women in the group of independent directors is positively related to CSR reporting.

Empirical Analysis

Sample and Data

To test the hypotheses presented above, we examined Spanish firms listed in the Madrid Stock Exchange General Index (IGBM) over the period 2009-2013. Thus, we could build a panel comprising 128 large and medium-sized firms and 548 observations. The use of panel data information improves the empirical evidence obtained, which hitherto has tended to be cross-sectional (Aguinis and Glavas, 2012). Financial and insurance companies were not considered because of their particular characteristics, such as their specificity from an accounting point of view or because of the regulation or structure of these markets (23 firms, 75 observations). From the initial database, we also excluded subsidiary firms (a business that

is more than 90% owned by another listed firm in our sample) (1 firm, 2 observations). In addition, one company did not provide its corporate governance report for one of the years in the analysis, so we lost one more observation. As a result (and taking into account that some companies entered and others exited the Stock Market during the period considered), we had an unbalanced panel of 104 firms and 470 observations.

The information on CSR disclosure comes from the firms' annual reports and the Global Reporting Initiative (GRI) database. Corporate governance data were obtained from the Corporate Governance Reports that firms provide to the Spanish supervisory agency CNMV. The companies' financial information and data on their sectors of activity were obtained from the CNMV and SABI (*Sociedad de Análisis de Balances Ibéricos*) databases.

Measures

Dependent variable. Our dependent variable is an indicator of CSR disclosure (CSRDISCL) that took any of these three values for each year in the studied period: a value of 0 if a firm did not report on its environmental and social impacts (37.25% of the cases), a value of 1 if a firm provided this information in its annual report (37.24% of the cases), and a value of 2 if a firm also issued a CSR report following the GRI's guidelines (25.51% of the cases). Therefore, this indicates the company's commitment (low, medium or high) to CSR disclosure.

The GRI has emerged as a dominant player in the field of the international sustainability standards (Etzion and Ferraro, 2010; Waddock, 2008) with 74% of the world's 250 largest corporations following its guidelines (KPMG 2015, p. 42). Consequently, the GRI has received substantial attention in academic publications (e.g., Brown *et al*., 2009; Levy *et al*., 2010; Nikolaeva and Bicho, 2011; Vigneau *et al*., 2015). Those firms applying the GRI's

guidelines[7] need to report first on their profile (context information on profile, strategy and governance); second, on their management approach (how they address relevant topics) and third, on a series of performance indicators (comparable information on social, environmental and economic performance).

Explanatory variables. In line with most previous studies, we considered the percentage of women on the board of directors (WOMEN) (e.g., Giannarakis *et al.*, 2014; Prado-Lorenzo *et al.* 2009b). We also considered whether a critical mass of women was represented on a board through a dummy variable (WOMEN3) that took value 1 if the number of women was at least three and 0 otherwise (Jia and Zhang, 2013).

We also considered what type of directors the women were. A continuous variable (POUTSIDEWOMEN) and a dummy variable (WOMENOUTSIDE3) were defined to measure the percentage of women in the group of outside directors and whether there were at least three female outside directors, respectively. In the same way, a continuous variable (PINDEPWOMEN) and a dummy variable (WOMENINDEP3) were created for the case of female independent directors.

Control variables. We first considered firm profitability as an indicator of the company's performance, and defined it as the quotient between operating profits and total assets (ROA) (Brammer and Pavelin, 2008; Prado-Lorenzo *et al.*, 2009a). Although companies may wish to follow the rules of good corporate citizenship, their real behaviour, and thus disclosure of their CSR activities, may depend on the resources available (Roberts, 1992). Additionally, the managers of profitable companies may also be interested in revealing more information to improve their own remuneration and their position within the company (Giner, 1997). However, a negative relation between profitability and CSR disclosure may be explained by

[7] GRI G3/3.1 were the versions of the guidelines followed when this research was conducted.

investments in CSR activities incurring additional costs (Balabanis *et al.*, 1998) or by the opportunistic behaviour of managers in the context of an executive remuneration structure that is linked to short-term profit.

Second, firm size was measured as total sales expressed in thousands of euros (SIZE) and introduced into the empirical analysis as a logarithm (Mallin *et al.*, 2013; Marquis and Lee, 2013). Traditionally, business size has been positively associated with corporate social performance (McWilliams and Siegel, 2000). Large companies are more visible to the general public (Watts and Zimmerman, 1986) and political groups (Dowling and Pfeffer, 1975); they have more market power and generate more news. They are therefore more likely to be the target of public resentment, consumer hostility, demands by employees and attention from government regulators (Knox *et al.*, 2006). Thus, greater exposure to public opinion, greater availability of resources, avoiding regulation by public bodies and reducing political costs (Clarke and Gibson-Sweet, 1999) may all explain why larger companies tend to voluntarily disclose their CSR activities.

Third, the company's leverage level was considered as a control variable and measured as the quotient between borrowed funds (short-term and long-term debt) and total assets (LEV) (Castelo and Lima, 2008; Reverte, 2009). In the context of agency theory, Jensen and Meckling (1976) affirmed that companies with a higher level of debt voluntarily offer information to reduce their agency costs and thus their capital cost. However, a low level of debt ensures that creditors exert less pressure on company managers regarding CSR activities and CSR disclosure because these are only indirectly linked to the company's financial success (Brammer and Pavelin, 2008).

Fourth, we also included as a control variable the sector of activity to which the company belonged. It was measured as a dummy variable taking 1 if, according to the primary and

secondary SIC code of the firm, the sector could be classified as "environmentally sensitive" (mining, oil, gas, chemicals, paper, iron and steel and other metals, electricity, gas distribution and water) and 0 otherwise (SECTOR) (Kuo *et al.*, 2012). Companies from industries whose production processes may have a negative influence on the environment disclose more information (Reverte, 2009).

Finally, we considered a numerical variable that represented the total number of directors on the board (BOARD_SIZE). On the one hand, boards with a large number of directors may have agency problems and be less interested in the disclosure of information (Esa and Ghazali, 2012; Prado-Lorenzo *et al.*, 2009a, b). On the other, more board members would lead to a greater exchange of ideas and experiences and thus to better advice (Dalton *et al.*, 1999). Larger boards are also more likely to include experts on specific issues such as environmental performance, and board members are also more likely to have been exposed to the effects of an environmental agenda on stakeholders. Directors with such exposure are likely to advise the rest of the board regarding the related challenges and opportunities (De Villiers *et al.*, 2011). This variable can therefore be expected to have a negative or positive influence on CSR disclosure.

Methodology

The econometric model used to test the hypotheses is determined by the fact that the dependent variable "CSR disclosure" is an ordinal qualitative variable. Wooldridge (2002) proposes two approximations for estimating panel data models with an ordinal dependent variable. Of these, the commonly used one considers that errors are distributed normally and is estimated by maximum likelihood. The following is the approximation in STATA by Rabe-Hesketh et al. (2001) and improved by Frechette (2001a and 2001b). The program estimates

an ordered probit model with random effects[8]. Following for example Janowic et al. (2004), in order to get some control for endogeneity problems in the models proposed, explanatory and control variables are lagged by one year.

More specifically, the model proposed is as follows:

$$CSRDISCL_{it} = a_0 + \beta X_{it-1} + \sum_{t=2009}^{2013} D_t + \mu_{it}$$

where *i* denotes firm, *t* denotes the period of time, X are the explanatory and control variables of firm *i* in the year *t-1*, $\sum_{t=2009}^{2013} Y_t$ is a set of dummy time variables covering any non-variant time effect of the firm not included in the regression. Finally, μ_{it} is the error term $\mu_{it} = \gamma_i + \varepsilon_{it}$, bearing in mind that γ_i covers the individual unobservable effect that we assume is constant for company *i* during *t*, that is, it captures the unobservable heterogeneity among companies, and ε_{it} is random disturbance.

Results

Table 2 shows the descriptive statistics, while Table 3 lists the correlation coefficients of the variables used in the regression analyses. Once the non-normality of the explanatory and control continuous variables was confirmed, and considering the fact that Pearson's correlation coefficient did not work well for discrete variables as it was very sensitive to violations of normality assumptions, Spearman's rank correlations were calculated. Although some of the variables were significantly correlated, the analysis of the variance inflation factors (VIF) revealed no evidence of multicollinearity, as all of them remained under 10 (Kleinbaum *et al.*, 1998).

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[8] There is no statistical validity for a probit fixed effects model (Greene, 1999). When dummy variables are used, the fixed effects model does not identify the reason that the linear regression changes over time and in different firms with a reduction in the degrees of freedom.

Insert Table 2 about here

Insert Table 3 about here

Table 4 summarises the results of the regression analyses. Due to the use of lag for the explanatory and control variables and in order to have at least four consecutive years due to our panel data structure, the final sample for the ordered probit analyses consisted of 90 firms and 442 observations. The sample decreased to 90 firms and 423 observations because not all the companies had independent directors in all the years, regardless of gender. Models 1 and 2 considered the effect of gender diversity in the boardroom on CSR disclosure without noting the typology of directors, while Models 3 and 4 focused on gender diversity in the group of outside directors, and Models 5 and 6 did the same for independent directors.

In support of Hypothesis 1a, the results of Model 1 revealed that companies with a higher percentage of female directors (WOMEN) tend to disclose more information about CSR practices (β=0.047; *p*=0.048). Model 2 verified that reaching a critical mass of three women on a board (WOMEN3) also contributes to CSR reporting (β=2.059; *p*=0.021), so H1b was confirmed. Our results also supported Hypotheses 2a and 2b, establishing that having a higher percentage of women among the outside directors (POUTSIDEWOMEN) and having at least three women as outside directors (WOMENOUTSIDE3) also favour CSR reporting (respectively, β=0.044; *p*=0.032; and β=1.935; *p*=0.039). Finally, the proportion of independent directors that are women (PINDEPWOMEN) was positively related to CSR reporting, so H3a is supported (β=0.021; *p*=0.076). Nevertheless, H3b must be rejected, as critical mass (INDEPWOMEN3) was not significant.

Regarding the control variables, business profitability (ROA), firm size (SIZE) and board size (BOARD_SIZE) all proved to have positive influences on CSR reporting. Level of leverage

(LEV) also had a significant coefficient of determination, but in this case, the relation with the dependent variable was negative.

Finally, regarding annual effects, the dummy proxies for 2009 and 2010 are positive and significant in some of the proposed models. This means that *ceteris paribus*, in those cases, the specific year influenced the dependent variable in a different and positive way in comparison to the situation in the reference year, 2013.

Insert Table 4 about here

Robustness check and complementary analysis

To confirm our previous evidence, some robustness analyses were conducted. We repeated the initial models considering alternative proxies for the control variables, and in all three cases, the results regarding the main explanatory variables remained the same. The alternative proxies were total assets for firm size, board size in terms of logarithms and ROE. We also repeated the estimations employing an ordered random effect logit instead of an ordered probit model, and the results were similar, as the regression coefficients for all the main explanatory variables with the exception of WOMENINDEP3 were positive and significant. The estimations (summarised in Table 4) were repeated considering lags only for those variables that might show a more likely endogeneity problem (ROA, SIZE and the different proxies related to women as directors) and the results did not vary significantly.

Finally, we extended the analysis beyond the decision to issue a report following the GRI's guidelines and explored the level of detail reached in those reports, seeing if it was related to the percentage of women on board and in each specific group of directors. The GRI provides application-level information that is mainly based on the number of GRI indicators disclosed in the reports. Depending on their disclosure level, corporations are awarded a level A, B or C. Therefore, we created an ordinal qualitative variable that took the value of 2 for A level, 1

for B level and 0 for C level to be used as a dependent variable in the regression analyses. In this case, due to the reduction in the sample size (142 observations) but considering our panel data structure, we applied a pooled ordered probit clustered at the firm level employing lagged values to address the endogeneity problem. The results are shown in Table 5. All the main explanatory variables had a positive and significant effect, suggesting that the number of women as directors in general, including outside directors and independent directors, influence the level of application when a firm issues a GRI report.

Insert Table 5 about here

Discussion

Our findings contribute to the existing literature by adding evidence for the general relation between board gender diversity and CSR disclosure as well as by going deeper into the issue by including in the analysis the organisational decision about board structure – inside versus outside directors and proprietary versus independent directors.

First, our results are in line with Cabeza-García *et al.* (2013) and García-Sánchez *et al.* (2014) for Spain or with Barako and Brown (2008), Frías-Aceituno *et al.* (2013) and Giannarakis *et al.* (2014) for other international contexts, who reported that high proportions of women on the board positively influence the extent of social disclosure. All these studies contradict the results of Prado-Lorenzo *et al.* (2009b) and Khan (2010). Moreover, we also confirmed the relevance of reaching a minimum number of three women on boards in order to have a significant impact on CSR disclosure. Few studies have considered the need of a threshold number of women on boards to influence CSR activities. Isidro and Sobral (2015) found a positive effect of such a critical mass on compliance with ethical and social standards, Post *et al.* (2011) detected a positive correlation with higher KLD strengths scores, and Jia and Zhang (2013) noted an increase in corporate philanthropic disaster response.

Appointing female directors to boards may bring about a change in diversity not only by increasing numbers but also by introducing female directors who are, for example, more likely to have backgrounds outside business, have higher-level educational degrees (Ruigrok *et al*., 2007), or influence creative discussions on the board (Huse *et al*., 2009). Women are especially considered to be more oriented towards non-profit activities and less perceptive regarding firms' economic needs (Ibrahim and Angelidis, 1995), and they are expected to increase accountability and to prompt more ethical behaviour (Arkfen *et al*., 2004).

While the results mentioned thus far strengthen some previous evidence of the effect of gender diversity on CSR disclosure, it is the approach addressing gender diversity within the groups of specific kinds of directors that provides a new insight into the issue. Thus, outside directors and independent directors have certain characteristics that might be combined with those attributed to women to explain how female directors affect CSR disclosure.

Outside directors have been considered to be more concerned with social demands, environmental standards or philanthropic contributions (e.g., Ibrahim *et al.*, 2003; Johnson and Greening, 1999) and more in favour of voluntary disclosure (Brammer and Pavelin, 2008). Our results suggest that having female directors (measured as a percentage and as a critical mass) in this particular group of outside directors may have a positive impact on CSR reporting. This conclusion can be extended to independent directors who, unlike proprietary directors, do not represent the most significant shareholders but instead speak for a dispersed ownership. Independent directors, whose reputation is at stake, may benefit CSR activities and disclosure (Khan *et al.*, 2013; Zahra and Stanton, 1988). Additionally, according to this study, the proportion of women among these independent directors may be a significant factor in the standardisation of CSR reporting. No critical mass effect was found in this last case, which might be explained by the fact that the average number of independent directors was

only 3.62, and there was thus not much point in requiring a minimum of three independent female directors. A critical mass of three seemed more appropriate for the other two cases, as the average board size was 10.98 and the average number of outside directors was 9.08.

Finally, some comments may be made about the control variables used in the analysis. The results we obtained concerning the positive effect of business profitability on CSR reporting are similar to those presented in previous studies by Haniffa and Cooke (2005), Prado-Lorenzo *et al.* (2009b) and Roberts (1992). Similarly, and in line with other studies (Castelo and Lima, 2008; Prado-Lorenzo *et al.*, 2009b; Reverte, 2009), we found that firm size is positively associated with CSR disclosure. Larger companies have a greater capacity for generating social and environmental damage and they also have more resources for drawing up this information. Contrary to García-Sánchez *et al.* (2014), our analyses also revealed that firms with larger board sizes are more likely to offer information on CSR. This result is similar to those found by Esa and Ghazali (2012). In addition, a greater level of leverage (LEV) also seems to lead to lower CSR disclosure. A low level of debt ensures that creditors exert less pressure on company managers regarding CSR activities and CSR disclosure because these are only indirectly linked to the company's financial success (Brammer and Pavelin, 2008). For example, the findings of Testera and Cabeza (2013) for Spain and Castelo and Lima (2008) for Portugal suggested that firms with a higher level of leverage are less transparent about CSR. Similarly, Prado-Lorenzo et al. (2009a) concluded that the debt variable has a negative effect on the validation of information about CSR.

Conclusions

CSR activities have become a voluntary and frequent practice used by firms to improve their social and environmental impact as well as their relations with stakeholders. Providing information on firms' activities in the field of CSR in annual reports or in separate social

reports has become common, especially for listed companies. This has helped to close gaps between societal expectations and business practices.

Along with other firm characteristics such as profitability, size or sector, corporate governance is considered a determinant of CSR activities and disclosure (De Villiers *et al.*, 2011; García-Sánchez *et al.*, 2014). Specifically, diversity in the boardroom can be considered a key variable because it will impact board decisions. Gender, as a dimension of diversity, has received particular attention from regulators worldwide, and the way it relates to CSR is a topic requiring research (Zhang, 2012). In this context, our study analyses how appointing women as board directors and their typology influence CSR disclosure.

Using a sample of Spanish listed companies over the 2009-2013 period, the panel data analyses that were conducted reveal that a higher percentage of women in boardrooms and reaching a minimum threshold of at least three female directors implies higher CSR disclosure. Additionally, this study reveals a relevant aspect that may be hiding behind the general figures: not only is it important to consider the number of female directors for CSR reporting, but it is also important to note what kind of directors they are. Thus, our findings highlight that having more women among outside and independent directors is positively related to CSR reporting.

These findings indicate the importance of director selection and appointment processes in relation to both gender diversity and typology, which may be of interest for policymakers as well as companies. The relevance of these findings comes not only from obtaining the quota of female directors required by law but also mainly from influencing the decision-making process in general and CSR in particular. Furthermore, CSR may play a mediating role in the relation between gender diversity and firm value (Fernández-Gago *et al.*, 2016), so decisions about board composition may eventually affect financial performance.

It is necessary to acknowledge as a shortcoming of the study that the problem of endogeneity might not have been fully removed by employing lagged independent variables. In addition, according to Boulouta (2013), current research on corporate governance has relied on board composition and structure; variables to explain board processes instead of focusing on actual board behaviour by gathering primary data. This could be a general limitation in studies on gender diversity such as this one. Nevertheless, although it might sometimes imply maintaining gender-based stereotypes, the truth is that gender still determines differences in other characteristics such as education, professional experience or family responsibilities, and it seems premature to ignore them. Future research should try to combine the analysis of gender diversity (not only in boardrooms but also on the various committees) with individual characteristics and the actual behaviour of board members to better understand what elements really condition the decision process. Primary data would also help to overcome the limitation of assuming a certain level of independence in board directors according to their typology even though nothing is really known about their independence of thought, attitude, and action (De Villiers *et al.*, 2011). Additionally, it would be interesting to analyse whether determinants such as better performance, enhancing corporate reputation and meeting stakeholder needs (Singh and Point, 2004) explain why women are on boards since CSR decisions may be indirectly affected.

In the future, it could also be interesting to expand our analysis to an international sample to corroborate the results presented here and because the social, political and economic structures of individual countries (Terjesen and Singh, 2008) seem to influence the representation of women on boards. Similarly, shareholder protection and the country gender parity (Byron and Post, 2016; Post and Byron, 2015) affect the relationship between female board representation and financial or social performance. Thus, analysing whether firms

governed by women tend to disclose one particular type of CSR information rather than another based on country characteristics may be of interest.

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