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ORIGINAL PAPER

Factors influencing board of directors' decision-making process as determinants of CSR engagement

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Abstract This paper focuses on the determinants of Corporate Social Responsibility (CSR) at the organisational level. Specifically, it aims to understand the influence of not previously analysed board of directors' characteristics on a company's CSR engagement. A random effect probit model was applied to a panel of Spanish non-financial and non-insurance listed firms over the period 2009–2013. The analyses revealed that the existence of a board sub-committee responsible for social and environmental matters and its size, the establishment of a statutory term limit for independent directors and the possibility for directors of receiving advice from external sources positively affect a firm's CSR engagement. This paper contributes to the debate about corporate governance and CSR by relating factors determining the decision-making process at boards of directors to CSR. Thus, it extends research on the board as a driver for social and environmental issues and suggests new ways to deal with this issue empirically.

Keywords Board of directors · Board sub-committee · Independent directors · External advice · CSR engagement · Panel data

1 Introduction

Interest in Corporate Social Responsibility (CSR) in the context of management, public policy, and society in general has increased in professional and academic circles. According to Aguinis and Glavas (2012), antecedents of CSR can be grouped into three general levels: *institutional*, referring to standards or certifications (Christmann and Taylor 2006), as well as the socio-cultural context of the country (Brammer et al. 2009); *organisational*, considering variables like firm size

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(Waddock and Graves 1997), profitability (De Villiers et al. 2011) or corporate structure and governance (Gamerschlag et al. 2011; Johnson and Greening 1999); and *individual*, including CEOs' or managers' values with the emphasis on stakeholders' interests (Agle et al. 1999) or employees' values and individual concern for CSR issues (Mudrack 2007).

We focus here on the determinants of CSR at the organisational level because, although the debate surrounding CSR has focused predominantly on this level of analysis (Post et al. 2002), there is still room for new insights in order to explain companies' socially responsible conduct. Firms' size and financial performance have traditionally been among the most analysed organisational variables as CSR determinants (Margolis and Walsh 2003; Orlitzky 2001). In this sense, a positive relationship has been found between size and CSR (Arora and Dharwadkar 2011), and also between financial and social performance (Wu 2006). Anyway, since the previously mentioned variables are rather general, it can be suggested that new organisational-level variables more related to managing CSR should be analysed. In particular, due to the fact that the impact of corporate governance variables on the development and implementation of CSR policies and practices has gained attention recently (Jamali et al. 2008; Spitzeck 2009), we focus on one of the main internal governance mechanisms, that is, the board of directors. More specifically, we analyse elements having an effect on the decision-making process at boards, such as the existence of specific social or environmental sub-committees, term limits for independent directors or procedures for obtaining external advice. Variables like these are important for understanding firms' strategic decision-making since directors, in their capacity as organisational leaders (Carpenter et al. 2004), play a key role not only in supervising top managers, but also in directly planning and developing strategies (Cossin and Metayer 2004; De Villiers et al. 2011).

AQ2 This paper further examines the connection between two relevant concepts within management, corporate governance and CSR, drawing upon a broad theoretical framework, considering insights from agency, stakeholder, and resource-dependence theories. We focus on factors influencing the way decisions are made by boards of directors. More specifically, we examine how independent directors' limited tenure and the availability of external sources of advice can influence CSR. Moreover, we try to find out the role played by social or environmental sub-committees in the Spanish context, as it has been previously analysed in other contexts (Amran et al. 2014; De Villiers et al. 2011; Khan et al. 2013; Mallin et al. 2013). We consider that such variables are relevant to the extent that they may simultaneously condition the two traditional roles or functions that boards can play in exercising their corporate governance responsibilities, a monitoring role and a resource provision role (De Villiers et al. 2011; Hillman and Dalziel 2003; Mallin et al. 2013), and consequently, it can affect firm strategic decisions such as CSR. With regard to methodological issues, we apply a panel data methodology and control for a possible endogeneity problem.

Drawing on a final sample of 81 Spanish non-financial and non-insurance companies over the period 2009–2013 and after applying a random effect probit, our findings indicate that when a board is characterised by the existence of board sub-committees in charge of CSR issues, the establishment of a term limit for

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independent directors and the possibility of obtaining external advice, this has a positive, significant influence on the firm's CSR engagement.

The rest of the paper is structured as follows. The next section poses the hypotheses to be tested based on a review of the literature and the empirical evidence. The sample, measurement of the variables and the methodology are described in the third section, followed by the results. Finally, the last section offers the main conclusions, implications and future lines of research.

2 Theoretical framework and hypotheses

Corporate governance can largely be understood, from the classic, financial point of view, as a set of mechanisms that allow outside investors to protect themselves against expropriation by managers or controlling shareholders (La Porta et al. 2000). Following this narrow definition, the key question of corporate governance seems to be how to assure shareholders that they get a return on their financial investment (Shleifer and Vishny 1997), within a context of agency conflict between them, as principals, and managers, as agents.

However, drawing upon ideas from stakeholder theory (Freeman 1984), a broader definition of corporate governance might be "the design of institutions that induce or force management to internalise the welfare of stakeholders" (Tirole 2001:4). In this sense, corporate governance appears to be concerned with holding the balance between economic and social goals and between individual and communal goals and aims to align the interests of individuals, corporations and society (Chang et al. 2015; Clarke 2004). This broader conception is gaining general acceptance, indicating that good corporate governance entails responsibility and due regard to the claims of key stakeholders (Ferrero–Ferrero et al. 2012; Kendall 1999). In fact, an increasing overlap in corporate governance and CSR agendas has been demonstrated (Jamali et al. 2008), with the former depicted as a pillar for the latter, in the sense that a sound corporate governance framework provides the foundations for building good CSR practices (Aguilera et al. 2007; Welford 2007).

In particular, the board of directors must share leadership of the firm with the CEO to ensure that firms fulfil their economic, legal, ethical, and discretionary social responsibility (Buckholtz et al. 2008). Thus, to the extent that the board is the authorised body in collective decision making within the corporation, it ought to also be one of the main units in terms of socially responsible decisions (Sahin et al. 2011). In order to analyse how characteristics determining board of directors' decision-making may influence a company's CSR engagement, we focus on the following factors: presence and size of a specific committee for social and environmental issues, statutory term limit for independent directors and availability of sources of external advice for board members. These factors are relevant because they condition the different roles or functions boards can play in exercising their corporate governance responsibilities. These roles have been traditionally divided into two conceptual categories (De Villiers et al. 2011; Hillman and Dalziel 2003; Mallin et al. 2013): a monitoring or control role, and a resource provision or advisory role.

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The monitoring function of directors makes them responsible for representing the interests of shareholders, as principals of the firm (Hillman et al. 2001). This supervisory role has mainly been analysed following agency theory (Jensen and Meckling 1976), with directors having the task of monitoring management's behaviour to avoid conflicts of interest arising from the separation between ownership and control (Berle and Means 1932). Thus, vigilant directors, who intensely monitor management and are likely to demand explanations for managerial strategic initiatives, can reduce agency costs (De Villiers et al. 2011; Hillman and Dalziel 2003).

Analysis of the resource provision role has traditionally been based on the resource-dependence theory (Pfeffer and Salancik 1978; Pugliese et al. 2014) and stakeholder theory (Freeman 1984). These perspectives assume that directors bring critical resources to the company in terms of knowledge, connections, and legitimacy (Drees and Heugens 2013; Mallin et al. 2013), lending the executive team its credibility and authority (Cossin and Metayer 2014) and serving to link the firm with key constituencies in its external environment (Boyd 1990; Pfeffer and Salancik 1978). Specifically, directors bring expertise and diverse perspectives when they advise the CEO and other top managers in the strategic decision-making process (Hillman et al. 2001; Zahra and Pearce 1989). In this sense, it has been argued that participation by both management and the board in developing a company's strategy tends to produce a broader and longer-term perspective (Cossin and Metayer 2014).

Specifically, with regard to CSR, both boards' roles or functions are relevant. Firstly, monitoring of managers' decisions and actions is important in order to check that their behaviour is in line not only with shareholders' objectives, but also with other stakeholders' interests. And, secondly, resources provided by directors, especially those based on their knowledge about the firm's environment and external stakeholders, may foster companies' CSR engagement, becoming a strategic source of legitimacy and long term value creation.

The establishment of board sub-committees or specialised committees can be seen as a suitable mechanism for improving corporate governance by delegating specific tasks from the main board to a smaller group (Spira and Bender 2004) and by making optimal use of the directors' specialisation and their available time (Van den Berghe and Levrau 2004). In this sense, it has been argued that sub-committees as strategic tools may fulfil the board responsibilities of maintaining corporate legitimacy or contributing to the formation of corporate strategy (Harrison 1987).

Particularly, for specific tasks related to firms' social and environmental practices, a specific board sub-committee can be created to improve awareness and ensure consistency in the implementation of sustainability strategies (Klettner et al. 2014; Ortiz-de-Mandojana et al. 2016). Such a committee would generally focus on activities like establishing policies and standards, monitoring compliance with such policies, reviewing company reporting on CSR, or overseeing philanthropic activity, among others (Mackenzie 2007). With regard to the influence of a committee responsible for social and environmental issues on CSR development, in general, although the empirical evidence is very limited, a positive relationship has been found. Such a positive relation draws on the notion that the existence of a

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committee dedicated to CSR is strategically important for integrating stakeholders' interests into collective decision making (Luoma and Goodstein 1999).

This finding can be theoretically supported by two general arguments. Firstly, a board in charge of social and environmental matters can assist the firm to formally organise and manage its CSR practices (De Villiers et al. 2011; McKendall et al. 1999), so that CSR becomes institutionalised within the organisation's core decision-making (Amran et al. 2014). Moreover, directors on such a specific committee might be made accountable for the firm's social practices, as they could be blamed for any mistakes, and also might be expected to anticipate problems arising related to firms' stakeholders in order to pro-actively address them (McDonnell et al. 2015).

Secondly, and following signalling theory (Connelly et al. 2011), companies can demonstrate their CSR commitment or their active strategic posture with regards to stakeholders (Amran et al. 2014; Ullman 1985), by creating a sub-committee or designating a specific person responsible for sustainability issues at the board level, as a means of dealing with stakeholders' demands and gaining a greater legitimacy in the community in which it operates (Mallin and Michelon 2011). In this sense, the presence of a board sub-committee responsible for social and environmental issues can be seen as a signal that the firm sends to stakeholders in order to show its commitment and involvement in CSR (Lam and Li 2007), revealing the firm's willingness to improve its corporate behaviour to meet stakeholders' expectations (Mallin and Michelon 2011).

Furthermore, apart from the relevance of the mere existence of a committee in charge of CSR matters, the size of such a board sub-committee would appear to be a relevant dimension because, according to legitimacy theory (Peters and Romi 2012), establishing committees without meaningful characteristics is commonly seen as an attempt to merely create a cosmetic, positive image. Thus, a positive influence on CSR engagement may be theoretically proposed since the size of a board committee can be considered a sign of its power and effectiveness (Becker-Blease and Irani 2008), so that, larger specialised sub-committees could be more influential regarding social and environmental decisions (Rodrigue 2014). Moreover, to the extent that such board committees not only would monitor environmental and social practices but also set objectives for firms in CSR terms, larger committees could ensure the representation of different interest groups and be associated with objectives that go beyond shareholder value maximization (Brown et al. 2006; Van den Berghe and Levrau 2004). In this sense, although empirical papers analysing the effect of the size of board CSR or sustainability sub-committees on social or environmental outcomes are scarce, a positive relationship has been generally found (Liao et al. 2015; Rodrigue 2014).

Finally, it can be said that by creating a specific committee in charge of social and environmental matters, the monitoring role of the board of directors might be improved with regard to CSR. Such a specialised sub-committee would be composed of members whose specific task would be to supervise managers' CSR policies and practices following rigorous criteria, so that the latter ones would be encouraged to make good social and environmental decisions in the long-term interests of the firm. Additionally, it might also be said that a larger sub-committee

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would improve the resource provision role of the board with regard to CSR. As the number of members increases, the committee may bring more resources, particularly in terms of knowledge and experience (De Villiers et al. 2011). This circumstance leads to providing management with otherwise unobtainable expert advice (Kassinis and Vafeas 2002) and reducing uncertainty and lack of information (Birnbaum 1984).

Taking into consideration the empirical evidence and the above-mentioned arguments, we propose the following hypotheses:

H1a The presence of a board sub-committee responsible for social and environmental issues will positively affect firms' CSR engagement

H1b The size of a board sub-committee responsible for social and environmental issues will positively affect firms' CSR engagement

Among board members, independent or outside directors are seen as particularly important (Veltrop et al. 2016), having the main duties of scrutinising strategic initiatives proposed by senior management (Jensen and Meckling 1976) and also providing top managers with independent advice on strategic issues (Hillman et al. 2011). Specifically, independent directors have been considered of key relevance in relation to CSR because, as they come from outside the firm, they tend to have closer relations with stakeholders, know their expectations better and are more likely to meet their demands (Ibrahim and Angelidis 1995). What has been mainly investigated to date is the relation between the proportion of independent directors and the adoption of CSR practices (De Villiers et al. 2011; Fernández-Gago et al. 2016; Fernández-Sánchez et al. 2011; Jo and Harjoto 2011). We focus on the role and involvement of independent of independent directors by analysing the existence of statutory term limits going beyond Spanish regulations for listed companies (ORDEN ECC/461/2013).

Recently, the issue of term limits for independent directors has been receiving attention as an element affecting boards' structure and functioning (Katz and McIntosh 2014). Arguments for and against such a limitation have been made. On the one hand, drawing upon the management friendliness hypothesis (Vafeas 2003), it is suggested that long-tenured directors are more likely to develop personal ties with managers, ceasing to monitoring them as would be required. Additionally, such directors may, over time, attempt to usurp some of the CEO's functions (Lipton and Lorsch 1992). Finally, other risks associated with longer tenure could be failing to keep up with changes to the business, or defending decisions and polices supported in the past but that are now of questionable applicability (Canavan et al. 2004). On the other hand, the expertise hypothesis (Vafeas 2003) states that a long-term independent director engagement provides him or her with important knowledge about the firm and its business environment. It has also been argued that extended tenure enhances organisational commitment and willingness to expend effort toward company goals (Buchanan 1974; Dou et al. 2015). According to this reasoning, rigid rules on tenure might deprive a board of some of its most useful members since continuity and past experience can play a useful role in improving the board's effectiveness (Firstenberg and Malkiel 1994).

Specifically, the establishment of term limits for independent directors would appear to be positively related to CSR because flexibility, diversity, and creativity for developing new initiatives are needed. Businesses today are becoming more complex and changing more rapidly, so it is increasingly difficult for independent directors to keep abreast of technological, financial or normative changes (Canavan et al. 2004), to mention just a few matters. Thus, since extended tenure may lead to directors' entrenchment, a state in which they are unable to break established cognitive patterns, it will likely result in reduced receptiveness to outside information and increased commitment to the status quo (Veltrop et al. 2016). Moreover, as observed in the case of CEOs' behaviour (Hambrick and Fukutomi 1991), directors might be more willing to be highly attuned to their external environments and to adapt to them during their first years of term. Longer director tenure may give way to a lack of inspiration or the innovative ideas that a new cohort of directors could bring into the boardroom (Deschênes et al. 2015; Dou et al. 2015).

Finally, this factor could improve the two traditional roles of the board of directors with regard to CSR. Firstly, as stated before, the monitoring role, that is, controlling managers' decisions on CSR, may be more effective and objective when a term limit is established because managers would tend to be less entrenched. And secondly, the resource provision function could be enhanced due to the innovations and fresh perspectives that new directors should bring into the board.

Considering the arguments posed in the previous paragraphs, the following hypothesis is proposed:

H2 The establishment of a statutory term limit for independent directors will positively affect firms' CSR engagement

Advice-seeking is a common practice when making real-life decisions (McDonald and Westphal 2003) and, in particular, is one of the activities most frequently engaged in by board members (Ingley and Van der Walt 2005). Here, advice-seeking may be understood as a problem-solving behaviour in which a decision-maker searches for information and knowledge from internal and/or external sources to help cope with a decision problem (Heyden et al. 2013; Yaniv 2004). It is especially important since it has been shown to be the main method of information acquisition for executives (McDonald and Westphal 2003; Meissner and Wulf 2014), which is considered crucial in the strategic decision making process (Saunder AQ4 and Jones 1990).

Specifically, although advice from internal sources is clearly important, external advice may be of particular interest for boards of directors. In this sense, the gathering of information from external sources has been shown to increase judgment accuracy (Soll 1999), forecasting ability (Durand 2003), and the objective quality of decisions (McDonald et al. 2008). Moreover, it can be assumed that directors will be likely to prefer external advisers to internal ones, to the extent that they may see the latter as competitive threats to their position and status (Alexiev et al. 2010; Menon and Pfeffer 2003). However, since external advice is relatively more scarce and costly to obtain than internal advice, it might be overvalued by

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directors, leading them to accept it as more trustworthy and to be less critical of it (Menon and Pfeffer 2003; Menon et al. 2006).

With regard to CSR, we draw upon the notion that external advice is more likely to be accepted within more externally focused firms (Strike 2012), that is, firms that are more concerned about their stakeholders. Two general arguments—diversity or openness and impartiality—support the idea of a positive influence of external advice on CSR. Firstly, seeking for advice from external sources, particularly from non-friends and distinct others, provides regular access to non-redundant information and alternative points of view, exposing directors to different perspectives and interpretations (McDonald et al. 2008; Yaniv 2004). Thus, advice from external sources is likely to offer several interpretations to the extent that it entails different cognitive schemas processing specific information, allowing for the framing of issues and answers from a broader perspective (Heyden et al. 2013). It has been shown that executives who consider external advice in their decision-making processes are more likely to acquire new knowledge on environmental changes and on opportunities (Alexiev et al. 2010).

Secondly, recommendations from external advisors are usually considered more impartial because such individuals or organisations are often unattached to prior courses of action (Menon and Pfeffer 2003). Therefore, seeking external advice may also assist board members to reach consensuses thanks to the provision of independent analyses and evaluations of proposals (Alexiev et al. 2010). Due to the voluntary nature of CSR initiatives, it is important for each project proposed by a director to be supported by an external opinion to convince the other directors.

Finally, availability of sources of external advice for board members can improve the board's resource provision role with regard to CSR. In this sense, resources and insights provided by relevant outsiders close to the community and the environment might be particularly important for the board to adopt new perspectives and make decisions on CSR.

Taking into account the above mentioned arguments, we propose our last hypothesis:

H3 External advice will positively affect firms' CSR engagement

3 Sample, variables and methodology

3.1 Sample

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 were able to build a panel comprising 128 large and medium-sized firms and 548 observations. The use of panel data information improves the empirical evidence which hitherto has tended to be cross-sectional (Aguinis and Glavas 2012). Financial and insurance companies were excluded 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).

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We also excluded subsidiary firms[1] (1 firm, 2 observations). As a result, and also taking into account that some companies entered and others exited the Stock Market during the period considered, we ended up with an unbalanced panel of 104 non-financial and non-insurance listed firms and 471 observations.

3.2 Measuring variables

3.2.1 Dependent variable

Participation in the United Nations Global Compact is the dependent variable (GC) used in this study and it was collected from this initiative's website (https://www.unglobalcompact.org). GC, as a CSR mechanism (Cetindamar and Husoy 2007; Ortas et al. 2015), is highly visible among the best known business-related codes and principles (Waddock 2008) and has been able to attract the attention of many corporations worldwide (Arevalo et al. 2013) and to be significantly valued by investors (Coulmont and Berthelot 2015). In this sense, GC represents a human-right based approach for corporate responsibility (Garriga and Melé 2004; Waddock 2008) that relies on public accountability, transparency and enlightened self-interest of companies. Thus, GC takes two basic perspectives (Arevalo et al. 2013): firstly, it prescribes a set of 10 principles related to human rights, labour, the environment and anti-corruption, as guidelines for CSR engagement; and secondly, it offers learning and discussion platforms for companies and NGOs, where exchanges are made regarding issues related to CSR development and cooperation. Also, as the largest voluntary corporate responsibility initiative in the world (Coulmont and Berthelot 2015; Rasche et al. 2013), GC has a significant geographic range (covering more than 130 countries) and the moral legitimacy and political backing of the United Nations system with its 193 member States (Ruggie 2002). Finally, the adoption of the GC often requires organisational changes that foster stakeholder engagement, resulting in improvements in firms' social and environmental performance (Ortas et al. 2015). For these reasons, and according to Cetindamar and Husoy (2007) and Perez-Batres et al. (2011), we consider that this measure is a relevant proxy for a company's CSR engagement. Specifically, this variable took value 1 for a company in those years it participated in the Global Compact and 0 in the rest of them.

3.2.2 Explanatory variables

As possible determinants of CSR regarding characteristics influencing decision-making process at boards we considered the following four explanatory variables for which the information was obtained from firms' annual corporate governance reports filed with the Spanish National Stock Exchange Commission (CNMV) for all the years considered in the study:

AQ5 Committee in charge of social and environmental issues (COMMITTEE): Following Mallin et al. (2013) or Amran et al. (2014), this was measured by a dummy variable that took value 1 when the firm has a specific CSR committee and/

[1] Companies that are more than 90 %-owned by another listed firm in the sample.

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or a Strategy committee and 0 otherwise. Here, we assume that, due to the long-term perspective and the strategic nature of CSR activities, when a firm does not have a specific CSR committee, decisions about supervising or providing resources for social and environmental matters at board's level will probably be made by a Strategy committee. The number of member in such committee (COMMITTEE_-SIZE) is also considered (Liao et al. 2015; Rodrigue 2014).

Term limit (TERM_LIMIT): This is a dummy variable that took value 1 when the firm established a limited tenure for independent directors. In Spain, tenure for independent directors was first limited by law in 2013, when it was set to 12 years (Order ECC/461/2013). Consequently, TERM_LIMIT took 1 in 2013 in the case of self-imposed limits shorter than 12.

External advice (EXTERNAL_ADVICE): This was measured by a dummy variable that took value 1 when the firm formally provides directors with corporate resources to seek advice from external sources and 0 otherwise. This variable reflects the fact that boards' regulations may explicitly contemplate that directors can use firms' resources in order to hire legal, business, or financial advisors' services, among others, in order to cope with especially complex or relevant matters. This could be the case of CSR, due to its strategic nature and its long-term impact on the firm.

3.2.3 Control variables

Following previous empirical papers, and drawing on companies' corporate governance reports and data from the Madrid Stock Exchange, the CNMV and the Iberian Balance Sheet Analysis System database (SABI), we controlled for seven relevant variables when analysing corporate governance and CSR:

Board size (BOARD_SIZE), measured as the number of directors belonging to the board (Ben Barka and Dardour 2015; Marquis and Lee 2013). Although some articles found a negative relation between board size and CSR (Fernández-Gago et al. 2016; Kassinis and Vafeas 2002), a majority of them support a positive link (De Villiers et al. 2011; Deschênes et al. 2015), drawing on the notion that as board size increases, there will be more people to resort to (Zahra and Pearce 1989), including individuals with different skill sets and foci (De Villiers et al. 2011) or external links with the environment (Deschênes et al. 2015). In such a case, the board will be more willing to take into account the interests of the community and society (Deschênes et al. 2015).

CEO duality (DUALITY): This was measured by a dummy variable that took value 1 when the chairman of the board was also the CEO of the firm and 0 when a single person did not hold both positions (Hafsi and Turgut 2013; Li et al. 2015). On the one hand, a negative relationship between CEO duality and CSR (Godos-Díez et al. 2014; Mallin and Michelon 2011) can be expected because it is common for dual CEOs to be pressured to improve financial performance (Davidson et al. 2004), using the extra power that duality affords them, often at the expense of social responsibility and the needs of stakeholders (Zhang 2012). On the other hand a positive relationship (Fabrizi et al. 2014; Jo and Harjoto 2011) could also be observed, when dual CEOs were socially identified with the firm, so that they would

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be motivated to contribute to its long-term success (Ashforth et al. 2008), for example, through socially responsible initiatives which pay off in the long run (Porter and Kramer 2006).

Board meetings (BOARD_MEETINGS), measured as the number of meetings held by the firm's board each year (Fernández-Sánchez et al. 2011; Martínez-Ferrero et al. 2015). In this sense, a positive relationship between the frequency of board meetings and CSR can be expected (Fernández-Sánchez et al. 2011; Martínez-Ferrero et al. 2015). It has been said that boards with more meetings are more plural (Cabeza-García et al. 2013) and that such boards can be viewed as the governance answer to improving CSR and awareness of stakeholders in the firm (Johnson and Greening 1999).

Company size (SIZE), measured as total assets expressed in thousands of euros[2] (Jo and Harjoto 2011). This can be positively associated with social performance because, as companies grow in size, they have more available resources to develop CSR initiatives and receive increasing attention from stakeholders so they need to respond more efficiently to their demands (McWilliams and Siegel 2001; Waddock and Graves 1997).

Company's leverage level (LEV), measured as the quotient between borrowed funds (short-term and long-term debt) and total assets (Arora and Dharwadkar 2011). A positive relationship could be expected for this variable, with the aim of reducing risks stemming from environmental damage or disaffected workers (Orlitzky and Benjamin 2001). However, a low level of debt also allows firms to invest more resources in CSR activities, because creditors exert less pressure on their activities (Brammer and Pavelin 2008). Consequently, some studies found a positive relationship between leverage and CSR (Rashid and Lodh 2008), while others found a negative one (Jo and Harjoto 2011), or no significant relationship at all (Prior et al. 2008).

The sector of activity to which the company belongs (SECTOR), measured as a dummy variable taking 1 if the company belongs to more "environmentally-sensitive" sectors (mining, oil, gas, chemicals, paper, iron and steel and other metals, electricity, gas distribution and water), and 0 otherwise (Zeng et al. 2012). Sector characteristics such as capital requirements, labor intensity, potential waste generation, etc. may influence CSR activities (Graves and Waddock 1994; Reverte 2016).

Finally, company profitability (ROA), calculated as the quotient between operating profits and total assets (De Villiers et al. 2011). Traditionally studies have focused on the influence of CSR on firm performance (Zahra and Latour 1987). However, recent studies point out that many companies wish to follow the rules of good corporate citizenship but in the end their CSR activities depend on the resources available (Salzmann et al. 2005).

[2] Introduced in the empirical analysis as a logarithm.

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3.3 Methodology

Firstly, we classified the companies by their participation in the Global Compact and compared the main explanatory and control variables using non-parametric tests such as the Mann–Whitney U test, as the Kolmogorov–Smirnov test had previously revealed the non-normality of the continuous variables used in the analyses. We also used the Chi squared test for dummy variables.

Secondly, we proposed a panel data analysis. As the dependent variable was a dichotomous one, it was necessary to choose a distribution function that could adequately represent the relationship between the explanatory variables and the probability of participation in the Global Compact. We show here the analysis corresponding to a random effect probit model.[3] It is necessary to note that in order to control for endogeneity problems in the models proposed, explanatory and control variables are lagged by one year.

The model proposed is the following:

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

where i denotes firm, t the period of time, GC is participation in the Global Compact, X are the explanatory and control variables for the 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 and μ_{it} is the error term ($\mu_{it} = \gamma_i + \varepsilon_{it}$, where γ_i covers the individual unobservable effect, which we assume is constant for company i during t, and captures the unobservable heterogeneity among companies; ε_{it} is the random disturbance).

4 Results

In order to test the hypotheses proposed in the theoretical section, we first analysed the differences between sub-samples, using a sample without any missing values in the variables considered for the descriptive analysis. Thus, although the initial sample was composed of 471 observations, descriptive results were calculated with a sample of 470 observations. As Table 1 shows, there were significant differences in all continuous variables except for firm leverage. This means that firms that participated in the Global Compact had more directors (BOARD_SIZE) and meetings (BOARD_MEETINGS), and were larger (SIZE) and more profitable (ROA). There were also differences in the variables COMMITTEE, COMMITEE_SIZE and EXTERNAL_ADVICE. Thus, firms that participated in the Global Compact were more likely to have a committee focused on CSR issues and a larger number of members in such a committee. Besides, firms that are

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

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Table 1 Differences based on participation in the Global Compact

Variables	Global Compact N = 189			NO Global Compact N = 281			U Mann–Whitney
	Mean	Median	AR[a]	Mean	Median	AR[a]	
COMMITTEE_SIZE	1.38	0	260.53	0.36	0	218.67	21,824.50**
BOARD_SIZE	12.72	13	314.61	9.48	9	182.29	11,602.00**
BOARD_MEETINGS	10.53	11	262.49	9.48	9	217.35	21,454.00**
SIZE	16,795,395	3,745,187	321.99	1,661,537	490,478	177.32	10,207.00**
LEV	0.64	0.68	241.30	0.68	0.66	231.60	25,459.00
ROA	0.04	0.04	257.25	0.06	0.03	220.87	22,443.00**
	% (observations value = 1)			% (observations value = 1)			Chi squared
COMMITTEE	25.93			9.25			23.423**
TERM_LIMIT	31.75			29.18			0.352
EXTERNAL_ADVICE	96.83			91.81			4.900*
DUALITY	49.21			46.62			0.303
SECTOR	29.63			27.40			0.276

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

[a] AR denotes average range

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adhered to Global Compact are more expected to formally provide directors with AQ6 corporate resources to seek advice from external sources.

Before carrying out the probit analysis, Table 2 lists the correlation coefficients of the variables used in the panel data estimations. Although some of the variables showed a statistically significant correlation, analysis of the variance inflation factors (VIF) revealed no evidence of multicollinearity as all of them remained below 10 (Kleinbaum et al. 1998). Although our initial sample was composed of 104 firms with 471 observations, the final sample for the probit analyses was made up of 81 firms and 398 observations. This reduction is due to using lagged explanatory and control variables, avoiding missing values, keeping the same sample size for all the models, and having at least four consecutive years because of the panel data structure.

Table 3 summarizes the results of the multivariate analysis in order to study in depth the causal relationships proposed. These results were obtained using the STATA12 program. We proposed two alternative models (Models 1 and 2) due to the fact that COMMITTEE and COMMITTE_SIZE were strongly correlated and they could be considered proxies to some extent. The high VIFs revealed that if both variables were introduced in the same model there would be a multicolineallity problem. The Wald tests indicated for both models that, as a whole, the variables chosen were highly significant. To ascertain whether the models chosen are more suitable than pool regression, we must analyse the results of the LR test on the rho parameter. Results indicated that this parameter was significantly different from zero (values equal to 226.48 with p value <0.01 and 224.06 with p value <0.01, respectively). So the existing correlation between the error terms of the two equations means that the correct specifications are the random effect probits.

As shown in Table 3, the analysis of marginal effects (dy/dx) provided relevant information about the influence of board and firm characteristics on CSR. Regarding board committees, we were able to confirm a positive and significant relationship between COMMITTEE and CSR (Model 1). This finding supports Hypothesis 1a. The latter variable exerts the third greatest influence on the probability of participation in the Global Compact: firms that have a CSR and/or a Strategy committee increase their probability of participation in the Global Compact by 43.4 percentage points, *ceteris paribus*. Besides, in line with Hypothesis 1b the larger the size of the committee in charge of social and environmental issues (COMMITTEE_SIZE) the larger the probability of being adhered to Global Compact. Thus, both the existence and the size of this committee are drivers of CSR engagement.

We found a positive and significant relationship between TERM_LIMIT and CSR in both models being this variable the one that exerted the second influence on the dependant variable. This result suggests that when firms include statutory term limits for their independent directors, they pay more attention to CSR problems. This result supports Hypothesis 2, and is consistent with the idea of a limited tenure for independent directors as a way of guaranteeing their independence and fostering diversity and creativity for developing new projects (Canavan et al. 2004; Veltrop et al. 2016). In addition, EXTERNAL_ADVICE also positively influenced firms' CSR engagement, supporting Hypothesis 3. So, advice from external sources seems to broaden individuals' perspectives when dealing with strategic decision-making

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Table 2 Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. GC	1											
2. COMMITTEE	0.222**	1										
3. COMMITTEE_SIZE	0.276**	0.912**	1									
3. TERM_LIMIT	0.066	−0.103*	0.002	1								
4. EXTERNAL_ADVICE	$0.097^{\dagger}$	0.102*	0.102*	0.057	1							
5. BOARD_SIZE	0.483**	0.272**	0.363**	0.028	0.023	1						
6. DUALITY	−0.029	0.131**	0.156**	−0.045	0.106*	−0.072	1					
7. BOARD_MEETINGS	$0.089^{\dagger}$	0.036	0.058	−0.066	0.034	0.065	0.114*	1				
8. SIZE	0.532**	0.275**	0.316**	−0.014	0.114*	0.646**	0.033	0.139**	1			
9. LEV	−0.031	0.053	0.059	0.102*	0.025	0.153**	−0.060	0.099*	0.273**	1		
10. SECTOR	0.078	0.065	0.108*	0.061	0.007	0.043	0.129**	−0.035	0.117*	−0.072	1	
11. ROA	0.188**	0.014	0.017	−0.072	$0.097^{\dagger}$	0.033	−0.028	−0.139**	0.169**	−0.309**	$0.940^{\dagger}$	1

n = 398; † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

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Table 3 The impact of board characteristics on CSR commitment

Variables	Model 1	dy/dx	Model 2	dy/dx
COMMITTEE	1.167* (2.78)	0.434* (2.12)		
COMMITTEE_SIZE			0.267* (2.04)	0.092† (1.93)
TERM_LIMIT	1.726** (3.97)	0.583** (4.45)	1.684** (3.88)	0.574** (4.34)
EXTERNAL_ADVICE	1.833** (2.71)	0.321** (3.94)	1.801** (2.66)	0.326** (3.93)
BOARD_SIZE	0.287** (2.78)	0.098** (2.68)	0.284** (2.75)	0.098** (2.65)
DUALITY	−0.061 (−0.16)	−0.021 (−0.16)	−0.069 (−0.18)	−0.024 (−0.18)
BOARD_MEETINGS	0.083 (1.41)	0.028 (1.40)	0.082 (1.41)	0.028 (1.39)
SIZE	1.079** (6.11)	0.367** (5.04)	1.087** (6.15)	0.374** (5.10)
LEV	−3.107* (−2.03)	−1.056* (−2.02)	−3.170* (−2.08)	−1.089* (−2.06)
SECTOR	0.229* (2.14)	0.078† (1.95)	0.225* (2.09)	0.077† (1.91)
ROA	0.089 (0.03)	0.030 (0.03)	0.043 (0.02)	0.015 (0.02)
Annual effect considered	Yes[a]	Yes[a]	Yes[a]	Yes[a]
Log-likelihood	−70.81		−70.89	
Wald chi2	119.70**		119.62**	
Sigma_u	3.195		3.207	
Rho	0.911		0.911	
LR test rho = 0	226.48**		224.06**	
z_1	119.22**		119.10**	
z_2	0.87		0.80	
Number of observations	398		398	
Number of firms	81		81	

(t-statistic)

[a] There is no significant annual effect Z_1 is a Wald test for the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all the explanatory variables. Z_2 is a Wald test of the joint significance of the time dummies, asymptotically distributed as χ^2under the null hypothesis of no relationship

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

processes (Alexiev et al. 2010; Heyden et al. 2013), potentially leading them to take social and environmental matters into consideration.

In relation to control variables, significant relationships between four of them (BOARD_SIZE, SIZE, LEV and SECTOR) and CSR were found. We found a positive and significant relationship between BOARD_SIZE and CSR, so that it seems that a higher number of directors provides more diversity and helps focus on CSR problems. This finding is in line with a recent study by Deschênes et al. (2015) which, using a sample composed of the largest publicly-traded Canadian firms, found that board size was positive and significant for the community and society and the employee components of CSR. In line with previous empirical studies, firm size (SIZE) was positively associated with CSR. Larger companies have more capacity for generating social and environmental damage and have higher resources to perform social activities (Dam and Scholtens 2012; Yong et al. 2011). The results also suggested a negative and significant relationship between LEV and CSR, as suggest by Jo and Harjoto (2011) for US. A lower level of firm leverage may derive in larger CSR engagement because creditors will exert less pressure on this type of activities which are not directly link to the firm financial success (Brammer and Pavelin 2008). Note that in both models this variable had the greatest influence on the probability of joining the Global Compact. When leverage increases one percentage point, the probability of adhering to Global Compact reduces by 105.6 (Model 1) and 108.9 (Model 2) percentage points, *ceteris paribus*. In addition, our analyses revealed that sectors that can be classified as environmentally sensitive can be expected to expose companies to a greater extent to public opinion, which might encourage them to adopt appropriate corrective measures (Arora and Dharwadkar 2011; Jo and Harjoto 2011).

4.1 Sensitivity analyses

In order to establish the robustness of our results, we repeated our estimations employing additional measures and estimations. We estimated new models considering ROE instead of ROA, and the results remained the same. Similarly, when we included BOARD_SIZE and BOARD_MEETINGS in terms of logarithms, the findings of Table 3 also remained the same.

As in some variables there could be a relatively low longitudinal variation, we intended to strengthen the robustness of our results. Thus, we repeated our estimations employing two lags instead of one lag in order to control for a possible endogeneity problem in the models. In this sense, the marginal effects analysis suggested again a positive and significant effect of all the main explanatory variables (COMMITTEE, COMMITTEE_SIZE, TERM_LIMIT and EXTERNAL_ADVICE).

Finally, the probit and logit estimation models could be suitable when the dependant variable is a dichotomous one (Liao 1994). From a theoretical point of view, it is difficult to justify the choice of one model over the other, whereas in practice very similar results are achieved (Greene 1999). Thus, we repeated the estimations employing a random effect logit instead of a probit model and as we expected the results were quite similar as the four main explanatory variables turned out to be positive and significant as well as the marginal effects of COMMITTEE and TERM_LIMIT.

5 Conclusions

Based on a sample of listed Spanish companies included in the IGBM during the period 2009–2013 and controlling for certain organisational characteristics, this study analyses how several characteristics having an effect on the decisions made by boards may influence CSR engagement. Our results indicate that the existence and size of a specific board committee responsible for social and environmental issues, the establishment of a statutory term limit for independent directors and the possibility for directors of receiving advice from external sources positively all affect the development and implementation of CSR practices. Moreover, with regard to our control variables, having a higher number of board members and leverage level, and a larger firm size and belonging to environmentally sensitive sectors also imply a greater CSR engagement.

Consequently, these findings imply that in order to be more socially or environmentally responsible, boards of directors should be (1) strategically committed to CSR, for example, by creating a formal structure for CSR-related decision making or by dealing regularly with social and environmental issues in board meetings; and (2) sensitive to their stakeholders, for instance, by obtaining insights for decision making from different outside sources that may be closer to stakeholders' needs and claims. Thus, according to these ideas, this paper may have two main theoretical implications. Firstly, it can be suggested that, when intending to analyse firms' CSR engagement within a corporate governance context, research models should take into account certain factors determining board of directors' decision-making process. And secondly, to fully understand how boards make decisions dealing with CSR issues, the notions and ideas of different theories, such as agency, stakeholder, and resource-dependence, should be simultaneously considered, giving place to a more comprehensive theoretical framework (Pugliese et al. 2014). Specifically, our results corroborate the relevance of resource-dependence theory for explaining organisational actions that have societal acceptance as an main motive (Drees and Heugens 2013), and are in line with those of previous papers supporting this theory's predictions with respect to social policies (Grosvold et al. 2015). Thus, it appears that key resources are brought to boards from independent directors and external sources of advice, closer to firms' environment and different stakeholders, in order to make decisions on CSR matters.

Some business implications can be drawn from this study. Our results point to the need for scholars and professionals to consider corporate governance variables, and in particular, the board of directors, as potential determinants of CSR practices. Accordingly and within the Spanish context, the recently approved Code of Good Corporate Governance (CNMV 2015) reflects this importance as it contains a specific section about the board of directors and CSR (Section III.3.5), suggesting that "openness and sensitivity towards the environment, sense of community, innovative capacity, and long-term orientation have to be added to value creation as business activity fundamentals" (p. 45). Thus, it can be argued that companies should be aware of the fact that, by developing good corporate governance mechanisms, not only do they comply with shareholders' expectations but they also take into account the interests of different stakeholders. In other words, corporate governance design and implementation is likely to affect firms' financial, social and environmental performance.

In addition, although many previous studies have focused on board composition (mainly the proportion of independent directors) to explain CSR, some elements influencing the way decisions are made by boards should be also considered in order to explain firms' CSR activities. Specifically, according to our results, four variables appear to be especially relevant regarding CSR. First, the existence and size of a specific board sub-committee to deal with social and environmental issues. Due to their positive impact on CSR and the fact that just a few firms currently have such a committee, regulators ought to stimulate the creation of specific sub-committees

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responsible for CSR matters in order to better cope with stakeholders' demands and integrate social and environmental concerns into companies' formal organisation. In this sense, Recommendation 53 of the Spanish Code of Good Corporate Governance (CNMV 2015) suggests that the task of supervising the implementation of a company's CSR policy should be attributed to a board sub-committee, specifically the CSR committee if there is one.

Second, the establishment of a statutory term limit for independent directors shorter than that established by law also positively affects firms' CSR engagement. It has been argued that such a limitation may contribute to boards' diversity, flexibility, and creativity due to the fact that longer-tenured independent directors may be less receptive to outside information and also less aware of their external environment. Specifically, in the case of Spain, advice in these terms from past Codes of Good Corporate Governance (CNMV 2006) led to the passing of a law (ORDEN ECC/461/2013) which established a 12-year term limit for independent directors. Since then, it has been suggested that such a legal term limit should be shortened, leaving it between 8 and 10 years, in order to promote a higher degree of independence in the boards (Price Waterhouse Coopers 2013). Therefore, a suggestion for public regulators could be to consider the possibility of shortening independent directors' term limit, in order to positively affect firms' CSR.

Third the availability of external sources of advice for board members has also been found to be a positive, significant antecedent for CSR engagement, allowing board members to be closer to their firms' stakeholders. It can be assumed that creating and maintaining communication channels throughout the organisation that allow a constant exchange of ideas with external stakeholders will help ensure that CSR policies and practices are better planned and implemented, and more widely adopted.

Finally, moving beyond corporate governance variables, it has been shown that firm size positively and significantly affects CSR engagement. This finding might be justified because larger companies interact more with the society around them, are more visible for the general public and receive greater pressure from stakeholders to perform CSR actions (Ghazali 2007). This result suggests that potential projects aimed at promoting CSR could be developed by Public Administrations, especially targeting SMEs. Such initiatives might include training programs on CSR showing that it pays off in the long term, as well as a requirement to meet social and environmental criteria when opting for public contracts or funding.

Although our results are important, there might be mentioned the following two limitations in terms of generalisation. Firstly, although firms' participation in the United Nations Global Compact is considered a rigorous measurement of socially responsible behaviour, more detailed or composite indexes to measure CSR can be obtained by conducting specific surveys or interviews. However, due to our panel data structure, it would be complicated to gather such information annually so a cross-sectional analysis might be more appropriate. Secondly, the sample used in the study only focuses on the Spanish context. In future studies, it might be interesting to include firms from other countries in order to increase the scope of this research and due to the fact that the stakeholder orientation of a country may

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condition companies' decision-making on CSR practices (Martínez-Ferrero and García-Sánchez 2015).

More detailed research on several points raised in this paper might be appropriate. Firstly, as specific board sub-committees dealing with social and environmental issues have been shown to increase firms' CSR engagement, it might be of interest to analyse the composition of such committees. In this sense, Spitzeck (2009) notes that a CSR committee should ideally be composed of key business personnel, external experts, and stakeholder representatives in order to manage business integration and stakeholder engagement in parallel. Also, Eberhardt-Toth (2014) found evidence that a CSR committee leads to a higher level of social performance in companies when it is composed of a larger proportion of independent directors, when the CEO is not a member, and when it is chaired by a woman. Secondly, since external advice seems to affect firms' CSR engagement, it may be interesting to analyse the different sources used by board members, for example, informal (i.e. friends or colleagues) versus formal (i.e. financial institutions or NGOs), or the period they have been collaborating with the same external source. Moreover, although directors need to consult outside stakeholders to learn about current trends or expectations, they also need internal advice in order to know more about feasibility of CSR projects or initiatives. In this sense, it could be relevant to simultaneously include information on sources of internal advice, such as the hierarchical level of the informants or their functional background (i.e. financial, marketing…), in further research models. Finally, although CEO/Chairman duality has not been found to be a significant determinant of CSR, the preponderant role of such a position seems to be clear. Thus, it can be inferred that other characteristics of CEOs or Chairmen may affect CSR (not duality *per se*). These might merit further research, for example, gender, background or managerial profile (Godos-Díez et al. 2011, 2014; Manner 2010).

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