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CORPORATE SOCIAL RESPONSIBILITY, BOARD OF DIRECTORS, AND FIRM PERFORMANCE: AN ANALYSIS OF THEIR RELATIONSHIPS

Abstract This paper aims to contribute to the empirical evidence relating corporate social responsibility (CRS), board composition, and firm performance. Using a sample of Spanish listed firms included in the IBEX 35 over the period 2005-2010 the results show that the percentage of independent directors affect firm CSR activities, and that this effect is moderated by the resources available to the firm (measured by return on assets). Also, the CSR has a mediating role on the relation between the independence of the board of directors and firm value. These results hold for other board characteristics (board size and women as directors).

Key words CSR, board composition, board independence, firm value, resources available

JEL M14, G30

1 Introduction

The marked expansion of corporate social responsibility (CSR) practices over the last decade has stepped up interest in studying how socially responsible behaviour fits in the framework of traditional approaches to corporate governance and its impact on firm performance. The academic literature has adopted two different approaches in the study of corporate governance and CSR – Agency Theory and Stakeholder Theory. Agency Theory (Jensen and Meckling 1976) is the theoretical framework adopted by most research on corporate governance (Shleifer and Vishny 1997). It focuses on the bilateral relation between shareholders and managers and on the problems the former have to resolve in order to watch out for and prevent any opportunistic behaviour by the latter in a context of information asymmetry. Stakeholder Theory (Freeman 1984), which is the theory behind most research on CSR, extends the agency problem to a multilateral relation amongst all stakeholders. Competition between the two approaches has led to results that are incompatible and has helped perpetuate conceptual inconsistencies and contradictory arguments on relations between corporate governance, CSR and firm performance[1]. Moreover, the empirical evidence available on the effects of good governance and of CSR on firm's profitability and value also leads to inconsistent results. Although most studies show positive relations between different corporate governance mechanisms and firm performance, in some cases negative or non-significant relations have been found (Bebchuk and Weisbach 2010; Shleifer and Vishny 1997). Reviews of the most relevant studies on the impact of CSR on performance have shown both positive and negative relations or none at all (Allouche and Laroche 2006; Orlitzky et al. 2003). It has been pointed out that this heterogeneity in the results is related to research design defects and may be due to errors in specifying the models or to not controlling for endogeneity (Jo and Harjoto 2011; Orlitzky et al. 2003).

It has recently been stressed that further studies should be carried out into the relations between good governance mechanisms, CSR practices and firm performance (De Villiers et al. 2011; Harjoto and Jo 2011; Jamali et al. 2008; Lafuente et al. 2010). Most research on the effect of corporate governance mechanisms do not take into account how the two first variables affect firm performance (for example, Coffey and Wang 1998; De Villiers et al. 2011; Hung 2011; Kassinis and Vafeas 2002; Prado-Lorenzo et al. 2009; Walls et al. 2012; Wang and Coffey 1992). There has been little research analysing the three variables together

[1] See Rausch (2011) for a summary about the main characteristics of Shareholder and Stakeholder Theories.

(Arora and Dharwadkar 2011; Jo and Harjoto 2011; Johnson and Greening 1999; Sahin et al. 2011). No studies have considered the possibility that CSR practices may have a mediating role in the relation between corporate governance mechanisms and firm performance, considering them, rather, as two different explanatory variables. It is therefore of interest to verify whether the effect of corporate governance mechanisms on performance can be explained, at least in part, by firm socially responsible activities. Moreover, studies to date (Campbell 2007; Jo and Harjoto 2012; Preston and O' Bannon 1997) have considered corporate governance and/or the characteristics of the firm, especially its profitability, as being some of the determinants of CSR, but no more sophisticated relations between them. It can be of interest analysing whether the firm's resources can moderate (increase or reduce) the impact of firm governance on CSR.

In line with these assumptions, this study of a sample of Spanish listed firms included in the IBEX35 over the period 2005-2010 aims to explore the amplifying effect of firm profitability on the link between corporate governance and CSR. It also analyses the possible existence of mediating effects of CSR on the relation between corporate governance and firm value. For this purpose, we focus on one of the main internal governance mechanisms, that is, the board of directors and, more specifically, its composition as the percentage of independent directors. Moreover, we control for a possible endogeneity problem, something not taken into account in most of the previous studies.

In the following sections we establish the hypotheses based on the theoretical arguments and the empirical evidence supplied by the two competing approaches adopted in the study of corporate governance and CSR (sections 2 and 3). Section 4 focuses on the sample, variables and methodology used. Then, we perform the analyses, taking into account the endogeneity problem, and show the results (section 5). Finally, we conclude (section 6).

2 Board independence and CSR: The moderating role of firm profitability

The board of directors, which is one of the most important mechanisms for corporate governance, heads the system for internal control (Gillan 2006) and is in charge of supervising the business management. This is especially true in some European countries like Spain, where internal corporate governance in comparison with external mechanisms are more developed. In this sense, any factors that influence the efficiency of this supervisory body will be key for governance of the firm. One of the most frequently considered is board composition.

The Stakeholder Theory, and others such as the Stewardship Theory (Davis et al. 1997) and the Resource Based Approach (Barney 1991), support that the relation between the number of independent directors and CSR practices is positive (Harjoto and Jo 2011). Independent directors, since they come from outside the firm, have closer relations with stakeholders, know their expectations better and are more likely to meet their demands (Ibrahim and Angelidis 1995). They also know the environment better and are usually more efficient in controlling external contingencies. Empirical evidence supports this positive relation between the proportion of independent directors and the adoption of CSR practices (De Villiers et al. 2011; Fernández Sánchez et al. 2011; Jo and Harjoto 2012; Sahin et al. 2011; Wang and Coffey 1992).

Once the main influence between corporate governance –independence of the board – and CSR has been established, it is reasonable to propose that the influence of profitability can be exerted by moderating this main relation. The theoretical framework established by Preston and O' Bannon (1997), has served as the basis for many empirical studies (Allouche and Laroche 2006; Moore 2001; Simpson and Kohers 2002, amongst others). According to this framework, two lines of argument can be found regarding the influence of a firm's economic performance on its social performance.

Firstly, the *Availability funds hypothesis* proposes that higher (lower) levels of profitability lead respectively to higher (lower) levels of CSR. Even if firms wish to continue applying the rules of good corporative citizenship, their real behaviour will depend on the availability of resources. Social activity is often an area that is subject to relatively high management discretion (Carroll 1979), so both the start and the continuation of voluntary socially responsible policies may depend on whether or not there are surplus financial resources. A better economic performance is therefore more likely to lead to a surplus (Amato and Amato 2007), which can give firm an opportunity to invest more in any of the aspects of CSR (Campbell 2007; Waddock and Graves 1997). In other words, if a firm's financial performance is good, this might become a factor for promoting investments in social activities, whereas a poor financial performance might inhibit such activities.

Conversely, according to the *Managerial opportunism hypothesis*, higher (lower) levels of profitability will lead respectively to lower (higher) levels of CSR. This hypothesis is based on the idea that firms' managers may pursue their own private objectives, even to the detriment of the firm's other stakeholders (Williamson 1985). In fact, in the context of an executive remuneration structure linked to profits generated in the short term, the pursuit of managers' private interests might lead to a negative relation between financial and social performance (Cespa and Cestone 2007; Preston and O' Bannon 1997). So, when a firm has a good economic performance, the managers might reduce CSR activities in order to maximise their own personal income in the short term. This reduction in social expenditure would increase the firm's profitability and, consequently, the managers' personal remuneration. But if the financial performance is low, the managers might try to justify this poor performance by embarking on attractive social programmes.

According to the previous arguments it is reasonable to propose that profitability may moderate the relation corporate governance-CSR. Given that there are arguments in favour of expansion or reduction of the impact on CSR, the moderation hypothesis proposed below is presented without specifying the direction it takes.

> **H1** The firm's profitability will moderate (increasing or reducing) the impact of board independence on CSR.

3 Board independence and firm value: The mediation role of CSR

There are many arguments in the literature supporting mainly a positive relation between the proportion of external and independent directors on the board and firm performance in terms of financial profitability and market value (Bebchuk et al. 2010; Boeker and Goodstein 1993; Chhaochharia and Grinstein 2009). Nevertheless, the empirical evidence is not conclusive (Bhagat and Black 2002; Dahya et al. 2008; Wintoki et al. 2012) and the economic period could again influence this relation (Ferrero-Ferrero et al., 2012).

In the light of this uncertainty in the nature of the relation between board characteristics and firm value, it seems necessary to take a more sophisticated approach to really know what could be happening. If it is true that board characteristics influence CSR activities, as explained above, then the impact of the former on firm value could exist to the extent that the latter determines firm value in some way. The existence of this indirect effect would unveil a mediating role of CSR activities. Thus, it is necessary to state first how these activities relate to firm value.

The relationship between CSR and firm market value has been the subject of very few studies (Baird and Gylani 2012; Jo and Harjoto 2011), even though socially responsible initiatives can be expected to help maximise firm value (Mackey et al. 2007) or capital market may react to corporate entry and exit from Social Indexes (Becchetti et al. 2012). CSR activities may have a positive influence on performance for various reasons (Carroll and Shabana 2010; Kurucz et al. 2008).

Firstly, CSR prevents the appearance of new threats because it facilitates the control of social and environmental risks. Socially responsible behaviour reduces the threat of regulation (Maxwell et al. 2000), avoids pressure from other firms in the same sector or from industrial associations (Lenox and Nash 2003), prevents negative reactions from public opinion and consumers' associations, avoids being the focus of activists and NGOs (Baron 2001), and eliminates the possibility of being boycotted by consumers (Diller 1999). It can be expected then a lower variability of cash flows arising from stakeholder claims, and therefore a decrease in the firm's market risk (Salama et al. 2011). The formalisation of CSR practices indicates that firms have established rigorous internal control systems which amount to a guarantee for financial entities (reducing the cost of financing) and for insurance companies (reducing premiums) (Lenox and Nash 2003).

Secondly, CSR practices may help strengthen a firm's strategy for obtaining and maintaining its competitiveness (McWilliams and Siegel 2001). They may often serve as instruments for obtaining contracts with firms or governments (Ruhnka and Boerstler 1998), create entry barriers to the industry, facilitate access to new markets (Wotruba 1997), set the firm apart from its competitors, increase its reputation (Diller 1999), and attract socially responsible investors and consumers (Bagnoli and Watts 2003).

In addition, CSR can also help strengthen firms' internal resources and improve the quality of the competitive context in which they operate. Compliance with the recommendations laid down in CSR codes strengthens internal discipline within the organisation and improves relations with interest groups (Béthoux et al. 2007). The principles behind CSR practices serve to formalise commitments with society, transmit credibility and strengthen legitimacy with stakeholders (Sethi 2002). Such firms become more attractive for their employees so acquire a greater capacity for attracting and retaining the most competent human resources (Albinger and Freeman 2000). Moreover, responsible practices with suppliers, customers and the local community have a direct effect on key aspects of the firm's competitive context. As a result of these practices, they can improve the provision of high-quality, specialised inputs, promote a sophisticated, discerning demand, create a more productive and transparent environment and improve related and complementary sectors (Porter and Kramer 2002).

In line with all the above, it can be considered that firms committed to CSR actions identify and assess the demands of the different stakeholders. The result is an improvement of the efficiency of their corporate governance mechanisms in the process of adapting the organisation to changes in the environment. This has a positive effect on firm value (Harjoto and Jo 2011). It has also been shown that managers use corporate governance mechanisms together with CSR practices to resolve conflicts between stakeholders (Harjoto and Jo 2011; Scherer et al. 2006). So CSR can be said to serve as a "filter" facilitating relations between the firm and its board and society (Fassin and Van Rossem 2009). In the light of these arguments, part of the effect of certain characteristics of the board on firm value may be exercised indirectly through CSR practices, which leads us to the last hypothesis:

> **H2** CSR activities mediate in the relation between board independence and firm market value.

Figure 1 shows the relations proposed above which are empirically analysed below.

Insert Figure 1 about here

4 Sample, variables and methodology

4.1 Sample

The data base used in the study is made up of the Spanish listed firms included in the IBEX35 between 2005 and 2010 (209 observations). From this data base, we excluded financial and insurance firms because of their special characteristics, especially from the accounting point of view. In order to not have missing data in our estimates and to have the same sample size in all the models, we also omitted firms for which information was not available on one or more of the variables used. So the final sample was made up of 145 observations.

The information on CSR comes from the studies on the CSR in IBEX 35 company reports drawn up by the *Observatorio de Responsabilidad Social Corporativa*[2]. The data on company governance were taken from the Annual Reports on Corporate Governance filed with the National Stock Market Commission (CNMV). We also used the CNMV and the data base of the SABI (*Sociedad de Análisis de Balances Ibéricos*) to collate firms' financial information and data on their sectors of activity. Finally, information on firms' beta – the risk variable we used, as explained below – and on their market capitalisation were provided directly by the Madrid Stock Exchange.

4.2 Measurement of variables

The CSR variable is the score granted by the *Observatorio* to IBEX 35 firms based on the degree to which they comply with the Norms on the responsibilities of transnational firms and other business enterprises with regard to human rights (United Nations Organisation, Doc. E/N.4/Sub-2/2003/38/Rev.2, 2003). The score ranges between a minimum of 0 and a maximum of 4 points and is the result of evaluating the information included in these firms' annual reports on policies and procedures relating to substantive aspects established by the UN Norms, determining on the basis of the evidence provided if these aspects are covered or not and to what degree. The articles of these Norms mention, amongst other matters, respect for human and workers' rights, and protection of consumers and of the environment[3]. We considered this to be an appropriate indicator of firms' CSR because of its integrating nature. Measuring CSR practices is a complex matter and a wide range of proxies have been used in the literature – see Wood 2010 for a thorough analysis. We considered more accurate relying on a data base issued by a specialized institution instead of creating our own data base, which could be biased. As our data on CSR come from The Observatorio de Responsabilidad Social Corporativa, the sample only contains firms included in the IBEX35 index as the

[2] The *Observatorio de Responsabilidad Social Corporativa* is an association made up of organisations representing civil society, including NGOs, trade unions and consumers' organisations, which encourages participation and cooperation amongst social organisations working in CSR in different ways.

[3] The obligations established in the Norms can be grouped in the following categories: a) general obligation to respect, promote and secure the fulfillment of human rights, b) ensuring equality of opportunity and treatment for the purpose of eliminating discrimination, c) not engaging in nor benefiting from war crimes respecting the right to security of persons, d) not using forced or compulsory labour, respecting the rights of children to be protected from economic exploitation, providing a safe and healthy working environment, providing workers with remuneration that ensures an adequate standard of living and ensuring freedom of association and effective recognition of the right to collective bargaining, e) prohibition of corruption, not supporting States or any other entities to abuse human rights and respecting economic, social and cultural rights, as well as civil and political rights, and contributing to their realization, f) acting in accordance with fair business, marketing and advertising practices and ensuring the safety and quality of the goods and services they provide, g) carrying out their activities in accordance with the regulation relating to the preservation of the environment and contributing to the wider goal of sustainable development, h) implementing the necessary internal rules of operation, monitoring and verification in compliance with the Norms.

Observatorio does not report information for all the listed firms. These are the companies with the highest trading volume in Spain.

Moreover, our main explanatory variable regarding corporate governance is the composition of the board of directors. In line with the majority of previous studies that analyse the influence of governance on CSR, we considered the percentage of independent directors (INDEP_BOARD) (Jo and Harjoto 2011; Prado-Lorenzo et al. 2009). This variable is also used as determinants of firm value (Campbell and Mínguez-Vera 2010; Mak and Kusnadi 2005).

Our moderating variable in the corporate governance-CSR relation regarding firms' available resources, was measured on the basis of firms' profitability, that is, ROA, defined as the ratio between operating profit and total assets (as a percentage) (Amato and Amato 2007; Waddock and Graves 1997).

As a proxy of firm performance, we considered a market indicator which, unlike accounting measures, seems more robust because it cannot be directly manipulated by managers (Muth and Donaldson 1998). More specifically, we used firm value defined as the sum of the firm's market value or capitalisation and the book value of debt, divided by the book value of total assets (VALUE) (for example, Mínguez-Vera and Martín-Ugedo 2007; Sahin et al. 2011 used this same variable).

As control variables which might affect both CSR and firm value, we considered the ones that have traditionally been used in most empirical studies: *size* (SIZE), defined as the firm's total assets expressed in thousands of euros (included in the empirical analysis as the logarithm LSIZE) (Jo and Harjoto 2011; Lo and Sheu 2007); *leverage* (LEV), measured as the ratio between the volume of the firm's short and long term debt and its total assets (Arora and Dharwadkar 2011; Prior et al. 2008); *risk* (RISK), measured as the firm's beta over one year (De Villiers et al. 2011; García-Castro et al. 2010); *sector* to which the company belongs (SECTOR) measured as a dummy variable taking value 1 if the firm belongs to environmentally "sensitive" sectors (mining, oil, gas, chemicals, paper, iron and steel and other metals, electricity, gas and water distribution) and 0 otherwise (Reverte 2009; Zeng et al. 2012)[4]. We also included annual dummies[5] to analyse if the years considered in our sample had the same effect on the dependant variables (CSR and Value, respectively).

[4] We initially considered controlling for the sector effect by including dummy variables for each of the sectors to which the sample firms belong. However, this possibility was rejected because it increased excessively the number of explanatory

Finally, it is necessary to mention that, a problem of endogeneity, firstly between CSR and governance (percentage of independent directors) and, secondly, between firm value and board independence, CSR and some control variables, explains the use of lags in the explanatory variables. More specifically, bearing in mind the sequence of possible effects in the research models, the variables for board size and composition, the control variables and the variable for firm available resources variables are lagged by two years, while the CSR proxy variable is lagged by one year.

4.3 Methodology

To test Hypothesis 1, it was necessary to carry out several regression analyses to see the influence of the board independence (INDEP_BOARD) on CSR and the moderation of ROA. A sound moderation analysis implies centering the independent variables before getting the interaction or product term (Aiken and West, 1991). This procedure does not affect the R-squared value, the F value or the regression coefficients and only the constant term changes. However, multicollinearity between the independent variables and the interaction terms is avoided or reduced and the results of the analysis are easier to explain (Cohen et al., 2003; Holmbeck, 2002; Marquardt, 1980). This is the reason why the continuous independent variables were centered before proceeding with the analysis.

Hipothesis 2 was tested with regressions following the steps established by Baron and Kenny (1986). Tests of significance and resampling to determine if board characteristics had any effect or indirect effects (through CSR) on VALUE were also carried out.

Initially, we considered using a panel data methodology to also control for endogeneity, such as the Generalised Method of Moments (GMM) designed by Arellano and Bond (1991). However, since we did not have sufficient consecutive years for all the firms and especially considering our sample size, we eventually chose pool regression models, controlling for possible endogeneity by using lagged independent variables.

Thus, the main econometric models used to test the hypotheses were the following:

$$CSR_{it-1} = \alpha_0 + \beta_1 \text{INDEP\_BOARD}_{it-2} + \beta_2 ROA_{it-2} + \beta_3 \text{INDEP\_BOARD}_{it-2} \times ROA_{it-2} + \beta_4 LSIZE_{it-2} + \beta_5 LEV_{it-2} + \beta_6 RISK_{it-2} + \beta_7 INDUSTRY_{it-2} + \sum_{t=2005}^{2010} Y_t + \varepsilon_{it}$$

$$VALUE_{it} = \alpha_0 + \beta_1 \text{INDEP\_BOARD}_{it-2} + \beta_2 CSR_{it-1} + \beta_3 LSIZE_{it-2} + \beta_4 LEV_{it-2} + \beta_5 RISK_{it-2} + \beta_6 INDUSTRY_{it-2} \sum_{t=2005}^{2010} Y_t + \varepsilon_{it}$$

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variables considering our sample size and made it difficult to draw up a homogeneous definition of all the variables in all the models considered (determinants for CSR and firm value).

[5] The year considered as a reference was 2005.

5 Results and discussion

Table 1 shows the main descriptive statistics and it is remarkable the low average mean of CSR. Coefficients in the correlation matrix (Table 2) are not enough to predict the relations proposed in the hypotheses. Although board independence and CSR are significantly correlated, the interaction term between board independence and ROA is not correlated with VALUE. In addition, correlations between board independence or CSR and VALUE are not significant and it will also be necessary to see if the models proposed unveil or not the existence of a causal relation. Some of the correlation coefficients show a statistically significant correlation but, following the empirical rule of Kleinbaum et al. (1998), an analysis of the variance inflation factors (VIF) indicated that there was no evidence of multicollinearity because in no case was VIF above 10.

Insert Tables 1 and 2 about here

Model 1 (Table 3) shows the effect of board independence on CSR, controlling for firm characteristics, the sector to which they belong and the year of the data. According to the results, the presence of independent directors has a positive effect on CSR (β=0.294; p<0.01).

To measure any moderation of profitability in the effect of board composition on CSR, the firm's profitability was included in the regression analysis mentioned above as an independent variable, together with the governance variable considered, and this gave the results for Model 2 (Table 3). The coefficient for this variable (ROA) reflected the existence of a significant and positive effect on CSR, which means that any moderation could be described as quasi-moderation. Finally, in order to find out the moderating effect, a term of interaction comprising the product of the variable representing board independence and the firm's profitability was included in the regression. As it is shown in Model 3 (Table 3), the interaction term was significant (β=0.134, $p<0.05$), indicating that profitability has an amplifying effect on the relation between board composition and CSR activities and corroborating Hypothesis 1. In consequence, the design of decision-making bodies affects CSR but, in the end, the effect will depend on the resources available.

Regarding the control variables, firm size and belonging to an environmentally sensitive sector had a positive influence on CSR (Arora and Dharwadkar 2011; McWilliams and Siegel 2000). This positive association may be due to greater exposure for large firms to public opinion and their greater impact on the socio-economic environment, to the greater availability of resources for them and to a more concentrated interest on the part of stakeholders and the need to efficiently meet their demands (Hillman and Keim 2001). Debt was also found to have a positive effect on CSR, although this was no longer statistically significant when ROA and the corresponding interaction terms were introduced in the models as independent variables. Finally, regarding annual effect only dummies proxies of 2009 and 2010 years are positive and significant in some of the models. This means that *ceteris paribus* in those cases the specific year influenced the dependent variable in a different and positive way in comparison with the situation existing in the reference year (2005).

Insert Table 3 about here

In Table 4, board independence (Model 1) and firms' CSR (Model 2) were used, respectively, to explain firm value. In all cases, the coefficients for these variables were significant. More specifically, greater presence of independent directors (β=0.106; p<0.1) and CSR activity affect positively firm value (β=0.307; p<0.01). Furthermore, Hypothesis 2 considered the existence of a mediating effect on the part of CSR in the relation between corporate composition and firm value. Following Baron and Kenny (1986), in order for this mediation to exist, it is necessary for the variable that measures board independence to be significant in the regressions on CSR and on value, and this was shown with Models 1 (Tables 3 and 4, respectively) for the percentage of independent directors. It is also necessary, when introducing board and CSR variables in the same regression on value, for the former to be non-significant or less significant and the latter to have a significant influence as shown in Model 3 (Table 3). More specifically, following Zhao et al. (2010) our results suggest a complementary mediation as the mediated effect and the direct effect both exist and point at the same direction.

Insert Table 4 about here

Figure 2 shows the relations between the three main variables considered in the research for the purpose of identifying the existence of mediation.

Insert Figure 2 about here

In order to show the existence of this indirect effect, taking only the change in significance of the coefficients following Baron and Kenny (1986) has been critiqued, for which it is necessary to take into account changes in the coefficients (Holmbeck 1997). The effect of board independence on firm value represented by its coefficient in Model 1 (Table 4) (β=0.106) turns into a direct effect that can be quantified by its coefficient in Model 3 (Table 4) (β=0.018). So the indirect effect would be the difference between them (0.087), which is 83%. This indirect effect is equal to the result of multiplying the regression coefficients of the board independence variable in Models 1 (Table 3) (β=0.294) by the coefficient for CSR in Model 3 (Table 4) (β=0.297). Thus, a way of showing the existence of this indirect effect is to check that both coefficients are different from zero, or to apply a single test on their product (Mackinnon et al. 2002). The test proposed by Sobel (1982) is one the most widely used. In our case, this statistic corroborated the presence of the indirect effect for the independent directors (Z=2.77; p<0.01).

However, a method that is being increasingly used to test the existence of the indirect effect is the more rigorous and powerful bootstrap test, not Sobel (Zhao et al. 2010). The “boostraping” is a non-parametric, resampling method that calculates the indirect effect in each sample and offers a confidence interval, so that if zero is not in the interval it can be stated that the indirect effect is different from zero (Bollen and Stine 1990; Shrout and Bolger 2002). These confidence intervals are better than the Sobel test because Sobel makes an unrealistic assumption on the way in which the indirect effect is distributed in the sample (Hayes 2009; Preacher and Hayes 2008). As Table 5 shows, the results obtained by applying the macro for SPSS developed by Preacher and Hayes (2008) and including the control variables and 1,000 bootstrap samples allows us to affirm with a 95% confidence level that the indirect effect will be different from zero and mediation by CSR will be significant, thus confirming Hypothesis 2.

Insert Table 5 about here

This result is consistent with the social impact hypothesis (Preston and O’Bannon 1997), and is in line with several prior empirical studies (Surroca et al. 2010, Waddock and Graves 1997) because performing social activities has a positive effect on firm performance and, as just shown, CSR depends on firm corporate governance. The positive impact of CSR on firm value may be explained because performing this type of activities is a strategic tool for obtaining profit (Mishra and Suar 2010; Porter and Kramer 2006). More specifically, CSR may help improve the firm’s differentiation (Baron 2008), which would have a positive effect on its reputation and may lead to a rise in profitability because of increased legitimacy for the firm and better conditions for negotiating with stakeholders (Bénabou and Tirole 2010).

Some results regarding the control variables may also be noticed. Firstly, size is inversely related to firm value (Donker et al. 2008; García-Castro et al. 2010). The complex organisational structure of large firms and the diverse interests in them may lead to reductions in their performance because of information asymmetries, control and agency costs and diseconomies of scale (De Miguel et al. 2004; Himmelberg et al. 1999). Secondly, there is a positive relation between the level of debt and firm value which may be due to a reduction in conflicts of interest between shareholders and managers, because of supervision to avoid the threat of bankruptcy and because of control exerted for example by bond-holders (Jensen and Meckling 1976; Parrino and Weisbach 1999). Finally, dummy variable for 2010 year is the only one that turned out to be significant in models 2 and 3.

Robustness section

We also used other proxies of corporate governance or board of directors characteristics to establish the robustness of our findings. More specifically, we considered board size and the presence of women as directors.

A minimum size is required in order to ensure balanced representation of many interest groups (Van den Berghe and Levrau 2004). However, larger boards have coordination and communication problems, generating lower levels of participation by directors and creating barriers for reaching a consensus (Adams and Mehran, 2005; Cuadrado-Ballesteros et al., 2014). The empirical evidence suggests a positive and significant link between board size and CSR activities (De Villiers et al. 2011; Kassinis and Vafeas 2002). Besides, while some authors have found a positive relation between board size and firm performance (Dalton et al. 1999; Jackling and Johl 2009), other empirical studies reflect that a large size may be negative (Dahya et al. 2008; Wintoki et al. 2012).

On the other hand, board composition will determine board diversity about background, experiences, personality, work values, network ties or gender, among others, which can affect firms' CSR (Bear et al. 2010; Cuadrado-Ballesteros et al., 2014; Ferrero-Ferrero et al., 2013). Specifically, some studies show a positive link between gender diversity on boards of directors and firm value whereas other studies point to a negative relation (Adams and Ferreira 2009; Campbell and Mínguez-Vera 2010; Haslam et al. 2010).

The main results hold the same when we alternatively repeated the moderation and mediation analyses using board size, measured as the number of directors, and the percentage of women on the board, instead of board independence. Specifically, board size influences negatively CSR activities while the percentage of women on the board was positively related to CSR. The results also supported the idea that profitability had an amplifying effect on the relation between board characteristics (size and diversity) and CSR activities. Besides, the smaller the board and the larger the number of women the larger the firm value was. Finally, similarly to what happened with board independence, the effect of board size and women as directors on firm value could be explained at least in part by CSR activities.

6 Conclusions

In our study on a sample of Spanish listed firms included in the IBEX 35 during the period 2005-2010, we analysed how the relation between corporate governance measured by board independence and CSR activities may be moderated by the resources available to the firm. Also, this paper contributes to this field of research by studying the possible mediating effect of CSR on the relationship between governance and firm value. Most previous studies on these topics had focused on specific relations among the mentioned variables and a more sophisticated and comprehensive model is presented here with the intention to shed some light on a complex real phenomena where corporate governance, profitability, CSR and firm value are interlinked.

The results show that board independence affects the adoption of social activities and having resources available in the firm will expand this relation. Specifically, board independence has a significant and positive effect on social activities. Directors representing minority shareholders might be more sensitive to other stakeholders' claims and those companies willing to assume their social responsibilities should promote the presence of independent directors in their boards. Furthermore, due to the observed impact of profitability on this relation, it should be also necessary to state a clear commitment with CSR and take the corresponding steps to guarantee that the corporate social policies and programmes can be really carried out and are not the first to be penalised when profits are reduced.

In addition, our findings also suggest that the larger the number of independent directors, the greater the value of the firm in the market. It might be assumed that by increasing the number of independent directors, firms might be able to increase their market value as a result of reduced conflicts of interest between shareholders and managers. However, this effect may be achieved indirectly through the firm's CSR. Therefore, in order to obtain the maximum possible benefit from adopting good governance recommendations, firms should bear in mind that not only is it important to have good governance in order to reduce conflict of interest between shareholders and managers but also they should perform social activities that take into account the demands of stakeholders other than the shareholders. In line with the above, it can also be assumed that the design of corporate governance policies will not only directly affect the dividends received by shareholders in exchange for the capital they make available to the firm but will also affect the interests of every one of the firm's stakeholders.

Regarding the control variables, having a smaller firm size, having a higher level of debt and not belonging to environmentally sensitive sectors imply greater firm value.

This study simply focuses on one of the internal corporate governance mechanisms, that is, the board of directors. Thus, we acknowledge the limitation of excluding potential impact from other internal corporate mechanisms and from the external governance on CSR engagement and firm value. We are also aware that other possible limitation of our paper is the composition of the sample because it is only focused on the Spanish market, and more specifically on the IBEX 35 firms. In future studies, the number of observations could be increased with other listed firms from other countries or institutional settings. This fact would also allow the application of more robust methodologies, such as dynamic panel data analysis. The implications of this paper along with its limitations show some potential avenues for future research.

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Table 1 Summary statistics[a]

	Mean	Stand. Dev.	Median	Percentage[b]	Minimum	Maximum
INDEP_BOARD	38.504	17.456	36.400		3.770	83.330
CSR	0.673	0.430	0.600		0	1.730
ROA	9.376	8.602	7.371		-6.440	47.187
VALUE	1.656	0.961	1.352		0.869	6.071
SIZE	1.814E7	2.235E7	8.940E6		5.989E5	1.090E8
LEV	29.981	14.214	29.510		6.406	64.299
RISK	0.937	0.326	0.930		0	1.670
SECTOR				37.931	0	1

[a] n = 145

[b] % of cases where SECTOR = 1

Table 2 Correlation matrix[a]

	1	2	3	4	5	6	7	8	9
1. INDEP_BOARD	1								
2. CSR	0.361**	1							
3. ROA	0.014	-0.013	1						
4. INDEP_BOARD * ROA	0.484**	0.190*	0.812**	1					
5. VALUE	0.019	-0.127	0.663**	0.592**	1				
6. LSIZE	0.104	0.585**	-0.413**	-0.292**	-0.521**	1			
7. LEV	-0.016	0.052	0.643**	0.523**	0.489**	-0.356**	1		
8. RISK	-0.098	0.076	-0.159†	-0.177*	-0.127	0.188*	-0.154†	1	
9. SECTOR	0.165*	0.321**	-0.065	-0.006	-0.215**	0.125	0.282**	-0.173*	1

[a] n = 145; † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

Table 3 Results of regression analysis: Moderation[a]

	Model 1	Model 2	Model 3
INDEP_BOARD	0.294** (4.99)	0.281** (4.80)	0.288** (4.98)
ROA		0.177* (2.15)	0.262** (2.85)
INDEP_BOARD x ROA			0.134* (1.99)
LSIZE	0.577** (8.76)	0.606** (9.13)	0.607** (9.25)
LEV	0.232** (3.53)	0.118 (1.41)	0.099 (1.19)
RISK	0.014 (0.21)	0.036 (0.56)	0.040 (0.62)
SECTOR	0.126* (1.99)	0.174* (2.62)	0.192** (2.90)
Annual effect considered[b]	Yes	Yes	Yes
R^2	0.56	0.57	0.59
F	17.10**	16.38**	15.69**

[a] Dependent variable: CSR; Standardised coefficients are reported, with t values in parentheses; n= 145;

[b] Taken 2005 as a reference, only 2009 (models 1 and 3) and 2010 (models 1, 2 and 3) turned out to be positive and significant.

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

Table 4 Results of regression analysis: Mediation[a]

	Model 1	Model 2	Model 3
INDEP_BOARD	0.106† (1.68)		0.018 (0.28)
CSR		0.307** (3.76)	0.297** (3.33)
LSIZE	-0.285** (-4.04)	-0.460** (-5.50)	-0.456** (-5.35)
LEV	0.472** (6.69)	0.400** (5.71)	0.403** (5.67)
RISK	-0.020 (-0.29)	-0.026 (-0.39)	-0.024 (-0.36)
SECTOR	-0.322** (-4.74)	-0.359** (-5.42)	-0.360** (-5.40)
Annual effect considered[b]	No	Yes	Yes
R^2	0.50	0.53	0.53
F	13.19**	15.40**	13.91**

[a] Dependent variable: VALUE; Standardised coefficients are reported, with t values in parentheses; n = 145;

[b] Dummy variable related to 2010 turn out to be negative and significant in models 2 and 3.

† p < 0.10; * p < 0.05; ** p < 0.01

Table 5 Bootstrap estimates of indirect effects on firm value

	Total Effect[a]	**Direct Effect[a]**	**Indirect Effect[b]**					
			Data	**Boot**	**Bias**	**SE**	**Bias corrected CI**	
							Lower	**Upper**
INDEP_BOARD	0.0058† (1.68)	0.0010 (0.28)	0.0048	0.0049	0.0001	0.0019	0.0018	0.0098

[a] Dependent variable: VALUE; Regression coefficients are reported, with t values in parentheses; n = 145; † p < 0.10

[b] Level of confidence: 95; Number of bootstrap resamples: 1000; CI: Confidence intervals

Figure 1 Research model

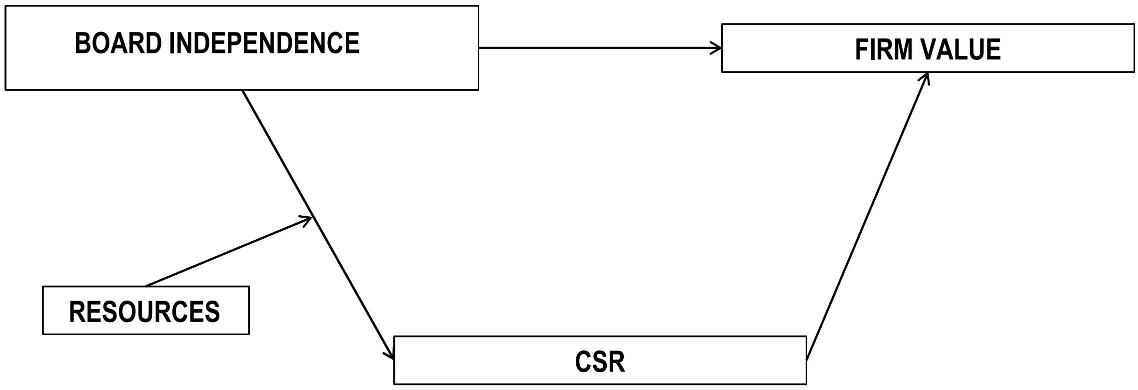
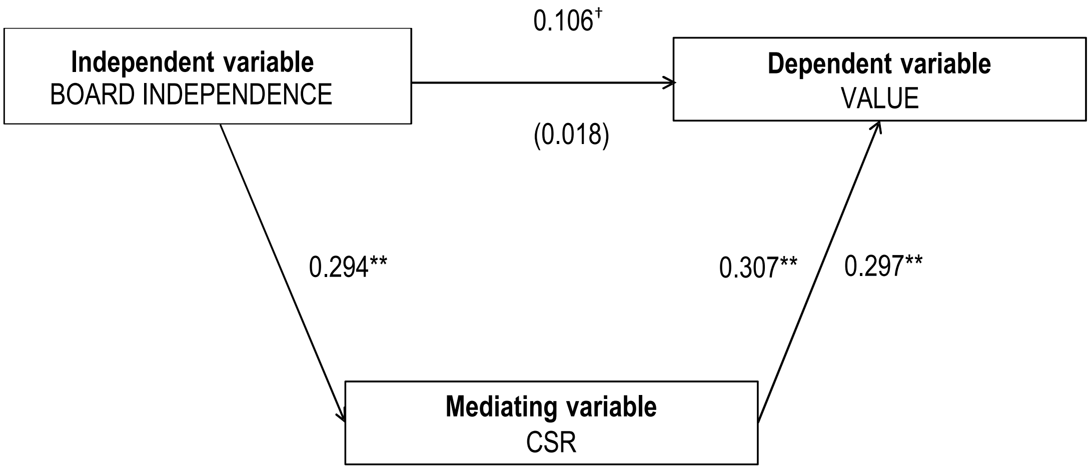


Figure 2 Mediation of CSR on firm value



[a] Standardized regression coefficients are reported, with values after the inclusion of the mediator in the regression equation in parentheses; n = 145; † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$