J Bus Ethics (2013) 113:185–197
DOI 10.1007/s10551-012-1293-7

# Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance

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Received: 22 July 2011 / Accepted: 19 March 2012 / Published online: 26 April 2012


**Abstract** This study examines whether and how female board directors may affect corporate social performance (CSP) by drawing on social role theory and feminist ethics literature. The empirical analysis, based on a sample of 126 firms drawn from the *S&P500* group of companies over a 5-year period, suggests that board gender diversity (BGD) significantly affects CSP. However, this impact depends on the social performance metric under investigation. In particular, more gender diverse boards exert stronger influence on CSP metrics focusing on 'negative' business practices, such as the 'concerns' dimension of the *Kinder Lydenberg Domini*, *Inc*. (KLD) ratings. This is because such CSP ratings have the potential to induce higher levels of 'empathic caring', which strongly appeals to female directors. Hence, this study reveals further hidden connections in the BGD–CSP link which have important implications for managers, nongovernmental organisations and socially responsible investors.

**Keywords** Board gender diversity · Corporate social performance · Empathy · Ethics of care · Feminist ethics · Gender stereotypes · Social role theory

**Abbreviations**

| | |
|---|---|
| BGD | Board gender diversity |
| CSP | Corporate social performance |
| CSR | Corporate social responsibility |
| DJSI | Dow Jones sustainability index |
| GMM | Generalised method of moments |
| IV | Instrumental variable |
| KLD | Kinder, Lydenberg, Domini & Co., Inc |
| NGO | Non-governmental organisation |
| SAM | Sustainable asset management |
| SEM | Structural equations modelling |
| S&P | Standard and poor's |
| SRI | Socially responsible investment |

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## Introduction

Big and widely publicized corporate scandals such as Enron and WorldCom, as well as the failure of financial institutions such as Lehman Brothers, have shaken confidence in large corporations and have renewed debates on corporate social responsibility (CSR) and corporate governance, especially on the role and composition of boards (Terjesen et al. 2009). In this context, some countries have introduced new corporate governance legislation (e.g. Sarbanes–Oxley Act) while many others have focused on improving board diversity, especially gender diversity. Towards this objective, many countries have already introduced or are in the process of introducing legislation to increase board gender diversity (BGD). As a result, the role of women on boards is getting increased attention (Vinnicombe et al. 2008).

Previous research on women on corporate boards has focused on tracing the numbers of women on boards or examining the forces that explain women under-representation on corporate boards, while very few studies examine the characteristics of female directors and their actual role on corporate boards (Nielsen and Huse 2010). In addition, the studies that examine the impact of BGD on corporate value creation have mainly focused on corporate financial rather than social performance (for a review, see Terjesen

et al. 2009). This is surprising given the increasing importance of CSR worldwide (see Kakabadse 2007). As it has been observed: "Corporate social responsibility, once a do-gooding sideshow, is now seen as mainstream" (The Economist 2008, p. 3).

Hence, there is plenty of room for future research focusing on how boards with women directors deal with increasingly important issues such as CSR and environmental issues (Terjesen et al. 2009). This study can be positioned in the research stream that deals with the role of women on boards and especially with their impact on CSP and answers questions not only whether women have an impact on CSP but also whether they may take a different perspective in board room debates on CSR hence explaining why their impact might be different across different metrics of CSP. For this purpose, we draw on gender stereotype (Eagly 1987) and feminist ethics theories (Slote 2007). Most studies examining how board diversity influence ratings of CSR have applied agency theory or resource-based theory (Bear et al. 2010). However, from a traditional agency theory or resource dependence theory perspective, the gender of a corporate director does not matter for the performance of board tasks (Nielsen and Huse 2010). Hence, these perspectives can explain neither gender differences on CSR-related board tasks, nor a different impact of BGD across different CSP metrics, which is the focus of this study.

Therefore, this study expands social role theory to suggest that women on board may self-impose compliance with a female gender role stereotype when it comes to CSR issues in order to balance the tension between a managerial and a gender role stereotype which undervalues their performance evaluations. Moreover, this is the first study to test the impact of BGD on a multidimensional CSP metric through a panel data set which includes firms of different sizes and industries and accounts for endogeneity issues such as unobserved variables or simultaneity bias. In addition, it sheds some light on which CSP metrics are mostly affected by BGD. Hence, it provides insights on how executives can better communicate their company's CSP by choosing appropriate CSP indices that better reflect their board's characteristics. The findings may also help NGOs or fundraisers to better frame their arguments when negotiating with companies with more gender diverse boards for CSR funds.

## Literature Review

As articulated by Wood (1991): "Corporate Social Performance (CSP) refers to a business organisation's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs and observable outcomes as they relate to the firm's societal relationships" (Wood 1991, p. 693). This multidimensional conceptualization of CSP requires a multiple-item measurement to reflect a holistic view of a company's social performance (Griffin and Mahon 1997; Rowley and Berman 2000; Gond and Crane 2010). Therefore, CSP is seen as a composite score from a selection of metrics representing a broad range of economic, social and environmental impacts caused by business operations. Such appropriate CSP measurements include metrics by rating agencies such as *KLD*, *SAM*, *Vigeo* and *FTSE*, amongst many others.

Most extant research examining the impact of women board directors on social performance suggests that women directors are positively oriented towards some areas of CSP. For example, it has been found that more gender diverse boards are more likely to fulfil the organisation's social mission (Siciliano 1996). Ibrahim and Angelidis (1994) have found that women are more oriented towards the discretionary components of CSR but not towards the ethical or legal ones. Also, more recently, Bear et al. (2010) have found a positive link between women on board and 'institutional strength CSR' but no connection with 'technical strength CSR'. Within this stream of research, most researchers have focused only on examining a very specific dimension of CSP such as philanthropy (see Williams 2003; Wang and Coffey 1992), the quality of working environment (see Bernardi et al. 2006), the natural environment (see Post et al. 2011) or ethics (see Bernardi et al. 2009; Ibrahim et al. 2010). Therefore, previous research has not properly addressed the multidimensional nature of the concept of CSP and has not adequately examined why the impact of BGD on CSP might differ between different CSP metrics. This study addresses these two main limitations; first, by empirically measuring multidimensional CSP by drawing on *KLD* ratings, which are considered as the most acceptable and widely used CSP metrics in the 'Business and Society' field, albeit with their limitations (Chatterji et al. 2009), and second, by drawing on gender-related theoretical perspectives to explain different impacts of women directors on different CSP metrics.

Beyond these two main limitations in extant literature, a large part of this literature is based on surveys measuring orientations or attitudes towards social issues but not actual social behaviour or performance (e.g. Ibrahim and Angelidis 1994; Ibrahim et al. 2010). However, as Williams (2003) points out "a board member's intentions and his/her subsequent actions may be different" (Williams 2003, p. 2). In this study, we avoid this limitation since *KLD* metrics are measuring performance outcomes.

Furthermore, previous research in this path has not adequately addressed endogeneity issues, such as unobserved variable bias or simultaneity/reverse causality bias. It has

been suggested that unobserved variables such as corporate culture or CEO values may affect this link (Swanson 1999; Agle et al. 1999). In addition, empirical CSP research is a relatively new area of research and many factors affecting CSP are still unknown (Zyglidopoulos and Georgiadis 2006) and necessarily omitted from testable models. Finally, it can be argued that a reverse relationship is also true, i.e. higher CSP increases BGD. Hence, a more sophisticated econometric analysis, such as panel data analysis through instrumental variable (IV) estimation, as used in this study, is an appropriate statistical way to account for all the above biases.

This article is structured as follows: initially, the gender stereotypes operating on the boards of directors are discussed. Then, it is discussed how such stereotypes may put higher pressure on female directors to comply with these and address CSR issues in a particular way which ultimately influences social performance.

## Theoretical Framework

### Gender Roles Between Male and Female Managers

Social role theory (Eagly 1987) suggests that men and women behave according to stereotypes and beliefs, associated with the social role they occupy. These beliefs are originated in the division of labour, "which reflects a biosocial interaction between male and female physical attributes and the social structure" (Eagly 2009, p. 644). Also, these beliefs (gender roles) apply to individuals on the basis of their socially identified sex and can either be descriptive (i.e. they tell people what is typical of their sex) or prescriptive (they indicate what is considered admirable for either sex in a particular culture) (Eagly 2009). Furthermore, these beliefs can act both as social norms (embedded in other's expectations) and as personal dispositions (embedded in individual gender identities), (Wood and Eagly 2009). Indeed, such cultural beliefs, cognitive frames, mind-sets and worldviews are important determinants of how managers run their firms (Galaskiewicz 1991).

Overall, such beliefs about women and men can be summarized in two dimensions. Women are thought to be more 'communal' and men more 'agentic' (Bakan 1966). In particular, regarding women, studies of gender stereotypes in different cultures around the world have associated women with traits such as empathy, caring, great concern for others and being interested in actualising values in relationships of great importance to community (Dobbins 1985; Eagly and Karau 1991; Fox et al. 1985; Hanson and Mullis 1985; Fondas 1997).

Gender roles can deem appropriate certain types of behaviour that differ considerably between genders and provide a general framework for understanding why male and female behaviour can be different depending on the particular situation and circumstances. Moreover, men and women in the same organisational positions face different pressures to comply with gender roles and hence may behave differently because of 'gender role spilllover'—the application in the workplace of gender-based expectations for behaviour (Gutek and Morasch 1982). Gender stereotypical beliefs put considerably higher pressure on women to act in a more 'caring' way, so as not to conflict with their expected gender role (Gutek and Morasch 1982).

However, social role theory acknowledges that men and women occupy multiple social roles (e.g. gender role, organisational role, etc.) and other roles can override gender roles, hence changing their behaviour accordingly. People are especially likely to enact sex-typical behaviours when the situation is confusing, ambiguous or they want to gain social approval and bolster their self-esteem (Eagly 2009). For this reason, we need to discuss what kind of structural forces/influences operate on corporate boards that may force directors to enact sex-typical behaviours.

### The Tension Between Managerial and Gender Roles

This study views boards of directors as decision-making groups (Forbes and Milliken 1999) where women directors can enhance decision making (Daily et al. 2003) including strategic decisions (Nielsen and Huse 2010). Within this research stream, scholars have argued that women on corporate boards have a positive impact on board tasks of qualitative nature, such as strategic and CSR controls (Bilimoria 2000; Rosener 1990, 1995; Selby 2000; Huse et al. 2009). This is usually attributed to the fact that women are more socially oriented than men, hence, they contribute to more effective decision making on CSR issues (Burges and Tharenou 2002; Ibrahim and Angelidis 1994). In addition, they bring different (non-traditional) professional experiences (Hillman et al. 2002; Singh et al. 2008) and adopt a more participative leadership style than men (Eagly et al. 2003). Hence, they provide diverse perspectives on board and encourage open conversations which may enable the board to more effectively address CSR issues and stakeholder needs (Bear et al. 2010). Along similar lines, previous research has found that women are positively oriented towards CSR because they are usually outside directors (Ibrahim and Angelidis 1994). Boards dominated by outside directors show greater social responsiveness (Zahra and Stanton 1988) and greater concern about certain components of CSP (Ibrahim and Angelidis 1995); however, these results do not hold for different CSP metrics (see Kesner et al. 1986). Overall, most studies attribute the impact of women on board processes not on gender per se but on the fact that women

provide different values and professional experiences than men which enhance decision making and enable the board to better perform its tasks, including CSR tasks.

However, gender-related theories on the impact of women on boards can reveal further insights. Some scholars, examining gender differences between women and men leaders, have suggested that women on the board may adopt masculine-type characteristics since they are more highly valued in leadership positions (Schein et al. 1996; Lamsa et al. 2000). Indeed, beliefs about what it means to be a good leader and what it means to be female seem incompatible (Agars 2004; Eagly and Karau 2002). At the same time, previous research has found that the adoption of masculine characteristics does not favour women leaders, because women's and men's leadership characteristics are not evaluated in the same way (Case 1993; Ryan and Haslam 2007). "A male manager who acts in a forceful or assertive way is perceived as behaving appropriately and displaying leadership, whereas a female leader who behaves in the same way is considered unacceptably pushy" (Ryan and Haslam 2007, p. 551). This phenomenon leads to a 'double-bind' situation for female directors because violating either the managerial or the gender stereotype can lead to negative evaluations of female leaders and their performance (Eagly and Karau 2002; Cuddy et al. 2004; Heilman et al. 2004). In addition, Heilman and Chen (2005) have found that women who choose not to help others are reacted to far more negatively than males who behave similarly. Therefore, women directors experience tension between two conflicting stereotypes; the gender stereotype and the managerial one.

It can be argued that women are likely to comply with the feminine stereotype in CSR board tasks. This is because for most companies, CSR issues are regarded as 'soft' issues, i.e. issues that appeal to the more socially sensitive gender. As a result, men are being preferred for membership in compensation, executive and finance committees while women are preferred in public affairs committees or CSR areas (Bilimoria and Piderit 1994; Shrader et al. 1997; Williams 2003; Zelechowski and Bilimoria 2006). In addition, Burgess and Tharenou (2002) have found that a gender stereotypical belief regarding women's social sensitivity has been a major reason for the appointment of women to the boards. Therefore, it is reasonable to assume that women are expected to have a strong influence on CSR issues and show a more socially sensitive behaviour, i.e. complying with the female stereotype.

Hence, significant structural forces on the boards force women directors to comply with a female gender role when dealing with CSR issues. Therefore, this study views CSR as a task at the board level decision making, where a female role compliance is preferable for women directors, giving them the opportunity to find a balance between a feminine gender role and a more masculine managerial role, releasing part of the tension which undervalues their performance evaluations.

To summarize, it can be argued that although women on boards are constrained and motivated by a number of structural forces influencing their roles and actions on board, when dealing with CSR issues, female directors are more likely to enact the female stereotypical behaviour (i.e. a caring, more empathetic and more socially sensitive behaviour), enhancing their company's social performance. Hence, the first hypothesis is:

> H1: Board Gender Diversity positively affects Corporate Social Performance.

### Different Impact Across Different Metrics of CSP

Since women directors will enact a female gender role when dealing with CSR issues, (i.e. showing a highly caring and empathetic behaviour) it is also worth asking whether and how such behaviour might have a different impact on different areas/metrics of CSP. For this reason, we draw on feminist ethics literature. In particular, we draw on Slote (2007), who has analysed the role of empathy within the 'ethics of care'. Many other care ethicists, such as Noddings (2002) and Held (2006), have supported the idea that empathy is found at the core of feminist ethics. Empathy is simply defined as an emotional response—including feelings of compassion and concern—in helping people in need (Sturmer et al. 2005). However, Slote (2007) has expanded on the mechanism of empathy and views it as the primary mechanism of caring, benevolence and compassion, what he calls 'empathic caring'. In addition, grounded on empirical work in psychology (e.g. Hoffman 2000) he has argued that almost all our moral obligations and ethical actions in helping others can be understood or at least are correlated with distinctions of levels of empathy. For example, empathy-based motivation to aid is stronger towards those persons whose situation is perceived as 'bad' than to those whose situation is perceived as simply 'not wonderful' (Slote 2007). This idea that one should rather help those 'badly off' than do somewhat 'more good' for those in 'acceptable' circumstances has been supported by many other scholars in ethics literature (see Frankfurt 1988; Raz 1986; Crisp 2003).

Similarly, in psychology literature many scholars have supported that empathic responses to help are in congruent with the perceived 'badness' of the situation (Sinha and Jain 1986; Hoffman 1975, 2000; Bagozzi and Moore 1994). In addition, there is ample evidence in psychology literature that empathy predicts the likelihood one will provide help when actually confronted with a request for

aid (see Eisenberg and Miller 1987; Sturmer et al. 2005) even when in situations in which helping is relatively demanding and may not entail any rewards for the helper (Batson 1991, 1998; Hoffman 2000).

However, a gender role theory account implies that 'empathic caring' reactions to aid will be stronger in women than in men. As already discussed, empathy is one of the most common traits associated with the female gender stereotype, across cultures. Therefore, more gender diverse boards—with more women directors enacting the female gender stereotype—will be more likely to demonstrate empathy-based responses to CSR issues. Besides, as Nielsen and Huse (2010) have argued, boards with higher ratios of women directors will have characteristics and behaviour typically associated with women leaders. Therefore, building on Slote's (2007) 'empathic caring' analysis, it follows that more gender diverse boards will be more responsive to aid those in society whose situation is perceived as 'absolutely bad' and the higher the perceived 'badness' of the situation, the stronger the empathetic response and willingness to help will be. Therefore, more gender diverse boards will tend to engage more with those areas of CSP which induce higher empathy.

For this reason, we first need to carefully examine the content of CSP metrics. Most social rating agencies seek to evaluate a firm's overall social performance score from a selection of metrics covering social, environmental and economic impacts which reflect as fully as possible the total scope of the CSP construct. In addition, CSP assessment contains negative or/and positive business practices to represent 'strengths' or/and 'concerns', respectively, regarding such practices. For example, *KLD* (the rating agency used in this study) considers generously giving to charities as a positive practice (i.e. strength), whereas lending or investments practices that have led to controversies are considered detrimental to CSP (i.e. concern). Similarly, a strong pollution prevention program or substantial use of recycled materials are considered positive practices, whereas producing agricultural chemicals such as pesticides or deriving substantial revenues from fossil fuels products are considered negative ones. While most CSP researchers in the Business and Society field are calculating the overall score of CSP as a linear aggregation of such positive and/or negative metrics, others treat each metric (i.e. 'strengths' and 'concerns') separately (see Van der Laan et al. 2008). Nevertheless, the distinction between positive and negative metrics is a major distinction in various social/sustainability indices (Fowler and Hope 2007).

In particular, for *KLD* ratings, a review of the different social areas reveals that the 'strengths' sub-dimensions correlate more strongly with 'doing good' practices while the *KLD* 'concerns' sub-dimensions correlate more strongly with 'causing/allowing harm' practices and hence higher perceived 'badness'. Therefore, the *KLD* 'concerns' metrics correlate more strongly with 'empathic caring' and can induce a more forceful empathetic response than the *KLD* 'strengths' metrics. It is therefore expected that women directors faced with CSR decisions will have a significant impact on those dimensions of CSP that correlate stronger with the female gender role and induce a stronger empathetic response; i.e. those areas focusing on negative business practices (e.g. major controversies on the community regarding environmental contamination, water rights disputes, plant closings or product safety) rather than on positive ones (e.g. innovative and generous charitable giving programs).

Therefore, we hypothesise that:

H2: The higher the board gender diversity, the less the negative CSP practices ('concerns').
H2a: Board Gender Diversity has a stronger impact on the negative CSP practices ('concerns') than on the positive ones ('strengths').

## Empirical Analysis

### Sample and Data

The sample of firms in this study consists of *Standard and Poor's (S&P500)* group of companies whose social performance has been rated by *Kinder Lydenberg Domini, Inc. (KLD)*. The *S&P500* group of companies account for a significant portion of the US economy (70% of all US publicly traded companies) and cover a broad range of firm sizes and industrial sectors. Data for these firms regarding their socially responsible actions were collected from the *Socrates KLD* database for 5 years (1999–2003) in order to match data availability for the rest of our variables. *KLD* provides data once a year, for companies as listed at the end of the calendar year for years 2001–2003, while for years 1999–2000, as listed in August of each year. Data for the gender diversity of the boardroom and the numbers of inside and outside directors are also collected annually from the *RiskMetrics* database and data for the rest of the control variables were collected from the *Mergent* and *Datastream* databases.

Initially, the companies that were not available in all the databases for the entire time period under investigation were deleted, to give 164 firms over a 5-year period ($N = 820$). However, since some control variables (e.g. R&D intensity) were not available for all the firms, the sample size was further reduced to 126 firms ($N = 594$). In addition, we further limited our sample to companies

with at least one woman director ($N = 551$) and later for sensitivity tests to at least two women directors ($N = 275$) following existing research suggesting that unless there is a 'critical mass' of women on the board, their individual influence will be minimal (Konrad and Kramer 2006). Unfortunately, the sample size for at least three women on board was too small ($N = 70$), so we could not consider this case.

## Measures

### *Dependent Variables*

As already discussed, data for the dependent variable was collected from *KLD*, focusing only on the four most widely used dimensions (i.e. community, products, employees, environment), omitting the diversity dimension, to avoid overlap with the independent variable. In each *KLD* dimension, there are two sub-dimensions focusing on a number of 'strengths' and 'concerns'. Each company can score '1' if it meets the strength/concern requirements or '0' otherwise.

The simplest way of treating this data is to create an aggregate measure of overall social performance by subtracting the total number of 'concerns' from the total number of 'strengths'. Most empirical studies have handled CSP in this way (e.g. Waddock and Graves 1997), while other have argued about the necessity to split CSP into its dimensions since by aggregation much useful information is lost, i.e. we cannot know whether a firm with zero aggregate CSP score is actually neutral on CSP or strongly differentiates on one area while completely ignoring another (see Griffin and Mahon 1997; Van Oosterhout and Heugens 2006; Johnson and Greening 1999). Some scholars have even split 'strengths' and 'concerns' submetrics (e.g. Van der Laan et al. 2008).

This study uses both of these alternative treatments of CSP. First, the impact of BGD is tested on overall CSP and then on CSP 'strengths' and CSP 'concerns'. This split of CSP offers additional explanatory power and insight on the impact of BGD on CSP. Hence, the dependent variables are:

(1) CSP total (an aggregate measure of the number of 'strengths' and 'concerns' within the four most widely used areas of CSP: community, product, employees, environment),
(2) CSP str. (an aggregate measure of the number of 'strengths' within the four most widely used areas, as shown above),
(3) CSP con. (an aggregate measure of the number of 'concerns' within the four most widely used areas, as shown above).

### *Independent Variable*

The BGD variable is a ratio of female representation on the board divided by the size of the board. For this variable, the *RiskMetrics* database was used to collect the number of women on the board and the size of the board.

### *Control Variables*

Margolis and Walsh (2001), through an extensive review of 127 studies on the determinants of CSP, reported that industry effects, company size and risk are the three most popular control variables in examining the relationship between social and financial performance. Therefore, scholars who examine the determinants of CSP most often control for firm size, industry, financial performance and risk (Graves and Waddock 1994; Lopez et al. 2007; Simerly 2003; Stanwick and Stanwick 1998; Ullmann 1985; Waddock and Graves 1997). Beyond these popular controls, McWilliams and Siegel (2000) have emphasised the need to control for R&D in any CSP–CFP study, in order to avoid model misspecification issues. Hence, this study controls for all these 'usual suspects' influencing CSP.

Operationally, financial performance was measured by Return on Equity (ROE). This variable is more commonly used as a measure of financial performance compared to others such as Return on Assets (ROA), Return on Sales (ROS) or Tobin's *Q*. For example Griffin and Mahon (1997) found that ROE is used in 33% of studies, ROA in 29% and ROS in 14% of CSP-CFP studies. The size of the firm was measured by total assets, while its risk was measured by the long-term debt to total assets ratio following Waddock and Graves (1997). The R&D intensity was measured as a ratio of R&D expenses over total sales, following McWilliams and Siegel (2000). We also controlled for the possibility that boards with higher numbers of outside directors compared to inside directors might enhance CSP (Ibrahim and Angelidis 1995; Wang and Coffey 1992). Hence, the ratio of outside over inside directors was added as a control variable. Previous research has also found that older individuals exhibit higher moral reasoning (Forte 2004). However, increased concern for CSR issues has also been associated with younger individuals (Klineberg et al. 1998). Nevertheless, when age was considered as a control variable in this study, the results remained virtually the same. However, the econometric models did not pass the required robustness tests for instruments validity. Therefore, given the chosen method of analysis and the limited data sample, it was preferable to be parsimonious in the control variables; hence, age was not included as a control variable in the final models of this study.

## Methodology

Panel data analysis was used to control for omitted/unobservable variables that threaten causal inference in observational studies (Lee 2002; Halaby 2004). The problem of 'omitted variable bias' or 'unobserved heterogeneity' is quite a serious problem in empirical research, especially in CSP empirical research where the list of potential determinants can be large (Zyglidopoulos and Georgiadis 2006). Firm-specific unobserved variables, i.e. unobserved variables that represent time-invariant properties of firms, such as corporate culture or managerial ability/quality or the political context in which a firm operates, may affect CSP but are difficult to observe or measure; and so are usually omitted from the statistical analysis. Traditional panel data analysis (such as fixed-effects analysis) could account for such endogeneity under certain assumptions (Wooldridge 2002). However, there are reasons to assume that simultaneity/reverse causality issues might also be present. For example, more socially responsible firms may be more likely to increase the gender diversity of their boards. In this case, a fixed-effects analysis is not appropriate. Under such type of endogeneity (simultaneity bias), the appropriate treatment in econometric analysis is to use instrumental variables (IV) estimation or structural equations modelling (SEM). In this study, we estimate a model through IV methodology, a more standard and widely used methodology than SEM.

A common IV estimation in panel data models is to use Arellano and Bond's (1991) difference generalised method of moments (GMMs) estimator. This estimator uses first differences in the regression equation to remove any unobserved effects and then instruments any endogenous explanatory variables by using lagged values of the original regressors. However, Arellano and Bover (1995) have improved the efficiency of the difference GMM estimator as far as the quality of instruments is concerned by introducing the system GMM estimator. This method was fully developed later by Blundell and Bond (1998). In addition, with short panels (small T), Blundell and Bond (2000) used Monte Carlo experiments to examine the benefits of system GMM and found that these extra instruments can overcome two problems associated with first differenced estimator: (1) precision and (2) finite sample bias. In this study, we employed the two-step system GMM estimation with Windmeijer-corrected robust errors (Windmeijer 2005).

Therefore, following Wooldridge (2002), we estimated the following panel data econometric model:

$$Yit = \mathbf{X}it\,\beta + ci + uit, \quad t = 1999, \ldots, 2003. \tag{1}$$

where $i$ indexes firms, $t$ indexes time periods, $\boldsymbol{X}$ is a $1 \times K$ vector of observed variables that may change across $i$ or/and $t$, $\beta$ is a vector of corresponding coefficients, $c_i$ is the unobserved component, $u_{it}$ are idiosyncratic disturbances/errors because they change across $t$ as well as across $i$. In this study, the dependent variable $Y_{it}$ is the CSP variable, as already discussed in the previous section, while the independent variables are the following:

$X_{1,it}$ = BGD (number of females on the board of directors/size of the board)
$X_{2,it}$ = Size (total assets)
$X_{3,it}$ = Profitability (ROE)
$X_{4,it}$ = Risk (long-term debt/total assets)
$X_{5,it}$ = R&D intensity (R&D expenses/total sales)
$X_{5,it}$ = Out/in (the ratio of the number of outside over inside directors)

Descriptive statistics for all the variables used in our models are provided in Table 1, while the correlations coefficients are shown in Table 2.

## Results

To test our econometric models, we used the *STATA10* software package. All regression results are shown in Tables 3 and 4, below. In Table 3, Model 1 tests the impact of BGD on the aggregate CSP index, i.e. total CSP. Since the coefficient for BGD is positive and significant ($b = 0.859$, $p < 0.10$), Hypothesis 1 is confirmed. Model 3 tests the impact of BGD on the 'concerns' metric of CSP. The coefficient of BGD is found negative and significant ($b = -0.335$, $p < 0.10$) indicating that the higher the gender diversity on board (equivalent to more women on board in this sample), the less the negative social business practices (concerns), hence confirming Hypothesis 2. Model 2 tests the impact of BGD on the positive social business practices (strengths). The coefficient of BGD is found positive but not significant ($b = 0.664$, $p > 0.10$). We can then argue that since the coefficient of BGD is only significant in Model 3 but not in Model 2, the impact of BGD on CSP may be mostly attributed to the inclusion of the 'concerns' metric in the total CSP metric, hence confirming Hypothesis 2a.

For robustness tests, the models were re-estimated with a reduced sample size (only with companies with at least two women on board). Table 4 shows the results of these regressions. Model 4, which tests the impact of BGD on the aggregate CSP index, suggests that BGD is no longer significant (virtually non-significant, $p = 0.11$), although positive as expected ($b = 1.062$). Model 6, which tests the impact of BGD on the 'concerns' metric of CSP, shows that the coefficient of BGD is negative and significant ($b = -0.554$, $p < 0.10$) suggesting that the higher the BGD the less the social negative practices (concerns), hence confirming Hypothesis 2, once again. Since BGD is

**Table 1** Descriptive statistics

| Variable | Observations | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| CSP total | 820 | −0.182 | 2.160 | −9.000 | 7.000 |
| CSP str. | 820 | 1.637 | 1.694 | 0.000 | 8.000 |
| CSP con. | 820 | 1.818 | 2.051 | 0.000 | 12.000 |
| BGD | 820 | 0.171 | 0.111 | 0.000 | 1.000 |
| ROE | 820 | 0.276 | 2.250 | −5.768 | 61.229 |
| Risk | 820 | 0.226 | 0.123 | 0.000 | 0.770 |
| Size | 820 | 2.03e + 10 | 5.42e + 10 | 7.86e + 08 | 6.47e + 11 |
| R&Dint. | 594 | 3.799 | 4.968 | 0.000 | 29.500 |
| Out/in | 820 | 0.707 | 0.154 | 0.166 | 1.000 |

All variables shown in the table are in their original form. However, they were all standardized (*z*-scores) before entering in the models

**Table 2** Pair-wise correlation coefficients

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. CSP tot. | 1.000 | | | | | | | | |
| 2. CSP str. | 0.446*** | 1.000 | | | | | | | |
| 3. CSP con. | −0.680*** | 0.354*** | 1.000 | | | | | | |
| 4. BGD | 0.095*** | 0.020 | −0.084** | 1.000 | | | | | |
| 5. ROE | 0.0141 | 0.0272 | 0.0075 | −0.0401 | 1.000 | | | | |
| 6. Risk | −0.152*** | −0.064* | 0.106*** | −0.031 | 0.035 | 1.000 | | | |
| 7. Size | −0.202*** | 0.312*** | 0.466*** | −0.016 | −0.009 | 0.060* | 1.000 | | |
| 8. R&Dint. | 0.127*** | 0.301*** | 0.123*** | −0.044 | −0.013 | −0.302*** | 0.035 | 1.000 | |
| 9. Out/In | −0.0282 | 0.0879** | 0.1015*** | −0.0119 | 0.0236 | −0.0212 | −0.1416*** | 0.1176*** | 1.000 |

Standardized (*z*-scores) values were used

Significant correlations: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

**Table 3** Regression results with companies with at least 1 woman on board in the sample

| Independent and control variables | Model 1<br>CSP tot. | Model 2<br>CSP str. | Model 3<br>CSP con. |
|---|---|---|---|
| BGD | 0.859* | 0.664 | −0.335* |
| ROE | 0.245 | 1.057 | 0.409 |
| Risk | −0.040 | −0.026 | 0.032 |
| Size | −0.201*** | 0.333*** | 0.461*** |
| R&Dint. | 0.169* | 0.345*** | 0.110 |
| Out/in | −0.033 | 0.094 | 0.112 |
| Time dummies | Yes | Yes | Yes |
| Instruments | 13 | 13 | 13 |
| Groups | 120 | 120 | 120 |
| *F*-statistic | 4.88 | 3.81 | 4.00 |
| Prob > *F* | 0.000 | 0.000 | 0.000 |
| Observations (*N*) | 551 | 551 | 551 |

Standardized (*z*-scores) values were used

Significance of coefficients: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Table 4** Regression results with companies with at least 2 women on board in the sample

| Independent and control variables | Model 4 CSP tot. | Model 5 CSP str. | Model 6 CSP con. |
|---|---|---|---|
| BGD | 1.062 | −0.021 | −0.554* |
| ROE | 0.205 | 0.414 | −0.337 |
| Risk | 0.174 | −0.028 | −0.069 |
| Size | −0.102 | 0.064 | 0.332*** |
| R&Dint. | 0.130 | 0.507*** | 0.278*** |
| Out/in | 0.055 | −1.035 | −0.010 |
| Time dummies | Yes | Yes | Yes |
| Instruments | 13 | 13 | 13 |
| Groups | 79 | 79 | 79 |
| *F*-statistic | 4.99 | 4.34 | 9.37 |
| Prob > *F* | 0.000 | 0.000 | 0.000 |
| Observations (*N*) | 275 | 275 | 275 |

Standardized (*z*-scores) values were used

Significance of coefficients: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

significant in Model 6 which tests the negative social practices (concerns) but not in Model 5 which tests the positive social practices (strengths) we can argue that Hypothesis 2a is confirmed, once again.

In (IV) estimation, it is necessary to test the validity of the instruments used. Initially, this was tested through an Arellano and Bond autocorrelation test, as described in Arellano and Bond (1991) and Roodman (2009). No second-order autocorrelation was observed. Second-order autocorrelation would indicate that the lags used as instruments are endogenous, and were thus bad instruments. Apart from correlations tests, the validity of the instruments, in both the levels and the difference equation, was checked through the Sargan (1958) and Hansen (1982) tests of over-identifying restrictions, i.e. testing whether the instruments as a group appear exogenous. Both tests statistics could not reject the null hypothesis that the instruments were valid; hence all instruments passed all necessary tests.

## Discussion and Conclusions

In light of these results, we argue that BGD has a significant impact on the negative social practices of CSP (e.g. *KLD* 'concerns' metrics) and the higher the BGD the lower these practices will be. Hence, BGD may have a positive impact on overall CSP but this depends on the construction of the CSP metric. In particular, if the CSP metric is mostly constructed through aggregation or screening of negative social practices, then BGD will have a significant impact on this metric. This is because the negative social practices are being perceived as higher in 'badness' compared to the positive ones and induce a stronger 'empathic caring' response from female directors. Hence, these areas of CSP correlate more strongly with the female gender role stereotype and prescribe more attention from the more gender diverse boards.

This study has taken advantage of the benefits of panel data analysis and IV method to account for potential unobserved effects that may confound the examined relationship, as well as potential simultaneity/reverse causality bias (i.e. the possibility that higher CSP increases the number of women directors). In addition, it has corrected for the presence of common shocks or unobserved factors that may cause many firms to respond in similar ways through the inclusion of time dummies. IV estimation in this research path is quite novel and greatly improves the robustness of results based on cross-sectional methods that are often used in this line of research (for an overview, see Margolis and Walsh 2001, 2003).

This analysis, apart from shedding some light on the literature examining the impact of women directors on CSP, it also sheds light on the literature examining the determinants of CSP, which has largely focused on the link between CSP and financial performance (Margolis and Walsh 2001), while other socio-cultural or internal firm characteristics that could affect CSP have been largely ignored. In particular, this study emphasises board level structural characteristics that could affect CSP.

Overall, this study is important for both theoretical and managerial reasons. First, theoretically, it offers a more comprehensive explanation of the impact of women directors on a company's social performance by allowing for different patterns of influence and by revealing areas of stronger influence within various CSP metrics. Viewing the impact of women on board through a gender lens may also help explain surprising findings found in extant literature through better explanations regarding the prioritisation of social issues by women directors. For example, it might help explain William's (2003) findings regarding the lack of a relationship between BGD and charitable giving to

education. This study implies that the lack of connection could be due to the fact that education may not be viewed as an area inducing high empathy to female directors due to the numerous sources of funding already available for this purpose. Hence, it may easily be ignored by female directors in favour of other higher empathy inducing areas. Indeed, it is strongly encouraged that future researchers gather primary data to actually confirm the link between a company's performance on certain social areas and board's empathy levels.

Managerially, this study helps understanding of CSP practice by uncovering new dynamics that affect the social performance of a firm and can assist managers to manage the social performance of their company strategically. For example, managers could increase the number of women on the board in order to have higher CSP in specific social areas/metrics. Moreover, this study assists managers to better communicate their company's CSP to society and investors. The results imply that companies with more gender diverse boards are better evaluated in those CSP ratings that measure social performance mostly by 'negative screening'/'concerns' (e.g. *FTSE4Good*, *Domini*) rather than 'positive screening'/'strengths' (e.g. *DJSI*, *Vigeo*).[1] Hence, more gender diverse boards may choose appropriate indices to match their company's board structure. Additionally, Socially Responsible Investment (SRI) fund managers, who usually have an array of social screening strategies to choose from when selecting potential companies, should be aware of a potential bias existing between 'positive screening' and 'negative screening' strategies, with 'negative screening' favouring more gender diverse boards. Hence, they may want to adjust their screening criteria towards a more balanced mixture of screening strategies.

Finally, this study can also benefit NGOs and fundraisers when negotiating with companies for CSR funds and projects. By viewing CSP as appealing to the empathy of the corporate directors, we can shed some light on a company's perceived obligations to 'do good'. In particular, this study indicated a pattern of prioritisation regarding the boards' obligations to help and get involved in CSR issues. As a result, fundraisers and NGOs should consider framing their arguments for CSR engagement accordingly when they want to work with companies and negotiate funding for specific CSR projects. Ethical reasoning based on the ethics of 'care' and 'empathy' will elicit a stronger response from more gender diverse boards.

Despite the various contributions of this study both theoretically and managerially, there are a number of issues which remain unresolved within this line of enquiry and call for additional future research. A major limitation in this path of research is the treatment of the notion of CSP and its operationalisation. Since CSP does not currently have a universally agreed definition, all operationalisations of the concept so far, including *KLD*, are not considered entirely objective and are subject to criticism on their ability to accurately predict social performance (Chatterji et al. 2009). Despite their limitations, they are, nevertheless, the most widely used ratings in the 'Business and Society' field. Therefore, alternative measures of CSP such as *SAM*'s, or other positive and/or negative focused CSP metrics, would greatly improve the robustness of these results.

Also, the issue of causality remains to be addressed in the future with primary data gathering. This study, although utilising advanced econometric techniques to control for most sources of bias which hinder causal inference, such as unobserved/omitted variables, bi-directionality/simultaneity bias and measurement error bias, the Instrumental Variable (IV) method is at best limited to providing evidence of causation only for the sample under investigation, for which good instruments have been found. In this study, in order to prove causality it would be necessary to gather primary data through interviews with board members about their influence on board processes (e.g. CSR decisions). This way, future research can move beyond the standard path in current Corporate Governance research, which has relied on board composition and structure variables even when attempting to understand board processes (Siciliano 2005) and join new evolving research streams in the Corporate Governance field which focus on examining actual board behaviour (e.g. Huse et al. 2009; Hillman and Dalziel 2003; Leblanc and Gilles 2005).

Also, a bigger sample with different companies across different countries would also improve our understanding of cultural dependence within this line of inquiry. The suggested conceptual framework implies that the link between CSP and BGD depends on the presence of cultural gender stereotypes. Therefore, in countries where gender stereotypical beliefs are not strong, these results might not hold. Such countries could be Scandinavian countries, which show high levels of gender equality according to the *World Economic Forum*'s Global Gender Gap Report (Hausmann et al. 2009). Finally, since cultural values and norms change over time, these results are also subject to temporal dependence.

However, given the diversity efforts and recent legislation in many countries around the world to introduce quotas on their companies' boards, the numbers of women on the boards of many companies will be increasing even more, offering researchers in this area a better sample, which could greatly improve analysis and understanding of the impact of BGD on CSP.

[1] See Fowler and Hope (2007) for a more detailed analysis and a list of indices focusing on positive/negative screening.

Concluding, it is worth noting that pressures for higher social performance as well as higher BGD are likely to increase. Hence, research on the impact of BGD on CSP—especially from the perspective of the actual board behaviour and the contribution of women directors to board processes—is of great importance. Hence, further research is strongly encouraged along the steps highlighted in this study.

**Acknowledgments** I wish to express my gratitude to the Editors and anonymous Reviewers of the Journal of Business Ethics for their most constructive comments. I also wish to thank Prof. M. Kilduff, Dr. E. Yin, Dr. S. Zyglidopoulos, Prof. R. Sugden and Dr. C. Pitelis for their encouragement in the realisation of this study and their useful criticism at an earlier version of this paper.

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