# INVESTIGATING THE RELATIONSHIP BETWEEN BOARD DIVERSITY & CORPORATE SOCIAL RESPONSIBILITY (CSR) PERFORMANCE: EVIDENCE FROM FRANCE

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## ABSTRACT

*This study aims to investigate the influence of board diversity on the performance of firm's corporate social responsibility (CSR) in France, by using five different measures of CSR across 89Frenchcompanies from 2012 to 2015. The findings revealed that board diversity measured by gender is positively related to (SCR) performance. Moreover, after controlling CEO age and board characteristics, this study finds supporting evidence for a positive association between board diversity and CSR. The findings of the study emphasize the mass theory and are consistent with the argument that board diversity boosts firms' ability to satisfy the need of their stakeholders. The findings also confirm that board diversity is necessary to improve corporate governance. Our results remain robust using different measures of board diversity and methods of analysis.*

**Keywords**: Board of Directors, Diversity, Corporate Social Responsibility, French Market.

**JEL Classification:** K22, G30, G34

## INTRODUCTION

Despite the large body of research dedicated to the field of corporate governance, limited number of contributions is exploring the importance of board diversity on (CSR) performance. In fact, the majority of works have mainly focused on investigating the impact of board diversity on firm's performance (Adams & Ferreira 2009; Carter et al., 2010; Huang, 2010; Talke et al., 2011). However, a very limited number of literatures have been employed to investigate whether this applies to CSR as well, leaving this area unexplored. Furthermore, a limited number of studies that relate to board diversity and CSR (Boulouta 2013; Bear et al. 2010; Rao & Tilt 2016; Zhang et al. 2013; Setó-Pamies 2015; Harjoto et al. 2015; Labelle et al. 2015) which show that diversity can have a significant and positive impact on some aspects of CSR. Nevertheless, most of these studies have gauged the relationship between corporate social responsibility and board diversity in developed countries like the UK and the US, that have similar institutional context (Adam &Ferreira, 2009; Bear et al. 2010; Brammer et al. 2007; Konadu 2017; Marquis & Lee 2013), with only a limited number of studies investigating other markets such as theEU market in general (Gennari 2016; Larrieta-Rubín de Celis 2015; Ruigrok et al. 2007); or the French market in particular (Dang et al. 2014).

Hence, this study aims to address the previously mentioned gaps in literature by examining the prospective influence of boards diversity on CSR in the French Market by using a sample of 355 firm-year observations from 89 firms listed at the French Stock Exchange Market for the period between 2012 and 2015. This study is organized as follows. Section 2 introduces prior literature in the area of study. Section 3 discusses the research methodology, data and variables. Findings and related discussions are presented in section 4. Lastly, Section 6 concludes the paper.

## LITERATURE REVIEW

Prior studies have illustrated that the composition of board structure have a significant effect on firms 'value (Adams & Ferreira 2009; Ahern & Dittmar 2012; Rose 2007; Lückerath-Rovers 2013; Terjesen 2016). Existing literature have documented that gender diversity is anticipated to have a positive impact on Corporate Social Responsibility (CSR). For instance, some researchers have stated that businesses with a higher percentage of female executives have a higher levels of experience and environmental CSR (Hillman et al., 2002), also they stated that female directors are more communal, democratic and participative than men (Post et al., 2011; Frias-Aceituno et al. 2013). Moreover, prior studies have documented (Bear et al. 2010), that having more females on a board could stimulate more participation among members of the board which may boost corporate social responsibility reporting.

Recent literature on corporate governance has focused on gender diversity, and highlighted that the existence and presence of females in the boardroom could increase firm performance (Harjoto et al. 2015; Labelle et al. 2015; Zhang et al. 2012). For instance, Harjoto et al. (2015) document that higher boards diversity are more effective than less diverse boards in monitoring CSR performance. Similar to that, Zhang et al. (2012) conclude that the greater presence of women directors on corporate boards is related to better corporate social responsibility performance (Arfken et al., 2004).

Board diversity plays an important role in the accomplishment of corporate strategy, including CSR activities (Joecks et al. 2013). Gender diversity improves the decision-making process (Post et al., 2011). Specifically, female directors would significantly boost the number social events in the community and help firms have a higher value (Bear et al., 2010; Post et al., 2011; Zhang et al. 2013). However, regarding the number of women on boards, previous studies have illustrated that at least three females on boards enhances the firm value and it's CSR (Torchia et al. 2011; Joecks et al. 2013). For instance, Joecks et al. (2013) stated that when the percentage of females on board is lesser, the relationship between board diversity and CSR is negative. In line with this, Torchia et al. (2011) conclude that the presence of women directors (i.e., three women directors and more) has a positive impact on CSR. Furthermore, some scholars have noted that firms with no women on boards have a lower CSR (Marquis & Lee 2011; Soares et al. 2011; Bernardi & Threadgill, 2011).

## RESEARCH METHODOLOGY AND DATA

This study aims to investigate the impact of board diversity on CSR, using a sample of 89 French firms listed at the CAC All-Tradable from 2012 to 2015. The CAC All-Tradable holds all stocks of the Euronext Paris market that have an annual Free Float Velocity over 20%. The CAC All-Tradable is calculated in real time and broadcasted every 15 seconds. SBF 250 Index became CAC All-Tradable Index as of 2011/03/21. This study excludes financial institutions due to the

uncharacteristic behavior in their financial reporting. This study final sample includes a total of 89 companies over a period of four years. Data related to board gender diversity and corporate governance was hand-collected from annual reports downloaded from the AMF (Autorités des Marchés Financiers) website. Meanwhile, the financial data of these firms was gathered from the Thomson One Banker database, while social responsibility information was collected from CSR Hub database. Following (Yaseen, 2018; Bukair, 2015; Lepton, 1992), we proposed our model that examines the relationship between CSR and board structures; therefore, we proposed the following research testable hypothesis:

## RESEARCH HYPOTHESIS

*$H_1$: There is a positive association between the number of females on boards and the CSR.*

### Variables Definition and Measurement

This section identifies the dependent, independent and control variables of the study.

### Dependent Variables

This study employs corporate social responsibility (CSR) as its dependent variable. This study relies on ratings provided by CSRHub to calculate ESG scores. CSRHub is a comprehensive database for social data information offering data for more than fifteen thousand companies across 130 countries. It collects data from research firms, namely Asset 4 / Thomson Reuter, Carbon Disclosure Project (CDP), EIRIS, Governance Metrics International /Corporate Library, IW Financial, MSCI (Risk Metrics IVA and Impact Monitor), Rep Risk Trucost and Vigeo. Regarding the scoring methodology, Hub divided CSR into four categories: community, employees, environment and governance. Each category includes four subcategories. Then, each collected information from different data sources is affected in one or more subcategories. Each data in turn is converted into a score from 0 to 100. A corporate rating for which there is not enough information is excluded. For our sample, we collect CSR score every year for every company.

### Independent Variables

Prior studies have employed different proxies of board diversity such as race, age, gender, and education. However, in this study we use genders a measure of diversity for three different reasons. First, this proxy can be collected easily (Rao & Tilt 2016; Zhang et al. 2013; Setó-Pamies 2015; Harjoto et al. 2015; Labelle et al. 2015). Second, this measure has widely tested (Labelle et al. 2015; La Rochelle et al. 2014; Rao & Tilt 2016), therefore, we can compare our findings with results of prior researches that used same measures. Third, this study needs to investigate the effect of board diversity on different measures of CSR (Harjoto et al. 2015). For this reason, board diversity will be measured using the percentage of women on the board of directors and the top three women percentage, following Galbreath (2011); Labelle et al. (2015); Dang et al. (2014) and Rao & Tilt (2016).

### Control Variables

In our analysis, we control for bank size. Bank size (SIZE) is measured by the natural log of a bank's total assets. It is believed that the large firms have greater resources than small ones. Therefore, large firms are expected to participate more in the socially responsible activities. The previous studies have found a positive and significant relationship between firm size and CSR and CSR disclosure (Johnson & Greening, 1999; Haniffa & Cooke, 2005; Ghazali, 2007; Said et al. 2009; Jo & Harjoto, 2011; Oh et al., 2011; Sharif & Rashid, 2013).

Following the previous studies ( Labelle et al. 2015; La Rochelle et al. 2014; Rao &Tilt 2016), this study controls for well-known determinants of CSR, Board size that measured as the total number of members of the board. Board experience measured as the percentage of members of the board who have an experience.

Board qualification measured by Index of heterogeneity for director expertise across five categories: financial, consulting, legal, management (executives), and others. The index is standardized between zero and one and Board age measured by Index of heterogeneity for board age with five categories: 40 and younger, 40–49, 50–59, 60–69, 70-years old and older. The index is standardized between zero and one

In addition, this study controls for firms characteristics that could be linked to CSR such as leverage, Campbell (2007) argues that firms' CSR is positively related to firms' is negatively related with firms' Leverage which is measured Total debt divided by total assets.

## Empirical Model

Our model was developed based on literature that investigated the relationship between CSR and firm's performance (Yaseen, 2018; Bradbury 1991; Bukair et al. 2015; ; Bernadi et al., 2006; Lepton et al. 1992; Jensen 1993; Soares at el., 2009; Williams, 2003; Schipper 1981; Haniffa and Cooke, 2005; Nollet, 2016; Fernandez 2016).

$$CSR_{it} = \alpha_{it} + \lambda Diversity_{it} + \sum_{i=1}^{n} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it}$$

Where $CSR_{it}$ is Corporate Social Responsibility (CSR) Proxies for firm i at time t , $Diversity_{it}$ refers to the percentage of women in boards ; Controls stands for board size (Boze). Board experience (Boex), Board Qualification (Boqu), Board Age (Boage), leverage (Lev) and total assets (TA); and δ is the fixed-effects of a vector of the mean differences of all time-variant.

## Empirical Analysis

Table 1 shows the mean, standard deviation, minimum, and maximum values for women percentage (Women%), Board size (Boze), Board qualification (Boqu), Board experience (Boex), Board age (Boage), total asset (TA), leverage (Lev), CSR community score (CSRC), CSR employees score(CSREM), CSR environment score (CSREN), CSR government score (CSRG), and CSRESG score (CSRESG) during the sample periods from 2012 to 2015 for French companies. See appendix 1 for variables' definitions and measurements.

**Table 1**
**DESCRIPTIVE STATISTICS**

| | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|
| **Women%** | 12.45 | 8.6 | 0 | 37.5 |
| **Boze** | 14 | 3.48 | 8 | 25 |
| **Boqu** | 1.84 | 0.53 | 0.5 | 3 |

| Table 1<br>DESCRIPTIVE STATISTICS | | | | |
|---|---|---|---|---|
| **Boex** | 4.69 | 1.84 | 1 | 9.7 |
| **Boage** | 58.75 | 3.82 | 42.3 | 68.8 |
| **TA** | 77624.9 | 330427.6 | 792.1 | 2949093 |
| **Lev** | 63.42 | 16.01 | 25.88 | 98.5 |
| **CSRC** | 59.52 | 7.09 | 38 | 80 |
| **CSREM** | 68.65 | 6.48 | 39 | 79 |
| **CSREN** | 62.58 | 7.39 | 37 | 78 |
| **CSRG** | 56.64 | 5.46 | 40 | 73 |
| **CSRESG** | 61.82 | 5.24 | 43 | 76 |

The above table shows the descriptive statistics of the sample. The sample includes firms that have an average Score ESG (CSRSG) of 61.8% and average Score_ environment (CSREN) of 62.5%. The average score employees (CSREM) is 68.6% as there are more concerns than environment. Moreover, the average score_ community (CSRC) and the average of score governance (CSR_GOV) are 59.5% and 56.6% respectively. The average board is more diverse in directors' expertise. For instance, the mean of the board experience (Boex) and board qualification (Boqu) is 4.69 and 1.84% respectively. With respect to board diversity, Table 1 reveals that the women percentage (Women %) in board rooms is on average 12.45%. Whereas the average board size (BOARD_SIZE) is 14. The average value of assets (natural log of total assets) about 77624.9, and a leverage ratio (LEV) of 63.42% of total assets.

| Table 2<br>CORRELATION MATRIX | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **TA** | **Lev** | **Wom %** | **Boze** | **Boqu** | **Boex** | **Boage** | **CSRC** | **CSREM** | **CSREN** | **CSRG** | **CSRSG** | **Wom 3%** |
| **TA** | 1.00 | | | | | | | | | | | | |
| **Lev** | 0.31* | 1.00 | | | | | | | | | | | |
| **Wom%** | 0.13* | 0.02 | 1.00 | | | | | | | | | | |
| **Boze** | 0.37* | 0.11* | 0.10* | 1.00 | | | | | | | | | |
| **Boqu** | 0.19* | -0.02 | -0.02 | -0.07 | 1.00 | | | | | | | | |
| **Boex** | 0.46* | 0.11* | -0.08 | 0.23* | 0.60* | 1.00 | | | | | | | |
| **Boage** | 0.23* | -0.02 | 0.09 | -0.00 | 0.14* | 0.36* | 1.00 | | | | | | |
| **CSRC** | 0.25* | -0.03 | 0.11* | 0.14* | 0.04 | 0.06 | -0.02 | 1.00 | | | | | |
| **CSREM** | 0.27* | -0.01 | 0.03 | 0.33* | 0.14* | 0.28* | 0.04 | 0.47* | 1.00 | | | | |
| **CSREN** | 0.31* | 0.15* | 0.02 | 0.16* | 0.11* | 0.16* | 0.01 | 0.53* | 0.39* | 1.00 | | | |
| **CSRG** | 0.10* | -0.10* | -0.07 | 0.02 | 0.25* | 0.20* | -0.01 | 0.48* | 0.53* | 0.45* | 1.00 | | |
| **CSRESG** | 0.27* | 0.01 | 0.03 | 0.19* | 0.17* | 0.23* | 0.03 | 0.76* | 0.73* | 0.76* | 0.76* | 1.00 | |
| **Wom 3%** | 0.17* | 0.00 | 0.70* | 0.27* | -0.02 | 0.01 | 0.06 | 0.12* | 0.08 | 0.08 | -0.10 | 0.05 | 1.00 |

Table 3 presents correlations between the research variables. Women percentage (Women%), Board size (Boze), Board qualification (Boqu), Board experience (Boex), Board age (Boage), total asset (TA), leverage (Lev), CSR community score (CSRC), CSR employees score (CSREM), CSR environment score (CSREN), CSR government score (CSRG), and CSRESG score (CSRESG) during the sample periods from 2012 to 2015 for French companies. See appendix 1 for variables' definitions and measurements. Significant level at 5% and more

In this section we present and discuss the Pairwise correlations among the variables of corporate governance and corporate social responsibility. Table 2 shows that most of the correlation coefficients between the study's variables are relatively low, nevertheless there are still some relatively high correlations between some of those variables. The highest correlations

were found between CSRESG and CSRC, CSREM, CSREN and CSRG which stood at 0.76, 0.73, 0.76 and 0.76 respectively. In addition, high correlations were also found between the leverage and total assets (0.31), board experience and total assets (0.46), women percentage and 3 top women percentage (0.70) and board experience and board qualification (0.60). To detect multicollinearity, we used the variance inflation factor (VIF) test to quantify its severity in our model, where the variance factors of each variable is calculated. According to the guidelines of this test, the existence of multicollinearity can be confirmed only in circumstances where the value of the variance inflation factor is more than 10. Based on the VIF test and the Pairwise rank correlation, we found that there is no intercorrelation between our independent variables.

## RESULTS AND FINDINGS

This study examined the impact of gender diversity measure (i.e., % of women on board) on CSR dimensions by using a fixed effect regression model. The results reveal that when board diversity is measured on the basis of gender, it has a positive and significant impact on both CSR employees at 1% level, and CSRESG at 5% level. Our findings are consistent with previous literature (e.g. Ntim, 2015; Gyaponget al., 2016; Salloum et al., 2017). These results are consistent with the agency theory which suggests that female directors are more likely to deliver better monitoring function compared to male directors (Adams et al., 2009). With respect to CSR community, CSR environment and CSR governance, our findings report a positive relationship with gender diversity. These findings are consistent with the resource dependence theory, which states that employing female directors can advance firm's legitimacy and enables better capital inflows, investment opportunities, government backing and community acceptance (Mahadeoet al., 2011; Loukil et al.., 2016).

Nevertheless, regarding the control variables, this study incorporates some measures of board structures such as Board size (Boze), Board qualification (Boqu), Board experience (Boex), Board and age (Boage). This research finds that on average board size, age and expertise diversities increase the overall CSR dimensions. These findings are consistent with existing studies (Harjoto et al. 2015; Salloum et al., 2017 among others). Moreover, this research controls for Total assets (ASSET) and documents a positive association with CSR activities because larger firms have more resources available to engage in CSR activities. Consistent with Harjoto et al. (2015), this research finds highly leveraged firms (LEV) reduces the CSR activities

Adams and Ferreira (2009) recommend that the fixed effect regression analysis states that the concern that omitted corporate culture or any other time-invariant unobvious firms features might affect boards diversity. In this study a fixed effect regression has used , the results show that board diversity is positively associated with the overall CSR and is negatively associated with CSR concerns.

**Table 3**
**FIXED EFFECTS ANALYSIS FOR THE EFFECT OF BOARD DIVERSITY ON CSR**

| | **Scoreesg** | **Score Community** | **Score employees** | **Score environment** |
|---|---|---|---|---|
| **Women%** | 0.04 | 0.08 | 0.11 | -0.01 |
| | (1.98)** | (2.44)** | (4.20)* | (-0.64) |
| **Board SI** | 0.09 | 0.16 | 0.03 | 0.01 |
| | -0.89 | -1.06 | -0.27 | -0.14 |
| **Board QU** | -2.1 | -4.64 | -0.92 | -2.15 |
| | (-1.95)*** | (-2.91)* | (-0.70) | (-1.58) |

| Table 3<br>FIXED EFFECTS ANALYSIS FOR THE EFFECT OF BOARD DIVERSITY ON CSR | | | | |
|---|---|---|---|---|
| **Board EX** | 0.44 | 0.51 | -0.03 | 0.26 |
| | -1.25 | -0.98 | (-0.08) | -0.59 |
| **Boage** | 0.03 | -0.25 | 0.33 | 0.06 |
| | -0.31 | (-1.60) | (2.56)** | -0.47 |
| **Size** | 3.28 | 3.13 | 3.13 | 4.26 |
| | (3.52)* | (2.28)** | (2.74)* | (3.63)* |
| **Leverage** | 0 | 0.02 | 0.03 | -0.01 |
| | (-0.09) | -0.42 | -0.93 | (-0.16) |
| **Constant** | 28.59 | 45 | 16.29 | 21.18 |
| | (2.49)** | (2.71)* | -1.16 | -1.46 |
| **Observations** | 355 | 355 | 355 | 355 |
| **Adjusted $R^2$** | 0.09 | 0.05 | 0.07 | 0.08 |

Table 3 reports the results of the effect of owner's board diversity on CSR. Figures are representing T -values, where *, **, *** represents significance at the 1%, 5% and 10% levels respectively.

## Robustness Tests

In this section, we check the robustness of our main results to the alternative proxies of gender diversity: Table 4, we employ the Variance Inflation factor (VIF) to detect multicollinearity problem. The results of VIF test indicates that this problem does not exist. From Table 4 it is clear that all value less than 10.

Table 4 shows the maximum variance inflation factors (VIFs) for all research variables presented in Table 3.

| Table 4<br>VARIANCE INFLATION FACTORS (VIFS) TEST | |
|---|---|
| | **CSR (Proxies)** |
| **Women%** | 1.46 |
| **Board SI** | 1.45 |
| **Board QU** | 2.06 |
| **Board EX** | 2.45 |
| **Boage** | 1.71 |
| **Size** | 1.72 |
| **Leverage** | 1.35 |
| **Industry Dummy** | yes |
| **Year Dummy** | yes |
| **Mean VIF** | 1.57 |

Following Rao & Tilt (2016); Zhang et al. (2013) and Harjoto et al. (2015). This study incorporates an alternative measure of gender diversity. Our findings reported in Table 5 are robust to alternative checks. Increasing the number of female directors to three have a positive and significant impact on corporate social responsibility (CSR) which supports the critical mass theory. Overall, this research findings suggest that the different dimensions of gender diversity play more role in corporate social responsibility activities.

Table 5 reports the results of the impact of owner's board diversity on CSR. Figures are representing T -values, where *, **, *** represents significance at the 1%, 5% and 10% levels respectively.

**Table 5**
**FIXED EFFECTS ANALYSIS FOR THE EFFECT OF BOARD DIVERSITY ON CORPORATE SOCIAL RESPONSIBILITY**

| | Scoreesg | Score Community | Score employees | Score environment | Score governance |
|---|---|---|---|---|---|
| **Women 3%** | 1.01<br>(2.48)** | 2.10<br>(3.49)* | 1.25<br>(2.43)** | 0.27<br>(0.52) | 0.29<br>(0.53) |
| **Board SI** | 0.07<br>(0.67) | 0.13<br>(0.85) | -0.00<br>(-0.04) | 0.01<br>(0.13) | 0.15<br>(1.11) |
| **Board QU** | -2.17<br>(-1.97)*** | -4.69<br>(-2.90)* | -0.78<br>(-0.56) | -2.32<br>(-1.66)*** | -2.18<br>(-1.46) |
| **Board EX** | 0.38<br>(1.11) | 0.44<br>(0.88) | -0.40<br>(-0.93) | 0.40<br>(0.92) | 0.71<br>(1.53) |
| **Age** | 0.04<br>(0.45) | -0.21<br>(-1.35) | 0.33<br>(2.45)** | 0.07<br>(0.56) | 0.00<br>(0.03) |
| **Size** | 3.53<br>(3.82)* | 3.60<br>(2.66)* | 3.81<br>(3.27)* | 4.16<br>(3.55)* | 3.45<br>(2.75)* |
| **Leverage** | -0.01<br>(-0.29) | 0.01<br>(0.26) | 0.01<br>(0.25) | 0.00<br>(0.04) | -0.09<br>(-2.02)** |
| **Constant** | 26.76<br>(2.31)** | 41.08<br>(2.42)** | 14.98<br>(1.02) | 20.25<br>(1.38) | 27.73<br>(1.77)* |
| **Adjusted $R^2$** | 0.09 | 0.04 | 0.06 | 0.09 | 0.01 |

The main contribution of this study that it is investigates the role of board diversity in management performance. Precisely, this paper examined the effectiveness of diverse boards in supervising managers' CSR performance. The results have significant implications for investors as well as boards, as for boards, having more females in boards can enhance board decision making and analysis. In addition, the positive impact of women on boards can enhance corporate reputation which positively affects the financial performance (Fombrun, 2006). In terms of investors, the increase in the number of women on a board may improve CSR; board changes may provide important signals to investors indicating the potential for improved reputation and financial performance.

Future studies could provide more insights on the selection process of directors. More specifically, future studies could examine corporations' incidents causing the increased level of board diversity, in addition it could investigate the changes in certain boards components following such incident. Furthermore, future studies could examine the differences in the director selection process for firms in consumer versus industrial product markets.

## CONCLUSION

This study attempts to investigate the contribution of diverse corporate boards in firm's corporate social responsibility (CSR) performance. A review of the most recent literature shows that board diversity Corporate Social Responsibility (CSR) is effective in both developed and developing stock markets. Using a sample of 89 firms listed at French stock exchange market from 2012 to 2015, we found supporting evidence for the critical mass theory. This study

contributed to the literature in several ways, yet the most important contribution is the conclusive result on the positive association between board diversity and CSR. Our finding simply that board diversity may be considered as an influential mechanism to enhance corporate Social responsibility.

**Appendix 1**
**CALCULATION OF CSR INDEX**

| Components | Description |
|---|---|
| ESG | Environmental, Social and Governance (ESG) Scores. These components are designed to transparently and objectively measure a company's relative ESG performance, commitment and effectiveness across 10 main themes (emissions, environmental product innovation, human rights, shareholders, etc.) based on company-reported data. |
| Community | This component covers the company's commitment and effectiveness within local, national and global community in which it does business. It reflects company's citizenship, charitable giving and volunteerism. This component covers company's human right record and treatment of its supply chain. It also covers the environmental and social impacts of company's products and services, and development of sustainable products, processes and technologies. |
| Employees | This component includes disclosure of policies, programs and performance in diversity, labor – relations and labor rights, compensation, benefits, and employees training, health and safety. |
| Environment | This component covers company's interactions with the environment at large, including use of natural resources, and company's impact on earth's ecosystem, compliance with environmental regulations, leadership in addressing climate change, energy- efficient operations, renewable energy, natural resources conservation, pollution prevention programs, strategy towards sustainable development and programs to engage stakeholders for environmental improvements. |
| Governance | This components includes disclosure of policies, procedures, board independence and diversity, executive compensation and evaluation of company's culture of ethical leadership and compliance. This component rates factors such as – alignment of corporate policies and practices and with sustainability goals; transparency to stakeholders, integration of sustainability principles from top down into day- to day operations of company. |

Source: CSRHub (www.csrhub.com)

**Appendix 2**
**VARIABLES DEFINITIONS**

| Variable | Measure |
|---|---|
| **Dependent variables** | |
| Corporate Social Responsibility (CSR) | CSR Hub: The total points from the index published for each company |
| Independent variables | |
| Women percentage on board (Women %) | Lagged proportion of female directors to total directors on the board |
| Three Top women (Women 3%) | A binary variable (3Women) coded as 1 if there are at least 3 women on the board and 0 otherwise. |
| **Control variables** | |
| Board size (Boze) | Total number of board members. |
| Board Experience (boex) | Average number of boards on which firm directors have served |
| Board Qualification (boqu) | Average number of educational qualifications of board directors (undergraduate and above). |
| Leverage (Lev) | The ratio of total debt to total assets. |
| Total Asset (TA) | The natural logarithm of total assets. |

## ENDNOTE

To calculate ESG scores, we relied on ratings available on CSRHub database. CSRHub is a leading CSR ratings and information database offering data on over 7.000 firms in 132 countries across 136 industries. CSRHub ranks firms within their industry based on 12 subcategories across the categories of environment, employees, community and governance; and convert it into a rating on a 0 to 100 scale (100 = positive rating). Firm's that are below standard are given a rate between 0-49, while firms that exceed standards are given a rate between 51-100 (Gidwani, 2011).

## REFERENCES


Adams, R.B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291-309.

Ahern, K.R. & Dittmar A.K. (2012). The changing of the boards: The impact on firm valuation of mandated female board representation, *The Quarterly Journal of Economics*, 127, 137-197.

Arfken, D.E., Bellar, S.L., & Helms, M.M. (2004). The ultimate glass ceiling revisited: The presence of women on corporate boards. *Journal of Business Ethics*, *50*(2), 177-186.

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics*, *97*(2), 207-221

Bernardi, R.A., & Threadgill, V.H. (2011). Women directors and corporate social responsibility. EJBO: Electronic *Journal of Business Ethics and Organizational Studies*, *15*(2), 15-21.

Boulouta, I. (2013). Hidden connections: The link between board gender diversity and corporate social performance'. *Journal of Business Ethics*, *113*(2), 185-197.

Brammer, S., MillIngton, A., & Pavelin, S. (2007). Gender and ethnic diversity among UK corporate boards. *Corporate Governance: An International Review*, *15*(2), 393-403.

Carter, D.A., Simkins, B.J., & Simpson, W.G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, *38*, 33-53

Carter, D.A, D D'souza, F., Simkins, B.J., & Simpson, W.G. (2010). The gender and ethnic diversity of US boards and board committees and firm financial performance. *Corporate Governance: An International Review*, *18*, 396–414.

Dang, R., Nguyen, D.K., & Vo, L.C. (2014). Does the glass ceiling exist? A longitudinal study of women's progress on French corporate boards. *Journal of Applied Business Research*, *30*(3), 909.

Dunn, P., & Sainty, B. (2009). The relationship among board of director characteristics, corporate social performance and corporate financial performance. *International Journal of Managerial Finance*, 5, 407–423.

Frias-Aceituno, J.V., Rodriguez-Ariza, L., & Garcia-Sanchez, I.M. (2013). The role of the board in the dissemination of integrated corporate social reporting. *Corporate Social Responsibility and Environmental Management*, *20*(4), 219-233.

Galbreath, J. (2011). Are there gender-related influences on corporate sustainability? A study of women on boards of directors. *Journal of Management & Organization*, *17*(1), 17-38.

Hillman, A.J., Cannella Jr, A.A., & Harris, I.C. (2002). Women and racial minorities in the boardroom: how do directors differ? *Journal of management*, *28*(6), 747-763.

Huang, C.J. (2010). Corporate governance, corporate social responsibility and corporate performance. *Journal of Management& Organization*, *16*, 641–655.

Joecks, J., Pull, K., & Vetter, K. (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass? *Journal of business ethics*, *118*(1), 61-72.

Konadu, R. (2017). Gender diversity impact on corporate social responsibility (CSR) and greenhouse gas emissions in the UK. *Economics and Business Review*, *3*(1).

Konrad, A. M., & Kramer, V.W. (2006). How many women do boards need? Harvard business review, *84*(12), 22.

Konrad, A.M., Kramer, V.W., & Erkut, S. (2008). The impact of three or more women on corporate boards. *Organizational dynamics*, *37*(2), 145-164.

Larrieta-Rubín de Celis, I., Velasco-Balmaseda, E., Fernández de Bobadilla, S., Alonso-Almeida, M.D.M., & Intxaurburu-Clemente, G. (2015). Does having women managers lead to increased gender equality practices in corporate social responsibility? *Business Ethics: A European Review*, *24*(1), 91-110.

Lückerath-Rovers, M. (2013). Women on boards and firm performance. *Journal of Management & Governance, 17*(2), 491-509.

Marquis, C., & Lee, M. (2013). Who is governing whom? Executives, governance, and the structure of generosity in large US firms. *Strategic Management Journal*, *34*(4), 483-497.

Post, C., Rahman, N., & Rubow, E. (2011). Diversity in the composition of board of directors and environmental corporate social responsibility (ECSR). *Business & Society*, 49.

Rao, K., & Tilt, C. (2016). Board composition and corporate social responsibility: The role of diversity, gender, strategy and decision making. *Journal of Business Ethics*, *138*(2), 327-347.

Rose, C. (2007). Does female board representation influence firm performance? The danish evidence. *Corporate Governance: An International Review*, *15*(2), 404-413.

Ruigrok, W., Peck, S., & Tacheva, S. (2007). Nationality and gender diversity on Swiss corporate boards. *Corporate Governance: An International Review*, *15*(4), 546-557.

Setó-Pamies, D. (2015). The relationship between women directors and corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, *22*(6), 334-345.

Talke, K., Salomo, S., & Kock, A. (2011). Top management team diversity and strategic innovation orientation: the relationship and consequences for innovativeness and performance. *Journal of Product Innovation Management*, *28*(6), 819-832.

Terjesen, S., Couto, E.B., & Francisco, P.M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management & Governance*, *20*(3), 447-483.

Torchia, M., Calabrò, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of Business Ethics*, *102*, 299-317.

Zhang, J.Q., Zhu, H., & Ding, H.B. (2013). Board composition and corporate social responsibility: An empirical investigation in the post Sarbanes-Oxley era. *Journal of business ethics*, *114*(3), 381-392.