WOMEN ON BOARD:
FEMALE PRESENCE ON THE BOARD OF DIRECTORS
AND CORPORATE SOCIAL RESPONSIBILITY

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By

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ABSTRACT

This study examines the correlation between female presence on the board of directors and a company’s corporate social responsibility (CSR) performance. It has been widely accepted that CSR makes business sense; that a company will do well if it does good. Focusing on the importance for, and interest of governments and societies in having more socially responsible businesses, I estimate the relation between female board presence and CSR using 2015 data from the Morgan Stanley Capital International (MSCI) Environmental, Social, and Governance (ESG) indicators as a measure of CSR performance, and the most current data (May 2016) from BoardEx on corporate governance and boardroom processes, including gender composition, for publicly traded companies in the United States. The study finds that, a higher percentage of women on the board is associated with a higher environmental rating of the company. I argue that this positive effect could be explained by the ethics of care theory, which highlights female personality traits (i.e., women’s tendency to be cooperative, democratic, inclusive, and collectivist-oriented) to explain why women are more prone to care for others.
La investigación y redacción de esta tesis está
dedicada a mi familia, ustedes son el motor que me impulsa a seguir adelante.
Y a mis padres, gracias por tanto. Los amo!

The research and writing of this thesis is
dedicated to my family; you are the engine that keeps me moving forward.
To my parents, thank you. I love you!

Many thanks also to everyone from the McCourt School of Public Policy who helped and supported me along the way, especially Jeffrey Mayer and Eric Gardner.

Andrea Mercedes Pereira
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I. INTRODUCTION

Nowadays, Milton Friedman’s 1970 statement that "There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits..." is hard to support. It has been widely accepted that corporate social responsibility makes business sense; that a company will do well if it does good. On this point, a number of empirical studies (Barnett & Salomon, 2011; Eccles et al., 2012; Edmans et al., 2014) have found a positive relationship between being socially responsible and a company’s financial performance. The authors of these studies conclude that CSR is cost effective, it makes businesses more sustainable, and it improves the image of the company making it more attractive to investors, customers, and employees (Rahman, 2010).

However, there has been much less progress when it comes to women gaining leadership positions in the business world (Pew Research Center, 2015). According to a Standard and Poor’s 500 (S&P 500) study of publicly traded US companies in 2016, women represent less than 5% of CEOs, and hold less than 20% of board seats. Yet, studies that have examined the impact of women as decision makers on companies’ financial performance, have found a positive correlation between the two (Adams & Ferreira, 2009; Frick & Bermig, 2010). A number of studies have also evaluated the relationship between women and governance practices, corruption, and fairness in both the public and the private sector (Dollar et al., 2001; Goetz, 2007; Sung, 2003 and 2012; Swamy et al., 2001), and found that women are less involved in cases of corruption, and are more inclusive and fairer leaders.

Nonetheless, on combining CSR and the subject of women in leadership positions in the private sector, the few studies that have looked at this relationship have either focused on only one specific area of CSR, such as the environment (Segarra-Ona et al., 2014), studied very specific societies and markets: Austria and Germany (Velt, 2016), or used a limited sample (Setó-Pamies, 2013). These and other features of the studies, make it difficult for them to have external validity. It is difficult to generalize their conclusions to many countries due to the different socioeconomic, geographical, and political characteristics of each country.
One approach to making theoretical sense of the relationship between females and better governance practices and financial performance is the ethics of care. This theory holds that female personality traits make for a leadership style that is more inclusive, democratic, and attentive to the needs of others. Following this, the present study takes a broader approach and attempts to test the hypothesis that female presence on a company's board of directors increases a company's responsiveness to social needs, measured by the Morgan Stanley Capital International (MSCI) Environmental, Social, and Governance (ESG) ratings. Due to data access limitations, the study only observes companies based in the United States. Even though the argument about external validity could be apply to this particular study, it is expected that the extensiveness and diversity of American corporations, as well as the size of the sample used in this study will grant more legitimacy to its results. Furthermore, the well-established legal framework and public scrutiny (Kendall, 2007; Reid & Toffel, 2009) within which US corporations operate allows for the study’s findings to be generally consistent.

To examine the relationship between CSR and female board participation, I estimated a multiple linear regression model, using 2015 data from the MSCI-ESG indicators as a measure of CSR performance. The MSCI-ESG database contains information for 2,965 companies in the US. I combined these data with BoardEx 2016 data on over 8,000 companies’ corporate governance and boardroom processes, including board gender composition, for publicly traded companies in the US.

I do not examine the benefits of CSR for corporations, but instead focus on the importance for, and interest of governments and societies in having more socially responsible businesses. The bottom line here is that, given the financial and social power, as well as the reach of corporations to carry out their objectives, a company that has a higher ESG score is a company that is more attentive and better positioned to respond to the needs of the community in which it operates, and to the society in general.

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1 ESG ratings were originally designed to help investors make educated decisions based on a business’ sustainability. The different pillars and variables included in ESG ratings provide comprehensive information about companies’ environmental, social, and governance performance.
In the following sections, I present the relevant literature on CSR, including its importance to society and government, and a review of what previous studies have found on the relationship between CSR and women. The study’s conceptual framework presents the theories used to develop my hypothesis — stakeholder theory, agency theory, and ethics of care theory. Subsequent sections present the data, methods, results, and main analysis of the findings; a final section offers conclusions and recommendations.
II. LITERATURE REVIEW

**CSR — Definition and Reach**

There is not a single and universally accepted definition of CSR. Part of the uncertainty has to do with the different perceptions of the social responsibilities of a company. The three different areas of CSR are often dealt with separately. The first, is the idea that CSR refers to a company’s duty towards environmental protection and sustainability. The second, is corporate governance, referring to salaries, benefits, labor protection, safety, and diversity in the workplace. And the third, is the socially oriented area of CSR, which refers to a company’s civic responsibilities. This last area has attracted more attention lately since it seems to have a positive effect on a company’s reputation, and thus on its profitability (Barnett & Salomon, 2011; Bear et al., 2010; Eccles et al., 2012).

There is also a trend now to think about *global CSR*, referring to the fact that people hold companies accountable “for actions far beyond their boundaries”, and expect companies to responsibly choose partners, distributors, suppliers, and even governmental alliances (Davis et al., 2008). In an attempt to use a definition that encompasses all of these areas of CSR — environmental, social, governance, and global — I define CSR with Aguinis (2011) as “context-specific organizational actions and policies that take into account stakeholders’ expectations and the triple bottom line of economic, social, and environmental performance” (p. 858). In other words, CSR is not just charity or philanthropy. It is a company’s commitment to channel its business strategy and practices towards creating value for and having a positive impact on society. In this definition, the term “stakeholders” includes investors, employees, suppliers, creditors, unions, consumers, related governmental and non-governmental agencies, and the general community.

**CSR — Importance to Society and Governments**

The consensus view is that by taking into account the expectations of *all* stakeholders, socially responsible companies generate benefits for society at large. This paper does not examine the benefits of CSR for corporations, but instead focuses on the importance for, and interest of governments and societies for more
socially responsible businesses. At the individual level, people who are directly engaged with a socially responsible company, such as employees, benefit from a positive work environment that promotes creativity, and personal and professional growth, which could also motivate individual philanthropy (Gond et al., 2010). Nonprofit and other organizations benefit from CSR by receiving financial and nonfinancial support, from partnerships, and possibly from a bigger volunteer pool that includes corporations’ employees. Also, since CSR is a way for corporations to offer some public services, for example, through public-private partnerships (PPPs), it supports the public sector in meeting societal needs and the challenges of sustainable development (Nelson, 2008).

The environment also benefits from an environmentally responsible company that uses renewable resources, and whose inputs and outputs have greater recyclability, and a higher durability and functionality. Moreover, CSR also secures the interests of society by ensuring product safety and quality, supporting fair trade, and sponsoring community education, housing, and anti-poverty programs. As Eric Orts has observed, “corporations are the dominant institutions on the planet today. Therefore, they have to help address [the] social [and] environmental issues that affect humankind.” (Harrison & Coussens, 2007, p. 83)

**CSR and Government Regulations**

Critics and supporters of CSR agree that CSR is voluntary by nature (Karnani, 2013). As such, it could not be regulated or it would no longer be CSR, but something more along the lines of corporate social compliance. Yet, the idea that corporations have a moral obligation to serve society is relatively new. Historically, social objectives have been almost entirely the responsibility of governments. However, in view of the limitations of governments as service providers, and with the increasingly influential role of corporations in society, this expectation for social services has changed.

Some of these changes have been mandatory. Though not often seen as such, environmental and labor regulations already force corporations to be more responsible. The question is then, to what extent do governments want to regulate businesses’ social engagements? Too much regulation may affect the
effectiveness of their social actions, as well as the businesses’ responsiveness to market shifts; while too little regulation could translate into inaction on the part of corporations, or inconsistency of practice and quality.

**Women on the Board of Directors and CSR**

One regulation in some countries that is relevant for this paper’s topic, although quite unthinkable in the US context, is the establishment of women board quotas. Still, not much can be said in favor of this regulation even from those who support it. As Agnès Touraine, chair of the French Institute of Directors stated “[q]uotas are never a victory and should not be the solution. However, they are the only option when there are no signs of a willingness to change the current situation….we have to recognize that regulation can speed up progress.” (Deloitte, 2014, p. 36).

There is also the argument that companies would appoint females to the board just to comply with quotas even though there are more than enough women qualified for the job (Weisul, 2014). Still the main problem with quotas is that they undermine women’s credibility and ignore their capability as directors. On this, Maureen Sabia, Chairman of the Canadian Tire Corp. explains that “[i]mposing a quota says to the world that women cannot enter the boardroom by virtue of their own accomplishments…they can only take a seat at the table because somebody mandated it....therefore, [women] will always be perceived as being less than their male counterparts.” (Deloitte, 2014, p. 23). However, studies have proven the positive effect of having women on a company’s financial performance (Adams & Ferreira, 2009; Frick & Bermig, 2010), and on governance practices (Dollar et al., 2001; Goetz, 2007; Sung, 2003 and 2012; Swamy et al., 2001). So why are quotas even necessary?

Adding to these studies are recent examples evaluating women’s presence on a company’s sustainability performance. Segarra-Ona et al. (2014) found that companies’ diversity and work-life balance policies positively affect their environmental scores. On another study, Velte (2016) found that the presence of female members on the boards of Austrian and German companies listed on the Frankfurt and Vienna Stock Exchange, made a positive difference in the companies’ ESG scores. Other cross-country and cross-industry studies, some using panel data to analyze the relationship between women on a company’s board of directors
and CSR, have found a positive correlation between the two (Boulouta, 2011; Harjoto et al., 2014; Setó-Pamies, 2013). However, the different approaches taken on these studies, and data limitations that each of these authors encountered, encourage further research on the topic.

Other studies have found a positive correlation between the presence of women on a corporation’s board, and a company’s charitable contributions, especially for cultural purposes (Bear et al., 2010; Wang & Coffey, 1992; Williams, 2003). Nonetheless, as noted above, CSR is much more than charity or philanthropy; it is a commitment to channel a company’s business strategy and practices towards creating value for society.

In contrast to prior studies, the present study takes a broader approach looking at the board gender composition of over 900 publicly traded US companies to test the relationship between women’s presence and CSR. This approach consists in adding the interaction between the stakeholder theory, agency theory, and ethics of care theory as a possible explanation for the relationship between CSR and female presence on the board of directors. Furthermore, the magnitude and diversity of the sample in regards to company size and industry, and the well-established legal framework and public scrutiny within which US corporations operate, should allow for a more consistent estimation of this relationship.
III. CONCEPTUAL FRAMEWORK

I hypothesize that female presence on a company’s board of directors increases a company’s responsiveness to social needs as reflected by its CSR, measured here by its MSCI-ESG rating. The estimation of this relationship is based on the combination of three main theories: (i) stakeholder theory, which explains the importance for a successful business of attending to the interests of all stakeholders; (ii) agency theory, which defines the position of a company’s board of directors as the decision-making body, whose decisions will impact all stakeholders; and (iii) the ethics of care theory, which describes how the presence of female board members would allow for the board of directors to strategically meet stakeholders’ interests. The following paragraphs explain each of these theories and later offer an explanation of how they interact together to meet the hypothesis.

Stakeholder Theory

Stakeholder theory explains that to succeed in business, it is important to attend to the interests of all stakeholders. Keeping in mind the difference between shareholders (those who own shares in the company) and stakeholders (those who can influence and be influenced by a company’s actions — including shareholders), many studies have emphasized the importance of expanding stakeholder relations in order to maximize firm value, and thus shareholder value (Freeman et al., 2004; Jensen, 2001).

Companies have both stated and tacit agreements with stakeholders. Stated agreements are contracts convening things such as investments, loans, or wages. Tacit agreements refer to unwritten commitments a company engages in, such as promises of economic development, employment opportunities, and environmentally sustainable practices. According to stakeholder theory, firms could suffer financial and reputational burdens from ignoring such tacit agreements (i.e., stakeholders’ interests). Yet, a company’s interest in honoring its tacit agreements has recognizable limits. Harjoto et al. (2014) explain that the balance between firm value maximization and stakeholder theory lies in “satisfy[ing] the needs of stakeholders until the marginal cost of doing it exceeds the marginal benefit to shareholders” (p. 644). But, who has the discretion to decide where to set this limit? The board of directors.
Agency Theory

Since the board of directors is at the top of a company’s decision-making structure, agency theory explains why it is strategically positioned to address the interests of all stakeholders, and why its composition is so important.

Agency theory presents the problem of two cooperating parties that have different preferences in regard to how to reach a goal, which in this case is firm value maximization. The problem arises when the principal — i.e., the stakeholders — assigns the responsibility of this task to an agent — in this case, the corporation, and more specifically, the board. However, the principal and the agent have different preferences and perceptions on the approach to take (Eisenhardt, 1989). In the context of these differences, the purpose of the board is to determine the company’s priorities, and provide strategic guidelines for operations. These will be established following the agent’s (board) perceptions, and influenced by its members’ self-interest, which is why the composition and dynamics of the board are crucial to addressing strategic issues.

According to different studies (Eagly et al., 2003; Rudman and Glick, 2001), female directors are more willing to cooperate, more democratic, and collectively oriented than men. This means that the presence of females on the board of directors will stimulate more participatory and inclusive communications (Bear et al., 2010). Consequently, more voices and interests will be taken into account when making decisions, and the approach taken to maximize value will be more likely to take all stakeholders into account.

Ethics of Care Theory

Ethics of care theory describes how the presence of women on the board of directors could be a driver of social responsibility. Traditional ideas in morality and ethics, which have determined the socially and culturally constructed gender roles of our society, overstate masculine traits and understate feminine traits. These ideas also typically favor “‘male’ ways of moral reasoning that emphasize rules, rights, universality, and impartiality, over ‘female’ ways of moral reasoning that emphasize relationships, responsibilities, particularity, and partiality” (Jaggar, 1992 as cited in Tong & Williams, 2009, par. 1).
The ethics of care was developed to compensate the flaws of traditional male moral reasoning, and bring female values into a new way of moral reasoning. This approach starts from the premise that all human beings have the need to receive and give care to others, and argues that by being more connected to others, people are able to fully develop their own humanity (Tong & Williams, 2009).

Translating this to the corporate world, “fully developing the ‘self’ of a company” would be to maximize its value to society, which ties ethics of care and stakeholder theory together. Critics of this theory claim that by linking women to caring, care ethicists are promoting the view that because women care more, they would care no matter the cost to themselves — or the corporation (Bartky, 1990). However, in real terms, studies have shown that when it comes to CSR, the more a company cares about society, the better it performs (Barnett & Salomon, 2011). Based on this premise is that my hypothesis develops. Female presence on a company’s board of directors increases a company’s responsiveness to social needs given the feminine personality traits explained by the ethics of care theory.

Offering a practical use of this ethical theory when it comes to CSR, I suggest that Joan Tronto’s four phases of care (2005), could be transposed as a company’s four phases of CSR:

(i) Caring about the other → refers to attentiveness, the recognition of others’ needs;

(ii) Taking care of the other → refers to recognizing accountability of actions, and deciding to take responsibility for them;

(iii) Care-giving → refers to the action of providing care or servicing the community. This phase also refers to the competence of the [company] to provide such care or service, which should be adequate and sufficient²; and

(iv) Care-receiving → refers to the impact of the provision of care; the response of the care receiver to the care.

² This phase implies an important distinction between a symbolic and an actual CSR commitment. See “Does Corporate Social Responsibility Benefit Society?” (Li, J. & Wu, D., 2017).
Figure 1 offers a graphic representation of the relation among these three theories and how they support the hypothesis.

Figure 1. Stakeholder Theory, Agency Theory, and the Ethics of Care as Drivers of CSR.

Figure 1 explains the theoretical relation between female presence on the board of directors and the MSCI-ESG score. Stakeholders, shareholders, companies, and societies are all pursuing their own value maximization. Stakeholder theory emphasizes the importance of directing a company’s actions towards maximizing value for all stakeholders — including society, but also the company and the shareholders. The stakeholders then become the “principal”, and since a company’s board of directors is the decision-maker body of the company, it becomes the “agent” in the pursuit of stakeholders’ goal.

The problem in this arrangement arises as a conflict of interests and approaches towards value maximization. Many board members may be convinced that stakeholder value maximization will naturally happen as a consequence of company and shareholder value maximization. While this may be right in some instances, it
will not be right in others. In the later cases, this approach will fail to provide adequate care to the needs of all stakeholders — employees, suppliers, creditors, unions, consumers, governmental and non-governmental agencies, and the general community. To solve this problem, I hypothesize that given feminine personality traits explained by *ethics of care theory*, female presence on the board of directors will result in company actions that are more inclusive of and adequate to everyone’s needs, meeting the argument of the *stakeholder theory*. 
IV. DATA AND METHODS

To empirically test the relationship between female presence on the board of directors and a company’s MSCI-ESG ratings, I estimate a multiple linear regression model using two sources. The first source, BoardEx (2016), contains data on corporate governance and boardroom processes, which include board gender composition. This source has available data for 8,202 active companies in the US. The second source, used in similar previous studies (Boulouta, 2013), is the Morgan Stanley Capital International (MSCI) database, which includes 2015 data on Environmental, Social, and Governance (ESG) indicators (See Figure 2). The MSCI has available data for 2,965 companies in the US. I combined these datasets based on a company’s ticker symbol, which is a code used to identify publicly traded companies on a particular stock market (The Deal, 2017). After combining the datasets, the final sample size of publicly traded companies in the United States totals 921 observations.

In order to examine the relationship between female presence on the board of directors and a company’s MSCI-ESG score, I run two different regressions. One model, uses the MSCI-ESG environmental score as a dependent variable, and the other one uses the MSCI-ESG social score. Neither the overall MSCI-ESG score, nor the governance score could be used since each incorporate a gender variable in its calculation. This variable of “at least one women on the board” would introduce a correlation bias in my model with the key independent variable, “female percentage on the board”.

Figure 2, MSCI-ESG Key Issue Hierarchy, presents the different pillars, themes, and key issues used by MSCI to calculate their ESG ratings. Each of the pillars receives a score based on the calculation and weight of the key issues contained in the corresponding pillar. The themes serve as a guide to classify the different issues that are taken into consideration for the pillars score.

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3 Further information on BoardEx’s data sources and indices is included in Appendices A and B.
Dependent Variable

In each of the regressions, my dependent variable is the natural logarithm of the MSCI-ESG score of the company (\(\text{LnESG}\)) taken from the MSCI-ESG data. This variable contains score values between 0 to 10, that represent the weighted average of all key issues evaluated under each pillar (See Figure 2). The score for each of the key issues is calculated accounting for the risks, opportunities, and management capabilities of the company related to producing, or failing to produce expected outcomes (MSCI, 2017). The environmental pillar score, for example, incorporates carbon emissions, raw material sourcing, waste, and environmental...
opportunities as some of its key issues. And, the social pillar score includes labor management, product safety, controversial sourcing, and social opportunities. The scores are logged for interpretation purposes.

**Key Independent Variable**

My key independent variable, \( FEM \) is the percentage of female members on the board of directors of a corporation. I calculate this measure by dividing the number of female members on the board by the total number of board members. Both numbers are taken from BoardEx data.

**Control Variables**

My selection of the control variables is based on previous studies that have found them to be influential in driving a company’s CSR behavior. Variables related to company size and profitability (\( MARKETCAP \), and \( REVENUE \)), as well as \( INDUSTRY \) are the most commonly used control measures in the literature when observing a relation between financial and social performance of a company. Other variables are used to control for individual characteristics of the female board members that are believed to affect the level of influence they exert over the board. These include their role in the company, and the tenure of their board seats (Blankenship & Miles, 1968; Mekelenkamp, 2015). Control variables are defined as follows:

- **MARKETCAP**: Market Capitalization, the total value of a company’s securities at current prices as quoted on a stock exchange, and calculated by multiplying the total number of shares by the market price (MSCI, 2017).
- **REVENUE**: Current annual company revenue.
- **INDUSTRY**: Industry indicator (0-1) for 8 different sectors\(^4\).
- **HIGH_ROLE_F**: Role indicator (0-1) for whether females act as the Chair of the Board, or occupy Presidential or C-level positions.
- **ONEPLUS_YR_F**: Time indicator (0-1) for those boards who has at least one female who have sat on the board for at least one year.

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\(^4\) The \( INDUSTRY \) variable is created by classifying the “sectors” of the BoardEx data according to the 2-digit code of the North American Industry Classification System (2012). This is the standard classification system used by US federal statistical agencies for data related to US businesses. For more details on the composition of each sector and sample distribution by sector, see Appendices C and D.
Regression Model

I use an Ordinary Least Squares (OLS) model to examine the relationship between female presence on the board of directors and a company’s MSCI-ESG score. The model regresses the log of each of the two MSCI-ESG scores used on the proportion of females on the board of directors, including the previously explained controls. An interaction term between the female percentage and the indicator variable for those boards where at least one woman holds a high level executive role (i.e., Board Chair, President of the company or C-level executive) is added to see the effect of this interaction on the MSCI-ESG score. Also, robust standard errors are used to correct for the problem of heteroskedasticity (non-constant variance) in the error term. My final regression model, where \(i\) indicates the different observations and \(k\) the different industries, is specified as:

\[
\ln(\text{ESG}_{ik}) = \beta_0 + \beta_1 \text{FEM}_i + \beta_2 \text{HIGH\_ROLE\_Fi} + \beta_3 \text{FEM}_i \times \text{HIGH\_ROLE\_Fi} + \\
\beta_4 \text{ONEPLUS\_YR\_Fi} + \beta_5 \text{INDUSTRY}_{ik} + \beta_6 \text{MARKETCAP}_i + \beta_7 \text{REVENUE}_i + \mu
\]

Descriptive Statistics

Table 1 presents descriptive statistics for the 921 observations in my sample. The average size of the companies, measured as a function of their revenue, is USD 110 billions. The average percentage of women on the board of directors of these companies is 15%. With a standard deviation of about 11 points, this percentage varies between 0 and 75% of the board being female\(^5\). Finally, the average MSCI-ESG environmental score received by these companies is 4.4, and the average social score is 4.2; both on a 10-point scale. In regards to the interaction terms included in the model, Table 1 indicates that on average, 8.3% of the companies in the sample have at least one woman on the board who holds a high level executive role; while 72.6% have at least one woman who has been sitting on the board for at least one year.

\(^5\) 19.7% of company boards (182 boards out of 921) included in the sample of this study have a 0% female presence.
Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable (N=921)</th>
<th>Mean</th>
<th>SD</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental score</td>
<td>4.442</td>
<td>2.012</td>
<td>3</td>
<td>4.3</td>
<td>5.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Social score</td>
<td>4.156</td>
<td>1.577</td>
<td>3.2</td>
<td>4.2</td>
<td>5.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Female presence on the board (%)</td>
<td>15.157</td>
<td>10.895</td>
<td>8.3</td>
<td>14.29</td>
<td>22.22</td>
<td>29.41</td>
</tr>
<tr>
<td>Revenue (billion USD)</td>
<td>110.10</td>
<td>381.05</td>
<td>7.46</td>
<td>22.62</td>
<td>61.23</td>
<td>212.11</td>
</tr>
<tr>
<td>Market Capitalization (billion USD)</td>
<td>184.22</td>
<td>655.07</td>
<td>12.91</td>
<td>30.84</td>
<td>92.04</td>
<td>294.06</td>
</tr>
<tr>
<td>At least 1 woman with a high level role (indicator)</td>
<td>0.0834</td>
<td>0.2766</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>At least 1 woman for at least 1 year on the board (indicator)</td>
<td>0.7259</td>
<td>0.4463</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 2 provides the correlation coefficients for all independent variables, including the key independent variable and controls. Two important relations are expressed here. One is the strong, positive and significant correlation (0.683) between market capitalization and revenue, which is expected since both variables are related to the size and profitability of the company. The second is the strong, positive, and significant association between the percentage of females on the board, and the variable of having at least one woman who has been on the board for at least one year (0.647), this indicates that the percentage of women on the board is positively and highly correlate to the tenure of the women on the board, and vice versa.

Table 2. Correlation Coefficients of Independent Variables

<table>
<thead>
<tr>
<th>Variable (N=921)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tbody>
<tr>
<td>1. Female presence on the board (%)</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2. At least 1 woman with a high level role (indicator)</td>
<td>.36*</td>
<td>1</td>
<td></td>
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<tr>
<td>3. At least 1 woman for at least 1 year (indicator)</td>
<td>.647*</td>
<td>.141*</td>
<td>1</td>
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<td></td>
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<td>4. Sector: Manufacturing</td>
<td>.017</td>
<td>-.001</td>
<td>.006</td>
<td>1</td>
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</tr>
<tr>
<td>5. Sector: IT</td>
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<td>-.038</td>
<td>-.064</td>
<td>-.201*</td>
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<td>6. Sector: Finance</td>
<td>.016</td>
<td>-.052</td>
<td>.068</td>
<td>-.204*</td>
<td>-.116*</td>
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<tr>
<td>7. Sector: Professional</td>
<td>-.079*</td>
<td>-.0219</td>
<td>-.047</td>
<td>-.198*</td>
<td>-.0133*</td>
<td>-.114*</td>
<td>1</td>
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<td>8. Sector: Extraction &amp; Utilities</td>
<td>-.019</td>
<td>-.014</td>
<td>.014</td>
<td>-.172*</td>
<td>-.098</td>
<td>-.099</td>
<td>-.096</td>
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<td>9. Sector: Construction</td>
<td>-.027</td>
<td>-.024</td>
<td>-.033</td>
<td>-.018*</td>
<td>-.105*</td>
<td>-.106*</td>
<td>-.103*</td>
<td>-.089*</td>
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<td>10. Sector: Retail &amp; Transport</td>
<td>.085</td>
<td>.044</td>
<td>.075</td>
<td>-.232*</td>
<td>-.132*</td>
<td>-.134*</td>
<td>-.129*</td>
<td>-.113*</td>
<td>-.121*</td>
<td>1</td>
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<tr>
<td>11. Revenue (billion USD)</td>
<td>.177*</td>
<td>.002</td>
<td>.141</td>
<td>-.029</td>
<td>.054</td>
<td>.01</td>
<td>-.02</td>
<td>-.035</td>
<td>-.06</td>
<td>.108*</td>
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<tr>
<td>12. Market Capitalization (billion USD)</td>
<td>.192*</td>
<td>.003</td>
<td>.137*</td>
<td>-.001</td>
<td>.031</td>
<td>.006</td>
<td>-.039</td>
<td>-.058</td>
<td>-.009</td>
<td>.683*</td>
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* Statistically significant at the 1% level.
V. RESULTS AND ANALYSIS

To examine the relationship between female presence on the board of directors and a company’s MSCI-ESG score, the model regressed the log of each of my two MSCI-ESG scores on the proportion of females on the board of directors controlling for other factors that previous research have found to influence CSR (Segarra-Ona et al., 2014; Setó-Pamies, 2013; Velte, 2016). Table 3 reports the OLS regression results for each MSCI-ESG score used in this study: (1) environmental and (2) social.

(1) \( Y = \ln \text{Environmental Score} \)

In the first model, the coefficient obtained on \( FEM \) — percentage of female presence on the board — is positive and statistically significant at the 1% level (p<0.01). This supports the hypothesis that a higher percentage of females on the board is associated with a higher MSCI-ESG environmental score. Specifically, holding other factors constant, a 1 percentage point increase on the percentage of women on the board, is associated with an average 0.7 percent increase of the environmental MSCI-ESG score.

The \( \text{HIGH\_ROLE\_F} \) coefficient, statistically significant at the 1% level (p<0.001), indicates that holding other factors constant, having at least one woman on the board of directors who holds a high level executive role is associated with an MSCI-ESG environmental score that is, on average, 79.7% higher than the score of a company whose board has no women holding high level executive roles (e.g. Board Chair, President of the company or C-level executive)\(^6\).

Meanwhile, the coefficient of the interaction term between \( FEM \) and \( \text{HIGH\_ROLE\_F} \) is negative and statistically significant at the 1% level (p<0.001). This indicates that, holding other factors constant, the effect of females on the board (\( FEM \)) on the MSCI-ESG environmental score will be different for companies whose boards have at least one woman in a high level executive role, than for those with no women in high level executive roles. On a board with at least one woman holding a high level executive role (\( \text{HIGH\_ROLE\_F} = 1 \)), a higher percentage of females is associated with a lower MSCI-ESG environmental score in comparison to

---

\(^6\) Calculating the exact percentage difference in \( Y \) for large indicator coefficients (Habyarimana, 2016): \( 100^* \left( e^{\text{HIGH\_ROLE\_F} - 1} \right) \rightarrow 100^* \left( e^{0.5861 - 1} \right) = 79.69\% \)
those where $HIGH\_ROLE\_F = 0$. Specifically, for every 1 percentage point increase of the female presence in companies with at least one high-level female executive, the MSCI-ESG environmental score is expected to be, on average, 1.7 percent lower than the average score of companies where the board has no women in high level executive roles\(^7\).

Finally, the coefficient of $ONEPLUS\_YR\_F$ is not statistically significant in this model ($p=0.353$), meaning that the effect on the MSCI-ESG environmental score of having at least one woman who has been on the board for at least one is not statistically different from zero. All sectors represented by the $INDUSTRY$ variable have significant negative effects on the MSCI-ESG environmental score. While the variables controlling for company size and profitability — $REVENUE$ and $MARKET\text{CAP}$ — have positive and significant impacts, which is consistent with the findings of previous studies (Boulouta, 2013; Harjoto et al., 2014; Segarra-Ona et al., 2014; Seto-Pamies, 2015; Velte, 2016).

\((2)\) $Y = \ln \text{Social Score}$

In the second model, the coefficients on $FEM$ and $HIGH\_ROLE\_F$ are both negative and statistically insignificant ($p=0.980$ and $p=0.214$, respectively). The coefficients of the interaction term and the $ONEPLUS\_YR\_F$ variable, although positive, are also insignificant ($p=0.141$ and $p=0.790$, respectively). This indicates that in the case of the MSCI-ESG social score, the presence of women on the board of directors does not have a significant impact on the MSCI-ESG score.

Table 3 presents the regression coefficients and their significance for both models:

---

\(^7\) The effect of $FEM$ on the MSCI-ESG environmental score varies depending on the roles of the women on the board:

- If $HIGH\_ROLE\_F = 1 \rightarrow$ $FEM$ effect $= 0.0069 + (1)(-0.0241) = -0.0172 \sim -1.7\%$
- If $HIGH\_ROLE\_F = 0 \rightarrow$ $FEM$ effect $= 0.0069 + (0)(-0.0241) = 0.0069 \sim 0.7\%$
Table 3. Regression Results

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<thead>
<tr>
<th>Variable</th>
<th>(1) Y = Environmental Score</th>
<th>(2) Y = Social Score</th>
</tr>
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<tbody>
<tr>
<td>LnESGi (constant)</td>
<td>1.6176*** (0.0418)</td>
<td>1.439*** (0.0416)</td>
</tr>
<tr>
<td>FEM</td>
<td>0.00691*** (0.0023)</td>
<td>-0.0001 (0.0021)</td>
</tr>
<tr>
<td>HIGH_ROLE_F</td>
<td>0.5861*** (0.1392)</td>
<td>-0.1183 (0.0952)</td>
</tr>
<tr>
<td>FEM*HIGH_ROLE_F</td>
<td>-0.0241*** (0.0054)</td>
<td>0.0053 (0.0036)</td>
</tr>
<tr>
<td>ONEPLUS_YR_F</td>
<td>-0.0476 (0.0512)</td>
<td>0.0119 (0.0448)</td>
</tr>
<tr>
<td>SECTOR_CONSTRUCTION_REAL_STATE</td>
<td>-0.1811*** (0.0487)</td>
<td>-0.4527*** (0.0803)</td>
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<tr>
<td>SECTOR_EXTRACTION_UTILITIES</td>
<td>-0.5028*** (0.0791)</td>
<td>0.0196 (0.0545)</td>
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<tr>
<td>SECTOR_FINANCE</td>
<td>-0.8438*** (0.0960)</td>
<td>-0.2493*** (0.0462)</td>
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<tr>
<td>SECTOR_IT</td>
<td>-0.2264*** (0.0491)</td>
<td>-0.0761 (0.0505)</td>
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<tr>
<td>SECTOR_MANUFACTURING</td>
<td>-0.3675*** (0.0436)</td>
<td>-0.0483 (0.0479)</td>
</tr>
<tr>
<td>SECTOR_PROFESSIONAL</td>
<td>-0.1847*** (0.0428)</td>
<td>0.0461 (0.0508)</td>
</tr>
<tr>
<td>SECTOR_RETAIL_TRANSPORT</td>
<td>-0.4873*** (0.0653)</td>
<td>-0.1398*** (0.0522)</td>
</tr>
<tr>
<td>MARKETCAP</td>
<td>0.00007* (0.0004)</td>
<td>0.00005** (0.0002)</td>
</tr>
<tr>
<td>REVENUE</td>
<td>0.00014* (0.0005)</td>
<td>-0.00009*** (0.00003)</td>
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<tr>
<td>Observations</td>
<td>921</td>
<td>914</td>
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<tr>
<td>R²</td>
<td>0.2052</td>
<td>0.0934</td>
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<tr>
<td>F-statistics</td>
<td>15.94</td>
<td>7.63</td>
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</table>

Robust standard errors in parentheses; ***p<0.01; **p<0.05; *p<0.1
Analysis

I found that female presence does have a positive impact on the MSCI-ESG environmental score, but not on the social score. In my environmental model, the higher the percentage of female board members, the higher is the environmental score, which supports the hypothesis of this paper. Meanwhile, I argue that not statistically significant coefficients obtained from my social model estimation, can be attributed to the key issues included on the calculation of the social score. As indicated in Figure 2, these key issues are mainly related to labor and product legal standards and requirements (e.g., labor management, health & safety, and supply chain labor standards; as well as rules affecting product safety and quality, chemical safety, and data security). Keeping in mind that all companies in the sample are regulated by the US legal framework, it is possible that independently of the gender composition of the board, companies will comply with those stipulations concerned with the health and safety of employees and consumers.

When it comes to the role of the women who are members of the board, the presence of at least one woman holding a high executive position also has a very large, positive, and significant effect on the MSCI-ESG environmental score. Yet, this effect seems to be significant only on small boards. Since the magnitude of the coefficient estimated for the HIGH_ROLE_F variable is so large, I ran two other regressions to further explore its effect on the MSCI-ESG score. Following a study that compares the effectiveness of boards according to their size (Lublin, 2014), I split the sample by the number of members using the median of the board size sample distribution as the dividing line (18 members). When running the model on the MSCI-ESG environmental score for small boards (i.e. up to 17 members; N=364 companies), the coefficient result for HIGH_ROLE_F was very close in magnitude to the one in the original regression, and still highly significant. However, the coefficient result for HIGH_ROLE_F in the regression on the MSCI-ESG environmental score for large boards (i.e. 18 members or more; N=557 companies), although still similar in magnitude to the original regression result, it was not statistically significant. From this, I conclude that having at least one woman, who holds a high executive position on a small board of directors, is associated with a large effect on the MSCI-ESG environmental rating, but this effect is different on large boards. It is also worth mentioning that
of the 921 companies in my sample, only 77 have a board that has at least one woman with a high level executive position.

For the interaction between the percentage of women on the board and whether or not there is at least one woman among them occupying a high level executive role, the results show that, in comparison to boards where there are no women in high executive positions, on boards where at least one woman holds a high level executive position, a higher percentage of women is associated with a lower MSCI-ESG score.

The explanation for this could be found in social constructs and gender stereotype theories. A recent study found that 75% of women believe that men have better chances of gaining corporate leadership positions (Pew Research Center, 2015). This may be due to the perception that leadership is usually linked more closely to masculine attributes than to feminine ones. Ibarra (2013) explains that to compete in a man’s world, “...women are taught to downplay femininity”, which reinforces male attributes, maintains the status quo, and sustains underrepresentation of women in leadership positions. Thus, women who aspire and reach high executive positions separate themselves from female characteristics and stereotypes and, not only become “honorary men”, but they also overcompensate by undermining other women’s abilities (Turner, 2016). This supports the explanation of why, when the percentage of women on the board increases, having a woman in a high executive position is associated with a negative effect on the MSCI-ESG environmental score. Woman at the top of a corporate board, could act contrary to the expected patterns of female behavior.

Finally, the positive and significant effect of revenue and market capitalization in the environmental model indicates that a greater availability of resources allows for a company to be more socially responsible, which is consistent with the findings of previous studies (Boulouta, 2013; Harjoto et al., 2014; Segarra-Ona et al., 2014; Seto-Pamíes, 2015; Velte, 2016). It is important to highlight that in the case of my environmental model, the effect of female presence is larger and more significant than the effect of both revenue, and market capitalization. This is also consistent with studies on the relationship between women and environmental awareness, which have found that compared to men, women are more conscious of their environmental impact and concerned about protecting the environment (Park et al., 2011; Wehrmeyer & McNeil, 2000).
VI. CONCLUSIONS AND RECOMMENDATIONS

The objective of this study was to evaluate the role of female board members as drivers of corporate social responsibility. The premise of this relationship included the ethics of care approach, which highlights female personality traits (i.e., women’s tendency to be cooperative, democratic, inclusive, and collectivist-oriented) to explain why women are more prone to care for others. To empirically test this idea, I estimated a multiple linear regression model using a combined dataset that included company information, boardroom composition, and ESG data for 921 publicly traded companies in the US.

Since neither the overall MSCI-ESG score, nor the governance MSCI-ESG score could be used because of the gender variable included in their calculation, the model was only tested on the MSCI-ESG environmental and social scores. My regression models showed that female presence does have a positive impact on the MSCI-ESG environmental score, but not on the social score. I argued that this result could be attributed to the key issues included on the calculation of the social score, which are mainly related to labor and product legal standards and requirements that the companies would follow independently of the gender composition of the board. Meanwhile, most of the key issues used for the calculation of the environmental score are not regulated, and refer more to voluntary actions.

Future studies that help elaborate and clarify the structures of CSR in order to improve its practices, semantics, monitoring, and measurement mechanisms, could expand our understanding about CSR, the factors that influence it, and its effectiveness. It is important, for example, to have more clarity on what the role of government is, and how effective regulations are. Cross-country studies composed of large and diverse samples that can observe the difference in the drivers and effectiveness of CSR across countries, regulations, and political and social expectations could also help to expand our understanding.

Finally, it is necessary to address that it is ingrained in our social construct to believe that, when it comes to leadership style, male traits are more appropriate and effective, even when we now understand that female leadership styles are more useful in carrying out sustainable actions. This suggests that we should all assume the four phases of ethical care, and more conscious of our behavior, recognize our responsibilities, and take the
adequate actions. It is on us to make opportunities more available to women, and to bring female values that emphasize relationships, responsibilities, cooperation, and inclusion into a new way of moral reasoning.
## VI. GLOSSARY OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>ESG</td>
<td>Environmental, Social, and Governance</td>
</tr>
<tr>
<td>MSCI</td>
<td>Morgan Stanley Capital International</td>
</tr>
<tr>
<td>NAICS</td>
<td>North American Industry Classification System</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>PPP</td>
<td>Public-Private Partnerships</td>
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<td>ROA</td>
<td>Return on Assets</td>
</tr>
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<td>ROE</td>
<td>Return on Equity</td>
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<td>S&amp;P 500</td>
<td>Standard and Poor's 500 companies</td>
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## APPENDIX A: INDICES COVERED IN BOARDEX

### CHAPTER 3 – INDICES COVERED IN BOARDEX

### Indices

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<tr>
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<tr>
<td>AEX</td>
<td>FTSE Fledgling</td>
<td>OBX OMX 20</td>
<td>SMI</td>
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<td>AEX MID-CAP</td>
<td>FTSE SMALL CAP</td>
<td>OMX HELSINKI 25</td>
<td>STRAITS TIMES</td>
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<tr>
<td>ASX ALL ORDINARIES</td>
<td>FTSE TECHMARK ALL-SHARE</td>
<td>OMX INDEX</td>
<td>TecDAX</td>
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<td>ATX</td>
<td>FTSE/MIB</td>
<td>PSI-20</td>
<td>TOPIX Core 30</td>
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<td>BCN GLOBAL 100</td>
<td>HANG SENG</td>
<td>S&amp;P 500</td>
<td>WIG 20</td>
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<td>BEL-20 INSTITUTIONAL</td>
<td>Hong Kong Hang Seng China Enterprises</td>
<td>S&amp;P MID CAP 400</td>
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<td>BSE 200</td>
<td>IBEX 35</td>
<td>S&amp;P SMALL CAP 600</td>
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<td>IGBM</td>
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<td>ISEQ OVERALL</td>
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<td>S&amp;P/TSX COMPOSITE</td>
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<td>FTSE Small Cap</td>
<td>NASDAQ 100</td>
<td>SBF 120</td>
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</table>

Source: The Deal, 2017, p. 27.
APPENDIX B: SOURCES USED IN BOARDEX

Sources Used in BoardEx’s Research Process for the United States (The Deal, 2017, p. 29):

- SEC (http://sec.gov/edgar/searchedgar/companysearch.html)
  - Proxy statements, 10-k (Annual Report), 8-K’s etc

- Company Information
  - Press releases
  - Corporate websites

- US Stock Exchanges
  - NASADAQ (http://www.nasdaq.com/)
  - NYSE (http://www.nyse.com/)


- Foundation Center (http://foundationcenter.org/findfunders/990finder/)

- United States Conference of Mayor (http://www.usmayors.org/meetmayors/mayorsatglance.asp)


## Sector Composition

<table>
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<tr>
<th>Sector (NAICS Classification)</th>
<th>Industry (BoardEx Classification)</th>
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<td>Extraction and Utilities 11, 21, 22*</td>
<td>Forestry and Paper</td>
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<tr>
<td></td>
<td>Mining</td>
</tr>
<tr>
<td></td>
<td>Oil and Gas</td>
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<td>Renewable Energy</td>
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<td>Steel and Other Metals</td>
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<td>Electricity</td>
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<td>Utilities</td>
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<td>Diversified Industrials</td>
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<td>Retail and Transport 42, 44, 45, 53*</td>
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<td>Food and Drug Retailers</td>
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<td>Containers and Packaging</td>
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<td>Banks</td>
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<td>Construction and Real Estate 23, 53*</td>
<td>Construction and Building Materials</td>
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<tr>
<td></td>
<td>Real Estate and Rental Leasing</td>
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<tr>
<td>Professional Services 54*</td>
<td>Engineering and Machinery</td>
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<tr>
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<td>Pharmaceutical and Biotechnology</td>
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<tr>
<td>Services (base group) 61, 62, 71,72, 81*</td>
<td>Education</td>
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<tr>
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<tr>
<td></td>
<td>Media and Entertainment</td>
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<tr>
<td></td>
<td>Leisure and Hotels</td>
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<tr>
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<td>Blank Check / Shell Companies</td>
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<tr>
<td></td>
<td>Consumer Services</td>
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<td>Business Services</td>
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<tr>
<td></td>
<td>Publishing</td>
</tr>
</tbody>
</table>

* NAICS 2-digit code.
APPENDIX D: SAMPLE COMPOSITION BY SECTOR

Sample Composition by Sector

- Manufacturing: 26%
- Retail and Transport: 13%
- Finance: 11%
- Construction and Real Estate: 9%
- Professional Services: 10%
- Extraction and Utilities: 8%
- Services: 13%
- IT: 10%

Sample Composition by Sector
REFERENCES


Weisul, K. (December 5, 2014). Women on boards: Are quotas really the answer?. *Fortune*. Available at: http://fortune.com/2014/12/05/women-on-boards-quotas/