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"WOMEN AND SUSTAINABILITY: EMPIRICAL ANALYSIS ON B CORPS"

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Firma dello studente

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INTRODUCTION

Social issues such as Corporate Sustainability and gender parity are among the most relevant imperatives that twenty-first century economic actors are globally facing. These concepts have been subjected to numerous analyses and studies, aiming both to provide them univocal definitions and to identify the effects – whether positive or negative – of their pursuing.

Regardless of the reasons that may lead firms to operate responsibly, Corporate Sustainability is generally perceived as source of both costs and benefits: whether benefits are sufficient to outweigh costs has to be ascertained case by case. The wide and unmatching literature over sustainability is a proof of what just stated, as the consequences that ethical behaviors have on companies are not completely transparent. This is the reason why it is worthless to say a priori that sustainability is always the right path to choose, contrarywise each company has to consider the context in which it competes and the internal resources it possesses before making any reckless decision about responsible behaviors.

The possibility to pursue Corporate Sustainability is thus contingent to some preconditions which need to be fulfilled, connected both to corporate features and to leader's traits and values. The wide literature over company's size, resources and performance linked to sustainability have induced recent studies to focus more on the leadership part, trying to identify those leader's demographic characteristics – as well as skills and values – that may strengthen or limit environmental and social responsibility. Leader's traits can be considered from an individual point of view, analyzing the influence of CEO's values over corporate actions, and from a collective point of view, taking into account how such individual features interact with the individual characteristics of other members of the Board of Directors. Demographic and behavioral differences within such committee are related to a wide range of positive organizational outcomes, which goes from the improvement of firms' social and economic performance to the superior Boards' decision-making process.

Among the several leader's individual characteristics, gender is the one most discussed in literature, as it embodies the main challenge faced by modern corporations. On this note, gender parity and the related women representation on Boards have been recently perceived as a mantra for companies, which need to be fulfilled in order to satisfy the pressures coming both from internal and external stakeholders. However, gender discrimination is not only a claim which has to be satisfied, but it's a pathway that companies have to undertake to thrive and prosper in the competitive arena. This is because female directors entail several benefits for organizations,

from the positive effects over economic and financial performance toward the favorable conditions over sustainability.

As the literature has already exhaustively analyzed the connection between women representation and economic performance, in this dissertation the focus on the beneficial effects of female directors over the ethical side was considered more valuable. Especially in recent years, numerous researches tried to identify the relation which lies between women and sustainability, without finding an unambiguous outcome. In the face of the doubtful literature over such topic, the study here performed has been developed to test the effective link between women representation and sustainable behaviors, with the aim of validating or denying the assertions already highlighted by scholars.

The first Chapter introduces the general framework of Corporate Sustainability, focusing on the main reasons that drive firms to behave responsibly and examining the costs and benefits associated to its proper implementation. Moreover, the final paragraph depicts the organizational and individual factors that favor the spread of sustainability within businesses.

Chapter 2 focuses on leader's influence over Corporate Sustainability, with the aim of identifying those individual traits and behaviors that positively impact sustainable policies. It explains also how such individual features influence the functioning of the Board of Directors, as its composition affect the way in which it operates. Further considerations are then made about the most discussed demographic characteristics of leaders, the gender, analyzing the positive effects of women representation over economic, financial, and ethical performances. At the end of the Chapter, the research questions underlying the dissertation are justified and described. The study wants to test the relation between women representation and sustainability (H1), understanding whether this effect is more positive on the social rather on the environmental side (H2), and identifying how results change when the women is not simply a director, but the CEO (H3).

Chapter 3 describes the methodology employed to test the three research questions. First of all, it explains the selected sample, the way in which data have been collected and the structure of the questionnaire used. Moreover, the Chapter outlines the empirical models developed for the study, explaining the dependent, independent and control variables considered and the reasoning behind their choice. Lastly, it ends with the description of the sample composition.

The Chapter is divided into *two steps* of analysis, which aim to test two different sides of sustainability. The first step refers to a generic analysis performed to have a global overview over the link between women representation and the sustainability *propensity* of firms, intended as their willingness to engage in responsible policies. The second step goes deeper into the issue

and tries to identify whether women representation affects not only the propensity of firms to be sustainable, but also the level with which they commit to sustainability, thus their sustainability *intensity*.

The analyses are developed employing two concepts for identifying sustainable firms, namely the B Corp Certification, released by the B Lab, and the Benefit legal form: sustainable firms are intended those companies that get the Certification and/or to which is recognized the Benefit legal form. Moreover, to measure the level of sustainability of firms, the B Impact Scores are employed, which are likewise released by the B Lab. Such scores measure the effects that a business has on all of its stakeholders, and are divided into several impacts area, that range from the social to the environmental side of sustainability. On the other hand, two different proxies for women representation are used: the presence or absence of women in corporate Boards and the gender of the CEO. The two proxies are employed alternatively in the models, mainly to understand whether there are differences in the sustainable outcomes on the basis of the power position of the woman, but also to verify the hypothesis for which the relation between female representation and sustainability is stronger when the CEO is a woman.

Chapter 4 starts showing how the samples differ when considering the presence or absence of female directors and the gender of the CEO, then testing if such differences are statistically significant. Subsequently, the results that come from the application of the regression models and of the T-tests are discussed, considering their impacts over the research questions developed.

Finally, Chapter 5 summarizes the most relevant results, considering the managerial implications of the findings and comparing them to the outcomes of the theoretical framework already developed. The Chapter ends by identifying the main limits to the study, while providing some suggestions for future researches.

CHAPTER 1: TOWARD CORPORATE SUSTAINABILITY

1.1. The general framework of Corporate Sustainability

Until the first doubts about a more global responsibility have arisen, it was undisputed the doctrine for which "there is one and only one social responsibility of a business: to use it resources and engage in activities designed to increase its profits" (Friedman 1970, p. 6). Nevertheless, in the latest years such theory has been denied by several authors, favoring a broader responsibility of firms, not anymore bounded to the ability of corporations to make profits, but enlarged toward the so-called *Corporate Sustainability*.

The wide literature over Corporate Sustainability provides us several definitions of this concept, which can be described as a set of "company activities – voluntary by definition – demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders" (Van Marrewijk & Werre 2003, p. 1). On the basis of such statement, it is clear that a corporation should be accountable to meet not only the obligations of its stockholders, but the ones of all the stakeholders which are interested in the firm's business and which can affect its management: shareholders, employees, customers, community residents, pressure groups. Toward this goal, companies have to integrate economic, social and environmental dimensions for generating a positive collective consensus on the way in which they operate. Indeed, "a single-minded focus on economic sustainability can succeed in the short run; however, in the long run sustainability requires all three dimensions to be satisfied simultaneously" (Dyllick & Hockerts 2002, p. 132). This means that corporate performance should not be viewed only on the basis of economic and financial results, but the assessment should include non-financial indicators that focus on intangible assets and take into account relationships with employees, customers and other stakeholders (Dočekalová & Kocmanova 2016).

The theory which encases the relevance of the integration among economic, environmental and social performance was described by John Elkington (1998), through the well-known Triple Bottom Line overture. Essentially, such approach advocates that the long-term success of a corporation requires emphasis on all the three dimensions of sustainability, that are interrelated and impact each other by varied and numerous means (Amini & Bienstock 2014). Consequently, a corporation cannot completely separate its economic purpose from its social and environmental objectives, allowing sustainability to be a "2 + 2 = 5 game" (Elkington 1998, p. 37).

The three different shades of sustainability just mentioned have different properties and require different approaches to be analyzed:

- *economic sustainability* guarantees at any time cashflow sufficient to ensure liquidity while producing a persistent and above average return to shareholders;
- *environmental sustainability* ensures that natural resources are kept within their regeneration rates and that waste emissions do not exceed the capacity of the environment to assimilate them without impairment (Goodland 1995);
- *social sustainability* implies increasing the human capital of individual partners and of communities, whether inside or outside corporate walls.

The integration of such three dimensions is the milestone of Corporate Sustainability, integration that should be blended into companies' everyday decisions and activities, enabling them to address the *global responsibility* toward internal and external stakeholders. Indeed, even if initially presented as a mere theoretical concept, Corporate Sustainability has gained more and more relevance in the latest years. It is not anymore seen as a simple marketing tactic to grab communities' attention, but it is viewed as an important aspect of the corporate behavior which has to be included in the corporate strategy as well as in the corporate values.

Nevertheless, the correct and complete implementation of Corporate Sustainability requires efforts and resources that not all firms can afford, thus resulting in a variety of actions and policies that differ from one company to the other. Some firms simply behave ethically as a sign of "moral obligation" toward the society, thus carrying out the minimum level of investments for simply avoiding fines and legal costs due to the failure of law compliance. Such corporations are somehow stuck at the beginning of the social responsibility era, in which sustainability was seen as a set of actions and decisions implemented to bring long-run economic gains to companies, paying them back for their social or environmental involvement (Davis 1960). Quite the contrary, firms should move from such negative morality – which induces organizations to simply prevent actions that can harm others – to the incorporation of a positive morality, that leads companies to commit actively to help others to obtain their best (Maon, Lindgreen & Swaen 2010). Thus, Corporate Sustainability should penetrate within corporate values and corporate culture, driving firms to favor other-regarding sentiments instead of their self-interests (Jones, Felps & Bigley 2007). This concept should not be viewed anymore as an obligation toward the society, but should be conceived as a doctrine which includes voluntariness, protection of the environment and transparency. It is no more bounded to stakeholders' engagement, but it involves a variety actions to be undertaken both within and outside the corporate walls,

from the hiring of sustainability managers to the improved accountability of sustainability reporting (Rahman 2011).

However, it is useless to assert aprioristically that ethical behaviors should be pursued by all firms in the competitive arena, and affirming that sustainability is always the right path to choose appears to be unwise and too general. Each company has to examine the specific context in which it operates and the particular situations which can be encountered. It should consider why it wants to behave ethically, the costs and benefits associated to such choice, and the possible short-term or long-term repercussions on its business. This is because even if the firm wants to behave responsibly, this does not implicitly mean that it has the resources to dedicate to such matter. Thus, it's clear how each corporate reality presents different characteristics, motives, costs and advantages, making it necessary to understand the specific situation before making any general statement about the beneficial effects of Corporate Sustainability.

1.2. What drives firms to operate sustainably?

After a brief theoretical excursus of the role played by economic, environmental and social goals, it's relevant to understand the reasons why companies should follow the path of sustainability. Indeed, sustainability is not only a matter of compliance with regulations and laws, but is about a complex context that firms have to deal with, which implies costs as well as savings. Nonetheless, it's counterproductive to think about the drivers of sustainability only in terms of cost reductions or revenues enhancement: quite the contrary, many reasons – other than the economic ones – may lead firms to behave ethically. According to Bansal and Roth (2000), there are mainly three drivers of Corporate Sustainability: competitiveness, legitimation and ecological responsibility.

Competitiveness, intended as the potential of sustainability to improve long-term profitability, guides ethical behaviors through costs reduction and revenues enhancement. While the intensification of production processes, the management of energy and wastes reduce environmental impacts as well as firms' costs, green marketing and the development of eco-products lead to revenues boosting. This reasoning is consistent with the natural resource-based-view of Hart (1995), who asserted how environmentally sustainable activities are the root for allowing a firm to build its competitive advantage. Accordingly, firms that perceive environmental sustainability as an opportunity rather than a threat, may be able to create new value propositions, thus attracting new customers (Gross & Ringbeck 2008). Nonetheless, despite sustainability has the potential to increase competitiveness and profitability, no unique relationship has been found

between the two phenomena, both from a theorical and from an empirical point of view. This is because several elements may play as facilitators or opposing forces to the beneficial impacts of sustainability over competitiveness, from the specific corporate strategy of a company to the overall industry or sector in which it operates. Indeed, although sustainability may lead a firm to develop more efficient processes, to grab new market opportunities and to improve productivity, if it operates in an industry with stringent environmental regulation, the higher environmental compliance costs will outweigh the benefits brought by acting responsibly (Wagner & Schaltegger 2003). This doubtful relation has led other authors to affirm that the enhancement of competitiveness or sustainability is primarily at the expense of the other, thus failing to corroborate the statements of either the advocates or the critics to the positive relation between the two phenomena (Aupperle, Carroll & Hatfield 1985).

"*Legitimacy* is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman 1995, p. 577). Legitimacy implies first of all the compliance with legislation: it is merely a passive behavior, pursued only because corporations want to avoid fines, penalties and legal costs connected to the failure of law observance. In other cases, it can be guided by governmental request for compliance: for example, the French government required all corporations listed on the French Stock Exchange to report on Corporate Sustainability issues (MacLeod & Lewis 2004). Furthermore, companies are interested in spreading trust both inside and outside the organization, for attracting, motivating and retaining employees on one side, and for improving corporate relations with partners, suppliers and customers on the other (Lozano 2015). This is based on the belief that corporations have to gain their "license to operate", a kind of approval provided by stakeholders, communities and the government about the activities performed by companies. Without this acceptance, firms might not be able to effectively carry on their activities and to successfully pursue their goals (Wilburn & Wilburn 2011). Legitimacy can thus be seen as the most important driver of Corporate Sustainability, as "threats to a firm's legitimacy were believed to undermine a firm's license to operate and its long-term survival" (Bansal & Roth 2000, p. 727).

Lastly, *ecological responsibility* is connected to the ethical motivations and concerns that may conduct firms to act responsibly, simply because it is the right thing to do. In this perspective, a fundamental key concept is the one of Corporate Philanthropy: the ethical behavior is not driven by any kind of obligation, but it is based upon the desire to do good. Ecological responsibility is thus neither an obligation nor a reciprocal intention, it is simply a transfer of wealth from one party to another (Godfrey 2005). This means that firms have essentially altruistic

intentions, as they believe their ethical efforts are part and parcel of being a good global citizen (Sprinkle & Maines 2010). As a matter of fact, many companies are recently expanding their strategies to consider the effects that environmental preservation and sustainability have on their long-term performance, thus starting to integrate environmental and social concerns into their regular day-by-day activities (Koo, Chung & Ryoo 2014).

Table 1 exhibits the three drivers of sustainability identified by Bansal and Roth (2000), summarizing their definition.

Table 1: The drivers of sustainability.

Driver	Explanation
Competitiveness	Potential of sustainability to improve long-term profitability
Legitimation	Perception that the actions undertaken are desirable, proper, or appropriate within the society
Ecological responsibility	Ethical behavior driven by altruistic intentions and by the deside to do good

Clearly, even if sustainability is a fundamental part of corporate values, and thus pursued because it is in the will of companies, firms will always seek for getting benefits from the implementation of sustainable behaviors. It should not be forgotten that, despite the economic purpose is not the only one to which a company should aspire, it is still meaningful: despite economic and social responsibility are integral parts of the global one, the latter has to be accomplished guaranteeing at the same time the company's survival in the short and long term. The social costs must in any case be tolerable for the company, without jeopardizing its solvency and financial liquidity (Sciarelli 2011).

1.3. The costs and benefits for firms of acting sustainably

Regardless of the reasons that may lead a company to behave ethically, Corporate Sustainability is not exempt from costs. The simple compliance with law as well as the implementation of complex sustainable practices imply expenses, which in some cases can undermine the economic and financial equilibria of the company. This is the reason why usually before undertaking the path of sustainability companies perform a cost-benefit analysis, which "lies in the idea that things are worth doing if the benefits resulting from doing them outweigh their costs" (Sen 2000, p. 934).

Corporate Sustainability costs can range from the one-time charitable contributions to the costs for managers coordinating sustainable projects and producing promotion materials – like a cause-related marketing campaign. They include the additional risks a company has to bear (Weber 2008) and the opportunity costs estimated as the activities the company is unable to undertake due to its engagement in responsible policies (Sprinkle & Maines 2010). Moreover, an effective integration of sustainability into company's strategy leads to intense changes in both organizational culture and corporate values, accompanied by an improvement of processes, training, safety and quality, all elements that involve higher direct costs (Ameer & Othman 2012).

Despite the costs connected to sustainability are the most significant barriers to the implementation of responsible policies, other obstacles may keep companies apart from such behaviors. Indeed, substantial time should be invested to design, develop and execute sustainable strategies, time that would result as wasted if customers and stakeholders would not appreciate or not value more such kind of activities. Moreover, it is not a foregone conclusion that companies have in their workforce people who possess the knowledge and skills to cope with such kind of activities. If this is not the case, new costs for hiring knowledgeable employees need to be sustained, alongside the uncertainties connected to the integration of those new workers into the current workforce (Ervin et al 2013).

However, if sustainability costs were not balanced by benefits, no firms would voluntarily undertake ethical behaviors, as it may be not economically viable. Many of the benefits connected to Corporate Sustainability are the reasons why companies decide to engage in such practices. Indeed, such advantages do not only generate gains internal to firms – for example in terms of tax deduction for sustainability efforts – but also external ones, mainly linked to the spread of trust and reputation toward all the stakeholders.

Being more specific, the first benefit a firm encounter when acting responsibly is the enhancement of corporate image and reputation: "companies are increasingly often asked to demonstrate that their actions and policies meet various predetermined social and ethical criteria. Doing so can help build reputation; failing to do so can be a source of reputational risk" (Fombrun 2005, p. 7). In turn, a good reputation generates competitive advantage, allowing the firm to achieve its objectives easily, given the positive image that is divulged toward both internal and external stakeholders (Iwu-Egwuonwu 2011).

Secondly, responsible behaviors have positive impacts over employees' engagement, motivation and retention. There is considerable empirical support for such argument: most of all, sustainability develops an employee's achievement needs and hence motivates the employee to

work (Kim & Scullion 2013). Furthermore, for supporting Corporate Sustainability, companies usually introduce measures which directly benefit workers, such as education and training activities, a suitable work-life balance and equal pay, which empower both intrinsic and extrinsic motivations. A sustainable firm may also attract those workers which really care about working in an eco-friendly environment, attraction which is boosted also by the positive effects of all the practices implemented for behaving ethically. Indeed, firms get advantages also by matching workers with corporate volunteerism, which allow employees to develop their talent, their leadership skills and to create a better strategic sense about how to deal with different environments (Needleman 2008).

Third, responsible companies may either capture price premiums over their products or gain an increase in market share given the superior "social quality" of its offerings. This can be reached indirectly through the enhancement of brand image and reputation, or directly with product and process development. Actually, "ethical associations do not only affect product evaluation, but also customers identification with the company, customers satisfaction and trust. Moreover, customers are more willing to relate with companies carrying out socially responsible initiatives, as part of self-enhancement and self-esteem" (Martínez & Del Bosque 2013, p. 97).

Fourthly, sustainable practices also create internal benefits for the organization in terms of costs reduction, mainly due to energy conservation, reduced material storage, abated handling costs and waste disposal. Such actions generate a positive reaction from stakeholders, such as customers who may benefit from these savings – in terms of price reductions or product improvements – or investors, whose increased sensitivity toward sustainability issues lead to an amelioration of the access to capital (Epstein & Roy 2001).

Lastly, ethical behaviors can be seen as part and parcel of a company's risk management efforts. Such practices may help companies to deal with legal and regulatory constraints, thus avoiding negative press or customers and NGO boycotts. To this end, many multinational companies are planning to continually reduce emissions, mainly because of the pressures they receive from the context in which they operate, but also as they want to enhance their positioning in the market by promoting their products as eco-friendly (Bradsher & Revkin 2001). Furthermore, all these introductions might lower the risk of accidents to occur, accidents which may lead to lawsuits or which may harm the firm's reputation and image.

The benefits just described are only a part of the positive effects of behaving ethically: there are likely other advantages about undertaking the path of sustainability, like spillover effects or better relations with partners along the whole value chain. Thus, given that being responsible positively influence companies, is it possible to say that pursuing such trajectory is simply a

smarter and more convenient way of making profits? Even if it is clear how sustainability benefits firms in different ways, it is not useful to say a priori that ethicality always improve the status of companies, especially when some prerequisites need to be fulfilled.

1.4. Firm's specific enabling factors of sustainable behaviors

The balance between the costs and benefits of behaving ethically depends on the specific context in which a company operates, and the practicability of sustainability is contingent to some preconditions intrinsic to the firm's operations. It is possible to call them the enabling factors of sustainable behaviors, ergo those elements that favor the spread of sustainability within businesses. However, firm's behaviors are not influenced only by company's characteristics, but also by the traits and values of those managers who are in the best position to shape such kind of practices, the top management.

1.4.1. Organizational level factors

The literature starts to debate the influence of a company's characteristics over sustainability issues from its size, pointing out that larger organizations are more likely to address ethical responsibilities. Indeed, large organizations tend to be involved more in sustainability because of their greater exposure and external pressure: large firms are more politically visible, and so they capture more attention from the public, the government and other stakeholders. They are also more likely to generate larger social problems because of the large scale and scope of their activities (Artiach et al. 2010). Therefore, the fear of bad image and reputation encourage large organization to make more efforts for avoiding environmental scandals or lawsuits for the failure of laws' compliance.

Moreover, large companies have access to a broader range of resources compared to small and medium enterprises, resources crucial to fund the investments needed to commit in ethical behaviors. Indeed, "such initiatives are designed primarily for large firms that have the human and financial resources to implement the required procedures into their business operations" (Baumann-Pauly et al. 2013, p. 3). Moreover, sustainability policies take time and abilities to be developed: managers must be trained, alternatives must be evaluated, and the results of the practices implemented must be assessed – all activities that clearly require assets and capital to be executed. At the same time, large corporations are associated with greater resource-slack, which affects positively their commitment to sustainability (Johnson & Greening 1999).

Nevertheless, organizational slack coming from better economic and financial performance is not an exclusive peculiarity of large firms. This implies that large companies, as well as small and medium enterprises with greater profitability, have more resources to employ for responsible policies. Therefore, when profitability is high, companies are facing less pressure from both internal and external stakeholders, having at the same time the resources available to invest in sustainable activities. By contrast, firms with weak performance are less induced to meet even the minimum threshold of sustainability, as such additional investments may jeopardize shareholders value (Campbell 2007). Such firms are more likely to give priority to the economic and financial survival, neglecting social and environmental claims that may derive from internal or external stakeholders (Kent & Monem 2008).

1.4.2. Individual level factors

When assessing the drivers of sustainability, it is not neglectable the impact of managers' needs and values over the implementation of ethical policies, given that "top managers are obviously in the best position to influence these types of strategies and projects" (Metcalf & Benn 2013, p. 373). For this purpose, it is possible to avail of the study of Burns (1978), who identified two different kinds of leadership styles which can be exhibited from managers: transactional and transformational leadership. While the first study of Burns identified the two styles as alternative, subsequent researches conceptualize that mangers can manifest both.

Bass (1990) illustrated a transactional leader as a manager who motivates employees through a contingent-reward system, thus offering rewards to workers on the basis of their efforts, performance and accomplishments. The leader intervenes only if standards are not met and he or she abdicates responsibilities, thus avoiding making decisions. On the contrary, a transformational leader seeks to motivate followers to accept new goals and new ways of doing things. He or she has the aspiration of empowering and elevating followers, leading to an increase in subordinates' awareness of the importance of their tasks: this permits to motivate subordinates to work for the good of the organization rather than exclusively for their own personal gain or benefit.

It is clearly expected that transformational leadership – and not transactional – inspires more sustainable policies, for several reasons. Firstly, transformational leaders are more inclined toward altruistic behaviors, given that they are highly ethical and focused on values, while transactional leaders are more focused on the use of power, sanctions and rewards (Du et al. 2013). Secondly, transformational leaders stimulate and encourage followers to innovate when

solving problems, thus guiding subordinates to think widely about how to serve all the organizational stakeholders. This concept, called intellectual stimulation, is positively associated to sustainable policies (Waldman, Siegel & Javidan 2006). Indeed, transformational leaders are more likely to understand the intricate interconnections between a firm and its several stakeholders, looking at the company more as an interdependent entity rather than an isolated object. Contrariwise, transactional leaders have a predominant stockholder view, considering ethical behaviors only a distraction from the firm's core responsibility: to use its resources to increase profits (Friedman 1970).

The dichotomy between transactional and transformational styles simply represents the starting point for understanding how leaders can influence Corporate Sustainability. Indeed, even if transformational leaders are more inclined toward sustainability, their characteristics are not sufficient to describe the traits that a sustainable leader should present. This is one of the reasons why further studies about the impacts of the individual leader over sustainable behaviors and about the role of the Board of Directors as a whole in such practices have been performed, mainly for providing broader evidence about the key role of top-level managers in shaping environmental strategies. Additionally, also the wide and vast literature over organization's size, company's resources and firm's performance connected to sustainability have led scholars to focus more on its leadership part. The attention has been turned from organizational factors to individual ones, trying to understand the demographic characteristics of corporate leaders that are associated to greater social and environmental responsibility (Glass, Cook & Ingersoll 2016).

Race, age, education and gender are only some of the facilitators that Corporate Sustainability may encounter in its implementation. The visible features of leaders are not the only characteristics that can influence their ethical behaviors, but they are accompanied by leaders' values and skills, as well as their knowledge and styles. Nevertheless, the two sides are not independent one to the other: age, gender, or race are the first influencers of a person's values and styles.

An accurate analysis of such facilitators will be performed in the following Chapter which, rather than focusing on the wider literature over organizational level factors, will give priority to leaders' role over sustainability. A profound assessment will be performed over gender diversity – as it is the most widely debated characteristic in literature – with its positive associations both to economic and sustainable performance.

CHAPTER 2: WOMEN REPRESENTATION AND SUSTAINABILITY

2.1. Leaders' influence over Corporate Sustainability

The contextual changes brought by the increasing relevance of Corporate Sustainability are altering not only the way in which companies have to deal with the external environment, but also the internal equilibria of firms. In particular, new leaders' attributes are required to match the shifting conditions of the competitive environment, starting from an evolved consciousness of the repercussion of firms' businesses in the setting in which they operate, and going toward a clear understanding about how to consider social and environmental trends into the strategic decision-making process (Tideman, Arts & Zandee 2013).

It has been already anticipated how transformational leaders are more expected to inspire sustainable policies than transactional leaders, given that they guide followers and they promote a common vision of value creation (Veríssimo & Lacerda 2015). But is it sufficient a deep understanding of transformational leadership to identify the traits a sustainable leader needs to have? Unfortunately, it is far from real to equal transformational leaders with the wider definition of *leadership for sustainability*, a concept even more complex and articulated than the one described by Bass (1990). Indeed, further studies identified how transformational leaders should be accompanied by transactional elements, namely the contingent reward, which allows to link employees' and managers' reward to the accomplishment of sustainable goals, ensuring the compliance with the company's environmental strategy. As a matter of facts, sustainable leadership grounds on the features of both transformational and transactional leadership, which are mutually required for fulfilling the ramification of corporate relations toward internal and external stakeholders (Egri & Herman 2000).

Nevertheless, the wide literature over transactional and transformational leadership is only the starting point for a deeper analysis over the features that may affect the behaviors of sustainable leaders. Indeed, the factors influencing the propensity toward sustainability are not bounded to leadership styles, but they include also the skills, capabilities and demographic characteristics of leaders, which may enhance or limit the orientation toward responsible behaviors. Moreover, it is not only a matter of individual values and traits, but leadership for sustainability includes also a wider prospect about the way in which such individual features interact with the individual characteristics of other members of the Board of Directors. Indeed, differences in age, gender and values may benefit the Board's decision-making process through greater creativity,

ideas and innovation brought by the acquisition of new critical resources (Goodstein, Gautam & Boeker 1994).

In the following paragraphs are depicted the factors influencing sustainable behaviors at an individual and group level, starting from the personal features of leaders, and then explaining how such characteristics interact in the broader context of the Board of Directors. Focusing on such committee, it will be explained how its composition affects the way in which it operates, emphasizing one of the demographic characteristics most discussed in literature: gender.

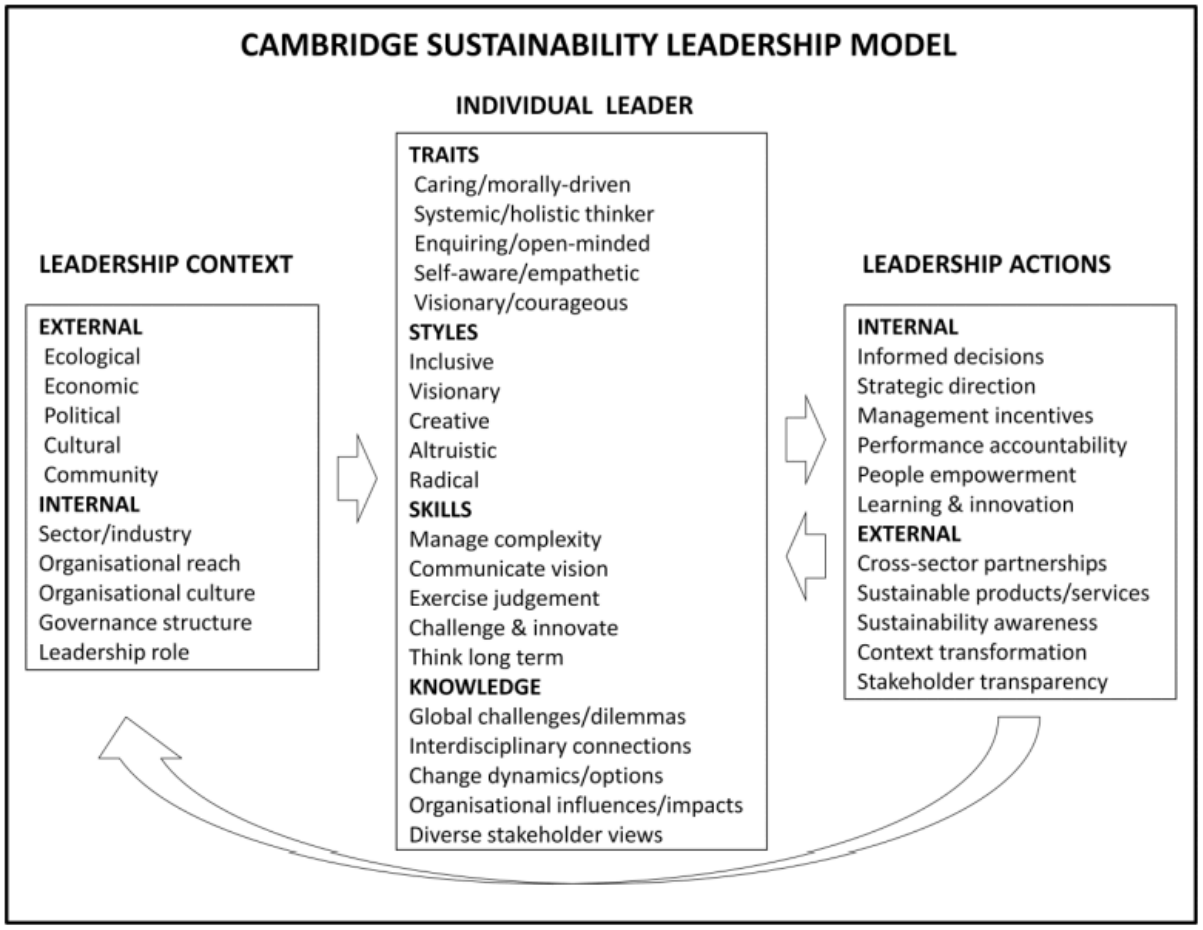
2.2. The leadership for sustainability

The dynamic nature of Corporate Sustainability implies leaders of extraordinary abilities: they are supposed to be leaders who can juggle with composite problems, who have emotional intelligence to deal with personal emotions and who act as mediators for successful implementation of responsible policies (Metcalf & Benn 2013). Following the suggestions by Boiral, Cayer and Baron (2009), sustainable leaders must be able to deal and understand the complexity of environmental issues, addressing the expectations of a wide range of stakeholders while changing organizational practices to this end. Therefore, sustainable leaders must be the drivers of ethical behaviors, so "individuals who are compelled to make a difference by deepening their awareness of themselves in relation to the world around them. In doing so, they adopt new ways of seeing, thinking and interacting that result in innovative, sustainable solutions" (Sustainability Leadership Institute 2011).

Visser and Courtice (2011) designed and tested the Sustainability Leadership Model, a pattern which helps to understand and identify the elements that may influence positively or negatively the sustainable behaviors of leaders. The model they propose has three components:

1. the external and internal context for leadership;
2. the traits, styles, skills and knowledge of the individual leader;
3. the leadership actions.

Figure 1: Cambridge Sustainability Leadership Model (Visser & Courtice 2011).



The first element which affects the extent of sustainable policies is the context, which refers to the environment where leaders operate, which may have a direct or indirect impact on their decision-making process and on their behaviors. The context can be external and internal. Over external context, leaders have a limited level of influence and control, because it is outside the boundaries of their institutions, like economic, political, cultural and ecological contexts. On the other side, context internal to institutions allows to be better handled and affected by leaders, as organizational culture and governance structure.

Secondly, also personal and individual characteristics of individual leaders are described by the model as facilitators or opposing forces to sustainability. They are divided into:

- traits, which describe the tendencies of a person to feel, think, act and behave in certain ways (George, Jones, & Sharbrough 2005);
- styles, which specifies the manners and ways in which leaders provide direction, implement plans and motivate people (Newstrom & Davis 1993);
- skills, intended as the ability to do an activity or job well;

- knowledge, either in terms of consciousness about global challenges or in terms of its management within the organization for allowing the planning, development and improvement of actions for handling different stakeholders' views (Baumgartner & Ebner 2010).

The authors believed that sustainable leaders should embody traits, styles, skills and knowledge which facilitate the implementation and pursuing of sustainable policies, which are summarized and explained in Table 2.

Table 2: Traits, styles, skills and knowledge of sustainable leaders.
Source: Personal elaboration based on Cambridge Sustainability Leadership Model (Visser & Courtice 2011).

Traits	Styles	Skills	Knowledge
Morally-driven Care of the well-being of humanity	Inclusive Being collaborative and participative	Manage complexity Understanding of complex issues	Global challenges Deal with social and ecological pressures
Holistic thinker Understanding of how the different parts of the system affect the whole	Visionary Being charismatic, challenging and motivate people	Communicate vision Share the vision, the mission and the objectives of the firm	Interconnectedness Understand the relation among physical, social science and technology
Open-minded Willingness to consider new or different ideas and opinions	Creative Being innovator and transformer of the system	Exercise judgment Making good decisions in a timely fashion	Change dynamics Understanding the wide range of options from which to tap into
Empathetic Ability to understand and share the emotions of others	Altruistic Focusing on the good of the whole rather than on the personal interests	Innovate Imagine new possible solutions and think outside the box	Organizational impacts Identify the effects of decisions over value creation
Courageous Being inspirational, creative and optimistic	Radical Acting as a challenger of the status quo	Think long term Using long term thinking and planning	Stakeholder view Understanding of their different viewpoints

Lastly, for being socially and environmentally responsible, sustainable policies should not only be crafted in a proper manner, but should be also accurately executed by leaders. In fact, executing the strategy generates new information from the competitive environment, including the responses of competitors, regulators and customers (Sull 2007). Corporate Sustainability must not be a narrow statement which sets social and environmental objectives or a simple code of conduct, but it should involve the implementation of concrete leadership actions embedded in

the day-by-day decisions of corporations. This is because "although an increasing number of corporations publish environmental, health and safety reports, many are simply token efforts, and few addresses the full range of social issues necessary to assess adequately a corporation's behavior" (Lydenberg 2002, p. 61).

Therefore, if companies decide to engage in the direction of sustainability, leadership should be the primary engine at all levels. The tasks of sustainable leaders must include the implementation of all the policies and practices for satisfying social and environmental goals, which is ensured by their trained ability to think in aggregate terms and to behave for affecting the environment in which they operate as a whole (Fullan 2005).

Nevertheless, the individual traits of leaders have to interact in the broader context of the Board of Directors: the design, implementation and assessment of the impact of ethical policies cannot be realized without the robust engagement of such committee. It is especially the Board involvement and diversity which strengthen its propensity toward sustainability, even if there are also other principles that may influence its behavior (Epstein 2018). An even stronger pressure is imposed by the CEO, who imprints firms with his or her own values, influencing and affecting also the way in which managers prioritize the different stakeholder claims, thus impacting the whole social performance of firms (Christensen, Mackey & Whetten 2014).

2.2.1. The role of the Board of Directors

Boards of Directors shape the strategic directions of their organizations: they have control over the strategy of firms, and they have access to resources which include legitimacy and links to other companies (Hendry & Kiel 2004). As such, they have the duty and responsibility to monitor the actions and the performance of firms, playing a key role in supervising managers' behavior and in crafting and executing strategies (De Andres & Vallelado 2008).

Given the critical role of the Board in the success of a company's strategy, its involvement is needed also for the efficient achievement of Corporate Sustainability. This happens because the BoD's personal commitment will ensure social and environmental goals to be included in the mission and vision statements, while supporting the spread of the culture of sustainability anywhere within the company. Indeed, the personal engagement of Directors will encourage employees to comply with company's strategy and to behave ethically in turn, which is fundamental given that workers are at the forefront in the production process and with customers.

Epstein (2018) identified six core principles which can help Boards in formulating the strategy of companies and in improving their sustainable behaviors:

- leadership, which is an emergent quality that helps organizations to identify and achieve material goals – such as sustainability – that may otherwise remain unrealized (Redekop 2010);
- engagement, not only of directors and employees, but widely of all the parties interested in the firm's operations, as "the more an organization engages with its stakeholders, the more accountable and responsible that organization is towards these stakeholders" (Greenwood 2007, p. 316);
- alignment between corporate strategy in its generalities and sustainable policies, which implies the inclusion of environmental and social aspects into the strategic management system of a firm (Figge et al. 2002);
- diversity, which leads to the generation of heterogeneous Boards in terms of different backgrounds, personalities, races, genders and abilities;
- evaluation of Boards' performance – regarding both the Board as a whole and the individual director – which provides a process for highlighting potential issues and promoting discussions before the achievement of the crisis point (Kiel & Nicholson 2005);
- responsibility in its broader sense, considering that nowadays Boards no longer believe that stockholders are the only constituencies they are accountable to, but they comprehend that their responsibilities embrace all stakeholders (Wang & Dewhirst 1992).

These six principles help to remark how the Board of Directors plays a fundamental role in defining the sustainable orientation of firms, not only because it is appointed for crafting the overall corporate strategy, but also because its own performance affect the level of transparency and sustainability of the company for which it operates.

2.2.2. The role of the Chief Executive Officer

The increasing uncertainty of the environment in which firms operate is enhancing the role of the Chief Executive Officer, which does not simply conform the organization to its external environment, but also manage the internal operations by providing strategic vision and direction to the enterprise (Zuckerman 1989).

Therefore, the CEO is responsible for ensuring the alignment between social, environmental and economic goals, given that its position is key to convince all company's stakeholders that sustainability has to be set as a corporate goal. Indeed, the CEO has to communicate to employees, suppliers, communities and other stakeholders the firm's position over social and environmental issues. To this end, the letter from the CEO to shareholders in corporate annual

reports should convey about the future of the firm, as well as about the firm's commitment to sustainability by stating its goals, mission and vision (Epstein 2018).

CEO values, as well as its demographic characteristics, are associated with sustainable activities within the firm. His or her values will define the way in which sustainability is included in the day-by-day operations as well as in the mission and vision statement (Christensen, Mackey & Whetten 2014); while its gender, age and education are seen as strong predictors of Corporate Sustainability Performance (Manner 2010).

It is clear how is in the responsibility of the CEO and of the Board of Directors to introduce, convey and execute social and environmental goals. They have to incorporate sustainability values at all the strategy's levels, by developing methods for identifying and measuring corporate impacts on society and by creating incentive systems for promoting the pursuing of ethical behaviors within firms.

Given the central role played by both the CEO and the Board of Directors in defining sustainable strategies, scholars started to focus on their demographic characteristics for identifying the factors that facilitate social and environmental behaviors (Glass, Cook & Ingersoll 2016). The main body of attention is about gender parity, the most important and relevant social matter which is representing a current challenge for winning companies.

2.3. Board diversity, women representation and sustainability

Social and environmental issues, such as the growing income inequality, the unsustainable use of our planet's natural resources, the climate crisis and gender parity are becoming the biggest impact factors on the world (World Economic Forum 2015). The interconnections among these aspects are increasingly making harder the resolution of such problems: the settlement of one phenomenon may have negative effects over other social and environmental matters, maybe worsening the whole scenario.

From a company point of view, it is known how corporate governance considerably affect firm's influence over social and environmental issues and, combining this aspect with the proven relevance of Corporate Sustainability, it becomes worthy to analyze the relation between the two phenomena. Indeed, given the growing evidence of the connection between business management and ethical behaviors, "scholars have begun to examine the ways in which corporate leadership composition affects corporate strategies with regard to socially responsible practices" (Glass, Cook & Ingersoll 2016, p. 496). Furthermore, a considerable and expanding literature links governance composition not only to sustainable behaviors, but to a broader set

of organizational outcomes which moves from firms' performance to stakeholders' responses. Consequently, defining the right composition of Boards is critical: it implies the identification of the best blend in terms of backgrounds, skills, nationalities, ages and genders, thus allowing the generation of wider varieties of ideas and perspectives (Galbreath 2011). This happens because cognitive functioning and beliefs tend to differ with demographic variables such as race and gender, leading to the generation of various viewpoint which increase creativity and innovation. Heterogeneity implies not only more solutions, but also better solutions, either because the group has a variety of resources at its disposal or because, given their differences, group members are more likely to challenge each other for finding superior ways of doing things (Robinson & Dechant 1997).

Board diversity is thus needed by firms to succeed, given the multiculturalism and gender sensitivity which nowadays characterize the modern society. Indeed, among the various Board diversity characteristics, gender is the most widely debated feature in literature, as it represents the greatest issue faced by modern corporations (Rao & Tilt 2016). It has been recently perceived as a relevant matter also in other societal situations and especially in politics, in which, over the last thirty years, wider mechanisms not only bounded to quotas have been introduced to increase women representation (Childs & Dahlerup 2018).

Gender diversity and the related female representation on Boards is thus embodying a current social matter, and the pressure to increase the presence of women directors is particularly acute at a global level. From an European point of view, more than a decade ago Norway was the first country to introduce a 40% quota for women representation on Boards in 2004. It was then followed by other nations either with the adoption of mandatory quotas, as Germany, France and Italy, or voluntary goals as Sweden, Netherland and Austria (Wiersema & Mors 2016). On a worldwide basis, developing countries as well as developed ones are recognizing the facets of the women representation, highlighting the paramount relevance of gender diversity whatever is the firm's home country, the firm's size or the firm's turnover.

The presence of women on Boards has been linked to several and disparate outcomes in the latest years, starting from the relation between female directors and financial performance, moving toward the positive effect over firm's value or over firm's social and environmental policies. The literature about these connections resulted in a mix evidence, although it is widely recognized that gender diversity can be reached without destroying shareholders value, thus allowing for overall company's improvements (Campbell & Vera 2010).

2.3.1. Women in the BoDs and firms' value and performance

As stated by Erhardt, Werbel & Shrader (2003, p. 104) "given the current literature suggesting that diversity tends to generate higher creativity, innovation and quality decision-making at individual and group level, it is worthwhile to identify whether similar findings can be found at the executive Board of Directors level, where these characteristics are most critical".

Board functioning is crucial not only for the definition of firms' strategy, but also to address and influence companies' performance, especially when the Board strategic power is coupled with a similar power position of the CEO (Zahra & Pearce 1989). It is clear how in first instance it is the Board itself – regardless of its composition – which affects corporate success. But digging deeper, Board diversity and more precisely female representation are even stronger influencers of economic-financial performance and firms' value.

Despite there is a wide body of literature examining the relationship between women representation on Boards and firm performance, the empirical evidence is mixed. Some studies suggested how female directors negatively relate to firm's performance and accounting returns (Shrader, Blackburn & Iles 1997), while others do not find significative relation between the gender diversity of the Board and the financial performance of corporations (Carter et al. 2010). Nevertheless, the greatest part of the paperwork highlights how female representation leads to positive outcomes at the firm's level, both in terms of economic-financial performance and of positive stock market reaction. The effect is even amplified for greater female representation: the higher the proportion of women directors, the higher the firm's value (Nguyen & Faff 2007).

These broader findings have induced scholars to considered gender discrimination as economically suboptimal rather than – or additional than – immoral (Isidro & Sobral 2015). Indeed, if firms are not able to accurately recruit valuable individuals – especially if women – they will fail to get access to precious resources and skills needed to thrive. Thus, bad recruiting with annexed gender disparity are not in the best interest of firms, quite the contrary, they represent a limit to its functioning: not only because valuable competencies are lost, but also because several theories sustained how female Directors positively impacts firms' value.

First of all, women representation on Boards allows to reduce the misalignment between shareholders and managers goals and interests, which is one of the main problems of the agency theory. Applying that theory within organizations, shareholders – the principals – delegate work to managers – the agents – who perform that work on their behalf. For shareholders it is very complex to verify whether managers are behaving appropriately or not, and this aspect is even more emphasized when the principal and the agent have different risk profiles (Eisenhardt

1989). To limit the repercussions of the agency problems, the Board of Directors plays a fundamental role, thanks to its monitoring function towards the behaviors of top-level managers (Fama & Jensen 1983). Given that monitoring by the entire Board is associated with increases in firm's value (Brick & Chidambaran 2010), the triangle becomes clear: if women representation improves Board monitoring, the greater supervision over managers' behaviors will allow greater shareholders' value. In support to this claim, gender parity positively relates to Board effectiveness as well as to Board monitoring: female directors tend to have impacts comparable to independent directors, as they are more likely to be assigned to monitor-related tasks (Adams & Ferreira 2009). Female directors are thus associated to stronger monitoring activities and independence of the Board, therefore allowing for an increase in firm's value.

Secondly, the internal advantages of Board diversity are even more pronounced when diversity comes from women: female directors do not only provide different types of knowledge and capabilities, but also particular sets of expertise which are usually missing in the current Boards. Thus, the unique skills contribution of women would enhance the heterogeneity of Boards which – in turn – would increase the advisory effectiveness of the Board and improve firm's value (Kim & Starks 2016). Moreover, companies believing in women representation are more likely to have female employees highly motivated to excel, because they perceive that if they want, they can reach the top. In such realities, people are promoted and hired on the basis of their knowledge and skills – regardless of other demographic characteristics – allowing companies to successfully motivate employees making them feel as a part of an equal working environment (Lückerath-Rovers 2013).

Lastly, from an external point of view, the presence of women on Boards has positive effects on corporate reputation, especially in industries that work close to the final customer: female directors are viewed to contribute important skills, allowing Boards to operate more effectively when the proximity with customers is high (Brammer, Millington & Pavelin 2009). Indeed, a more gender diverse Board enhances the reputation as well as the image of the firm – boosting its performance and increasing shareholders' value – especially when corporate conducts have positive effects on customers' behavior (Smith, Smith & Verner 2006). Moreover, female directors are generally more stakeholder oriented than male directors, thus allowing for better connections and interactions with all the relevant interested parties, ensuring the protection and respect of their interests (Adams & Funk 2012). Stakeholder orientation is fundamental in a framework where external factors are playing an even more relevant role in influencing companies' behaviors. In such a setting, Boards – serving as a linkage between the internal context

of a firm and its external environment – can act to reduce environmental uncertainty and dependence, thus guaranteeing a lasting degree of stability to the overall business (Hillman, Withers & Collins 2009).

It is therefore clear that women representation on Boards "positively contribute to Board decision making, because female directors bring experiences, knowledge, and values that increase the pool of information considered in decision making. Moreover, female board representation improves firms' ability to generate profits from their assets and investments" (Post & Byron 2015, p. 1560). Adding to these favorable effects the reputational factor, gender parity on top-level positions is no more a moral duty over the society or an obligation to comply with law, but it is a viable solution for firms to be competitive in the market while enhancing their performance and value.

2.3.2. Women in the BoDs and firms' sustainable behaviors

Corporate Sustainability is increasingly perceived as a source of competitive advantage (Iwu-Egwuonwu 2011), which positively relates to employees' engagement, customers' satisfaction, stakeholders' legitimation as well as to costs and risks reduction. These benefits explain why sustainability has gained such prominence in the latest years, becoming a critical issue to be discussed by the top management and a key goal to be included in the company's strategy. Not surprisingly, Board of Directors and CEOs are increasingly addressing their attention to find new ways of enhancing social and environmental performance, allowing for a better and efficient satisfaction of the claims of all stakeholders.

To this end, companies have first of all to understand what being ecologically responsible implies, while identifying how to integrate sustainability within their existing resources, needs and challenges. Indeed, some firms may have claims from stakeholders requiring social welfare, others for environmental protection, and others for safety and health (Kakabadse 2007). Subsequently, companies have to embody such purposes within their corporate strategy, intention which is guaranteed by the personal commitment of the Board of Directors. Board engagement toward sustainability secures the introduction of social and environmental objectives within company's mission and vision, as well as the compliance of the defined responsible goals by employees.

Board involvement can be enhanced through the recruitment of sustainable-oriented and independent directors, who act as a balancing mechanism ensuring that companies behave in the

best interest of owners as well as of all the other stakeholders. Furthermore, independent directors put pressure on firms to engage in Corporate Sustainability, securing consistency between organizational actions and social or environmental values, due to their greater interest in satisfying the social responsibilities of firms (Haniffa & Cooke 2005).

One often recommended solution is to increase the number of women on Boards, as female directors tend to have impacts comparable to independent directors (Adams & Ferreira 2009). Indeed, women may ask question that would not come from directors with more traditional backgrounds (Carter, Simkins & Simpson 2003), and their non-conventional characteristics allow them to be more independent (Kang, Cheng & Gray 2007).

The superior independence of women is not the only reason which promotes their greater attention toward Corporate Sustainability. Several studies have identified how women's values, experiences, skills and backgrounds positively influence such matter, leading firms to provide additional relevance to stakeholders' needs and claims (Glass, Cook & Ingersoll 2016; Fernandez-Feijoo, Romero & Ruiz-Blanco 2014). Indeed, given that men and women have different viewpoints and aptitudes, "these differences help to ensure a balanced approach in response to economic, environmental and social matters" (Galbreath 2011, p. 31).

Even if the majority of empirical studies exhibited a positive relation between women representation and sustainability, others resulted in a mix evidence: indeed, are not absent the researches showing a null connection, especially with reference to environmental sustainability (Hussain, Rigoni & Orij 2018). This happens because men directors are expected to have career experience in traditional masculine sectors, like engineering and science (Singh, Terjesen & Vinnicombe 2008), resulting in sex-biases and stereotyping more in environmental matters than in social ones. Moreover, another reason for explaining the divergence among the different researches is that studies tend to focus on firms from a single country, consequently, country-level factors and authorities influence the extent to which female directors can affect and impact the strategy of firms (Byron & Post 2016). Specifically, in some countries, women directors may encounter discriminations and stereotyping which limit their potentiality to influence corporate strategy, thus directing researches toward misleading results (Rao & Tilt 2016).

Authors tend therefore to attribute the mix evidence of researches to their limits, and this argument is even sustained by the theoretical implications of women representation on Boards, as their greatest part are in favor of a positive relation between female directors and social and environmental performance.

The stakeholder theory of Evan and Freeman (1988) postulates how the top management of a corporation has the duty of preserving the wealth of the business by balancing the different

claims of the multiple interested parties: this means that the management should not provide priority to one stakeholder group over another, quite the contrary, it should maintain the relationship with stakeholders in balance. Precisely, dealing with different interested parties requires the ability to maintain positive relations with all stakeholders as well as a relational-oriented perspective, a feature intrinsic of women leaders. Female directors are less shareholder oriented than male directors (Adams & Funk 2012), thus allowing corporations to keep the equilibrium among the different stakeholders' claims, without giving primacy to investors over the other interested parties. Moreover, women on Boards are expected to be more cooperative, collaborative, and more focused on enhancing the needs of others than their own needs (Eagly & Johannesen-Schmidt 2001). Indeed women – compared to men – are more likely to show interpersonal-oriented, democratic and participative leadership styles, being thus more directed toward the welfare of others, more friendly and ready to provide help to customers or to explain procedures to subordinates (Van Engen & Willemsen 2004). Such relational abilities are essential for ensuring a worth and robust stakeholder management, allowing for the preservation and understanding of their economic, social and environmental claims. Indeed, stakeholder management is one way for the accomplishment of Corporate Sustainability, being "a rare management practice aiming to integrate economic, social, and environmental issues" into corporate goals (Konrad et al. 2006, p. 102).

Historically women faced greater barriers to entry and career growth in corporations. This is one of the reasons why they are more sensitive toward social problems and issues, showing greater concern for Corporate Social Performance compared to men (Backhaus, Stone & Heiner 2002). Also female directors' values tend to be aligned with social aims, as they are more inclined than men to enter into relationships, to address the needs of others and to feel responsible for not causing harm (Setó-Pamies 2015). Indeed, while men are more economically oriented, women are more philanthropic driven, and they tend to provide more relevance to charitable events, community services and cultural activities (Ibrahim & Angelidis 1994).

In support of this, the research of Hillman, Cannella and Harris (2002) showed how women directors are less likely to have business backgrounds compared to men but, nevertheless, they are more likely to hold advanced degrees. Thus, even if they do not bring business resources to corporation, female directors serve the Board with their skills and abilities in marketing and public relations, by being civic, community and government-oriented leaders. Indeed, rather than being business experts, women tend to be community influencers, providing non-business perspectives to corporations and expertise about how to influence and satisfy powerful groups in the community.

Additionally, directors with advanced degrees – a characteristic typical of women – tend to be more sensitive toward variables such as the status of the environment and the commitment to the society. This is because a higher level of education provides a greater awareness toward Corporate Sustainability and, accordingly, companies with highly educated executives are more likely to pursue responsible policies (Del Mar Alonso-Almeida, Perramon & Bagur 2015).

The concern of organizations about sustainable practices positively impacts also product positioning as well as purchase intentions of customers, as they perceive such firms to be involved toward customers' wellbeing, employees' gratification and stakeholders' satisfaction (Chaudary et al. 2016). This effect is even leveraged with female directors: women posit a considerable influence over the purchasing process, and they control about 80% of household spending, making the 81% of products and services purchases (Heffernan 2002). Women representation on Boards will thus help corporations to have useful insights about customers' behaviors and attitude, as well as to understand how to effectively address them (Gutner 2001).

Lastly, women representation encourages not only social and environmental investments, but also their reporting. Indeed, female directors boost the effectiveness of firms' monitoring (Adams & Ferreira 2009), which positively impacts both the company's spending over sustainable investments and the evaluation of consistency over sustainability reporting. In support of this, Arayssi, Dah and Jizi (2016) expressed how, when women participation on Boards is low, firms' reporting is perceived as less reliable and truthful: the presence of women on Boards strengthen the signaling capability and credibility of sustainability reporting.

The empirical evidence thus justified and explained the benefits brought by female directors which, being wide and several, affect different sides of the broad concept of Corporate Sustainability. Table 3 summarizes the main studies discussed in this paragraph and shows how their majority exhibits a positive connection between women representation and the different dimensions of Corporate Sustainability. The researches illustrated in such Table have been considered as the starting point for the empirical study performed in such dissertation.

Table 3: Empirical studies on the relation between women and sustainability.

Authors	Year	Country	Analyzed relation	Findings
Arayssi, Dah & Jizi	2016	UK	Women representation and ESG disclosure	Positive relation
Byron & Post	2016	20 countries	Women representation on firm's Board and corporate social performance	Positive relation
Del Mar Alonso-Almeida, Perramon & Bagur	2015	Spain	Women on Boards and stakeholder orientation	Positive relation
			Women managers with higher education and CSR	Positive relation
			Women managers with interpersonal leadership style and CSR	Positive relation
Fernandez-Feijoo, Romero & Ruiz-Blanco	2014	22 countries	Gender equality in a country and proportion of companies with at least 3 women on the BoD	Positive relation
			Women representation and levels of CSR	Positive relation
Galbreath	2011	Australia	Women on Boards and economic growth	Positive relation
			Women and social responsiveness	Positive relation
			Women and environmental quality	Null relation
Glass, Cook & Ingersoll	2016	US	Women CEOs and environmental initiatives	Null relation
			Women representation and environmental initiatives	Positive relation
Hussain, Rigoni & Orij	2018	US	Female directors and economic sustainability	Null relation
			Female directors and environmental sustainability	Null relation
			Female directors and social sustainability	Positive relation
Setó-Pamies	2015	22 countries	Women on Boards and CSR	Positive relation

2.4. The research questions

Corporate Sustainability as well as Women representation have become a mantra for the 21st century. They can both be seen as sources of competitive advantage, which help firms to thrive and to outperform in the competitive arena. On one side, the concept of sustainability is one of the most debated in literature, and its consequences and effects have been widely discussed starting from the second half of the last century. On the other one, the women matter is a more recent phenomenon, justified by the majority of researches which concentrate starting from the new century.

Especially in the latest years, several studies have tried to understand the connection which lies between women representation and Corporate Sustainability, discovering multiple implications and facets behind the same concept. Results are not univocal, quite the contrary, they include aspects and findings which differ from one research to the other. The doubtful literature over some dimensions of such topic is the reason why this study has been developed with the aim of testing the effectiveness of the positive linkage between women representation on Boards and responsible policies, focusing on the most uncertain results discussed in literature.

Before explaining the hypotheses underlying the analysis performed, it is worthwhile to stress how female directors bring several benefits to organizations, not only bounded to the ethical side, but enlarged toward the economic and financial one. Nevertheless, the impacts of women representation over economic and financial performance are already widely discussed in literature: it was thus considered more valuable to focus on the sustainability edge of female directors. Moreover, the effects of women representation over Corporate Social Performance is roughly five times greater than the impacts over economic and financial performance. This happens because individual directors, as well as the Board as a whole, tend to have more control over firms' ethical side rather than over the financial one (Byron & Post 2016).

The discussion presented in the above paragraphs lead to the development of the following hypothesis:

Hypothesis 1: *Women representation on BoDs is positively related to Corporate Sustainability.*

The scrutiny of the literature over such topic highlighted how the greatest uncertainty about the positive relation between female directors and sustainability is tied to the environmental side. Indeed, while most of studies identified a beneficial influence of women over social performance, results about such effects over environmental performance generate a mix evidence. Scholars tried to explain such divergence considering that men – with respect to women – have more decision-making experience and background connected to science and engineering, as they are more likely to have degrees in technical disciplines (Singh, Terjesen & Vinnicombe 2008). Boards and corporations thus perceive women as having less experience in environmental matters than men, favoring inputs from male directors over such topic, and discounting those from female ones (Galbreath 2011). With the aim of identifying whether the positive relation is tougher when discussing social rather than environmental issues, Hypothesis 2 has been developed as in the following:

Hypothesis 2: *The relationship between Women representation on Boards and Corporate Sustainability is stronger on the social rather than on the environmental side.*

It's not only the Board of Directors which plays a fundamental role in crafting the strategy and in integrating social and environmental matters into corporate goals: the Chief Executive Officer is increasingly becoming the focal point for the implementation of sustainable policies. Indeed, the CEO's personality, characteristics and values direct the actions of managers, thus defining which behaviors to favor and which ones to neglect. This means that also Corporate Sustainability depends on the nature of firm's CEO, and on his or her inclinations toward responsible policies (Christensen, Mackey & Whetten 2014). Moreover, the CEO imposes a stronger pressure on corporations – with respect to the BoD – toward the conformance to his or her own values (Wally & Baum 1994): we should thus expect the positive effects over sustainability to be greater when the CEO is a woman. Indeed, it is well known that women have higher attitudes toward sustainability, as their own values tend to be more aligned with ethical ones. Accordingly, Hypothesis 3 follows:

Hypothesis 3: *Firms with women CEOs are more inclined toward Corporate Sustainability.*

The way in which such three hypotheses have been tested is described in Chapter 3, which highlights the methodology of the study, the sample and the variables considered. Results are discussed in Chapter 4, while Chapter 5 considers the managerial implications of the outcomes as well as the consequences of such research over the theoretical framework.

CHAPTER 3: METHODOLOGY OF THE EMPIRICAL ANALYSIS

3.1. The methodology of the study

In order to test the research questions highlighted in Chapter 2, it has been performed a quantitative analysis based on original survey data. In the following paragraphs is provided a brief description of the process pursued to select and gather data, as well as of the analyses performed. Here is clarified the methodology enforced for conducting the whole study, from the sample choice to the development of the regression models.

The Chapter is divided into *two steps*, which relate to the analyses performed to test the hypotheses developed. The first step refers to a wide and generic analysis undertaken to have a global overview over the link between women and sustainability, comparing sustainable and non-sustainable firms. It has the main aim of understanding the effects that women representation has over the sustainability *propensity* of firms, intended as their willingness to commit to sustainable practices. The second step digs dipper into the issue and focuses only on the sample of sustainable firms, comparing firms with different levels of sustainability, trying to measure the sustainability *intensity* of firms.

In both cases, it is first of all explained the sample selection and the way in which data have been collected. Secondly, the dependent and independent variables employed to develop the empirical models are described, with a specific focus on the reasoning behind their choice based on the theoretical framework already developed. In the last part of the Chapter, the sample is examined in detail, for understanding how companies are distributed on the basis of some key variables, and for identifying the structure of the sample.

Table 4 summarizes the concepts of *sustainability propensity* and of *sustainability intensity*, specifying how they have been employed for the empirical analyses performed and how they have been measured.

Table 4: Definition of sustainability propensity and intensity.

	Definition	**The sample**	**The measure**	**Level of analysis**
Sustainability Propensity	The committment or not of companies toward sustainability	Sustainable firms and non-sustainabile firms	Being a Certified B Corporation or a Benefit Corporation	Step one
Sustainability Intensity	The level of sustainability pursued by companies	Sustainable firms	B Impact Scores	Step two

3.2. The B Corp Framework

As summarized in Table 4, the proxy employed to identify if and to what extent firms are sustainable is related to the achievement of the B Corp Certification, released by the B Lab[1]. B Lab is a nonprofit organization which operates globally, having the main goal of inducing companies to help address society's greatest challenges, like wealth inequality or climate change. It collaborates with companies and institutions across all sectors of society, and it leads companies to compete to be the best for the world, for the people who live in and for the environment. This Certification has already been adopted in other academic publications (Grimes, Gehman & Cao 2018) as a proxy for sustainability, and it is a nice fit for the research questions addressed in this dissertation. Additionally, also Benefit Corporations have been considered, being a new company form which is so far available just in the USA, Colombia, Puerto Rico and Italy. The notions of Certified B Corporations and Benefit Corporations are not substitutable, as will be discussed in the following.

3.2.1. Certified B Corporations and Benefit Corporations

Certified B Corporations – or B Corps – are firms which get the B Corp Certification, given they can prove to meet the highest standards of social and environmental performance, transparency and accountability. Such businesses use their profits and growth opportunities for generating positive impacts over their employees as well as over the community and the environment in their broader sense. For obtaining the B Corp Certification, firms need to compute the B Impact Assessment, "the most credible tool a company can use to measure its impact on its workers, community, environment, and customers", and achieve at least 80 out of 200 available points of the Overall B Impact Score, the total score provided by B Lab which measure the impacts that a business has on all of its stakeholders. To ensure that once firms get the Certification they continue to engage with their stakeholders, the Certification last three years and, after that time, firms must update their assessment. Moreover, B Corps share their B Impact Assessment on their B Impact Reports, as well as on the website https://bcorporation.eu/directory, in which it is possible to find the individual score of each company.

Benefit Corporations do not fill for obtaining the B Corp Certification, and do not estimate their B Impact Score. A Benefit Corporation is a legal form of company that integrates the profit-making activity with one or more social and environmental goals, which must be included in

[1] The information exposed in such paragraph are available at the websites https://bcorporation.eu and http://www.societabenefit.net

the corporate statute. This means that Benefit Corporations voluntarily pursue, alongside the profit objective, also a mutual benefit one, intended as aims which favor the workers, the community or the environment. To this end, executives need to balance shareholders' claims and stakeholders' needs, appointing a manager accountable for company's reporting, transparency and sustainability. Benefit Corporations thus go beyond the short-term model of profits, being aware that for allowing the creation of the long-term value for all the interested parties, they have to include in their mission as well as in their statute also nonprofit goals. Lastly, while any for profit company in any country can get the B Corp Certification, the Benefit Corporation form is accessible only in 34 countries of USA, in Colombia, Puerto Rico and Italy.

3.2.2. The B Impact Scores

As stated before, to become a Certified B Corporation – or a B Corp – companies need to reach at least 80 out of the 200 points available of the Overall B Impact Score. Such total score is divided into five sub-categories: Governance Company Score, Workers Company Score, Community Company Score, Environment Company Score and Customers Company Score. For the purposes of this analysis, four scores have been considered:

- the Overall B Impact Score, as a proxy for measuring the general level of Corporate Sustainability of firms;
- the Community Company Score and the Workers Company Score, as proxies for the level of social sustainability;
- the Environment Company Score, as a proxy for the level of environmental sustainability.

Moreover, the B Impact Scores have allowed to acquire all the information needed about the three dimensions of sustainability employed in this study.

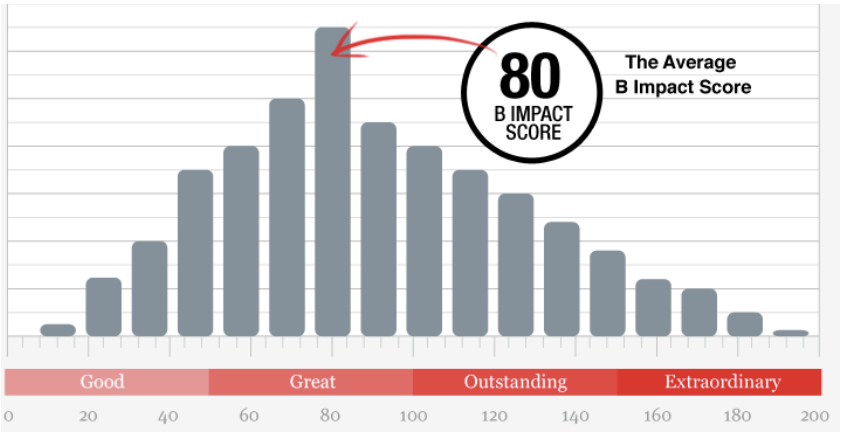
Indeed, to verify whether women representation on Boards is positively related to sustainability and whether such effect is more positive when the CEO is a woman, the dependent variable employed is the Overall B Impact Score, the comprehensive rating provided by B Lab. This total score embodies the impacts of a business on all of its stakeholders, namely its workers, suppliers, the community and the environment in their broader sense. Thus, the Overall B Impact Score is the total rating which includes all the other sub-scores (Governance, Workers, Community, Environment and Customers Company Score), and it is employed as a proxy for the general level of Corporate Sustainability of the companies in the sample.

The Overall B Impact Score goes from 0 to 200, but for becoming a B Corp, the company has to score at least 80 out of the 200 points available. Nonetheless, any positive score is a good

score, because any score higher than zero discloses how the firm is doing something positive for the society and the environment in which it operates. Most of the companies which complete the B Impact Assessment score between 40 and 100 points, and their distribution is shown in Figure 2.

Figure 2: B Impact Score distribution of participating companies.

Source: https://bimpactassessment.net



The threshold for getting the Certification is set at 80 points. This is because – since each impact area (Workers, Community, Environment…) weights roughly 40 points – achieving 80 as a total score would mean that the company has to excel in more than one area to become a B Corp. Thus, B Lab wants to provide the Certification only to companies that have positive influence over multiple impact areas, rather than just one.

Moreover, to test whether the influence of women representation on Boards over Corporate Sustainability is stronger on the social rather than on the environmental side, three other scores are employed: Community Company Score, Workers Company Score and Environment Company Score.

The Community Company Score measures the influence that the company subjected to the assessment has over its stakeholders in the broader scope of the term. It includes workers, suppliers, distributors, nonprofit organizations and the society in general. The score is divided into five main areas:

- *job creation*, aimed to understand how many new people the company hired and how many workers left the job or got fired;
- *diversity*, developed to reckon the percentage of employees and directors who come from underrepresented communities (female, low-income communities, individual with disabilities) and the differences in their wages;

- *civic engagement and giving*, intended to comprehend whether the company pursues some charitable giving practices, and to reckon the hours and resources dedicated to such habits;
- *local involvement*, directed to identify whether the company avails of local workforce, local suppliers and local banks;
- *suppliers, distributors and products*, focused to understand what kind of social and environmental screening (if any) is performed by the company for selecting suppliers and distributors, and to esteem the percentage of materials or products that get certifications by third parties.

The other proxy for social sustainability is the Workers Company Score, which assesses the firm's contribution to its employees financial, physical, professional, and social well-being. Also such score is partitioned in five areas:

- *job growth*, directed to reckon the number of new hired and of temporary workers, for understanding whether and how the company is increasing its workforce;
- *compensation and benefits*, aimed to identify the advantages provided to employees in terms of promotions, monetary and non-monetary benefits;
- *employment practices*, focused on understanding whether the firm's hiring and workplace conditions are fair or not;
- *work environment*, crafted to assess the management/workers communication, workers health and safety practices;
- *employee ownership*, directed to calculate the percentage and the number of employees that have granted stock, stock options or stock equivalents in the company, thus to understand how much of the company is owned by employees (different from executives).

On the other side, the Environmental Company Score aims to assess the impacts that the company has over the environment, on the basis of its inputs, outputs and transformation processes. Here again, the score is divided into five areas, which allow us to better understand the composition of the overall environmental rating:

- *land, office and planet*, aimed to identify whether the company has some green buildings (facilities certified to meet environmental requirements), if it follows recycling policies and if it implements some practices for reducing environmental footprints;
- *inputs*, focused on understanding the level of usage of renewable resources, recycled or environmentally friendly products or packaging and on verifying the presence of monitoring systems of energy usage;

- *outputs*, directed to comprehend the level of waste disposal, the level of gas emissions and the percentage of waste that are recycled or reused;
- *transportation, distribution and suppliers*, crafted to evaluate the techniques or policies implemented (if any) for minimizing the environmental impact of the distribution channels and of the whole supply chain;
- *impact business model*, intended to understand whether the company's products or processes are structured to restore or preserve the environment.

3.3. Data collection

The analyses performed to test the research questions are based on survey data, personally gathered through online surveys distributed to Certified B Corporations and Benefit Corporations. The dissertation is part of the bigger project "New business models and social impact assessment in sustainability paths for SMEs"[2] – developed by a research group of the Department of Economic and Business Sciences "Marco Fanno" (DSEA) of the University of Padua – to which I participated.

The initial population was composed of 167 Italian companies and 146 UK companies, namely all the B Corps active in these countries and the Benefit Corporations of Italy. The choice of a two-country analysis is a consequence of the common thinking that results of studies about the connection between women and sustainability are misleading when analyzing only one country, as the extent to which female directors influence Corporate Sustainability may be affected by country's specificities (Rao & Tilt 2016). Moreover, Italy and UK have distinct positions over the women matter, as attested by the difference between the Global Gender Gap Index of these two countries. Such index considers gender equality in terms of economic participation, educational attainment, health and survival and political empowerment. Theoretically it should range from zero, synonymous of no gender equality, to one – total equality – even if practically it spans from the 0,499 of Yemen to the 0,858 of Iceland. While Italy is positioned seventieth in the global ranking with a score of 0,706, United Kingdom is fifteenth, with a score of 0,774 (World Economic Forum 2018).

The choice to consider two countries in the study here performed is doubly beneficial: it allows to avoid misleading results from the research while, at the same time, it gives us the opportunity to confirm or deny the idea that the relationship between women representation and Corporate

[2] Funded with ESF 2014 - 2020 (D.G.R. n. 1267 of 08/08/2017 by the Veneto Region)

Sustainability is more positive when studies are conducted in countries with higher gender parity (Byron & Post 2016).

From the initial sample of 313 companies, the first contact was by e-mail, which included the purpose of the questionnaire, the description of the project and the methodology of the study. The last specification was fundamental to explain to companies how their answers would be confidential and anonymous, clarifying that data would be processed only in aggregate form and for scientific purposes. Then, the second contact was by phone, a more direct contact needed to better explain the aim of the research personally to the party in charge for the Certification, and to gain greater participation of companies that are usually reluctant to reply to surveys sent by e-mail. For firms with no phone number available, the communication happened through social network, especially LinkedIn and Facebook. During the second contact, another e-mail was sent to firms willing to help, sometimes emailing directly to the person responsible for the Certification. Being an online survey and not a telephone one, the questionnaire was filled by the respondents.

Data collection lasted three months, from July to September 2019, and has led to a final sample of 71 firms, of which 47 are Italian companies, and 24 are UK companies.

3.3.1. The structure of the questionnaire

As anticipated before, companies were asked to answer to a questionnaire, needed to collect data not available on AIDA or on companies' websites. The questionnaire is nine pages long and divided into three sections, for a total of 31 questions.

Section A includes 8 questions about the Business Model of the company, developed mainly for understanding what changes the firm had to face when becoming a B Corp and which institutions helped in this transformation process.

Section B contains 10 questions formulated to comprehend the reasons why the company has certified as a B Corp and the consequences of the Certification from an economic, social and environmental point of view.

Section C embodies 13 questions about some general characteristics of the enterprise, as its turnover, the number of employees or the sector in which it operates. In this Section is included the question of whether or not there are women in the top management of the company.

3.4. The empirical model of step one: sustainability propensity

As anticipated before, the *first-step* of the empirical analysis provides a general understanding of the link between women and sustainability and aims to identify whether firms with women in their top management are more likely to act sustainably compared to firms with no women in the top positions.

Firstly, are described the dependent, the independent and the control variables considered and the reasoning behind their choice; secondly the model employed to answer to such questions is outlined.

3.4.1. The dependent variable: sustainable and non-sustainable firms

To understand whether a company is sustainable or not, the B Corp Certification and the Benefit legal form have been chosen as the cut-off criteria: sustainable firms are thus intended as firms being either Certified B Corporations and/or Benefit Corporations. Thus, the *dependent variable* is represented by the event *Sustainability*, a dichotomous variable noted as one if the firm is sustainable – thus if it is a Certified B Corporation or a Benefit Corporation – as zero otherwise.

The sample of sustainable firms in this *first-step* analysis considers only Italian companies, thus the 47 Italian sustainable firms, as for UK ones no information were available about their size or performance.

To develop the sample of non-sustainable firms, the 47 Italian companies – namely the sustainable firms – were the starting point. Indeed, using the database AIDA and the statistical software R, for each firm 5 different comparable companies have been identified. The process required different stages to be followed, which are then clarified.

In a first moment, the 47 Italian companies were launched in the database AIDA, discovering that for four of them, no data were available. The sample of sustainable firms was thus reduced from 47 to 43 companies, because for such four companies it was not possible to find their comparables as there were no information about the sector in which they operate and about their economic and financial performance.

Secondly, thanks to the data available on AIDA, a first screening was performed, selecting for each sustainable firm a list of comparable companies on the basis of the province and the sector in which the sustainable company operates[3].

[3] Only active companies have been considered.

Lastly, employing the statistical software R, the propensity score matching command has been applied to such list of companies and, selecting the Return on Equity and the Total Assets as the variables to measure proximity, for each sustainable firm 5 comparable companies have been identified.

Thus, in the sample of non-sustainable firms are included those companies that operate in the same region and in the same sector of the sustainable firms, and that have size and economic performance similar to them. The sample of non-sustainable companies is composed by 215 Italian firms.

Table 5 summarizes the main characteristics of the samples employed in this *first-step* analysis.

Table 5: Sample size and composition for the first-step analysis.

FIRST STEP	Sustainable firms	Non-sustainable firms
Composition	Certified B Corporations and Benefit Corporations	Companies similar to Sustainable firms in terms of: Location → Province Sector → Ateco Code 2007 Size → Total Assets Performance → ROE
Sample size	47 (then reduced to 43 for missing data)	215 (5 comparables for each sustainable firm)
Country	Italy	Italy

3.4.2. The independent and control variables

To predict the presence of women in the top management, two *independent variables* have been considered as proxies for women representation: the presence or absence of women in the Board of Directors of firms and the gender of the CEO.

The variable *Women on Boards* is a dichotomous variable noted as one if there is at least one woman in the Board of Directors of the firm, as zero otherwise. While data about such variable for the sample of sustainable firms were furnished by the questionnaire, data for the sample of non-sustainable firms have been personally collected through AIDA. Looking at the "executive and managers" section of AIDA, if in the BoD it was written at least one female name, it has been inserted 1 in the database, and zero otherwise.

The other proxy for women representation is the variable *CEO gender*, a dichotomous variable depicted as one if the CEO is a woman, as zero otherwise. The data for such variable have been personally collected through AIDA both for the sample of sustainable firms and for the sample

of non-sustainable firms. Looking at the "executive and managers" section of AIDA, if as General Manager it was written a female name it has been inserted 1 in the database, and zero otherwise. Nevertheless, for some companies no General Manager was indicated. In such cases some proxies have been employed:

- if in the section "executives and managers" only the name of the Sole Administrator was reported, the Sole Administrator was considered as CEO;
- if in the section "executives and managers" neither the name of the General Manager nor the name of the Sole Administrator was reported, the President of the Board of Directors was considered as CEO.

Moreover, to *control* the result of the study, other variables have been included in the models as proxies for the main levers of sustainability. The control variables for such first-step analysis measure the organizational slack of firms, intended as the company's size plus other economic and financial performance. To this aim, Total Assets, EBITDA and ROE have been included as controls in the regression models, as in the study of Glass, Cook and Ingersoll (2016).

Various measures have been used in previous studies as a proxy for the firm size, nevertheless, Total Assets and Market Capitalization are the ones most extensively employed. Given that the firms of the sample are not listed, *Total Assets* have been exploited in such dissertation as proxy. Firm size is one of the most important control variable, since several studies highlighted how firms with larger size invest more in sustainability, given their larger impact on communities and the greater stakeholders' pressure they grab (Arayssi, Dah & Jizi 2016).

Waddock and Graves (1997) argued how also slack resources play a relevant role in defining responsible behaviors. This is because slack resources available from strong financial performance provide to companies the potentialities to invest in social and environmental policies without compromising the economic and financial equilibria. Similarly to Galbreath (2011), slack resources are measured by *EBITDA*.

The slack resources theory is thus strictly related to economic and financial performance of firms, supporting the idea that larger companies with better performance are more likely to correctly combine economic and social objectives. To test this idea – as in the research of Setó-Pamies (2015) – *Return on Equity* has been employed, because it reflects the operating efficiency and the financial opportunities for future growth.

All the variables employed in such first step analysis are described by Table 6, which highlights also their source of information.

Table 6: The variables employed in the first-step analysis.

Dependent variable	Variable Type	Description	Source of information
Sustainability propensity	Dummy	0 = sustainable firm, 1 = non-sustainable firm	bcorporation.eu/directory
Independent variables	**Variable Type**	**Description**	**Source of information**
Women on Boards	Dummy	0 = no women, 1 = yes women	Questionnarie and AIDA
CEO gender	Dummy	0 = male, 1 = female	AIDA
Control variables	**Variable Type**	**Description**	**Source of information**
Total Assets	Continuous	Ln (Total Assets)	AIDA
EBITDA	Continuous	EBITDA	AIDA
ROE	Continuous	Net profit / Equity	AIDA

3.4.3. The method: logistic models

For answering the questions related to such first general analysis, thus to understand the effects that having a woman in the BoD or a woman as a CEO have on the sustainable side of companies, it has been employed the logistic model.

The logistic regression is a statistical model employed to measure the probability of a certain event to happen, thus it is the appropriate regression model to conduct when the dependent variable is a dichotomous one. To understand the significance of the estimates of the parameters in the logistic model, as in the linear one, the P-value is employed. The P-value is compared to a confidence level α that represents the type 1 error: such error is set in default at 5%, but in some cases, it can be useful to considerer lower or higher values, respectively 1% and 10%. For a P-value smaller than the α level chosen, the estimate of a parameter of the model is statistically significant, for P-value greater than such level, the estimate is not significant.

Model 1 considers only the dependent variable and one of the two independent variables, thus being depicted as follows:

$$\text{Sustainability} = \beta_0 + \beta_1 \, WOBOD \; (or \; CEO.gender) + \varepsilon$$

Model 2 adds to the first one the organizational slack of firms, thus their size and performance, resulting in the following regression model[4]:

$$\text{Sustainability} = \beta_0 + \beta_1\, WOBOD\ (or\ CEO.gender) + \beta_2\, Total\ Assets + \beta_3\, EBITDA + \beta_4\, ROE + \varepsilon$$

The independent variables *Women on Boards* and *CEO gender* are employed alternatively in the regression models, to understand respectively whether women representation on Boards is positively related to sustainability – H1 – and whether such effect is persistent and greater when the CEO is a woman – H3.

3.5. The empirical models of step two: sustainability intensity

The *second step* of the analysis performed goes dipper into the research questions, focusing only on the sample of sustainable firms. The sample of sustainable firms in the *second-step* analysis includes also UK companies, while excluding the 14 Benefit Corporations, those companies for which, as they do not get the Certification, no data about the B Impact Scores were available, moving to a sample of 57 firms. Table 7 reports the sample size and composition of the second-step analysis.

Table 7: Sample size and composition for the second-step analysis.

SECOND STEP	**Sustainable firms**
Composition	Certified B Corporations
Sample Size	71 (then reduced to 57 excluding Benefit Corporations)
Country	Italy for 33 companies, UK for 24 companies

Thus, all companies in such sample are sustainable, the only difference among them is about the level with which they engage in sustainability, thus about their sustainability *intensity*. The sustainability intensity concerns the level of sustainability pursued by companies, and it tries to

[4] The continuous variables of the model – namely the Total Assets, EBITDA and ROE – have been winsorized at the 95th percentile to limit the effect of outliers, and have been standardized in order to make comparable their distribution.

quantify in numerical terms their involvement in practices that favor the environment and the community. It is a more stringent analysis than the one performed in the first step, because it wants to understand not only if the presence of women in the Boards of companies lead them to operate sustainably, but also if female representation has effects over the level of sustainability pursued.

3.5.1. The dependent variables

To measure the sustainability intensity of firms, the B Impact Scores have been selected, and several reasons have led to choose such rating, which are summarized in Table 8.

Table 8: Reasons to select the B Impact Score as a proxy for sustainability.
Source: Personal elaboration based on data available at https://bimpactassessment.net

Motivation	Explanation
Comprehensive	It covers everything from governance to supply chain
Independent	Overseen by independent Standards Advisory Council
Transparent	All questions and weightings visible to the public
Dynamic	It changes based on size and sector of the company
Community based	Most changes are based on user feedback
Positive	There are no negative points on the assessment
Free	Companies have not to pay to assess their B Impact score
Easy to use	It is an online tool designed for SME
Confidential	Answers and reports are only visible to B Lab, only reports are visible for most Certified B Corps
Comparable	Across industry and size
Educational	Aimed at making it easy for business owners and operators to improve their impact

In order to build the dependent variable, the *Overall B Impact Score* has been considered as a proxy for the general level of Corporate Sustainability. The Overall B Impact Score ranges between 80 and 200 and, more precisely, the interval of such variable is from 80 to 126, as no company in the sample scores higher than 126. Secondly, the *Community Company Score* is employed as one of the proxies for social sustainability, and in the sample here considered it ranges from 10 to 83. The second proxy for social sustainability is the *Workers Company Score*, and in the sample of this dissertation, it ranges from 0 to 69. Lastly, to measure the level of environmental sustainability, the *Environment Company Score* is employed, and in the sample here considered it ranges from 4 to 62.

Table 9 summarizes the dependent variables, what they represent and their range of values.

Table 9: The list of the dependent variables.

Dependent variable	Proxy for…	Range of values
Overall B Impact Score	Level of Corporate Sustainability	From 80 to 126
Community Company Score	Level of Social Sustainability	From 10 to 83
Workers Company Score	Level of Social Sustainability	From 0 to 69
Environment Company Score	Level of Environmental Sustainability	From 4 to 62

3.5.2. The independent and control variables

For understanding the relation between women and sustainability, two *independent variables* have been considered for the research: the presence or absence of women in the Board of Directors and the gender of the CEO of the firms subjected to the questionnaire. The variable *Women on Boards* is a dichotomous variable, depicted as one if there is at least one woman in the Board of Directors of the firm, as zero otherwise. For this parameter, the answer was provided by the questionnaire developed, in which there is a specific question dedicated to such matter – question 19: in your company are there women in the top management? The *CEO gender* is likewise a dichotomous variable noted as one if the CEO is a woman, as zero otherwise. The data for such parameter have been collected through AIDA for Italian companies, and through LinkedIn and companies' websites for English ones.

To *control* the results of the study, some variables have been employed as proxies for the main levers of sustainability. The control variables of the model can be divided into two groups, and this separation is useful also for the regression models developed.

On one side, there are the structural characteristics of firms, namely the business type, the group membership and the country of origin.

Being a *Family business* can be a facilitator or an opposing force to sustainability. Indeed, some previous researches pointed out how family businesses – more than non-family businesses – feel more accountable for those stakeholders that are directly tied to the business itself, especially employees, suppliers and customers (Uhlaner, Van Goor-Balk & Masurel 2004). Moreover, the familiar configuration affects also the two independent variables, as in family firms gender diversity within the Board is greater than in non-family businesses (Barrett & Moores 2011). This are the reasons why the "family variable" has been introduced in this study, developing a dummy variable depicted as one if the firm is a family business, as zero otherwise.

In the same way, we should expect that being *Part of a group* has an impact over sustainable policies. Indeed, firms inside the same cluster influence each other, especially if also the other companies of the group heavily invest in such practices. Here is studied such theoretical sentence, trying to understand whether being part of a group positively influence sustainable performance or not, with a dummy variable noted as one if the company is part of a group, as zero otherwise.

The last structural characteristic included in the model takes into account the *Country* of origin of firms. In fact, it is expected to have a stronger relation between women and sustainability in studies conducted in countries with higher gender parity, as demonstrated by Byron and Post (2016). In this study, the country with higher gender parity is the United Kingdom, thus it has been designed a dummy variable noted as one when the firm is from UK, as zero otherwise – thus when the firm is an Italian one.

On the other side, another group of control variable is included into the organizational slack of firms, namely the Total Assets, EBITDA and ROE, whose theoretical framework has been already described in Paragraph 3.4.1., as the organizational slack of firms has been included also in the logistic model of step-one.

Table 10 summarizes all the variables engaged in this second-step analysis, and their sources of information.

Table 10: The variables employed in the second-step analysis.

Dependent variables	**Variable Type**	**Description**	**Source of information**
Overall B Impact Score	Continuous	Rating for corporate sustainability	bcorporation.eu/directory
Community Company Score	Continuous	Rating for social sustainability	bcorporation.eu/directory
Workers Company Score	Continuous	Rating for social sustainability	bcorporation.eu/directory
Environment Company Score	Continuous	Rating for environmental sustainability	bcorporation.eu/directory
Independent variables	**Variable Type**	**Description**	**Source of information**
Women on Boards	Dummy	0 = no women, 1 = yes women	Questionnarie and AIDA
CEO gender	Dummy	0 = male, 1 = female	Linkedin and AIDA
Control variables	**Variable Type**	**Description**	**Source of information**
Family business	Dummy	0 = no family, 1 = family	Questionnaire and AIDA
Part of a group	Dummy	0 = no group, 1 = group	Questionnaire and AIDA
Country	Dummy	0 = Italy, 1 = UK	bcorporation.eu/directory
Total Assets	Continuous	Ln (Total Assets)	AIDA
EBITDA	Continuous	EBITDA	AIDA
ROE	Continuous	Net profit / Equity	AIDA

3.5.3. Treating missing data

Some respondents left empty the answers about the presence of absence of women in their corporate Boards, about their familiar type and the group membership. To avoid losing these observations, in a second step, and only for Italian companies, such data have been collected through AIDA.

To identify women representation on Boards, the approach consisted in looking at the "executive and managers" section of AIDA, and if in the BoD there was written at least one female name it has been inserted 1 in the database, and zero otherwise.

For the other two variables, the concept of control was fundamental to identify both family businesses and group of companies. It is well known how control may be exercised in different ways but, in the absence of other information, the acquisition of the absolute majority (50% + 1) of shareholding is used as a proxy for control[5].

To understand whether the firm is or not a familiar business, looking at the "shareholders" section of AIDA, it was analyzed the name, surname and share of each shareholder, for identifying the presence of familiar connections among them. This is because, typically, a family firm is identified as a company controlled and directed by one or more members of the family, maybe belonging to different generation (Baschieri 2014). They were considered familiar businesses, companies in which:

- shareholders with the same surname own the control of the company (at least 50% + 1) *or*,
- a single shareholder holds the whole capital *or*,
- the principal shareholder (50% + 1) is another family business.

In the same way, looking at the "shareholders" section of AIDA, it was identified also the membership of the company to a group or not. The definition of group includes likewise the concept of control, as being part of a group imposes companies to be controlled by another firm, which has the authority to intervene on the main organizational choices (Cainelli & Iacobucci 2005). Along this line, were considered part of a group companies whose shares (at least 50% + 1) were controlled by another company; and as not being part of a group otherwise.

3.5.4. The methods: T-tests

To have a first idea about the relation which lies between women representation and the level of Corporate Sustainability, some T-tests have been developed. The T-test compares the means

[5] Definition available at: https://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-32-10-216-EN-C-EN.pdf

of two groups to determine whether those means are statistically different from each other. Precisely, it tests the null hypothesis:

$$H0: \mu 1 = \mu 2$$

H0 implies that there is no statistically significant difference between the means of the two groups. To understand whether to reject or not the null hypothesis, the P-value is considered: if the P-value is large, the data do not provide any reason to affirm that the means differ between the two groups, and thus it is not possible to reject the null hypothesis. On the contrary, if the P-value is small, the null hypothesis can be rejected. Three confidence level α can be employed to test the significance of the variable, respectively 1%, 5% and 10%. The null hypothesis is rejected when the P-value is smaller than the α level chosen.

For the purposes of such dissertation, the proxies for identifying women representation are:

- the presence or absence of women in the Board of Directors, with WOBOD = 0 if the company does not have at least one female director, and WOBOD = 1 if the company has one female director;
- the gender of the CEO, with CEO = 0 when the CEO is a man, and CEO = 1 when the CEO is a woman.

On the other side, the proxies for measuring the level of Corporate Sustainability are the Overall B Impact Score, the Community Company Score, the Workers Company Score and the Environment Company Score.

Eight different T-tests have been drafted, as shown in Table 11, and their results are exhibited in Chapter 4.

Table 11: The eight T-tests developed.

		vs	
Test 1	WOBOD = 0 Overall BIS		WOBOD = 1 Overall BIS
Test 2	WOBOD = 0 Community CS	*vs*	WOBOD = 1 Community CS
Test 3	WOBOD = 0 Workers CS	*vs*	WOBOD = 1 Workers CS
Test 4	WOBOD = 0 Enviroment CS	*vs*	WOBOD = 1 Enviroment CS
Test 5	CEO = 0 Overall BIS	*vs*	CEO = 1 Overall BIS
Test 6	CEO = 0 Community CS	*vs*	CEO = 1 Community CS
Test 7	CEO = 0 Workers CS	*vs*	CEO = 1 Workers CS
Test 8	CEO = 0 Enviroment CS	*vs*	CEO = 1 Enviroment CS

3.5.5. The methods: multiple regression models

Entering in the core analysis of the dissertation, three different multiple regression models have been designed to test the research questions. As anticipated before, the two independent variables have been used alternatively in the models.

Model 3 has been developed considering only the dependent variable and one of the two independent variables, thus being depicted as follows:

$$\Upsilon = \beta_0 + \beta_1 \, WOBOD \; (or \; CEO.gender) + \varepsilon$$

Model 4 adds to the first one the structural characteristics of firms, thus the familiar type, the group membership and the country of origin. It follows that:

$$\Upsilon = \beta_0 + \beta_1 \, WOBOD \; (or \; CEO.gender) + \beta_2 \, Family + \beta_3 \, Group + \beta_4 \, Country + \varepsilon$$

Model 5 adds also the organizational slack of firms, thus their size and performance, resulting in the last regression model[6]. It's relevant to stress how, for this model, have been included only Italian companies, as for UK ones no information were available about their size or performance. Thus, the control variable Country has been excluded and the model results as follows:

$$\Upsilon = \beta_0 + \beta_1 \, WOBOD \; (or \; CEO.gender) + \beta_2 \, Family + \beta_3 \, Group + \beta_4 \, TotalAssets + \beta_5 \, EBITDA + \beta_6 \, ROE + \varepsilon$$

The dependent variable Υ changes on the basis of the hypothesis tested, thus switching among the Overall B Impact Score, the Community Company Score, the Workers Company Score and the Environment Company Score. As all the four dependent variables have a limited range of values, instead of employing a linear model, a Tobit one has been applied, which is a regression model designed to estimate the relationship between variables when the dependent variable is censored.

[6] The continuous variables of the model – namely the Total Assets, EBITDA and ROE – have been winsorized at the 95th percentile to limit the effect of outliers, and have been standardized in order to make comparable their distribution.

3.6. Samples composition and description

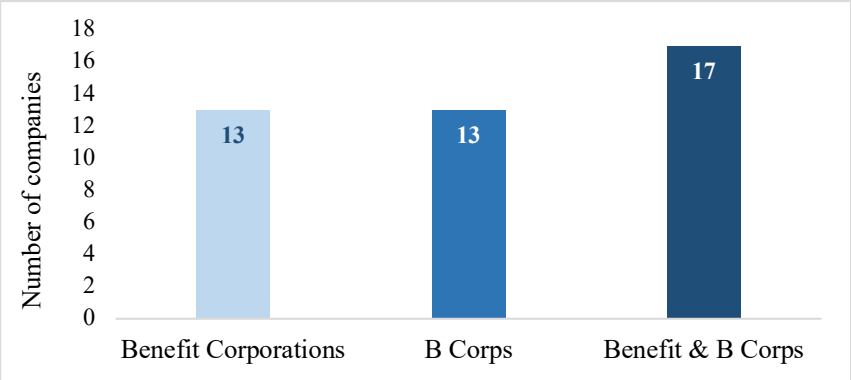
In these paragraphs the samples employed to test the research questions are examined in detail, understanding how companies are distributed considering some key variables. The main aim of this part of the Chapter is to provide a clear understanding of the composition of the samples considered in the different models employed, to avoid any king of misunderstanding.

3.6.1. The sample of step one: sustainability propensity

As anticipated in the previous paragraph, the analyses of the *first step* are focused only on Italian companies, divided into sustainable and non-sustainable firms.

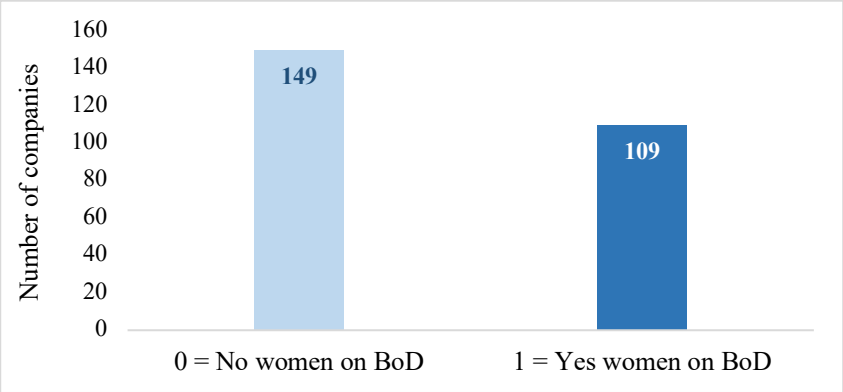
Focusing on the sample of sustainable firms, some of them are Benefit Corporations, others are Certified B Corporations, and the last group is made of companies that are at the same time Benefit Corporations and Certified B Corporations. Graph 1 shows the composition of the sample of sustainable firms: the majority of companies are at the same time Benefit Corporations and Certified B Corporations.

Graph 1: The companies of the sample of sustainable firms. N = 43



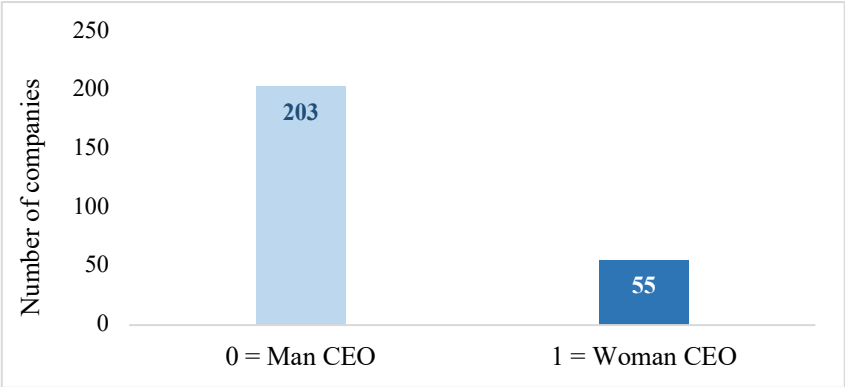
Moving to the independent variables of the model, Graph 2 shows how the total sample is divided when considering the variable *Women on Boards*. It is possible to notice how only the 42% of the companies of the sample has at least one woman on their Boards, while the majority of companies do not opt for female representation.

Graph 2: Firms that have and do not have women in their Boards. N = 258



In the same way, considering the other proxy for female representation, thus the *CEO gender*, Graph 3 highlights how the majority of the firms of the sample have a man CEO: only the 21% of the companies has a woman CEO.

Graph 3: Firms that have a man or a woman as a CEO. N = 258



3.6.2. The sample of step two: sustainability intensity

The analyses of the *second step* are focused only on the sample of sustainable firms.

Starting from the 47 Italian sustainable companies, 24 UK companies have been added to the sample of sustainable firms, thus moving to a sample size of 71 companies. Nevertheless, 14 observations needed to be excluded as they refer to Benefit Corporations – companies for which no data about the B Impact Scores were available – thus moving to a final sample of 57 firms.

Moving to the variables considered in the empirical models, Table 12 highlights the main descriptive statistics for the continuous variables, and Table 13 for the dummy variables.

Table 12: Descriptive statistics of the continuous variables.

CONTINUOUS VARIABLES

Variable	Mean	St. Deviation	Minimum	Maximum	# Observations
Overall BIS	92,246	11,927	80	126	57
Community CS	28,877	13,037	10	83	57
Workers CS	26,292	8,928	0	69	48
Enviroment CS	17,439	13,359	4	62	57
Total Assets	4.341.618	10.809.297	21.829	58.615.045	30
EBITDA	261.845	477.195	-592.266	1.677.436	30
ROE	0,36	63,18	-207,07	89,90	29

Table 13: Descriptive statistics of the dummy variables.

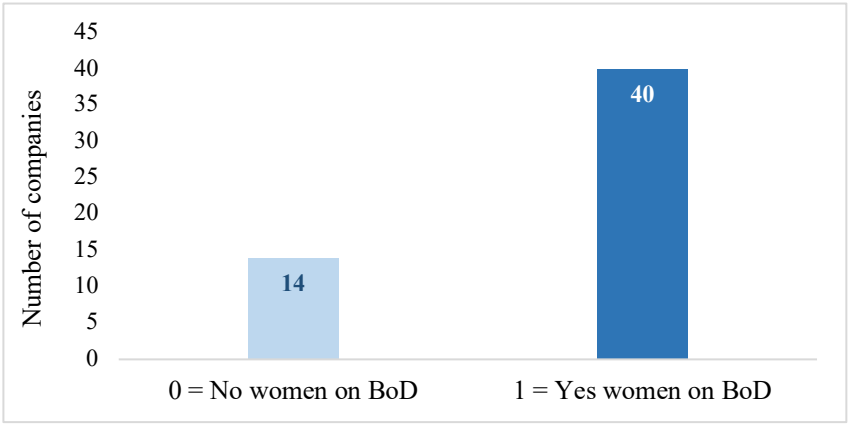
DICHOTOMOUS VARIABLES

Variable	# Observations = 0	# Observations = 1	# Observations = NA	# Observations
WOBOD	14	40	3	57
CEO gender	41	15	1	57
Family	39	12	6	57
Group	40	11	6	57
Country	33	24	0	57

Given the statistics shown in Table 13, some graphs have been designed for allowing a better understanding of how variables are distributed. All the graphs exclude the NA, thus those observations for which no data were available.

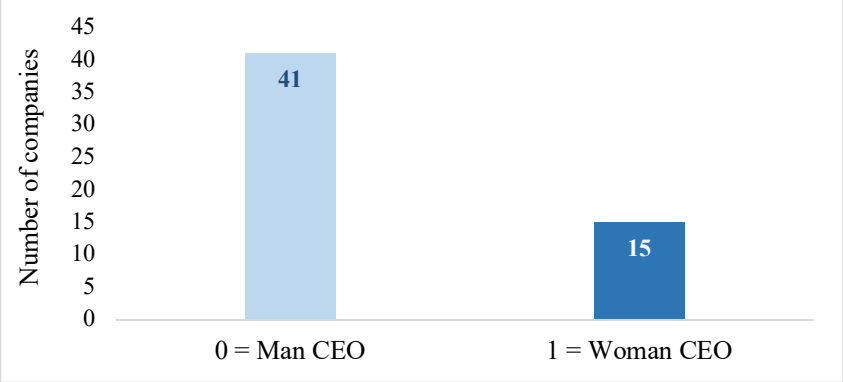
Starting from the independent variable *Women on Boards*, Graph 4 shows the number of companies that have in their top management at least a woman director. The majority of companies have female in their Boards: only the 26% of the sample has not opted for women representation. The sample in this case is of 54 companies, as for three of them no answers were available.

Graph 4: Firms that have and do not have female directors. N = 54



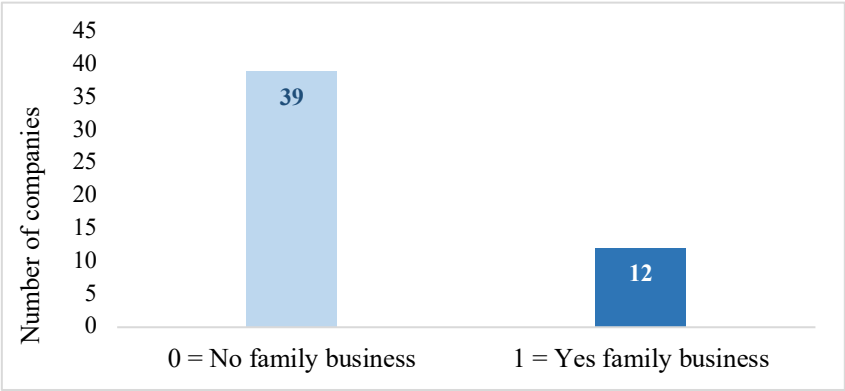
The other independent variable analyzes the *gender of the CEO*, and Graph 5 identifies a curious aspect. Despite the majority of companies have at least one woman in the BoD, things change when considering the Chief Executive Officer. Indeed, only the 28% of the companies have a woman CEO, while the greatest part – 72% – have a man CEO. The sample is made of 56 firms, as for one of them no answers were available.

Graph 5: Firms that have a man or a woman as a CEO. N = 56



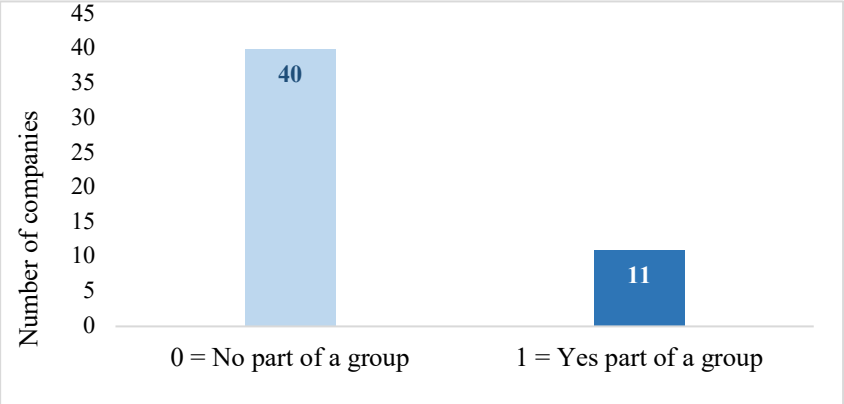
Moving to the structural characteristics of firms, only a narrow part of the sample – the 24% – are *family businesses*, while the majority are non-familiar companies. This is shown in Graph 6, which highlights also how the sample for such dummy variable is of 51 firms, as for six of them no answers were available.

Graph 6: Family and non-family businesses. N = 51



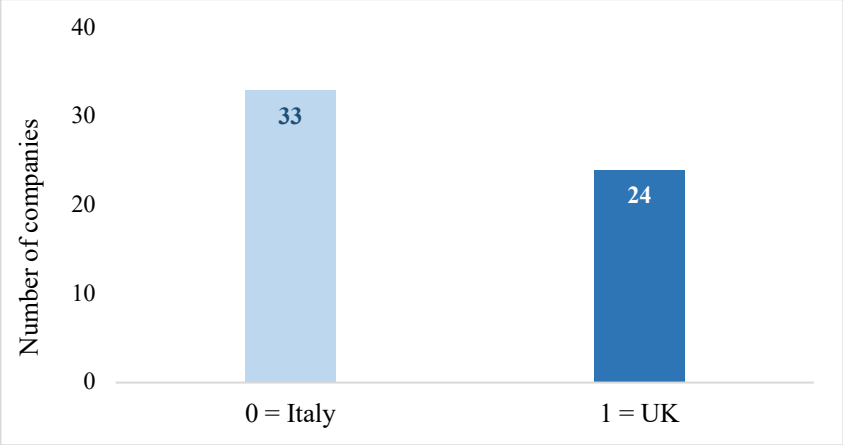
Consistent with what just stated, only the 22% of the companies of the sample are *part of a group*: the greatest part of firms are not part of a group, as demonstrated in Graph 7. Also in this case, for six observations no answers were available.

Graph 7: Firms that are and are not part of a group. N = 51



Lastly, it's relevant to identify the country of origin of companies, that can be either Italy or UK. Companies are distributed as shown in Graph 8, which highlights how the majority of companies are Italian: the 58% of the sample is composed of Italian companies, the 42% of English ones.

Graph 8: Country of origin of the firms of the sample. N = 57



The variables and the samples described in such Chapter are the starting point for testing the research questions, which are verified employing the T-tests and the regression models. A complete analysis of the results obtained is performed in Chapter 4, which concludes with a discussion of the implications of the discoveries.

CHAPTER 4: EMPIRICAL RESULTS

4.1. Descriptive analyses

After having described the methodology pursued to test the hypotheses underlying the dissertation, this Chapter starts with some descriptive analyses of the variables employed for the empirical models. It focuses on identifying the differences between companies that have at least one female director and companies with all male directors, and on finding the differences between firms with men and women CEOs.

Afterwards, to understand whether such discrepancies are significant or not, some tests are performed over the sample of sustainable and non-sustainable firms, and over the four B Impact Scores (Overall, Environment, Community and Workers), considering the presence of women on Boards and the gender of the CEO as proxies for female representation.

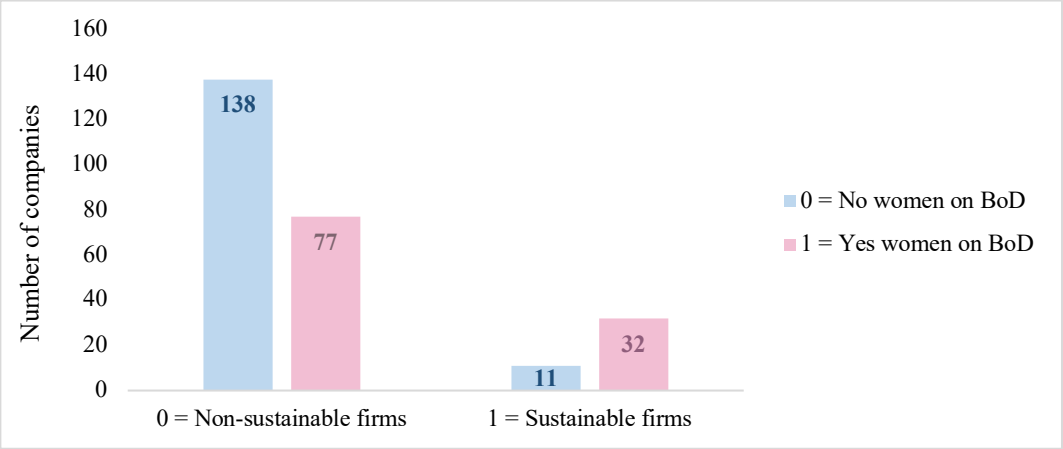
Moving to the empirical methods, the different regression models are applied to the data collected, with the aim of testing the relation which lies between women representation and sustainable performances. Results are then discussed, with a specific reference to the research questions of the study.

4.1.1. Step one: sustainability propensity

Starting from the descriptive statistics of the *first-step* analysis, the sample of sustainable firms and the sample of non-sustainable firms have been compared on the basis of the variables *Women on Boards* and *CEO gender*, to get a first insights of the differences which lie between the two groups.

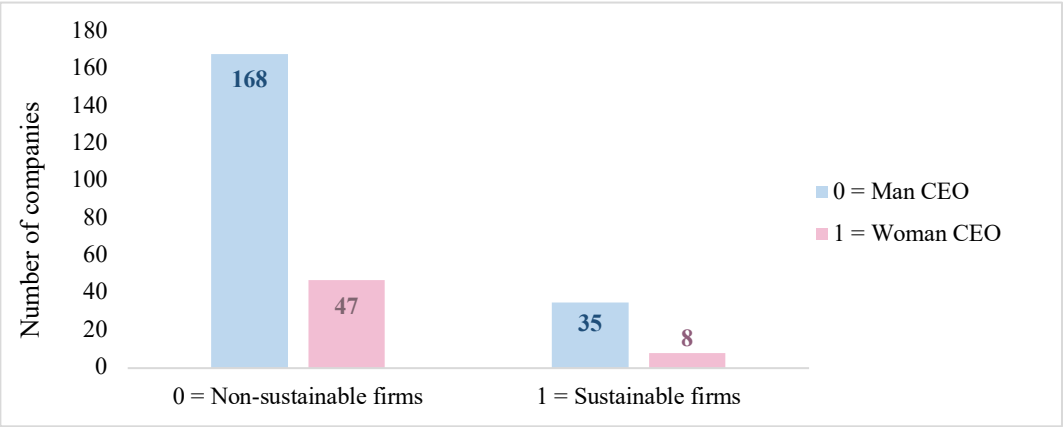
Graph 9 highlights how in the sample of sustainable firms the majority of companies have at least one female director, while the situation is the opposite when considering the sample of non-sustainable firms, in which it is greater the number of firms that do not have women on Boards compared to those that opt for female representation. As a proof of that, while in the sample of sustainable firms the 75% of companies have at least one woman in the BoD, in the sample of non-sustainable firms this number moves down to the 36%.

Graph 9: Distribution of *Sustainability* conditioned to WOBOD. N = 258



Results are completely different when considering the variable CEO gender, as in this case – regardless the sustainability or non-sustainability of firms – in both groups the companies with a woman CEO are less compared to the companies with a man CEO, as shown in Graph 10. At the same time, in the sample of non-sustainable firms only the 22% of companies have a woman CEO, and things do not change when considering the sample of sustainable firms, in which only the 19% of companies have a female CEO.

Graph 10: Distribution of *Sustainability* conditioned to CEO gender. N = 258



4.1.2. Step two: sustainability intensity

Moving to the *second-step* analysis, the descriptive statistics have been divided between continuous and dichotomous variables, separating for the presence or absence of women in the Board of Directors. This means that, considering the variable *Women on Boards*, one group is made by those companies that do not have a female director (WOBOD = 0), and the other group by those firms that have a female director (WOBOD = 1).

Tables 14 and 15 show the main results about the continuous variables employed in the model.

Table 14: Descriptive statistics of continuous variables when WOBOD = 0

CONTINUOUS VARIABLES	WOBOD = 0				N = 14
Variable	**Mean**	**St. Deviation**	**Minimum**	**Maximum**	**# Observations**
Overall BIS	94,714	12,572	81	116	14
Community CS	25,500	5,075	13	47	14
Workers CS	26,385	9,288	19	35	13
Enviroment CS	17,071	16,146	4	62	14
Total Assets	2.695.136	4.629.294	105.148	13.252.690	8
EBITDA	146.512	169.963	-45.363	459.678	8
ROE	11,54	35,09	-54,25	71,63	8

Table 15: Descriptive statistics of continuous variables when WOBOD = 1

CONTINUOUS VARIABLES	WOBOD = 1				N = 40
Variable	**Mean**	**St. Deviation**	**Minimum**	**Maximum**	**# Observations**
Overall BIS	91,475	11,910	80	126	40
Community CS	29,675	14,088	10	83	40
Workers CS	26,091	10,230	0	69	33
Enviroment CS	17,900	12,860	5	49	40
Total Assets	4.940.338	12.359.586	21.829	58.615.045	22
EBITDA	303.795	545.835	-592.266	1.677.436	22
ROE	-3,90	71,34	-207,47	89,90	21

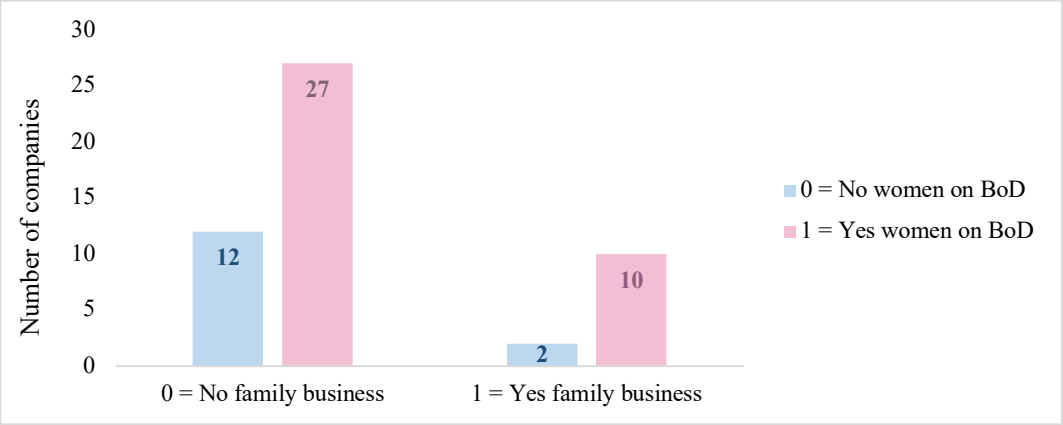
On the basis of those continuous variables, it can be noticed that the means between the two groups do not seem to change significantly when considering the sustainability scores of the B Lab, except for the Community Company Score, as it seems that having women in corporate Boards has a positive effects over this rating.

Moreover, companies that have female directors in their Boards seem to be bigger compared to firms with no women directors: considering the variable Total Assets, the mean of companies with women on Boards is twice the mean of firms that do not have women on Boards. Furthermore, they have higher EBITDA (303.795 vs 146.512) but lower ROE (-3,90 vs 11,54). Nonetheless, considering only the means of the variables it is not possible to say a priori that such differences are or are not statistically significant.

Moving to the qualitative variables, the Graph 11 relates the dichotomous variable Women on Boards with another dummy variable – *Family Business* – showing how, regardless of the type

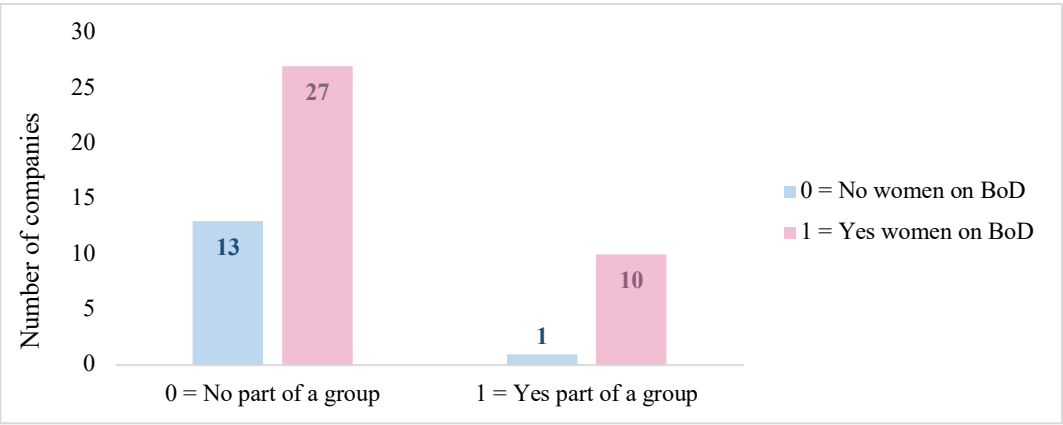
of the business, the number of companies that have at least one female director is always higher compared to the one that do not have women on Boards.

Graph 11: Distribution of *Family Business* conditioned to WOBOD. N = 51



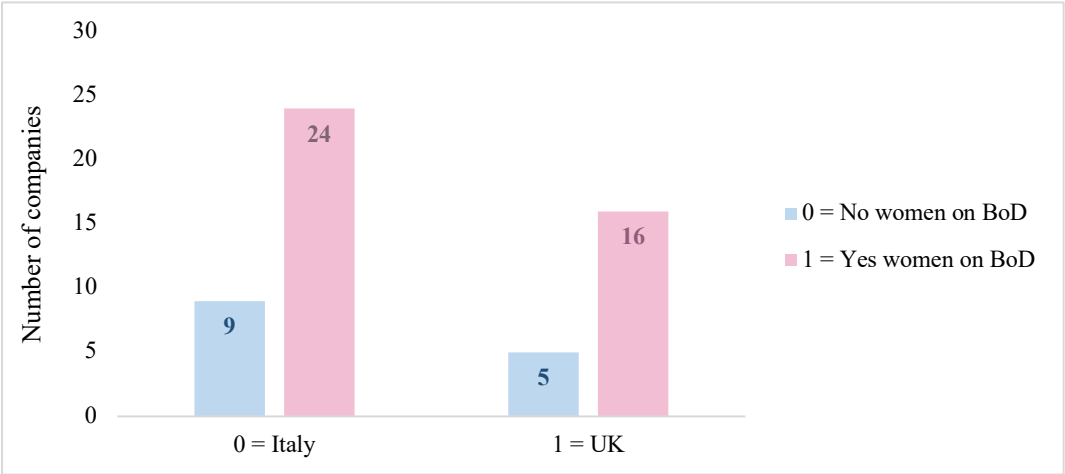
The same reasoning applies also to Graph 12, which considers the variables Women on Boards and *Part of a group*. Indeed, irrespective of the membership to a group or not, the number of companies that have at least one woman in the BoD is higher than the one that do not have female directors. Nevertheless, companies that are part of a group are more likely to have at least one female director (91%) compared to firms that are not part of a group (68%).

Graph 12: Distribution of *Part of a group* conditioned to WOBOD. N = 51



Despite UK has greater gender equality than Italy – as proven by the higher Global Gender Gap Index – Graph 13 exhibits how companies that have at least one female director are more than companies that do not opt for women representation, in both *countries*. Moreover, the percentage of firms that have at least one woman in the BoD is more or less the same when dividing for Italian and UK companies, thus showing no differences between the two countries.

Graph 13: Distribution of *Country* conditioned to WOBOD. N = 54



The same analyses over continuous and dichotomous variables have been performed also for the variable *CEO gender*, resulting in one group composed by those companies that have a man CEO (CEO = 0), and the other one by those firms that have a woman CEO (CEO = 1). Tables 16 and 17 display the main results about the continuous variables employed in the model.

Table 16: Descriptive statistics of continuous variables when CEO = 0.

CONTINUOUS VARIABLES		**CEO = 0**			**N = 41**
Variable	**Mean**	**St. Deviation**	**Minimum**	**Maximum**	**# Observations**
Overall BIS	91,341	11,466	80	123	41
Community CS	26,415	9,373	12	50	41
Workers CS	25,289	6,810	0	36	38
Enviroment CS	18,512	13,744	4	62	41
Total Assets	5.254.656	11.946.954	93.380	58.615.045	24
EBITDA	312.253	519.755	-592.266	1.677.436	24
ROE	-0,19	47,50	-174,62	71,63	24

Table 17: Descriptive statistics of continuous variables when CEO = 1.

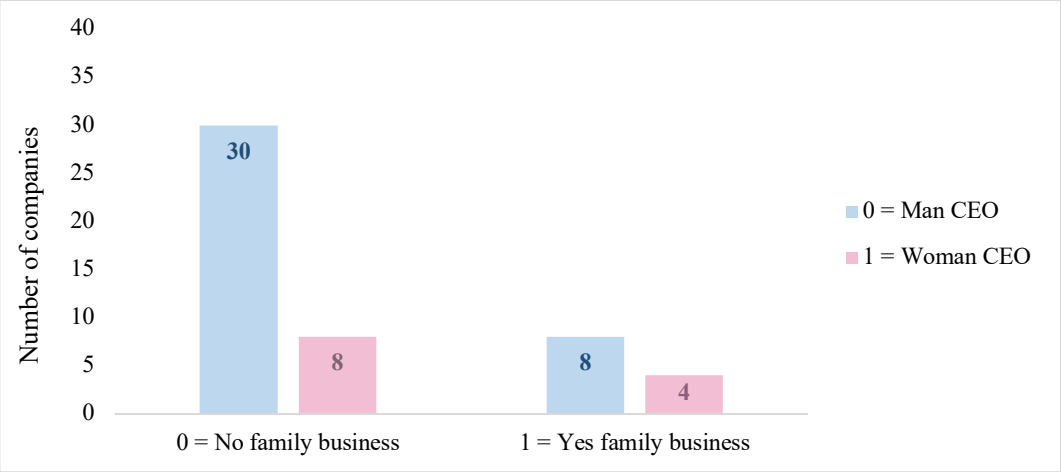
CONTINUOUS VARIABLES		**CEO = 1**			**N = 15**
Variable	**Mean**	**St. Deviation**	**Minimum**	**Maximum**	**# Observations**
Overall BIS	94,867	13,538	82	126	15
Community CS	32,800	16,357	10	83	15
Workers CS	30,100	14,325	21	69	10
Enviroment CS	15,333	12,448	5	49	15
Total Assets	689.464	970.281	21.829	2.594.826	6
EBITDA	60.213	130.748	-120.189	245.005	6
ROE	3,01	122,33	-207,470	89,900	5

Considering the continuous variables of the model, the differences in the means of the two groups are stronger when looking at the sustainability scores, especially for the Community and Workers scores, which are greater in firms with women CEOs compared to firms with men CEOs.

Furthermore, companies with a woman CEO appear to have higher ROE (3,01 vs -0,19) but lower EBITDA (60.213 vs 312.253). In contrast to what identified before for the variable Women on Boards, considering the CEO gender, businesses with a woman CEO seem to be smaller than businesses with men CEOs. Nevertheless, also for this variable it is not possible to affirm aprioristically that the differences between the means are statistically significant: only the T-tests developed in Paragraph 4.3 will allow to make more accurate considerations.

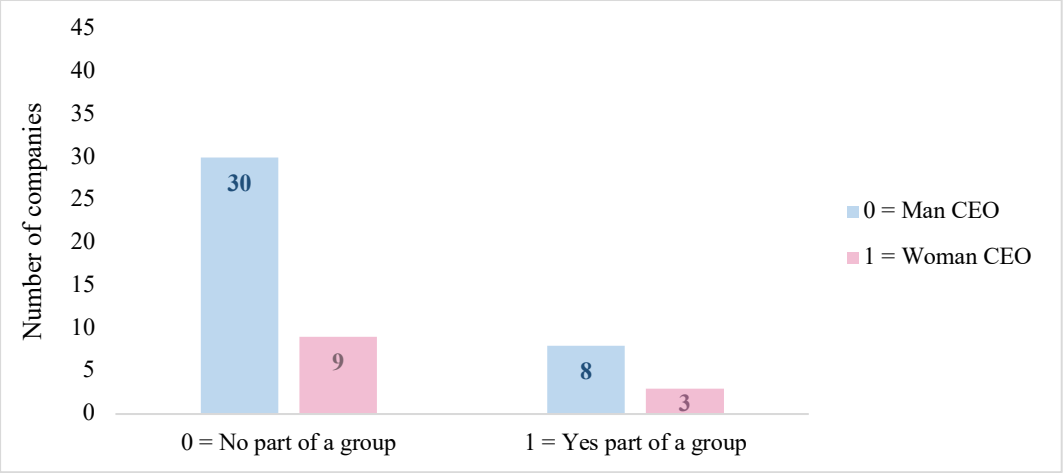
For the qualitative variables, Graph 14 considers the dichotomous variables CEO gender and *Family Business*, and it exhibits how the number of companies that have a man CEO is always higher compared to the one with a woman CEO, regardless of the kind of the business. However, family businesses are more likely to show female CEOs (33%) compared to non-familiar businesses (21%).

Graph 14: Distribution of *Family Business* conditioned to CEO gender. N = 50



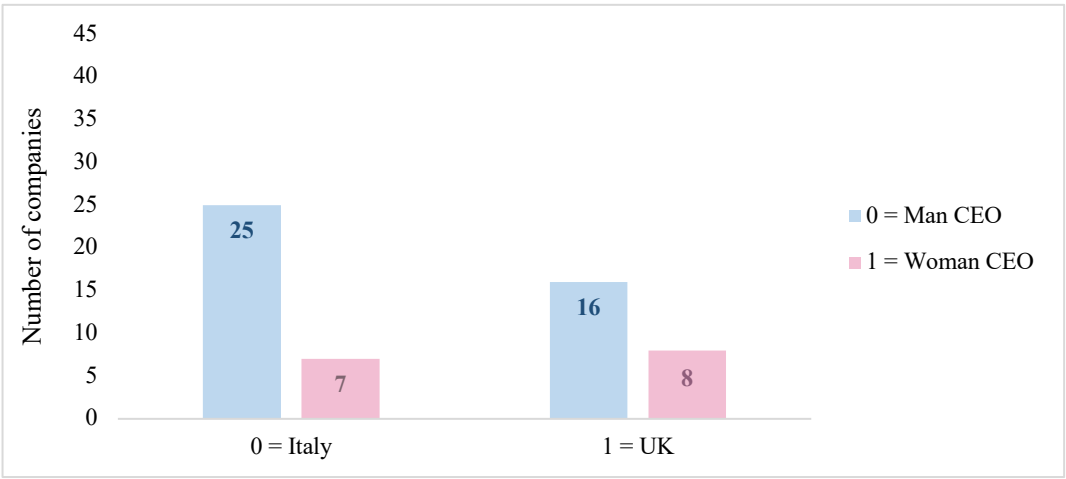
Also the membership or not to a *Group* of companies does not affect the gender of the CEO – as shown in Graph 15 – because in both groups men CEOs are more than women CEOs. Nevertheless, it seems that it is more probable to have women CEOs when being in a group compared to not being in a group, because the 27% of companies that are part of a group have a woman CEO, compared to the 23% of firms that are not part of a group.

Graph 15: Distribution of *Part of a group* conditioned to CEO gender. N = 50



Contrarily to the variable Women on Boards, when considering the CEO gender there is a difference between Italy and UK. Graph 16 shows how, despite in both countries men CEOs are always more than women CEOs, it is more plausible to have a woman CEO in UK than in Italy: while in UK the 33% of companies have a woman CEO, in Italy only the 22% of firms have a female CEO.

Graph 16: Distribution of *Country* conditioned to CEO gender. N = 56



4.2. Step one: women representation and sustainability propensity

The empirical analysis starts with the logistic models, employed to understand whether there are statistically significant differences between sustainable and non-sustainable companies on the basis of two proxies for female representation: Women on Boards and CEO gender. Thus, such first general analysis has the main aim of identifying if having a woman in the BoD or

having a woman as a CEO influence the sustainability propensity of firms, thus if female representation leads firms to be sustainable.

The results[7] obtained applying the logistic models are described by Table 18.

Table 18: Results of the logistic models.

Variable	Model 1 Sustainability	Model 2 Sustainability	Variable	Model 1 Sustainability	Model 2 Sustainability
WOBOD	1,651***	1,418***	CEO gender	-0,202	-0,461
	(0,210)	(0,407)		(0,425)	(0,522)
Total Asset		0,178	Total Asset		0,180
		(0,281)			(0,277)
EBITDA		-0,737	EBITDA		-0,782
		(1,428)			(1,401)
ROE		0,048	ROE		-0,027
		(0,231)			(0,245)
Intercept	0,878***	-2,575***	Intercept	1,770***	-1,7288***
	(0,377)	(0,356)		(0,382)	(0,236)
Pseudo R^2	0,095	0,235	Pseudo R^2	0,001	0,181
Observations	258	227	Observations	258	227

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Looking to the estimates of the parameters, it can be noted how for the variable *Women on Boards* its estimates are statistically significant considering a 1% significance level in both models. This means that the probability of being a sustainable firm (Sustainability = 1) is greater when in the Board of the company there is at least one female director (WOBOD = 1). More precisely, the probability of a company that has at least one female director to obtain the B Corp Certification is 5,21 times ($e^{1,651}$) higher than firms with no women directors. When considering also the structural characteristics of the enterprise, such parameter is still significant, and it equals to 4,40 times ($e^{1,418}$). Quite the contrary, looking to the variable *CEO gender*, its parameters are not statistically significant in neither model: having a woman CEO does not increase the probability of a firm to be sustainable.

It seems that, on the basis of these first general analysis, having at least one woman in the Board of Directors influences the sustainability propensity of companies, inducing them to be sustainable, and thus confirming H1. Quite the contrary, there is no support about H3: having a woman CEO does not drive firms to operate sustainably.

[7] Results refer to empirical models in which the continuous variables have been winsorized at the 95th percentile in order to limit the influence of outliers, and that have been standardized in order to make comparable their distributions.

4.2.1. Robustness analysis

To understand whether the logistic models are correctly specified, first of all a correlation matrix has been drafted, and secondly the logit model – employed for the first-step analysis – has been compared with the probit one, to verify whether results are the same when comparing the two methodologies.

The correlation matrix has the main aim of describing how the continuous variables are related to each other, and it helps to identify the presence of multicollinearity problems, which arise when one variable of the model is linearly predicted by others with a substantial degree of accuracy. If multicollinearity is present in the model, it involves distorted estimates of the parameters, thus leading to incorrect evaluations of the results obtained. Note that the correlation matrix includes only the continuous variables Total Assets, EBITDA and ROE, while the variables Women on Boards and CEO gender are excluded as they are dichotomous ones.

The results of the correlation matrix are shown in Table 19: they suggest that a correlation is in place between Total Assets and EBITDA, whose value is just above the worrying threshold of 0,5.

Table 19: The correlation matrix for the logistic models.

	Total Assets	**EBITDA**	**ROE**
Total Assets	1,000		
EBITDA	0,592***	1,000	
ROE	-0,067	0,199	1,000

The correlation matrix includes quantitative variables only.
***, ** and * indicate statistical significance at 1%, 5% and 10% level.

When the response variable is dichotomous, the choice about the logistic model to apply can range between the logit and the probit models. Despite both of them take the linear model and transform it into a non-linear relationship, they differ in how they define the function f ( ): while the logit model employs the cumulative distribution function of the logistic distribution, the probit uses the cumulative distribution function of the standard normal distribution.

Nevertheless, both methods drive to similar inferences, and here are presented the results of both models in order to verify whether such assertion is true or not, thus to understand if employing the probit model instead of the logit one drives to different outcomes.

Table 20 compares the logit and the probit logistic models, showing how, regardless of the methods employed, the significance of the variables does not change.

Table 20: Comparison of logit and probit logistic models.

Variable	Model 1 - Logit Sustainability	Model 1 - Probit Sustainability	Model 2 - Logit Sustainability	Model 2 - Probit Sustainability
WOBOD	1,651***	0,905***	1,418***	0,771***
	(0,210)	(0,199)	(0,407)	(0,215)
Total Asset			0,178	0,103
			(0,281)	(0,154)
EBITDA			-0,737	-0,468
			(1,428)	(0,788)
ROE			0,048	0,021
			(0,231)	(0,130)
Intercept	0,878***	-1,448***	-2,575***	-1,480***
	(0,377)	(0,153)	(0,356)	(0,178)
Pseudo R^2	0,095	0,095	0,235	0,236
Observations	258	258	227	227

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Variable	Model 1 - Logit Sustainability	Model 1 - Probit Sustainability	Model 2 - Logit Sustainability	Model 2 - Probit Sustainability
CEO gender	-0,202	-0,112	-0,461	-0,240
	(0,425)	(0,233)	(0,522)	(0,274)
Total Asset			0,180	0,096
			(0,277)	(0,151)
EBITDA			-0,782	-0,423
			(1,401)	(0,763)
ROE			-0,027	-0,010
			(0,245)	(0,132)
Intercept	1,770***	-0,945***	-1,728***	-1,033***
	(0,382)	(0,104)	(0,236)	(0,128)
Pseudo R^2	0,001	0,001	0,181	0,181
Observations	258	258	227	227

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Thus, regardless of the methodology employed for the logistic models, the presence of women in corporate Boards influence positively the sustainability propensity of firms, while the presence of a female CEO does not have any effect over such matter.

Nevertheless, such first-step analysis depicts only if women representation drives companies to be sustainable, but does not explain anything about the level of sustainability pursued. To dig deeper into the issue, the second-step analysis permits to understand whether women representation drives companies to operate *more* sustainably compared to companies that do not have female directors or female CEOs.

4.3. Step two: women representation and sustainability intensity

The second-step analysis focuses on understanding the effects that having a woman in the BoD or a woman as a CEO has on the level of sustainability pursued by sustainable firms. Indeed, despite the presence of women in corporate Boards induce companies to behave sustainably – as shown in paragraph 4.2. – this does not imply that women representation has the same impact also on the sustainability intensity of firms.

To answer to such question, firstly are shown the results of the T-tests, and secondly the outcomes of the regression models. As previously stated, the sustainability level of firms is measured by the four B Impact Scores, namely the Overall B Impact Score, the Community Company Score, the Workers Company Score and the Environment Company Score, which are employed as proxies for different layers of sustainability.

4.3.1. The T-tests

The T-tests executed in such paragraph have the main aim of evaluating the variations of the Overall B Impact Score, the Community Company Score, the Workers Company Score and the Environment Company Score dividing the observations for the presence or absence of women in the Board of Directors in first place, and then repeating the same analyses separating the sample for the gender of the CEO.

For the dichotomous variable *Women on Boards*, the sample size on the basis of the four sustainability scores is described by Table 21, while results are summarized in Table 22.

Table 21: Sample size for T-tests over Women on Boards.

Variable	# Observ. WOBOD = 0	# Observ. WOBOD = 1	Total # Observations
Overall BIS	14	40	54
Community CS	14	40	54
Workers CS	13	33	46
Enviroment CS	14	40	54

Table 22: Results for T-tests over Women on Boards.

Variable	Mean WOBOD = 0	Mean WOBOD = 1	Mean difference	T-test	P-value
Overall BIS	94,714	91,475	3,239	0,864	0,392
Community CS	25,500	29,675	-4,175	-1,030	0,308
Workers CS	26,385	26,091	0,294	0,098	0,922
Enviroment CS	17,071	17,900	-0,829	-0,194	0,847

Looking to the P-values of these T-tests it is possible to affirm that there is no statistically significant difference between the means of the two samples with a 90% confidence level: it is not possible to reject the null hypothesis that the averages of the two samples are equal to each other. It seems that, limited to such first intuitive analysis, there is no connection between the presence or absence of a woman in the Board of Directors and the sustainability intensity of firms.

Moving to the other proxy of female representation, for the dichotomous variable *CEO gender* the sample size is described by Table 23 and results are summarized in Table 24.

Table 23: Sample size for T-tests over CEO gender.

Variable	# Observ. CEO = 0	# Observ. CEO = 1	Total # Observations
Overall BIS	41	15	56
Community CS	41	15	56
Workers CS	38	10	48
Enviroment CS	41	15	56

Table 24: Results for T-tests over CEO gender.

Variable	Mean CEO = 0	Mean CEO = 1	Mean difference	T-test	P-value
Overall BIS	91,341	94,867	-3,525	-0,970	0,336
Community CS	26,415	32,800	-6,385	-1,824	0,074*
Workers CS	25,289	30,100	-4,811	-1,538	0,131
Enviroment CS	18,512	15,333	3,179	0,785	0,436

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively.

Looking to the P-values of these T-tests it is possible to see that only for one score – the Community Company Score – there is statistically significant difference between the two groups. Thus, considering a 90% confidence level, it is possible to reject the null hypothesis that the means of the two samples are equal.

Nonetheless, for the other three tests, there is no statistically significant difference between the means of the two samples, as shown by the P-values.

Therefore, limited to such first analysis, it appears that having a woman as a Chief Executive Officer has a significant influence over the Community Company Score, thus over the social sustainability. This validates the hypothesis that the relation between women representation and sustainability is stronger on the social rather than on the environmental side – H2 – since the gender of the CEO has positive effects over the proxy for social sustainability, but no effects over the proxy for environmental sustainability. Moreover, the tests confirm likewise the hypothesis for which the relation between women and sustainability is stronger when the woman is also CEO – H3 – given that the positive effect over social sustainability is recorded when the CEO is a woman. Quite the contrary, there is no evidence that support H1: limited to such T-tests, having a female director does not lead companies to operate more sustainably compared to firms that do not opt for female representation.

4.3.2. The multiple linear regression models

The multiple regression models applied in such paragraph aim to identify the relation which lies between women representation and the sustainability intensity of firms, relating the B Impact Scores with the two proxies for female representation. While at first the sustainability scores are related only to the two independent variables, the following models include also some control variables, namely the structural characteristics of the enterprise and then the organizational slack.

Models 3 include only the independent variables Women on Boards and CEO gender, Models 4 add to the previous one the structural characteristics of the enterprise (namely the familiar type, the group membership and the country of origin), and lastly Models 5 comprise the organizational slack, thus the size and performance of firms.

For the dichotomous variable *Women on Boards*[8], results are shown in Table 25 and Table 26.

Table 25: Results for Overall and Community scores employing WOBOD.

Variable	Model 3 Overall BIS	Model 4 Overall BIS	Model 5 Overall BIS
WOBOD	-3,570	-5,844	-5,782
	(3,835)	(3,827)	(5,523)
Family		-0,167	-0,542
		(3,959)	(6,436)
Group		9,253**	8,066
		(4,099)	(8,673)
Country		4,342	
		(3,462)	
Total Assets			1,960
			(8,654)
EBITDA			-2520
			(4,759)
ROE			-3,540
			(3,701)
Intercept	94,714***	92,527***	94,221***
	(3,293)	(3,438)	(5,224)
Observations	54	51	29
Pseudo R^2	0,020	0,157	0,150

Variable	Model 3 Community CS	Model 4 Community CS	Model 5 Community CS
WOBOD	4,175	3,271	-0,965
	(3,982)	(4,189)	(2,658)
Family		2,975	-0,419
		(4,306)	(3,104)
Group		3,555	9,530**
		(4,506)	(4,166)
Country		3,248	
		(3,788)	
Total Assets			-7,784*
			(4,194)
EBITDA			-1,245
			(2,272)
ROE			0,469
			(1,778)
Intercept	25,500***	23,661***	23,084***
	(3,428)	(3,779)	(2,532)
Observations	54	51	29
Pseudo R^2	0,017	0,036	0,339

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

[8] The variable country has not been included in Models 5 because, as explained in the methodological section, financial information were available just for Italian firms.

Table 26: Results for Workers and Environment scores employing WOBOD.

Variable	Model 3 Workers CS	Model 4 Workers CS	Model 5 Workers CS
WOBOD	-0,375	-1,290	0,543
	(2,981)	(3,148)	(2,172)
Family		-0,772	0,961
		(3,323)	(2,501)
Group		5,014	-1,766
		(3,399)	(3,357)
Country		2,051	
		(2,968)	
Total Assets			-4,201
			(3,382)
EBITDA			1,789
			(1,837)
ROE			1,214
			(1,448)
Intercept	26,385***	25,487***	24,546***
	(2,524)	(2,759)	(2,041)
Observations	46	43	28
Pseudo R^2	0,005	0,019	0,115

Variables	Model 3 Environment CS	Model 4 Environment CS	Model 5 Environment CS
WOBOD	0,829	-0,455	1,422
	(4,228)	(4,000)	(4,733)
Family		11,186***	4,382
		(4,091)	(5,509)
Group		-2,610	-1,508
		(4,311)	(7,404)
Country		-7,801**	
		(3,634)	
Total Assets			23,029***
			(7,457)
EBITDA			-5,495
			(4,067)
ROE			-7,218**
			(3,177)
Intercept	17,072***	18,446***	23,462***
	(3,641)	(3,601)	(4,503)
Observations	54	51	29
Pseudo R^2	0,005	0,223	0,498

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Observing the estimates of the parameters, it is possible to affirm that there is no statistically significant connection between the variable Women on Boards and the four B Impact Scores: it seems that having a female director does not influence the level of sustainability pursued by companies. Thus, despite having a woman in Corporate Boards increases the sustainability propensity, intended as the willingness of companies to engage in sustainable practices, on the other side it does not impact the sustainability intensity. This means that women directors drive firms to behave ethically, but do not induce corporations to behave more ethically compared to other sustainable firms.

Moving to the dichotomous variable *CEO gender*, results are exhibited in Table 27 and 28.

Table 27: Results for Overall and Community scores employing CEO gender.

Variable	Model 3 Overall BIS	Model 4 Overall BIS	Model 5 Overall BIS
CEO gender	4,021	2,954	4,702
	(3,768)	(4,057)	(6,772)
Family		-1,269	-1,311
		(4,078)	(6,630)
Group		7,837*	4,828
		(4,121)	(8,820)
Country		4,217	
		(3,585)	
Total Assets			2,843
			(8,816)
EBITDA			-1,761
			(4,973)
ROE			-3,964
			(3,837)
Intercept	90,846***	88,170***	90,215***
	(1,965)	(2,648)	(3,844)
Observations	56	50	29
Pseudo R^2	0,014	0,116	0,101

Variable	Model 3 Community CS	Model 4 Community CS	Model 5 Community CS
CEO gender	6,385*	7,296**	-0,487
	(3,437)	(3,667)	(3,243)
Family		3,698	-0,335
		(3,661)	(3,156)
Group		5,137	9,399**
		(3,746)	(4,227)
Country		4,220	
		(3,238)	
Total Assets			-7,816*
			(4,227)
EBITDA			-1,379
			(2,369)
ROE			0,585
			(1,839)
Intercept	26,415***	22,512***	22,468***
	(1,780)	(2,372)	(1,835)
Observations	56	50	29
Pseudo R^2	0,043	0,101	0,338

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Table 28: Results of Workers and Environment scores employing CEO gender.

Variable	Model 3 Workers CS	Model 4 Workers CS	Model 5 Workers CS
CEO gender	4,878	7,195**	2,566
	(3,127)	(3,633)	(2,797)
Family		-1,349	0,517
		(3,159)	(2,514)
Group		4,276	-2,417
		(3,159)	(3,369)
Country		1,443	
		(2,856)	
Total Assets			-3,907
			(3,352)
EBITDA			2,282
			(1,880)
ROE			0,879
			(1,459)
Intercept	25,222***	23,922***	24,846***
	(1,425)	(1.999)	(1,460)
Observations	48	43	28
Pseudo R^2	0,005	0,034	0,131

Variables	Model 3 Environment CS	Model 4 Environment CS	Model 5 Environment CS
CEO gender	-3,179	-6.000	-0,693
	(4,017)	(4,061)	(5,799)
Family		11,520***	4,491
		(4,008)	(5,597)
Group		-2,815	-0,865
		(4,132)	(7,512)
Country		-7,844***	
		(3,576)	
Total Assets			22,874***
			(7,511)
EBITDA			-5,585
			(4,233)
ROE			-7,184**
			(3,279)
Intercept	18,512***	19,798***	24,432***
	(2,073)	(2,598)	(3,255)
Observations	56	50	29
Pseudo R^2	0,014	0,273	0,439

***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively

Looking to the estimates of the parameters, it is possible to observe how there is no statistically significant difference between the variable CEO gender and the Overall B Impact Score. According to the results of the analysis over Women on Boards, women representation does not impact the general level of sustainability pursued by companies. Indeed, regardless of the proxy employed to measure women representation, both Women on Boards and CEO gender do not influence the Overall B Impact Score. This implies that there is no evidence to confirm the intensity side of H1: having a woman in corporate Boards or a woman as a CEO does not drive firms to behave more ethically compared to other sustainable firms.

Nevertheless, H3 is partially confirmed: when a woman is not simply a member of the Board, but she is the CEO of the company, there are positive effects over the level of sustainability pursued by firms. Indeed, while the variable Women on Boards does not impact any of the B Impact Scores, the variable CEO gender has positive effects over the proxies for social sustainability, namely the Community and Workers Company Scores. As a matter of fact, when the CEO of the company is a woman, such two B Impact Scores are roughly 6-7 points higher compared to firms in which the CEO is a man. Therefore, despite female CEOs do not influence the sustainability propensity of firms – as shown in the previous paragraphs – they impact the sustainability intensity of firms, thus the level of ethicality they pursue.

Such discovery influences also another hypothesis of the research – H2 – which assumes that the relation between women representation and sustainability is stronger on the social rather on the environmental side. This is confirmed by the results here obtained: having a woman CEO influences the social intensity of sustainability, while no effects are shown on the environmental side of sustainability, as proven by the no-significance of the parameters in the Environment Company Score. Unfortunately, results about H2 are tied only to the intensity part, as it was not possible to measure the sustainability propensity on the social and on the environmental side.

Despite the focus of the dissertation is about understanding the connection between women representation and sustainability, alongside the results obtained for the variables Women on Boards and CEO gender, other outcomes analogue to both variables can be helpful to understand more the framework in which sustainability operates.

Firstly, being *part of a group* of companies positively influence both the general and the social levels of sustainability pursued by companies: firms that are part of a corporate group are more sustainable compared to companies that are not part of a group.

Moreover, firm's *size*, represented by the variable Total Assets, negatively influence the social sustainability of firms, while positively impacts the environmental side. Large companies are thus more inclined toward the environmental matters, and less concerned about the social ones.

This is because larger firms are usually associated with greater environmental proactiveness compared to smaller firms: large size increases firm visibility, capturing greater pressures to adhere to appropriate levels of environmental performance (Etzion 2007). At the same time, several studies have highlighted how large firms are associated to greater resource slack, implying that big companies do not have only greater visibility, but also more resources to devote to environmental issues (Bowen 2000). This confirms also the negative relation between size and social sustainability, as given the greater resource slack that large firms possess, they can afford to allocate such resources toward resisting stakeholders' pressures and concerns. Quite the contrary, small firms are more likely to be responsive to stakeholders' pressures (Besser 1999), and they tend to be an embedded part of the local community especially when their success is tied to the degree of legitimacy they get from local stakeholders (Perrini 2006).

Results sustain also the positive relation which lies between the familiar type and environmental sustainability: family businesses present higher Environment Company Score compared to firms that are not family businesses. As a matter of fact, the governance characteristics of family businesses create an excellent starting point for the pursuing of ecologically sustainable policies, thus making family businesses more inclined toward sustainability (Wells 2013).

Lastly, according to the study of Rosati and Faria (2019), the Return on Equity was found to have a negative relationship with the environmental sustainability of firms. Nevertheless, the literature over such matter offers mixed evidence, because other researches, like the study of Setó-Pamies (2015), highlights how such index positively influence the sustainability side of firms.

4.3.3. Robustness analysis

To understand whether the linear models are correctly represented and specified, some analyses have been performed, starting from the correlation matrix, and ending with the test for misspecification. The correlation matrix includes only continuous variables, and are included both dependent and control variables. Note that Women on Boards, CEO gender, Family Business, Part of a group and Country are excluded from the matrix as they are dichotomous variables.

The results[9] of the correlation matrix are shown in Table 29.

[9] Results refer to empirical models in which the continuous variables have been winsorized and standardized.

Table 29: Correlation matrix for the continuous variables.

	Overall BIS	Community CS	Workers CS	Enviroment CS	Total Assets	EBITDA	ROE
Overall BIS	1,000						
Community CS	0,257*	1,000					
Workers CS	0,315**	-0,255*	1,000				
Enviroment CS	0,195	-0,175	-0,251*	1,000			
Total Assets	-0,106	-0,231	0,029	0,183	1,000		
EBITDA	-0,123	-0,028	0,110	-0,140	0,357*	1,000	
ROE	-0,366*	-0,114	0,175	-0,490***	-0,012	0,269	1,000

The correlation matrix includes quantitative variables only.
***, ** and * indicate statistical significance at 1%, 5% and 10% level, respectively.

The correlation matrix shows how the majority of the four B Impact Scores of B Lab are significantly correlated one to the other, but correlations emerge also with some of the economic-financial indicators. The most intense correlation is the one characterizing the environmental score and the ROE of a company. However, such correlations are not intense enough to be possibly impacting on the reliability of the analysis provided in the previous paragraphs.

To test the misspecification of the linear models, the test RESET has been employed. Such test helps to understand whether non-linear combinations of the parameters help to explain the dependent variable. If non-linear combinations have any ability in explaining the dependent variable, the model suffers from misspecification, thus the model may be better estimated by a polynomial or other non-linear functional form. This can be understood from the P-value of the test: if the P-value is below the α level decided, the null-hypothesis that there is no significant difference among the models is rejected. The model therefore suffers from misspecification.

From Table 30 it is possible to notice that for all the four dependent variables and for both the proxies for female representation, the null hypothesis cannot be rejected: all the models do not suffer from misspecification.

Table 30: The test RESET for the linear models employed.

Model tested	P-value
Overall BIS = WOBOD + Controls	0,9677
Community CS = WOBOD + Controls	0,2526
Workers CS = WOBOD + Controls	0,6106
Enviroment CS = WOBOD + Controls	0,1173
Overall BIS = CEO + Controls	0,2746
Community CS = CEO + Controls	0,1606
Workers CS = CEO + Controls	0,5721
Enviroment CS = CEO + Controls	0,1140

CHAPTER 5: CONCLUSIONS

5.1. Main results and implications

Corporate Sustainability as well as women representation have become crucial phenomena for nowadays companies. On one side, the consequences of sustainability have been widely discussed in the literature starting from the second half of the last century, bringing to mix results both from a theoretical and from an empirical point of view. On the other side, the gender matter is a more recent focal point, whose corporate studies concentrate mainly on understanding whether women representation brings benefits to the organization.

The literature underlines how one of the beneficial effects that women representation has on companies is about the greater attention female have toward sustainable matters, given that it is proven how women's values, skills and experiences drive firms to provide additional attention to stakeholders' pressures and claims. Despite the greatest part of empirical researches demonstrated a positive association between women and sustainability, other studies resulted in a mix evidence: some analyses exhibited a null connection between the two phenomena, especially on the environmental side of sustainability.

Considering the doubtful scenario over this relationship, such dissertation aims to ascertain or refute the beliefs already popular in literature about the link which lies between women and sustainability. The uncertain literature over of such topic is the reason why this study has been drafted to test the truthfulness of the positive liaison between female representation and ethical policies, emphasizing the most ambiguous outcomes discussed by scholars. The research questions have been drafted with the purpose of providing a general viewpoint over the matter, then trying to develop ad hoc answers for the most uncertain results.

Moreover, differently from other researches, such dissertation is not tied to one single dimension of sustainability, quite the contrary it deepens previous analysis enlarging the span of action both to the willingness or not of companies to engage in sustainability, and to the level of responsibility they decide to pursue, called respectively sustainability *propensity* and sustainability *intensity*. The latter has been sub-divided into three sides of sustainability, namely the general level of sustainability, the social level of sustainability and the environmental level of sustainability.

The study has been segmented into three research questions, further broken down for sustainability propensity and intensity, allowing for a better understanding of the effect that women

have on the tendency of companies to be sustainable, and on the level of sustainability they pursue. Hypothesis 1 is the most general question, which aims to test if women representation on the Boards of Directors is positively related to Corporate Sustainability. Hypothesis 2 tests if the relationship between women representation and Corporate Sustainability is stronger on the social rather than on the environmental side. Lastly, considering the emerging role of the Chief Executive Officer, and the impacts that his or her values have on corporate strategy, Hypothesis 3 expects that firms with women CEOs are more inclined toward Corporate Sustainability.

In the study, the B Corp Certification and the Benefit legal form have been defined as the basis for identifying sustainable companies. In particular, it has been theorized that companies with women in the BoD or with female CEOs are more likely to obtain the B Corp Certification – to test the sustainability propensity – and that are more likely to get higher scores in such Certification – to test the sustainability intensity.

To ease the interpretation, Table 31 summarizes the results obtained from the analyses performed in Chapter 4, linking the outcomes in a matrix that considers both the research questions and the propensity-intensity duality.

Table 31: Main results.

	Analyzed relation	**Sustainability Propensity**	**Sustainability Intensity**
H1	Women representation and sustainability	Confirmed	Not Confirmed
H2	Women representation and social vs environmental sustainability	-	Confirmed
H3	Female CEO and sustainability	Not confirmed	Confirmed

The starting point was the probability for a company to get the Certification in the presence of female directors and/or female CEOs, thus the sustainability propensity. Results were not univocal: while the positive relation between women on Boards and sustainability was confirmed, the models including the gender of the CEO have not allowed to validate Hypothesis 3. Such outcome may be linked to the narrow diversity when considering the CEO gender, as only the 21% of the sample opted for a female executive officer. Nonetheless, such result is in line with worldwide trends, in which women CEOs are exceptions rather than the rule (Egan 2015). Quite the contrary, considering the more general proxy for female representation, thus the presence

of women into corporate Boards, results are aligned with the literature: the probability of a corporation that has at least one woman director to get the B Corp Certification is roughly 5 times higher than companies with no female directors. This robust result is also due to the appropriate choice about the Certification because, according to Chen and Roberts (2013), are exactly the innovative features of B Corps to lead scholars to expect that having women in top positions contribute positively to sustainable outcomes. Indeed, this positive effect suggest that, even if costly, the opportunity for a woman to certify the company in which she operates as a B Corp is priceless, because they may have no other means to socially validate their beliefs and values (Moroz et al. 2018).

The most relevant theoretical concept that supports the positive link between women and sustainability is the greatest stakeholder's orientation typical of women directors. The prominent stakeholder orientation is on one side a consequence of women's values and skills, more inclined toward the care of others (Eagly & Johannesen-Schmidt 2001), and on the other side it is the outcome of their propensity to treat equally interested parties, without giving primacy to investors (Adams & Funk 2012). Moreover, women directors are more collaborative, cooperative and more friendly, being at the same time willing to help customers and subordinates to satisfy their needs and to accomplish their goals (Van Engen & Willemsen 2004).

Intensifying the analysis, the deepening that has been performed connect women not anymore to the probability of getting the Certification, but to the scores obtained by companies when they certify. Thus, it focuses only on B Corps, trying to understand whether women representation has positive effects over the ratings obtained. This stringent analysis is justified by the study of Fernandez-Feijoo, Romero & Ruiz-Blanco (2014), who found out how companies with women directors present higher and more transparent levels of Corporate Sustainability compared to their counterparts that do not opt for female representation. Thus, it is expected that women directors have positive effects also on the sustainability intensity of firms, intended as the level of sustainability they decide to pursue, and directly connected to the amount of investment companies decide to commit to satisfy responsible claims.

Unfortunately, when considering the sustainability intensity of firms, women in corporate Boards do not show any impact in influencing the level of sustainability pursued, at least in the empirical context considered. This means that, despite female directors help the company to be sustainable, thus to get the B Corp Certification, they do not have enough power to leverage and to decide about the investment to finalize for satisfying in a better way the requirements of the Certification, thus for getting higher scores. Indeed, it seems that women directors drive

firms to behave sustainably, but do not lead corporations to invest more in ethical policies compared to other B Corps.

Conversely, when the woman is the Chief Executive Officer, results change. This discrepancy can be a consequence of the more influential role played by the CEO in the decision making process compared to Board members (Jiraporn et al. 2016): such higher power position of female allows them to influence more the investment decisions of the companies they guide, thus impacting the level of sustainability pursued by their firms. Similarly to Manner (2010), such dissertation highlights how sustainable performance are affected also by the CEO's characteristics, especially in terms of gender. Moreover, also Jiang & Akbar (2018) outlined how having a female as a CEO significantly increases corporate investments in sustainability, thus incorporating the sense of social responsibility in the company's decision-making process.

The last relevant aspect to outline is about the dimensions of sustainability that are positively influenced by the presence of female executive officers. Indeed, while no effects are shown on the environmental side of sustainability, the positive relation is exhibited between the gender of the CEO and the social edge of sustainability. Thus, female directors influence the investments level over the social and community matters, while neglecting – or while having a limited power over – the investments about environmental issues. Results are in line with previous researches (Galbreath 2011; Hussain, Rigoni & Orij 2018), which showed how women are positively associated to the social dimension of sustainability, but do not have any effects over the environmental one. There are several explanations of such phenomenon, the first linked to the difference in the career experiences between women and men: men are more expected to have education and experience connected to traditional masculine sector, as science and engineering (Singh, Terjesen & Vinnicombe 2008). Indeed, women are less likely to have business backgrounds compared to men, therefore providing to companies expertise about how to interact with powerful group in the community rather than business perspectives (Hillman, Cannella and Harris 2002). Corporations thus perceive women as having less experience in environmental matters than men, discounting decisions from female executives, while favoring those from male ones (Galbreath 2011). Moreover, due to their traits and values, women attribute more importance on maintaining healthy community and society compared to man (Del Mar Alonso-Almeida, Perramon & Bagur 2015), who are contrarily more engaged toward environmental matters.

Despite the theoretical framework sustains such latter results, it's worthwhile also to stress how female executives impact those sustainability areas that have lower visible returns for companies. Indeed, no effect from women CEOs has been reported on the environmental

sustainability, widely known as a fundamental element of corporate strategy, which often correlates with superior economic performance and competitiveness (Esty & Charnovitz 2013). Quite the contrary, the main impacts of female CEOs have been reported over the social sustainability, which is mainly connected to corporate reputation (Brammer & Pavelin 2006), more difficult to quantify in terms of economic returns. Indeed, reputation links with the positive image created pursuing social goals, which is then divulged to internal and external stakeholders (Iwu-Egwuonwu 2011). As a matter of fact, the majority of previous researches have focused on environmental and economic sustainability, neglecting the social aspects (Dillard, Dujon and King 2009), given that many companies in order to be successful have preferred to focus on the environmental and economic edges of sustainability, being associated to higher profitability, competitiveness and productivity (Carter, Kale & Grimm 2000).

On the basis of the results obtained, such research has allowed to validate and reinforce the discussions about the link between women representation and sustainability, highlighting how female directors, as well as female CEOs, positively affect different sides of Corporate Sustainability. Indeed, while women directors positively influence the likelihood of a company to certify, female CEOs and their greater power position positively affect the level of social investments undertaken by firms.

Despite results about the relation between the two phenomena are not univocal – both in the literature as well as in such study – the benefits brought by female representation and by the pursuing of ethical policies are widely recognized and accepted by modern corporations. Therefore, sustainability and gender parity are no more seen as moral obligations toward the society, quite the contrary they represent two paths to be exploited in order to be successful and to outperform the competitive arena, a scenario in which is increasingly difficult to prosper and differentiate.

5.2. Limitations and directions for future research

The research performed in such dissertation is not immune from imperfections and restrictions. Such limits, already outlined in the previous paragraphs, can represent the starting point for further studies to be developed, aimed to provide a clearer and more complete overview over a topic that still needs additional clarifications.

The main limitation of this study is due to the number of observations: from the initial sample of 313 B Corps and Benefit Corporations, only a narrow number of companies have participated to the survey. The problem of sample size can be solved enlarging the scope of the

analysis to other countries, thus collecting new responses from other foreign B Corps, or trying to expand the number of respondents of Italian and UK companies. The former solution may reduce also the bias connected to the limited number of countries included in the research: broadening the span of action to other countries may strengthen and support the idea that the link between women representation and sustainability is more positive when the country has higher gender parity, a statement which was not possible to confirm with such two-country analysis.

Moreover, the outcomes of this research are limited to small and medium enterprises, given that only 6 firms of the overall sample can be classified as big corporations. This means that the results here obtained can be enforced only for SMEs, as the interpretation for bigger firms may yield to misleading conclusions. Similarly, enlarging the analysis also to bigger companies can prevent such misinterpretations to occur.

Additionally, such findings cannot deny the reverse relation between women leadership and sustainability, specifically that firms with higher ethical performance are more likely to appoint and to attract women directors or women executive officers. Indeed, the corporations that consider seriously their engagement in sustainability could be potentially those companies that are more likely to nominate women in their Boards. Unfortunately, this research cannot test the causality between the two phenomena, thus the burden to verify such relation is left to future studies that may investigate such possibility employing different and appropriate research methodologies.

Further suggestions could be the selection of other Board and CEO characteristics, as some features that may influence the outcomes of the relation between women representation and sustainability have not been considered. Here, female representation on BoDs has been assessed considering simply the presence or absence of women into corporate Boards, without taking into account the number of female directors. Moreover, also the time since the director or the executive officer is appointed, even if not considered in this study, is expected to influence the link between female representation and sustainability. This happens because directors or CEOs that have longer careers have gained esteem and respect in years, thus translating into greater power position compared to peers with narrow courses. Thus, studies that control also for the strength of women representation and for the length of the charge of directors and executives may lead to more robust results.

To conclude, despite such research has allowed to confirm and strengthen the literature over the relation between women representation and sustainability, future studies can further contribute to explore the conditions that influence such liaison and, more importantly, can validate or deny the relevant findings of such dissertation.

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