POLITECNICO DI TORINO

Master's Degree in Management Engineering
Academic Year 2020/2021
Graduation Session October 2021

Politecnico
di Torino

MASTER'S THESIS

Innovative and green startup analysis from a gender perspective

Supervisor
Prof. ssa Alessandra Colombelli
Prof. ssa Chiara Ravetti

Student
Riccardo Bertolone (262460)

Contents

1. Introduction

Because their structure is connected to topics like as innovation, economic development, and technical advancement, innovative startups have become a part of the global entrepreneurial fabric and have been the focus of experts and the media for a number of years now. Gender disparities in the workplace, as well female entrepreneurship, are other prominent themes in today's world. The purpose of this study is to bring together these two significant topics and examine the role played by women in the entrepreneurial ecosystem of creative companies.

Men and women have different perspectives on the same issues in business and economics. Gender differences in business and economics are a current issue that has been studied in literature and recognized by businesses: the introduction of "female quotas" or the awarding of scholarships to women are examples of actions that institutions take to reduce the gender imbalance in the workplace and at universities.

Individuals can react more quickly to change, create, develop, and learn as a result of diversity. Diversity offers tremendous potential for all companies, particularly those that depend significantly on creativity and innovation. The practice of diversity in businesses, however, is still in its early stages, with the gender component in particular being a hotly contested topic in recent years. Specifically, the idea of gender diversity in companies is examined in depth, with particular attention paid to the problem of female involvement in the labor market, as well as the concepts of horizontal and vertical occupational segregation being explored. This section focuses on female entrepreneurship, and includes a definition of "female enterprise" at the end of the section. We conclude by looking at how women and innovative companies are linked together, the reasons behind the challenges that women face when attempting to "do innovation," and the still-limited involvement of women in STEM education and professions (Science, Technology, Engineering and Mathematics).

Men and women entrepreneurs have different approaches to entrepreneurship, and gender studies in this area are very broad and divided into a few recurring themes that go into the study of the differences between male and female entrepreneurs, access to capital, the relationship between gender and performance of the company, and the formation of a professional network. After doing a thorough review of the literature, it is feasible to

identify the recurrent features of female-owned companies that distinguish them from non-female-owned enterprises.

It is in fact the purpose of the research to examine the relationship between startup diversity and their overall success, as measured by both market and accounting-based performance metrics.

Furthermore, as people have become more aware of the severity of the consequences of climate change, international organizations and governments across the world have sought to implement remedies to reduce the impact of human economic activities on the environment. In reality, initiatives geared toward a green economy, or, more specifically, a sustainable economy that can guarantee the availability of resources for future generations, are becoming more prominent on the political agendas of governments throughout the globe. Against this backdrop, the purpose of this study is to examine and evaluate the contribution made by start-ups, which are, by definition, agents of innovation and change, with a special emphasis on the situation in the country of Italy. When it comes to conducting empirical research, the study starts with a sample of more than 12 thousand start-ups that are listed in a special part of the Business Register. This research will be used to identify innovative businesses that are now functioning in Italy. Specific keywords were identified via the use of a semantic analysis technique, which was then utilized to conduct a comparison on the websites of all creative businesses in order to choose just the so-called "green" companies for further consideration.

The final aim of the study is to determine if variations in gender composition among startups are associated with a higher proclivity for them to pursue a green profession.

2. Literature review and hypothesis development

2.1 Theory of gender

2.1.1 Origin and development of the concept of gender

Gender differences may be recognized as the central axis of the issues that will be addressed: what types of differences exist between men and women and how do they manifest themselves? Where did they come from? We have made significant progress in gender studies because they have drawn attention to the social construction of gender. This has allowed us to move beyond the innatism that has often justified women's social isolation, as well as to expose the logics of power and submission that underpin many gender relationships.

Today, differences have risen to the spotlight, and they are proliferating in an open and ever-shifting manner. In terms of human identity, feminist theorists' theoretical accomplishments have merged with those of postmodern thinking, including the acknowledgment of social ambiguity, the existence of many subjects, and the diversity of values, among other things.

These issues are more important now than they have ever been, and a better knowledge of the aspects, goals, and instruments of gender education is required now more than ever.

To begin, we must define the terms that will be used throughout this discussion: sex and gender. The first definition is concerned with the biological dimension, while the second is concerned with the social dimension. We may classify individuals based on their reproductive traits using the term sex in particular: men and females have physical and biological qualities that are unique from one another, which is related to the fact that the human species has two separate ways of sexual reproduction. Male and female subjects have distinct biological and physiological features, which are distinguished by their gender

identification. It is possible to define gender as the social importance that is attached to sexual differences. It refers to the set of traits and behaviors that are identified with men and females and that are thus expected of them in a particular culture under the definition of the word. This term relates to the concepts of masculinity and femininity, as well as their differences, which may be genuine or imagined, in other words.

As a result, a naturally occurring factor, namely, sex, becomes the basis of a social construction, namely gender, which, while recognizing biological difference, only acknowledges its reproductive relevance and genetic significance (F. Sartori, 2009). It is not necessary to separate the definitions of sex and gender in order to avoid the appearance of mutual exclusivity. Instead, these concepts are "closely connected concepts and interdependent concepts" because they translate the two aspects of being a woman or a man that are biological, social, and cultural (E. Ruspini, 2009). The word gender, like the term sex, "is not an antagonistic concept, but rather one of unification, fusion, and comparison: gender examines women in relation to the other sex (and vice versa)" (E. Ruspini, 2009).

2.1.2 Gender and postmodernity: from gender to genres

The term "postmodernity" is difficult to define precisely, but it indicates the end of earlier ideologies that attempted to give truth an unified and definitive meaning, as well the development of new narratives characterized by variety, temporariness and the enlargement of inequalities and ambiguity. Phenomenological subjectivities claim the legitimacy of their own points of view and identity configurations in a postmodern era that goes beyond the traditional categories that have defined subjectivity in previous eras (A. Taurino, 2005).

The postmodern gender vision seeks to deconstruct sexual binarism and explore alternative definitions that are more appropriate for addressing the current discussion on sexual difference configurations than the binary definitions that are now in use. In postmodern gender theory, the goal is to dismantle the "axioms on gender produced by the patriarchal

system [...] to which the traditional vision of sexual difference and the resulting social organization of male-female relationships must be traced" in order to "deconstruct the patriarchal system's axioms on gender" (A. Taurino, 2005). It is a closed system that is characterized by strong contrasts: the antagonism between man and woman; masculinity and femininity; control (male) and submission (female); dominant and normal heterosexuality against partial and pathological homosexuality. Many facts and aspects that do not fit into this linear dichotomy are removed from consideration under this framework.

The dissolution of the traditional gender category and the resulting notions of masculinity and femininity, which are no longer binary and linear, but rather open to multiplicity and flexibility, should be noted, in addition to the particular ideas discussed below. When one definition of gender is unable to accommodate all of the discrepancies and differentiations implicit in postmodern theories of identity and subjectivity, it is reduced to a single category that appears to propose two realities: male and female. This is true despite the fact that it represents an improvement over the construct of sex (A. Taurino, 2005). Afterwards, we continue to wonder about the nature of genders: the focus is no longer on men and women, but on women and men; similarly, the category of difference is broken, making room for variants.

The category of gender - or, more accurately, genders - thus serves as a point of departure from which it is both possible and appropriate to reconsider the conventional meanings of gender identity, sexuality, and the social organization of gender difference, allowing for the development of new perspectives on the individual in general. The importance of such political openness in addressing the issue of sexual and gender discrimination must be emphasized, as well as the need to recognize everyone's "freedom not to be caged in definitions that are the clear mirror of ideologies to be overcome or cultures to be modified on the basis of the new value of difference, or rather the valorization of differences," in order to effectively combat these issues (A. Taurino, 2005).

'Gender' is a term that refers to the unity, fusion, and comparison of women in relation to males and vice versa' (E. Ruspini, 2009).

2.1.3 Sexual and gender differences: the two fundamental approaches

Biological distinctions between men and women, which are mostly linked to reproductive disparities, serve as the foundation of social processes that contribute to drastically varying men and women's destinies while also conferring various talents and capacities on them. In place of this, we refer to gender differences as "values and attitudes, behaviors and sensitivities, talents and skills that allow women and men to be differentiated from one another" (G. Priulla, 2015).

While the existence of a biological differentiation between men and women is not generally disputed, the connection between sexual differences and gender differences has been the subject of varying interpretations. In the social sciences, there are a variety of views on the origins of gender disparities that may be discovered. Two approaches are available: the biological approach, which traces gender differences back to a biological, physiological, and genetic datum (in this case, the focus is on sexual differentiation, on which gender differentiation is superimposed); and the sociocultural approach, which assumes that gender differences are the result of social construction processes.

When it comes to the biological approach, there are a variety of theories about the factors that cause the difference: some believe it is caused by genes, while others believe it is caused by hormones; evolutionary psychologists, on the other hand, believe that behavioural and psychological differences between men and women have evolved as a result of sexual selection, i.e. because they provide a reproductivist advantage. However, an interpretive model is used that is based on the belief that gender inequality is a natural phenomenon that is embedded in biological sex; this has important implications for the legitimization of conceptions, beliefs, and stereotypes that appear to explain a precise division of roles and functions related to sex, as well as for the classification of behaviors as dysfunctional and unnatural in the workplace (A. Taurino, 2005). In this approach, biological fundamentalism is proposed, which results in a genuine "death leap of thinking" that lowers complex social phenomena down to their most fundamental biological processes (V. Burr, 2000). It distinguishes between deterministic interpretative paths, in which detectable discrepancies between men and women are a necessary consequence of biological sex, and reductionist interpretative paths, in which the problem of sexual and gender difference is

reduced to a single factor, biological sex, in which the problem of sexual and gender difference is reduced to a single factor, biological sex (A. Taurino, 2005). Instead, the sociocultural method investigates how inequalities are created as a consequence of specific sociocultural, historical, and political-ideological processes, as opposed to a more general approach. Consequently, the internalization of sexual difference ideas, attitudes, and standards will lead to the development of gender difference.

Individual behaviors are formed, according to socialization theory, by gendered normative expectations of others. In societies all across the globe, women are expected to take on the role of caretaker, which leads to their being more loving, nurturing, protective, and cooperative than males in a variety of situations.

2.2 Implications of the socialization theory on ethical entrepreneurship

Increased scrutiny of ethics and social responsibility has attracted a lot of debate related to the prevalence of ethical practices in SMEs. At the same time, the emerging participation of women in startups has sparked interest among researchers to look at gender variations in ethical and social responsibility considerations in business, as there is evidence to suggest that women are typically more ethical than men.

Women are increasingly represented in the labor force, according to Glover et al. (2002), and the increasing proportion of females in the labor force suggests that gender differences in ethics merit further investigation, especially given the increasing number of claims that women are more ethical than their male counterparts. Interestingly, while some studies have found that women are more ethical than men, the findings regarding gender differences in ethics and social responsibility considerations in SMEs have not been widely accepted by the scientific community, indicating the need for further research into the subject.

Gender role theory proposes that because of social pressures, oftentimes an individual will internalize cultural expectations about their specific gender roles (Kidder, 2002). Men, for example, are expected to be assertive and task-oriented, while women are expected to be compassionate and relationship-oriented (Kidder, 2002). Given the unique nature of how men and women approach tasks, gender has emerged as a frequent factor in research used to explain disparities in management practices.

It is interesting to note that a review of the existing literature related to ethics has also suggested that gender is one of the most recognized personal characteristics that influence an individual's ethical decisions. Studies have argued the idea that women are typically more ethical than men in business and that they typically perceive some controversial actions as

unethical and are less likely to engage in unethical behavior (Valentine, Godkin, Page, & Rittenburg, 2008).

The academics who agree with the idea that women are more ethical than men generally believe women are more inclined to embrace the "ethic of care" by stressing connections and compassion, along the lines of the argument made by Gilligan (1982).

Since childhood, therefore, young women have been - and still are, although to a lesser extent than in the past - prepared for marriage and their role of care (looking after children and family members); on the other hand, boys have always been oriented towards independence and work commitment for the economic maintenance of families (E. Ruspini, 2009).

Presumably, this "ethic of care" displayed by women will cause them to assume that engaging in actions in the best interest of the customer will improve their satisfaction and business success. However, men are thought that they are more aggressive and competitive in the further prosecution of their careers and success (Schminke & Ambrose, 1997), thus, there is a greater likelihood of them ignoring ethical and social responsibility issues to accomplish their goals. On the basis of the above topics, women are expected to place greater importance on ethics and social responsibility as important determinants of business effectiveness.

Loo (2003), has also commented on gender differences regarding ethics: “[…] gender is arguably the most researched demographic variable in ethics and there has been a long-established popular belief, along with some empirical evidence to support the claim, that women, including business people and business students, are more ethical than men”.

It appears that there are three distinct approaches used to explain the gender differences found in ethics research. A number of researchers who report gender differences attempt to explain the differences using gender socialization theory. The early socialization that takes place across institutions such as family and school, as well as sex-specific role needs such as being a wife or husband, are the driving forces behind gender disparities in this theoretical framework. As a consequence of gender socialization, women are believed to place a higher

focus on harmonious interpersonal connections and compassion, while males are believed to place a greater premium on competitive achievements and extrinsic incentives, such as money and social prestige. Furthermore, men's higher emphasis on competitive achievement indicates that they are more likely to participate in immoral activities in order to accomplish their objectives. According to a number of academics who have observed gender disparities, these discrepancies are explained by the fact that men and women make decisions using distinct ethical frameworks. For example, Schminke and Ambrose (1997) suggested that «women in their study used the care-based golden rule of "do unto others as you would have them do unto you,'' whereas men used the Kantian approach to ethics in business situations based on justice». Finally, some researchers have focused on the role of ethical situations in explaining gender differences. For instance, Glover et al. (2002) came to the conclusion that the gender differences noted in their study were situation-specific; «men made the most ethical decision when the moral intensity of the behaviors portrayed in their scenarios was extreme, presenting clearly ethical or unethical behavior, and men made unethical choices when the behaviors portrayed behaviors were in the "gray'' zone».

According to the results of Ahmad and Seet (2010), both men and women acknowledge the significance of ethics and social responsibility in the context of entrepreneurship. However, there are significant differences between male and female entrepreneurs in terms of the extent to which such practices are implemented in their businesses, with female entrepreneurs scoring significantly higher on an ethical and social responsibility questionnaire than their male colleagues. When it comes to personal values, "care" puts a higher emphasis on interpersonal connections, caring, and the "do unto others as you would have them do unto you" credo, all of which are expected to take place in equal measure (Loo, 2003).

In practice, regardless of the differences between male and female entrepreneurs, Ahmad and Seet's identification of ethical and socially responsible business conduct sends a strong message about the prevalence of such practices, particularly in small businesses, due to their strong interconnectedness with employees, customers, and the local community, according to their findings. As a result, ethical and socially responsible business behavior is

valued in the establishment of harmonious "owner-employee," "customer-business," and "community-business" connections, all of which may be beneficial to companies in the long term. It is also believed that failing to adhere to such standards would have significant repercussions for the company's bottom line since "excellent ethics is good for business," . By providing a positive example, small companies may have an impact on the wider business environment, helping to raise the bar on ethical business practices and corporate integrity (in terms of emphasis on ethics and social responsibility).

2.3 An overview on ecopreneurship

2.3.1 Ecopreneurship: definition and overview

"Ecopreneurship includes the establishment of companies that aim to resolve environmental issues" (Keogh and Polonsky, 1998). Enviropreneurship, green entrepreneurship, sustainable entrepreneurship, and/or environmental entrepreneurship are some of the words used to characterize this phenomenon (Keogh and Polonsky, 1998). This type of venturing operation is "an existential form of entrepreneurial action dedicated to ecological sustainability," regardless of the mark (Isaak, 2002). Ecopreneurship blends conventional entrepreneurship ideas such as creativity and consumer focus with environmental consciousness and sustainability. As a result, ecopreneurship is founded on strong environmental values and has a strong moral component.

The environmental entrepreneurial niche, also known as ecopreneurship, refers to a type of business that focuses on generating environmental value. Ecopreneurship businesses aim to capitalize on market opportunities centered on environmental issues. Ecopreneurism is motivated by a desire to protect the environment. It focuses on entrepreneurs who want to start businesses that have a positive environmental effect in addition to making a profit. “Environmental entrepreneurs, on the other hand, concentrate on ecological solutions to known or unknown consumer needs. As a result, environmental entrepreneurs often generate value by focusing on issues such as energy conservation, resource maximization, waste reduction, natural resource use, and ecosystem service respect, among other things (Schaper, 2012)”. Ecopreneurship, according to many reports, is distinct from conventional commercial entrepreneurship. Commercial entrepreneurs, for example, are often represented as engaged in practices that deplete environmental capital, while ecopreneurs are synonymous with the development of new and environmentally conscious societies. Indeed, ecopreneurship is focused on strong green ideals and has a strong moral dimension, according to scholars. While Anderson (1998) claims that «environmentalism and entrepreneurship have a lot in common in the sense that entrepreneurs "extract value from a situation," and this value can be environmental, he also claims that social norms have led societies to only see entrepreneurial value in monetary or economic terms. As a result,

environmental entrepreneurship differs from commercial entrepreneurship in that it specifically asks whether a society's standard of living should take precedence over quality of life».

Environmentally friendly company offers many advantages for both the economy and businesses. It has the potential to preserve natural resources, decrease operating costs by reducing waste and emissions, and contribute to more sustainable economic development in the community, while also giving entrepreneurs with a new and distinct competitive edge in the market. Environmental policies that are said to be "constructive" may help companies decrease their negative environmental impact while increasing their positive impacts on the environment (Lepoutre, 2009). "Creating, selecting, and deploying resources for the production and distribution of value, while navigating through and engaging with the systemic and social environments that influence their value, with the goal of avoiding negative effects on the natural environment or producing positive impacts on the natural environment beyond what is currently feasible," writes Lepoutre (2008). The term "ecopreneurs" refers to those who pursue social and ecological objectives via the establishment of profit-oriented green enterprises, according to Isaak (1998). Green entrepreneurs are businesspeople that see business possibilities and successfully bring innovative methods to their product or service (Dixon & Clifford, 2007). Despite the fact that their motives may differ, both emphasize the importance of individual business actors' creative activities as the primary source of competitive advantage.

As part of the process of defining what constitutes a green entrepreneur, researchers have attempted to explain why businesses embrace environmentally friendly activities (e.g., Bansal & Roth, 2000; Hillary, 2000).

Based on the work of social theorist Anthony Giddens, Taylor and Wally (2004) propose that structure encourages entrepreneurial activity, which in turn alters the structure (1984). The authors above describe four types of green entrepreneurs (the term "green" can refer to either a product or a process) who are motivated by a combination of internal motivations and external institutional forces, such as creative opportunists, visionary champions, ethical mavericks, and ad-hoc entrepreneurs. According to Taylor and Wally (2004)'s categorization of green entrepreneurs, they may be motivated by a mix of green, ethical, social, and financial reasons, which can be difficult to differentiate between one another. It is widely

recognized that green entrepreneurs, in whatever shape they take, are change agents who help to accelerate learning and societal transformation.

2.3.2 The socialization theory's implications for ecopreneurship

In the opinion of many academics, entrepreneurialism is a gendered phenomena, and recent research indicates that women's entrepreneurial practices are more profoundly influenced by societal factors than men's entrepreneurial practices (Ahl, 2006).

Hechavarra (2016) investigates whether cultures with well defined traditional gender roles are more likely to have female eco-entrepreneurs on their horizon than other societies. When it comes to conventional gender roles, women are frequently depicted as caretakers. According to socialization theory, societal gender norms influence people's views toward other people. Women are taught to be caretakers, and as a result, they are more inclined to engage in caring activities such as environmental entrepreneurship. According to academics, women's social roles as janitors have positioned them to become important participants in environmental activism and organization. Furthermore, since women are naturally seen as janitors, ethical role models, and environmental guardians, they are more likely than males to participate in environmental initiatives and to be environmentally conscious.

The environment in which an entrepreneur works may have an effect on his or her probability of pursuing an ecopreneurial business, and this is especially true for female entrepreneurs who come from disadvantaged backgrounds. In recent research, it has been shown that women's entrepreneurial activities are more strongly influenced by contextual factors than those of males. According to Elam and Terjesen (2010), men and women tend to react differently to institutional variables when deciding whether or not to engage in venture capital, and the degree to which male and female entrepreneurs respond differently to the institutional environment. According to Bullough et al. (2014), there is compelling evidence in support of this claim. According to their findings, the degree of social group collectivism and institutional collectivism has a significant impact on the level of female business ownership, with societies with high levels of social group collectivism and institutional collectivism having the lowest levels of female business ownership. As

previously stated, according to Santos et al. (2016), women's entrepreneurial goals and expectations are more strongly influenced by their cultural background than men's intentions and expectations.

By connecting the concept of ecopreneurship to gender socialization as a social structure, it could be argued that «early experiences with socialization agents such as family, educational institutions, peer groups, media, work, marriage, social class, legal systems, and cults make women less likely to enter traditionally male-dominated occupations, such as commercial entrepreneurship (Giddens, 1991).»

Women can see their businesses as "cooperative networks of relationships rather than solely as a separate profit-making organization," according to others (Brush, 1992). These socialization agents, when combined, help to negatively influence women's expectations for conventional employment in favour of non-traditional jobs (Scherer et al., 1990). As a result, women may be predisposed to favour ecopreneurship because it is a non-traditional business model. Furthermore, environmental entrepreneurship is likely gendered, as environmental venture ideologies are closely associated with women's conventional socialized roles. According to Merchant (2014), the term ecology is derived from the Greek word "oikos," which means "house." As a result, ecology is concerned with the Earth's home, and women have traditionally been in charge of the link between the Earth and the home (Merchant, 2014).

Gender disparities in environmentalism have been clarified using a number of hypotheses. Gender roles and socialization are one commonly used approach (Eagly, 1987; Howard& Hollander, 1996; Miller, 1993; Unger&Crawford, 1996; Wilkinson & Kitzinger, 1996). According to socialization theory, behavior is predicted by the socialization process, in which individuals are conditioned by gender roles and cultural norms. In all countries, women are taught to be more eloquent, have a better "ethic of care," and to be more interdependent, supporting, loving, cooperative, and helpful in caring roles (Beutel & Marini, 1995; Chodorow, 1974; Eagly, 1987; Gilligan, 1982). On the other side, males are taught to be more self-reliant and competitive (Chodorow, 1974; Gilligan, 1982; Keller, 1985). According

to theory, gender discrepancies in environmentalism indicate linkages between socialization and ideas (Stern, Dietz, & Kalof, 1993). Rokeach (1973) defined values as "guiding principles that predict attitudes and actions" (Olson & Zanna, 1994). As a result, because females are trained to value the needs of others more than males, they exhibit more altruistic and helpful actions (Gilligan, 1982).

This "mother mentality," it could be argued, applies to «protective attitudes toward nature, as women see themselves as part of their society and the wider world. Men, on the other hand, are socialized to be "breadwinners" or to play an economic role in their families (Blocker and Eckberg, 1997). » Men are pushed to be more fair and competitive than women as a result of this. As a result, in order to be competitive in their position as breadwinners, men learn to be more individualistic in their actions. As a result, male socialization is internalized into a "business mindset," which is linked to behaviors that prioritize economic development through technological mastery of the land and exploitation of natural resources, regardless of the environmental damage that results. There is a lot of evidence to show that this is a global phenomenon. According to many reports, gender socialization promotes unequal socialization between the sexes in most cultures, with girls and boys being viewed differently and encouraged to follow gendered behaviors.

Men are socialized to control the environment, while women are socialized to sustain and nurture life, relationships, and culture, gendered patterns of socialization can affect environmental actions, such as ecopreneurship. Indeed, research shows that women are more likely than men to express concern about environmental issues. Furthermore, there is strong evidence that women engage in more environmentally conscious activities than men. This suggests that gendered socialization causes females to have a greater orientation to the "ethic of treatment," making them much more loving, compassionate, and concerned for others' needs (Gilligan, 1982). This socialization affects occupation preference, family roles, helping actions, and altruism, and, by implication, a particular kind of help, such as pro-environmental behavior. Environmentalism represents an expanded "other" orientation, which is a feature of female gender socialization according to gender role theory. Furthermore, females who are involved in green issues do so to address ethical problems,

while males do so to achieve a competitive advantage or save money for their companies, supporting the socialization claim.

«The desire to have feelings for people and nature is a value that is pushed on women during the socialization process in general (Ahl, 2006).» In comparison, «men are pressured to develop the agential qualities of individuality, violence, autonomy, instrumentality, and bravery (Gupta et al., 2009)». Women are said to be indirectly socialized to value cooperation and empathy for others because they do more loving and nurturing work, both at home and work (Van Liere and Dunlap, 1980). Women, on the other hand, are said to be motivated by the gender division of labor to put less emphasis on economic instrumentality and competitiveness. Women, according to this statement, are more environmentally conscious because their functions value sharing, cooperation, and emotional support. This means that in the workplace, women are more likely to emphasize environmental issues.

According to Hechavarria's (2016) research, gender has a direct impact on the probability of an entrepreneur undertaking an environmental company. Similarly, businesses that have a stereotypical perception of gender roles reduce the possibility of a founder becoming an environmental entrepreneur. Female founders in companies with clear gender stereotypes are marginally more likely than male founders to start green businesses.

When Dietz and her colleagues (2002) conducted a research among white people in the United States, they found that the shape or feeling of values was almost the same for men and women. Studies on gender disparities in value structure among non-U.S. samples (such as Prince-Gibson and Schwartz, 1998), as well as research on American teenagers (such as Prince-Gibson, 1998) support this conclusion (Beutel and Marini, 1995). The existing research on gender inequalities in environmental activism, which focuses on average differences between genders rather than factor structural differences, would benefit from this addition.

One value priority, benevolence, showed substantial differences between men and women, with women placing a much higher value priority on this value than males. These findings have implications for the gender and environment literature, since altruism is the virtue that

has been most strongly associated with environmentalism, both in theoretical and empirical research.

Surprisingly, almost little new research has been done on the relationship between gender and environmental activism in the past two decades. Women were shown to be more concerned about the environment than men prior to this twenty-year period, according to meta-analyses and research evaluations conducted before this time. Between 1988 and 1998, Zelezny et al. (2000) reviewed six studies that used the New Ecological Paradigm to measure environmental attitudes and found them to be of high quality. Natural balance, growth limits, and human control over nature are all aspects of the New Ecological Paradigm that are distinct from one another (Dunlap et al., 2000). According to Zelezny et al., females had substantially greater levels of environmental concern (NEC) than males in four of the six experiments they conducted (2000). After reviewing thirteen studies on gender and environmental attitudes, they found that women reported substantially higher levels of involvement in pro-environmental activities than men in nine of the studies.

Even though the many models have been published with sufficient accuracy to be deemed relatively robust, little progress has been achieved in understanding the underlying dynamics of women's attitudes and actions. Gender socialization starts in childhood and continues into adulthood, affecting "occupation choice, family roles, and responses to science and technology, especially in the sense of environmental concerns," according to the study (Davidson & Freudenberg, 1996). This may be one reason why women entrepreneurs are involved in environmental issues, but it's important to remember that the socialization process isn't universal.

Several factors affect the socialization of those who are environmentally conscious, including the political climate, the role of education, and the existence of an environmental threat or catastrophe. Another factor may be risk aversion to environmental hazards. While women's less risk-oriented profile is often due to their use of fewer financial resources and a strong focus on established goods and services, it could also be interpreted as women being less likely to take risks in terms of climate change and thus more inclined to green initiatives

than men. This hypothesis was supported by examining evidence from the same environmental research that Davidson and Freudenberg (1996) examined earlier, concluding that the underlying cause of gender disparities in environmental surveys is "differences in perceived exposure to environmental threats, rather than inherently differences in ecological sensitivity."

Based on these research findings, the following hypothesis can be formulated.

> Hypothesis 1. *Gender diversity on a board has a significant and positive impact on a company's environmental business mission.*

2.3.3 Key findings from empirical gendered studies on Ecopreneurship, CSR, and ESG performance

It is the purpose of this section to summarize the most important studies that have tried to quantify the effect of gender on ecopreneurship, CSR (Corporate Social Responsibility) policies inside a business, and ESG (Environmental, Social, and Governance) performance.

Ahmad and Seet (2010) make an effort to determine whether or not there are gender differences in ethical and social responsibility concerns among Malaysian small and medium-sized enterprises. The researchers utilized a sequential mixed-methods approach to conduct their study. In the beginning, a series of interviews with 10 small company owners served as a starting point. Following that, a poll was undertaken, with 212 SME entrepreneurs from both the manufacturing and service sectors taking part in the second stage of the process. An analysis of descriptive statistics and an unbiased sample t-test were conducted in order to answer the study objectives.

Small and Medium-Sized Enterprises (SMEs) are defined by the Small and Medium-Sized Industries Development Corporation (SMIDEC) of Malaysia, and these definitions were utilized to identify companies that should be included in the study. Based on these concepts, the following criteria were developed: (1) persons actively involved in the management of

the company; (2) the business must have fewer than 150 employees in the manufacturing sector and fewer than 50 employees in the service sector; and (3) the business must be a stand-alone entity, not a franchise or a division of a larger organization. With over 85 percent of Malaysian small and medium-sized enterprises (SMEs) being involved with services, the Malaysian Productivity Corporation (previously known as National Productivity Corporation) was contacted in order to obtain a more representative sample of SMEs from the official SMI (Small and Medium-Sized Enterprises) Business Directory, which is available online. There were a total of 212 SME founder-owners from Peninsular Malaysia that took part in the final sample of respondents for this study.

There was a significant difference in scores between male and female entrepreneurs when it came to ethical activities (male: M=6.05, SD =.81, female: M=6.22, SD =.64) and socially responsible practices (male: M=5.42, SD =1.05; female: M=5.78, SD =1.09), as shown in Table 1.

Variables	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Ethical	1.404	.237	-2.22	210	.027*	-.272	.123
Social Responsibility	.349	.555	-2.11	210	.036*	-.357	.169

Notes: *significant at $p < .05$

Table 1: Independent Sample T-tests, Test of Significance Difference

The study of both men and women found that ethical and socially responsible activities are important in corporate settings, however it was found that women placed a higher value on ethical and socially responsible practices than males. Contrary to common belief, entrepreneurs, especially those working in smaller companies, are more prone than other types of company owners to "bend the rules" and act unethically as a matter of course. According to the results, small and medium-sized enterprises (SMEs) do understand the need of ethical and socially responsible business practices while conducting their operations.

Hechavarria (2016) explores whether female entrepreneurs are more likely than male entrepreneurs to build environmentally-oriented firms, using the multiplicity of context

technique. Female entrepreneurs are more likely to engage in ecological ventures, according to the findings.

Environmental Entrepreneurial Activity is the dependent variable, which is a dichotomous variable. Cases where the responder was an embryonic, young business, or established business owner were identified to compute this variable. They were then classified as environmental entrepreneurs based on their answers to questions on the economic, social, and environmental value goals they wanted to achieve in their business. These metrics are based on the respondent's response to the statement "Organizations may have goals based on their potential to provide economic, societal, and environmental value," and the request to "please allocate a total of 100 points across these three categories as it relates to your goals." The goal of creating economic, social, and environmental value was then allocated points by respondents.

According to the findings, female entrepreneurs had a **1.14** times higher chance of being an environmental entrepreneur than male entrepreneurs. In other words, the data show a 14% rise in the log-odds of a woman becoming an ecopreneur.

Finally, this study shows evidence that gender has a direct influence on the likelihood of pursuing an environmental business among entrepreneurs using multi-level logistic regression. Similarly, cultures with traditional gender norms reduce the likelihood of a female founder becoming an environmental entrepreneur. In countries with strong gender norms, female founders are marginally more likely than male entrepreneurs to start ecological businesses.

As we move on to the topic of Corporate Social Responsibility, it is widely accepted that businesses should be evaluated based on their long-term survival, as measured by the so-called triple bottom line. According to prior research, gender is one of the most significant factors affecting disparities in corporate social responsibility perception. In this setting, two new fields of study have developed, one focused on gender and the other on corporate social responsibility. The first line of inquiry focuses on gender inequality in the workplace and how to close the gap via the creation of CSR initiatives and programs. The second line of inquiry focuses on the representation of women on corporate boards of directors. According

to this line of research, when a company has a higher proportion of women on its board of directors, the company is more likely to embrace a broader range of corporate social responsibility initiatives.

Women, on average, place a higher importance on corporate social responsibility than males, with a few exceptions. When it comes to the need to maintain a balanced stakeholder orientation that includes shareholders, customers, employees, communities, and others, women often put a greater emphasis on economic duties than non-economic responsibilities in their lives. Women place more importance on communal and societal health than men, according to a study conducted by the Aspen Institute in 2008.

As a consequence, it seems that women want to engage in more socially responsible activities for the benefit of society (Pearson, 2007). According to Hudson and Miller (2005), women are also more sensitive to corporate social responsibility (CSR) issues, particularly when it comes to environmental problems. The consequence is that women put a greater emphasis on social and environmental issues than they do on stakeholder orientation.

Maria del Mar Alonso-Almeida et al. (2015) conducted a survey of 206 female managers in Spain between September 2012 and February 2013 in order to better understand their perspectives on sustainable companies. This research only looked at surveys where the informant said that she was the decision-maker, in order to ensure that the correct individuals were being investigated in this study.

Nine questions on a five-point Likert scale were used to evaluate participants' perceptions of corporate social responsibility (CSR) in relation to nine criteria. The mean difference test was performed to evaluate which aspect of corporate social responsibility is more helpful. Each CSR dimension mean was compared to the others in order to achieve the objective of comparing every pair of means. The outcomes are shown in Table 2. The dimension with the highest mean score is stakeholder orientation, which has a score of 4.06 out of 5. A further finding was that, given the wide differences in both means (with the second and third dimensions), women rated this dimension differently than men did. Nonetheless, there are no differences in terms of the importance placed on social, environmental, and legal compliance.

Dimension	Mean	t-Test Mean dif.	t	Sig.
Stakeholder orientation	4.06	(1–2) .220	3.893	.000
Social and environmental	3.84	(2–3) −.071	-1.092	.276
Legal compliance	3.91	(1–3) .15931	2.572	.011

Table 2: Means differences among CSR dimensions.

The dimension with the highest mean score is stakeholder orientation, which has a score of 4.06 out of 5. A further finding was that, given the wide differences in both means (with the second and third dimensions), women rated this dimension differently than men did. Nonetheless, there are no differences in terms of the importance placed on social, environmental, and legal compliance.

Women executives, we may infer from the factors in this dimension, are concerned not just with maximizing shareholder profit but also with meeting customer needs, investing in employee development and welfare, and providing equal opportunity for men and women. Finally, the results show that female management styles are more likely than male management styles to have a positive attitude toward corporate social responsibility. The team orientation component seems to be the most strongly associated with these results. Previously conducted study showed that male management styles favor centralised decision-making over female management styles, which favor more participatory decision-making. The findings are consistent with previous research (Bird & Brush, 2002). Furthermore, these results indicate that female managers are more likely than their male counterparts to establish connections with their employees.

In conclusion, women executives think that stakeholder orientation is the most important factor to consider. According to the findings of the study, female leadership promotes corporate social responsibility. When referring to this particular instance, the authors point out that female managers are more teamwork-oriented and have a participatory decision-making style. Aside from that, they are able to devote more time and effort to the building of relationships rather of being only concerned with certain responsibilities. Women may be able to make a positive contribution to a global strategy by bringing a variety of values and

views to the table. Finally, in order to make a company more sustainable, women managers may want to increase the importance of corporate social responsibility (CSR) in the firm.

Finally, the findings of Romano et al. (2020) investigations are provided to conclude the debate on gender and corporate environmental performance: the goal of their research is to see how the gender makeup of the Board of Directors influences company sustainability practices. The ESG index was utilized as a proxy for sustainability performance, while the Blau index was utilized as a measure of gender diversity in the BoD, both provided by Bloomberg Data Service.

The Italian stock market is used to investigate and test theoretical hypotheses. Because Italian enterprises are attentive to corporate social issues, they incorporate them into strategic initiatives and have a high level of stakeholder involvement, it is a suitable environment for this study. In order to ensure comparability and uniformity between enterprises, the Italian Legislative Decree 254/2016 made non-financial disclosure mandatory in compliance with European Directive 2014/95/UE. The fact that the ESG score is available in that database is the beginning point for the sampling technique. The authors specifically looked for all Italian-listed companies with at least two years of data available. After excluding financial enterprises (based on US-SIC code), a total of 64 distinct enterprises were found, 18 of which are listed on the STAR section of the MTA and the rest on the Standard segment. STAR is a group of midsize firms with a market capitalization of fewer than 1 billion euros that, on a voluntary basis, provide more openness and disclosure of information, maintain strong liquidity, and adhere to the highest corporate governance standards. Financial data is also gathered by hand from the yearly governance report, while governance data is gathered by hand for each business.

The authors use the ESG score as a dependent variable in determining the influence of board gender diversity on business sustainability practices. This score is based on three essential dimensions: environmental, social, and governance, and it also has the benefit of accounting for firm disclosure activity when compared to that of businesses in the same industry. The score varied from 0 to 100 in each dimension, with 100 signifying the greatest level of business sustainability. The ESG score, which is calculated using a proprietary approach based only on public data and is based on 120 qualitative and quantitative metrics,

reflects "the degree to which a corporation is reporting on ESG information." In terms of independent variables, the Blau index is used to operationalize board gender diversity. According to prior research, such a metric takes into account both the number of genders represented (male and female) and the evenness of the distribution of Board Directors in each category. The Blau index is computed as follows: : $\sum_{i=1}^{N} P_i(ln(p_i))$ where i denotes the various genders represented on the board (male and female, n = 2), and p is the percentage of directors of gender i. The Blau index runs from 0 to 0.5, with 0 indicating that the board of directors is homogenous (only one gender is present) and 0.5 indicating that the board is perfectly diverse. As a result, a higher index score indicates more diversity in the boardroom.

Blau index has a positive influence on ESG score (**0.276, p < 0.05**) when using hierarchical regressions with ESG as the dependent variable and Blau index as the major independent variable.

The major findings suggest that the presence of women on BoD has a good influence on ESG score, which confirms the original research concept.

2.4 Firm performance and boardroom gender diversity

The empirical data on the link between gender diversity on boards of directors and corporate performance is inconclusive and divisive. While some researchers see a beneficial association between gender diversity and company performance, others see a negative association, and still others don't see any association at all. Scholars investigate the link between board gender diversity and company value in a group of US companies. They find a link between gender diversity on boards and business value, as evaluated by Tobin's Q. According to Liu et al. (2014), the proportion as well as the absolute number of female directors in the boardroom are crucial factors in influencing a company's financial performance. According to their findings, all-female boardrooms have no influence on sales returns (ROS). They discovered that having two or three female directors on a board might increase ROS by 0.02 percent and 0.06 percent, respectively.

Another line of study finds no relationship between gender diversity in the boardroom and corporate success. In the instance of Norwegian companies, Rose (2007) and Randy et al. (2006) find no indication of a link between the proportion of female directors on boards and financial success. Carter et al. (2010) found a similar conclusion in their study of US companies, concluding that adding a female member to the board of directors has no effect on the financial success of the company.

In conclusion, the empirical data supporting the link between board gender diversity and company performance has been confusing, and inconsistent at times.

To explain the link between board gender diversity and corporate success, as well as the reasons for the rather equivocal empirical data, the major theories of agency and resource reliance are used.

Gender diversity is a critical corporate governance mechanism for businesses, according to agency theory. In this context, gender-diverse boards provide a more effective check, as a broader range of perspectives and viewpoints can strengthen board independence. Thus, gender diversity on a board of directors can serve as a strategy for reducing the expenses

associated with agency difficulties. Additionally, prior research indicates that effective corporate governance can boost financial performance by addressing agency issues and strengthening board oversight.

The crucial function of boards of directors in monitoring is highlighted by agency theory, since it plays a crucial part in reducing principal-agent conflict, which can lead to enhanced corporate performance. According to a recent empirical research, boosting board gender diversity may increase the board's monitoring functions. Female directors are more active on boards than male directors ; they have better monitoring abilities; and they need greater auditing and CEO responsibility. According to another research, female directors are more likely than their male counterparts to raise questions and participate in debates with their subordinates. Women's participation in boardrooms, on the other hand, has been claimed to not always indicate that the board's monitoring functions are enhanced, especially when female directors are excluded. Furthermore, better board oversight does not inevitably translate into increased economic performance; this is dependent on the overall quality of a company's governance. Increased monitoring of companies with weak corporate governance is made possible by increasing the representation of women on boards of directors. According to Gul et al. (2011), increased gender diversity in the boardroom enables companies to partly compensate for weak corporate governance and, as a result, enhance their overall performance.

Furthermore, variety enhances the quality of individual and collective decisions. Female directors boost firms by allowing for a more complete decision-making process, as females often put more effort into their jobs than males. Female directors also have higher attendance rates than male directors, and their presence on a board has a significant and positive impact on male directors' attendance rates. As a result, boards with a larger representation of female directors are more effective and have better attendance rates.

2.4.1 Key findings from empirical gendered studies on firm performance

As previously stated, business performance may be measured in a variety of ways, and different research approaches may be used to determine a link between gender diversity and business success.

For example, Kiliç and Kuzey (2016) discovered that having female directors improved a company's financial success as measured by return on assets, return on equity, and return on sales.

Non-financial firms that were listed in the BIST from 2008 to 2012 make up the study's initial sample. Companies listed after 2008, as well as those delisted during that period, were excluded from the initial sample. In addition, three firms were dropped from the study owing to missing data, leaving a total sample size of 149.

Financial performance measurements such as Tobin's Q, ROI, ROA, ROE, and ROS are examples of dependent variables. Accounting-based measurements and market-based measurements are the two basic types of these metrics. The ROA, ROE, and ROS, which are accounting-based performance indicators, were employed in this study as performance assessments. These profitability measures are frequently used to assess an organization's capacity to generate accounting-based earnings and returns to shareholders (Shrader et al., 1997).

The presence of female directors, on the other hand, is the main independent variable; three proxies are used to assess gender diversity on boards of directors. To begin, when there is at least one female director on the board, a dummy variable with the value 1 is used. If there was at least one female on the board, each dummy variable is coded as 1; otherwise, it is written as 0. Second, the percentage of female directors is calculated by dividing the total number of female board members by the total number of board members. Third, the Blau index (Blau, 1977) is used to evaluate the heterogeneity of a Board. The proportion of female directors may not be an appropriate indicator of diversity since a significant number of female directors may suggest a high degree of gender homogeneity (Campbell and Mnguez-Vera, 2008; Ararat et al., 2010). The Blau index reaches its maximum value when the proportion of each group is at its peak (Campbell and Mnguez-Vera, 2008). The Blau index is also a number that ranges from 0 to 0.5:

$$1 - \sum_{i=1}^{N} P_i^2$$

where P_i is the proportion of board members who fall into each group, and n is the total number of categories considered.

The independent variables in this study are three proxies that assess gender diversity:

- AWOMAN is a dummy variable with a value of 1 indicating that the board has at least one female member.
- PWOMAN denotes the percentage of female directors.
- The BLAUGENDER index is a tool for assessing gender diversity.

As a result, in IV regression estimators, AWOMAN exhibits a significant positive connection with performance (ROA) (**$\beta = 11.46; p < 0.05$**). At the 1% significance level in the IV regression estimator, the findings show that PWOMAN has a highly significant positive influence on ROA (**$\beta = 2.271; p < 0.01$**). Finally, in the IV regression estimator, BLAUGENDER exhibits a highly significant link with performance (ROA) (**$\beta = 145.0; p < 0.001$**). As a result of this finding, the number of male and female directors on boards should be balanced.

Tleubayev et al. (2019) present ground-breaking empirical findings on the association between board gender diversity and company performance for large-scale agri-food enterprises in Russia. Their findings point to a robust correlation between the ratio of female directors on corporate boards and business success.

Because the majority of the companies studied were not listed on stock exchanges, market value factors were not accessible in this study. The authors use two performance indicators to increase the analysis' robustness: ROA and ROS. In the corporate governance literature, these ratios are frequently used to assess a company's financial performance.

The study measures board gender diversity in three different ways. To begin, board gender diversity is defined, as in prior studies, as the percentage of female directors (% _Female) on corporate boards. Second, the percentages of female directors in the boardroom who are

independent (% IndependentFemale) have been utilized as a measure of board gender diversity.

When analyzing the link between board gender diversity and business performance, Adams and Ferreira (2009) propose that there may be an endogeneity problem, which can occur for a variety of reasons. To begin with, there may be missing and unobserved company factors that influence the nomination of female directors to the board of directors. Second, there may be a reverse causality between business success and gender diversity on the board of directors. This suggests that either board gender diversity improves business performance or that high-performing businesses have more gender-diverse boards. In such instances, using the ordinary least squares (OLS) model may result in skewed findings.

The 2SLS technique necessitates the use of an instrumental variable that is connected with board gender diversity but has no direct effect on company performance; however, finding a viable instrument is difficult, especially in the context of corporate governance. The authors believe that the number of female directors on the board is proportional to the number of female shareholders. Because boards of directors are chosen by shareholders, it's possible that shareholders with a larger female representation may elect more female directors to the board of directors. Following this approach, the authors employ the percentage of female persons in the company's ownership structure (%_FemaleOwnership) as an instrumental variable. The Wald test was used to confirm the validity of the chosen instrument, and the null hypothesis that the instrument is weak was rejected.

The findings of the OLS and 2SLS regressions on the link between board gender diversity, as assessed by the percentage of female directors in the boardroom (%_Female), and company performance, as evaluated by the ROA and ROS, are shown in Table 1. The ratio of female directors in the boardroom has a substantial beneficial influence on the ROA and ROS in both scenarios ($p < 0.05$). Keeping all other things constant, a **1% rise in the number of women in the boardroom** leads to a **0.18 % and 0.59 % rise in the ROA and ROS**, respectively, according to the 2SLS model.

Variables	OLS		2SLS	
	ROA	ROS	ROA	ROS
%_Female	0.0413**	0.123**	0.181**	0.588**
	(0.0169)	(0.0517)	(0.0833)	(0.258)
%_Independent	0.0458***	0.173***	0.0606***	0.221***
	(0.0125)	(0.0382)	(0.0162)	(0.0502)
BoardSize	0.0119	-0.00782	-0.00791	-0.0726
	(0.0123)	(0.0377)	(0.0178)	(0.0549)
D_CEO_Bonus	0.0151**	0.0255	0.00924	0.00522
	(0.00680)	(0.0208)	(0.00823)	(0.0258)
%_DirectorOwnership	-0.00877	0.00612	-0.00810	0.00661
	(0.0137)	(0.0419)	(0.0151)	(0.0471)
%_CEO_Ownership	0.0457***	0.128**	0.0374*	0.100
	(0.0173)	(0.0529)	(0.0196)	(0.0614)
FirmSize	0.00248	0.0191***	0.00340	0.0215***
	(0.00213)	(0.00639)	(0.00241)	(0.00730)
FirmAge	-0.00318	-0.0203	-0.00520	-0.0263
	(0.00804)	(0.0245)	(0.00894)	(0.0278)
D_Industry	-0.0150*	-0.0993***	-0.0235**	-0.126***
	(0.00784)	(0.0234)	(0.00996)	(0.0299)
Leverage	-0.0455***	-0.142***	-0.0402***	-0.119***
	(0.0126)	(0.0358)	(0.0142)	(0.0422)
Lag_ROA	0.310***		0.297***	
	(0.0339)		(0.0381)	
Lag_ROS		0.0437***		0.0411***
		(0.0102)		(0.0115)
Constant	-0.0225	-0.117	-0.0327	-0.153
	(0.0415)	(0.127)	(0.0461)	(0.144)
Observations	261	261	261	261
R-squared	0.543	0.349	0.417	0.138

[1] OLS=ordinary least squares; 2SLS=two-stage least-square; ROA=return on asset; ROS=return on sale.

[2] *P<0.1; **P<0.05; ***P<0.01.

Table 1: The interaction between gender diversity and PCL

To summarize, a 2SLS regression model is used to investigate the link between female participation on corporate boards and company performance in a sample of Russian agri-food businesses. The findings show that the ratio of female directors in the boardroom has a significant favourable impact on business performance in terms of both ROA and ROS. This means that increased board gender diversity might help the Russian agri-food business financially. As a result, Russian policymakers may wish to advocate for more female representation on the boards of agri-food companies.

Based on these research findings, the following hypothesis can be formulated.

Hypothesis 2. *Gender diversity on a board has a significant and positive impact on a company's performance.*

2.5 Correlation between innovative firm conduct and the workforce's age and gender composition

A firm's ability to perform and the development of the economy as a whole are both reliant on its ability to innovate. In particular, this is true for German industrial firms, which are the subject of Pfeifer and Wagner's investigation (2013). A significant participant in the worldwide goods market, Germany is known for its highly export-oriented manufacturing industry. Germany is a prominent player in the global manufacturing sector. A major factor in determining a manufacturing company's worldwide competitiveness is its ability to provide high-quality, innovative products to customers across the world. A company's success is dependent on its research and development (R&D) activities, which are essential for the continuous improvement of products and production processes.

Pfeifer and Wagner (2013) conduct a regression analysis to determine the impact of female employment on creative activities. They take into account the gender mix of a company's employees as well as the age composition of the workforce in their findings. The authors then contribute to the corpus of knowledge by adding newly available, high-quality official data for Germany that was previously unavailable.

Specifically, data from two sources that are relevant to manufacturing companies is used in the empirical research. The first source is a study of cost structures conducted among industrial firms. Every year, the statistics offices conduct this poll as a representative random sample survey stratified by the number of workers and the industry in which they are employed. Participants in the cost structure study are drawn from a sample of manufacturing firms with at least 20 workers. Companies with 20 to 499 employees and all businesses with 500 or more employees are included in the sample, which accounts for about 45 percent of all businesses. In contrast to the cost structure research, which includes businesses with 500 or more employees every year, the sample of smaller enterprises is only included in the study for a total of four consecutive years.

The percentage of employees engaged in research and development as a proportion of total employment is the primary dependent variable used by the authors to evaluate creative business activities. This research and development variable is a direct indication of creative corporate behavior, since it reflects the company's propensity for innovative activities. These research and development activities may be regarded of as inputs to the creation of new knowledge, which in turn leads to the development of new and better products and/or manufacturing processes. The proportion of female employees in a business is calculated by dividing the total number of females (covered by social security) by the total number of female workers (covered by social security) in the company. This proportion is represented as a percentage.

A 1 percent increase in female employment is significantly linked with a 0.16 percent rise in R&D employment as measured by the proportion of R&D employment in total employment, according to the results of the fractional logit regressions conducted for this purpose. The results for the workforce composition variables in the fractional logit regressions do not show a statistically significant difference between the two proxies for creative business activity studied.

2.6 Summary from the key findings from empirical studies attempting to quantify the effect of female entrepreneurship

Author(s), year	**Field of research**	**Gender diversity**	**Performance**	**Data**	**Main result**
Ahmad and Seet, 2010	Ecopreneurship and CSR	Female dummy	Ethical & Social Responsibility score	212 SME entrepreneurs, Malaysia (2010)	Positive relationship
Hechavarria, 2016	Ecopreneurship and CSR	Female dummy	Environmental Entrepreneurial Activity	Survey from all GEM-identified business owners in 47 countries in 2009 (n = 17,364).	Positive relationship
María del Mar Alonso-Almeida *et al.*, 2015	Ecopreneurship and CSR	Female dummy	Stakeholder orientation	Survey of 206 women managers (2012-2013)	Positive relationship
María del Mar Alonso-Almeida *et al.*, 2015	Ecopreneurship and CSR	Female dummy	Social and enivronmental	Survey of 206 women managers (2012-2013)	No relationship
María del Mar Alonso-Almeida *et al.*, 2015	Ecopreneurship and CSR	Female dummy	Legal compliance	Survey of 206 women managers (2012-2013)	No relationship
Ji Li *et al.*, 2015	Ecopreneurship and CSR	Women diversity (Teachman instrument)	Environmental performance	865 companies listed on the New York Stock Exchange (2010-2015)	Positive relationship
Ji Li *et al.*, 2015	Ecopreneurship and CSR	Women diversity x industry PCL	Environmental performance	865 companies listed on the New York Stock Exchange (2010-2015)	Positive relationship
Romano *et al.*, 2020	Ecopreneurship and CSR	Blau index	ESG	64 listed firms, Italy (2017-2018)	Positive relationship
Marinova *et al.*, 2016	Firm performance	Female ratio	Tobin's Q	186 firms, Denmark and Netherlands	No relationship

				(2007)	
Terjesen *et al.*, 2016	Firm performance	Female dummy, female ratio	Tobin's Q, ROA	3,876 firms, 47 countries (2010)	Positive relationship
Nguyen *et al.*, 2015	Firm performance	Female ratio, Blau index	Tobin's Q, ROA	120 firms, Vietnam (2008-2011)	Positive relationship
Liu *et al.*, 2014	Firm performance	Female dummy, female ratio	ROA, ROS	2,000 firms, China (1999-2011)	Positive relationship
Ahern and Dittmar, 2012	Firm performance	Female ratio	Tobin's Q	248 firms, Norway (2001-2009)	Negative relationship
Carter *et al.*, 2010	Firm performance	Number of females	Tobin's Q, ROA	641 firms, US (1998-2002)	No relationship
Campbell and Mínguez-Vera, 2008	Firm performance	Female dummy, female ratio, Blau index	Tobin's Q	68 firms, Spain (1995-2000)	Positive relationship
Kiliç and Kuzey, 2016	Firm performance	Female dummy, female ratio, Blau Index	ROA, ROE, ROS	149 non-financial firms listed in the BIST (2008-2012)	Positive relationship
Tleubayev *et al.*, 2019	Firm performance	Female ratio	ROA, ROS	261 agri-food enterprises, Russia (2016)	Positive relationship
Conyon and He, 2017	Firm performance	Female ratio	Tobin's Q, ROA	3000 publicly listed firms, USA (2007-2014)	Positive, negative, or no relationship according to performance quantile
Kwong et al., 2011	Access to capital	Female dummy	Financial constraint	Survey of 49,107 individuals from age 18 to 60, United Kingdom (2005-2007)	Positive relationship

Pfeifer and Wagner, 2013	Innovation of firm	Female ratio	Workers in R&D ratio	4225 firms, Germany (2003-2006)	Positive relationship
Jizi and Nehme, 2017	Equity risk	Female ratio, Female dummy, Group female dummy	Market volatility	Non-financial firms listed on the FTSE 350 index (2008-2013)	Negative relationship

3. Descriptive analysis of Italian innovative startups

3.1 Sample Description

The following study was conducted using data from InfoCamere and pertains to innovative businesses registered in a specific area of the "Registro delle Imprese." The data studied pertains to newly registered startups as of October 5, 2020. The database has 12106 innovative startups that provide the following information:

- Company name
- Legal nature: this means the type of company, for example limited liability company or joint-stock company.
- Tax code attributed to the company
- Province/State
- Municipality
- Date of registration in the special section of the Register of Enterprises dedicated to innovative startups
- Date of registration in the Companies' Register
- Date of start of actual activity
- Ateco 2007: is a code that refers to the classification of economic activities adopted by the Italian National Institute of Statistics (ISTAT)
- Sector to which the company belongs, represented by five categories: Agriculture/Fishing, Commerce, Industry/Craft, Tourism and Services
- Activity carried out, derivable directly from the Ateco code
- Production class last year, divided into eight groups:

Production Value	Production Class
0-100,000 euros	A
100,001-500,000 euros	B
500,001-1,000,000 euros	C
1,000,001-2,000,000 euros	D
2,000,001-5,000,000 euros	E
5,000,001-10,000,000 euros	F
10,000,001-50,000,000 euros	G

50,000,000 + euros	H
Not available	N/A

Table 1: Current year production classes.

- Current year adjunct class, divided into six groups:

Adjuncts	Adjunct Class
0-4	A
5-9	B
10-19	C
20-49	D
50-249	E
250+	F
Not available	N/A

Table 2: Current year adjunct classes.

- Enterprises having a social mission: An enterprise has a social mission if it works in one of the sectors covered by the social enterprise rules. The following sectors have been identified: social assistance; education, training, and education; environmental and ecosystem protection; enhancement of cultural heritage; social tourism; university and post-university training; research and provision of cultural services; out-of-school training aimed at preventing school drop-out and educational success; instrumental services to social enterprises. A social mission-driven company may also be found in other innovative industries with a high technology content that have a positive influence on the community's well-being. The SIAVS (innovative startup with a social mission, "startup innovativa a vocazione sociale") is required to prepare and electronically transmit the "Social impact description document" to the competent chamber of commerce upon submission of the self-certification and, beginning the following year, upon submission of the annual communication confirming compliance with the requirements provided for in art. 25, paragraph 15 of DL 179/2012.
- Equity class, divided into eleven groups:

Equity value	Equity Class
1 euro	1
1-5,000 euros	2
5,001-10,000 euros	3
10,001-50,000 euros	4
50,001-100,000 euros	5
100,001-250,000 euros	6
250,001-500,000 euros	7

500,001-1,000,000 euros	8
1,000,001-2,500,000 euros	9
2,500,001-5,000,000 euros	10
5,000,000+ euros	11

Table 3: Equity classes description.

- Company website
- 1st requirement: fulfilment of the first requirement for innovative startups, i.e. that research and development expenses be 15% of the greater of cost and total value of the innovative startup's production.
- 2nd requirement: fulfilment of the second requirement for innovative startups, i.e. that the team is made up of 2/3 of personnel with a master's degree, or 1/3 of PhD students, PhDs or graduates with 3 years of experience in certified research activities.
- 3rd requirement: fulfilment of the third requirement for innovative startups, i.e. that the company is the owner or licensee of an industrial patent or the owner of registered software.
- Prevalence of women, Prevalence of young people, Prevalence of foreigners, expressed in the following ways:

Prevalence of women/young people/foreigners	Description
NO	$\frac{[\%\ of\ social\ capital + \%\ board\ meners]}{2} \leq 50\%$
Majoritarian	$\frac{[\%\ of\ social\ capital + \%\ board\ meners]}{2} > 50\%$
Strong	$\frac{[\%\ of\ social\ capital + \%\ board\ meners]}{2} > 66\%$
Exclusive	$\frac{[\%\ of\ social\ capital + \%\ board\ meners]}{2} = 100\%$

Table 4: Prevalence of women/young people/foreigners.

The sample considers 12106 innovative startups registered in the special section of the business registry from 2013 to October 05, 2020. Since not all of the above information is available or findable for all firms, there will be some missing data in the dataset that are identified as "N/A" (not applicable).

Within Italy, geographical distribution is quite uneven. Indeed, the center-north of the country is more creative than the south. Lombardy is the startup capital of Italy, accounting for 27.0% of all innovative firms in the country. Lazio and Veneto follow with 11.6% and 8.1% of the national total, respectively. Then there's Campania, the southernmost area of Italy, which accounts for 8.8% of all innovative firms in the country. Molise and Valle d'Aosta, on the other hand, account for only 0.62% and 0.2% of the national total, respectively.

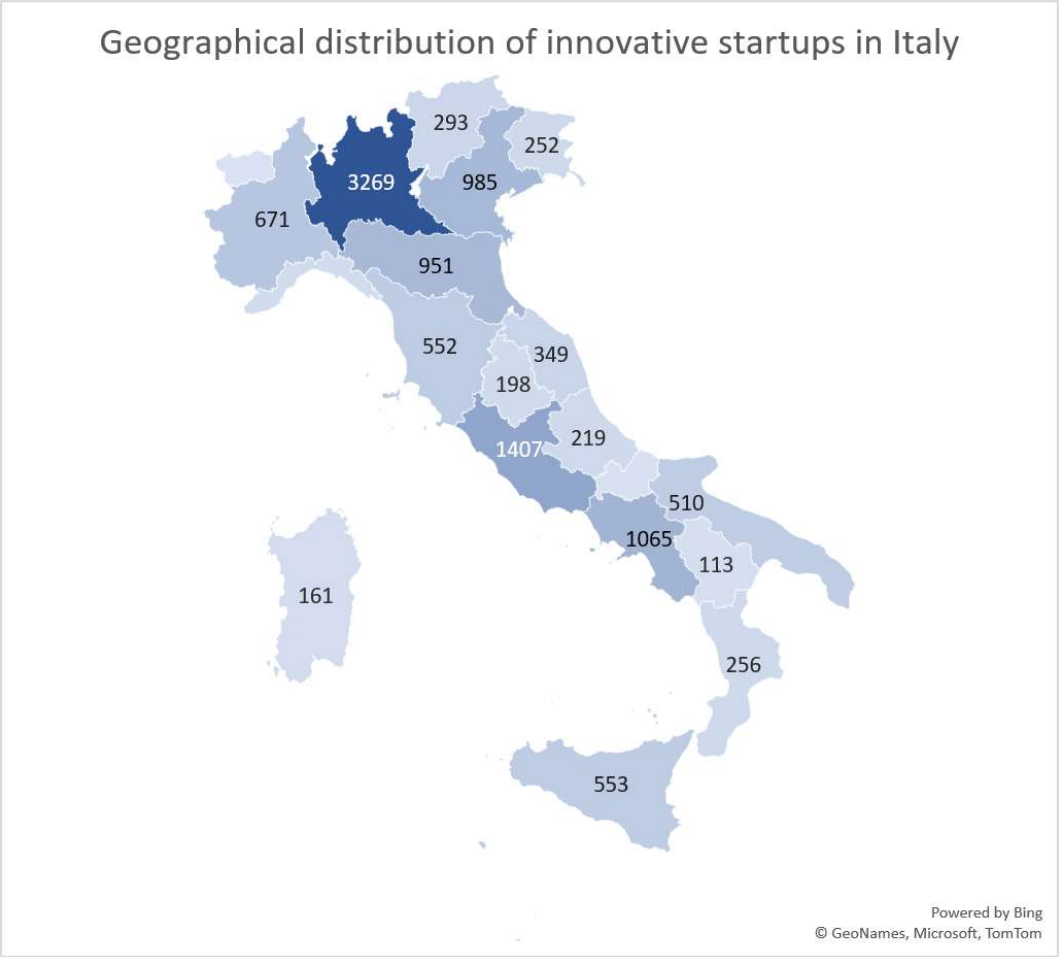

Figure 1: Geographical distribution of innovative startups in Italy.

Entering more specifically within the regions, the province of Milan alone hosts 19.2% of Italian innovative companies, followed by Rome which contains 10.4% of the national total. Only these two provinces have more than 1000 companies listed in the special area, considerably above the 541 and 436 startups registered in the following provinces (Naples

and Turin respectively). Figure 2 depicts a ranking of the top twenty Italian provinces in terms of the number of creative companies.

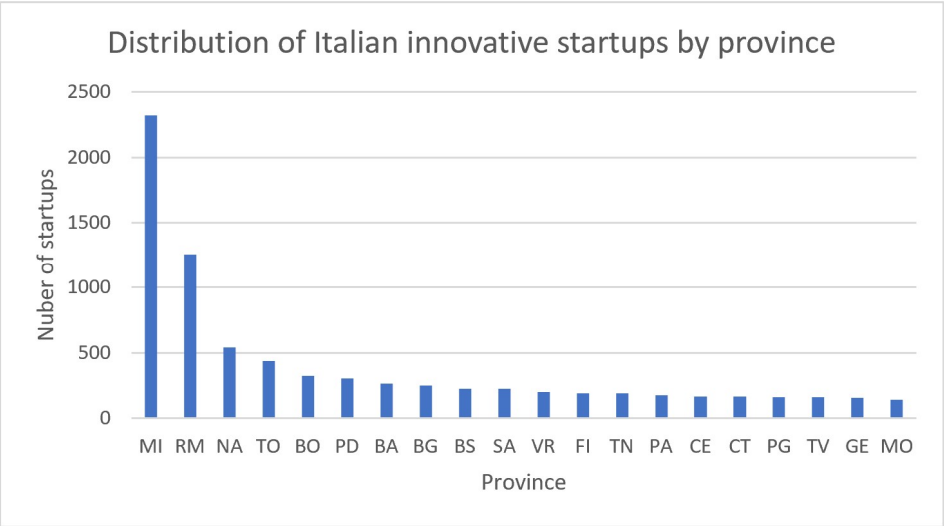

Figure 2: Ranking of the top twenty provinces by number of innovative startups.

In relation to the distribution by sector of activity, 77.34% of startups provide services to businesses and in particular ICT services such as software production and IT consulting, information services and research and development activities prevail. 16.83% operate in manufacturing while 3.29% operate in commerce. A very small percentage of innovative startups, on the other hand, are involved in tourism (0.92%) and agriculture and/or fishing (0.79%).

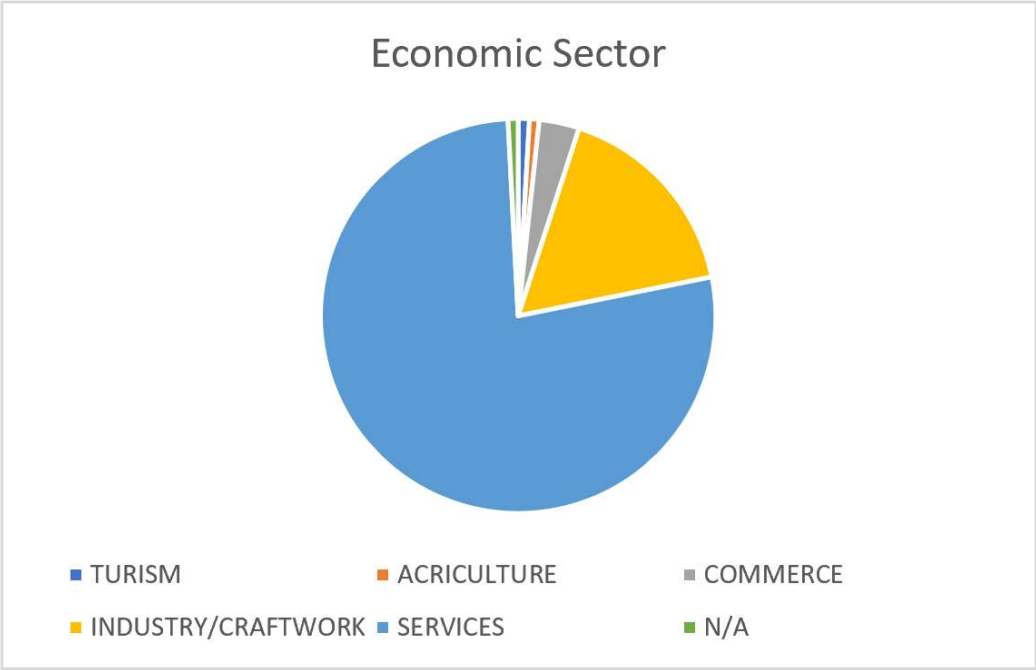

Figure 3: Economic sector of Italian innovative startups.

Startups are young companies and, again due to their structural characteristics, they are also small companies, with a limited number of founders and employees. In fact, the majority of the data available regarding the number of employees in the start-up shows that they belong prevalently to class A, that is, with fewer than 4 employees. Furthermore, there are no companies that has at least 250 employees and 10 that have between 50 and 249 employees. It should be noted that by employees we mean all those who have a subordinate contract with the company, including part-time and seasonal workers.

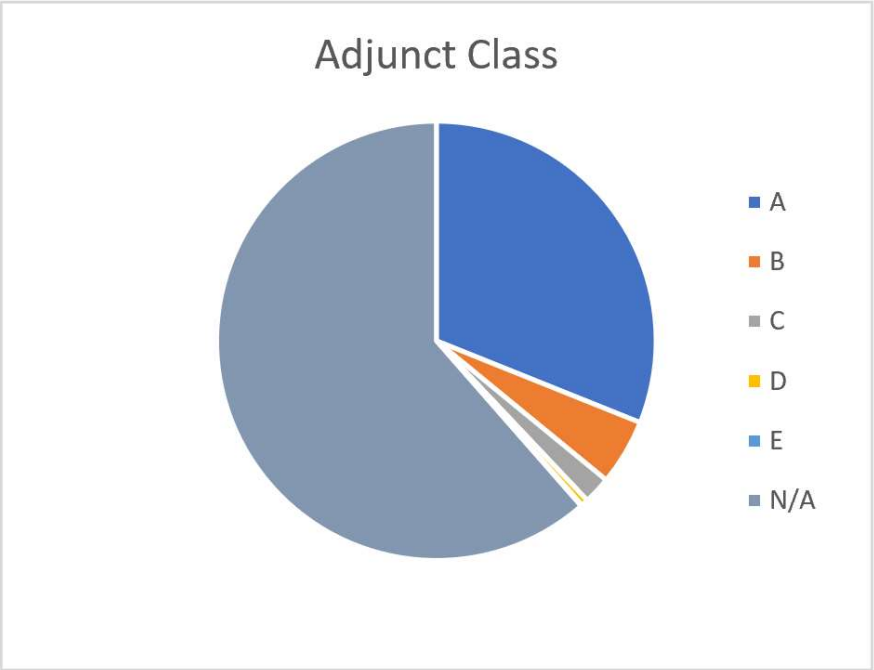

Figure 4: Adjunct Class distribution.

Analyzing the corporate structure, innovative startups with a prevalence of women, i.e., those in which at least a majority of the ownership and administrative positions are held by women, account for 12.85% of the total. Innovative startups with a prevalence of young people account for 18.62% of the total and those with a prevalence of foreigners for 3.56%.

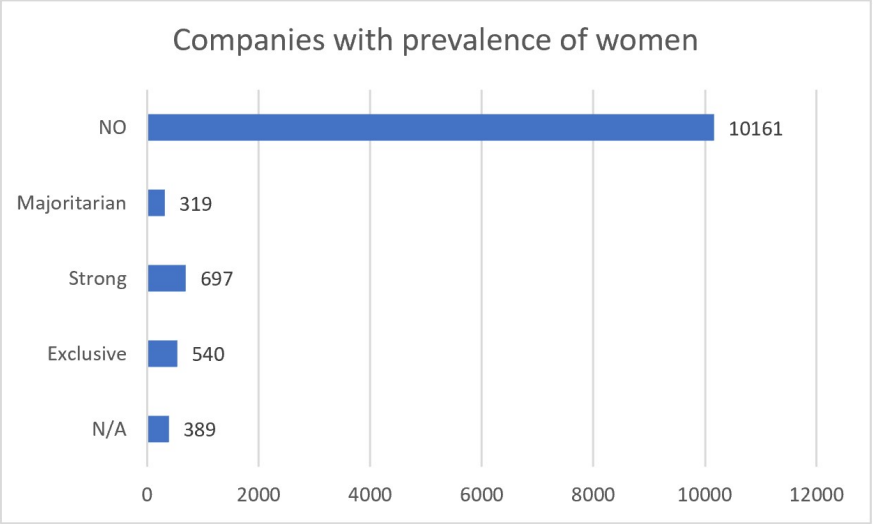

Figure 5: Companies with prevalence of women.

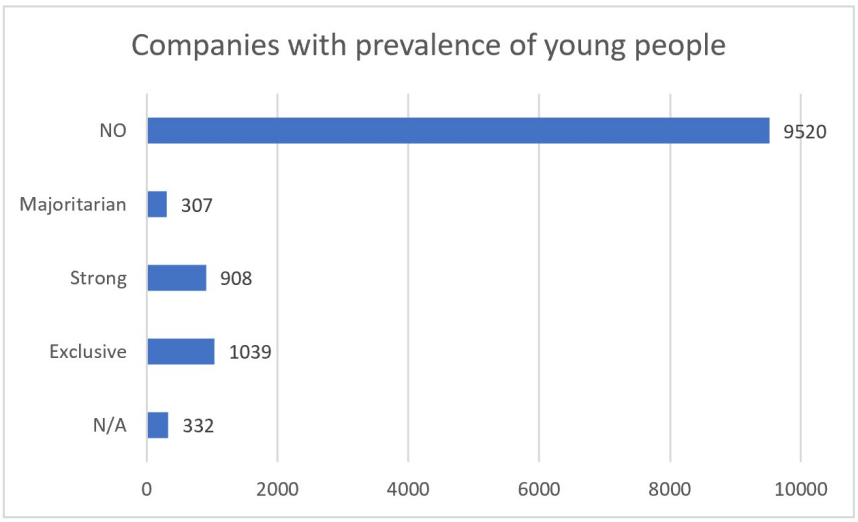

Figure 6: Companies with prevalence of young people.

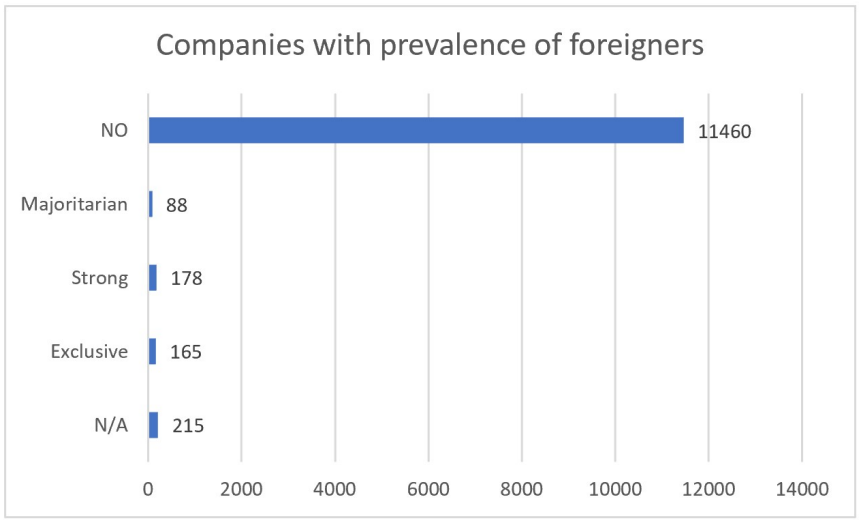

Figure 6: Companies with prevalence of foreigners.

3.2 Analysis of the sample from a gender perspective

The next section analyses the sample from a gender viewpoint. The purpose of this study is to conduct a descriptive analysis of a sample of creative companies on the Italian scene, with a special emphasis on the gender dimension, in order to identify any variations between firms with a female majority. Additionally, we will attempt to confirm or reject what was provided in the preceding chapter's literature analysis in order to determine whether or not the research reviewed can be applied to the Italian environment. Finally, we will attempt to synthesize the findings from defining a profile of Italian female entrepreneurs via the use of common features.

As previously stated, just 12.42 % of creative Italian businesses have a female-dominated organizational structure. On the basis of the gender dimension, it is possible to classify companies into four categories based on their female representation in the share capital and among the directors: 100% (Exclusive), greater than 66% (Strong), greater than or equal to 50% (Majoritarian), or less than 50% (NO). As a result of this split, it is reasonable to conclude that 4.27% of startups in Italy are exclusively female, while 5.51 % and 2.63 %, respectively, have a strong and majority female presence. The phrase "women's business" will be used throughout this discussion to refer to companies that fall into one of these three categories (Exclusive, Strong, or Majority) based on female preponderance. As a result, this definition encompasses 1499 creative Italian businesses.

PREVALENCE OF WOMEN	Number of businesses	Proportion of country total
Exclusive	540	4.46%
Strong	697	5.76%
Majoritarian	319	2.64%
NO	10161	83.93%
N/A	389	3.21%
Total	**12106**	

Table 4: Prevalence of women

Continuing with the analysis of the corporate structure, it is interesting to note that companies that are predominantly female also have a higher percentage of young people

within them. In fact, considering the available data, 22.30% of women's businesses are run by young people, compared to 18.64% of not women's businesses.

PREVALENCE OF YOUNG PEOPLE	Women's business	%	Non women's business	%	N/A
Exclusive	154	9.90%	881	8.67%	4
Strong	151	9.70%	751	7.39%	6
Majoritarian	42	2.70%	262	2.58%	3
NO	1183	76.03%	8144	80.15%	193
N/A	20	1.67%	123	1.21%	183
Total	**1550**		**10161**		**389**

Table 5: Prevalence of young people.

Even with regard to the nationality of startup members, there are differences between female and non-female businesses. In fact, 8.35% of women's businesses are also predominantly foreign, compared to 2.93% of non-female businesses.

PREVALENCE OF FOREIGNERS	Women's business	%	Non women's business	%	N/A
Exclusive	43	2.76%	119	1.17%	3
Strong	57	3.66%	121	1.19%	0
Majoritarian	30	1.93%	58	0.57%	0
NO	1422	91.39%	9822	96.66%	216
N/A	4	0.26%	41	0.40%	170
Total	1556		10161		389

Table 6: Prevalence of foreigners.

Thus, female innovative startups are also more youthful and more foreign.

3.3 Geographical location of women's businesses

The geographical distribution of women's businesses is very similar to the general distribution of innovative start-ups. In fact, Lombardy holds the record for the highest number of startups, alone accounting for 23.1% of the total number of female businesses, followed by Lazio and Campania with 13.6% and 10.3% respectively. In general, a greater presence of innovative businesses can be seen in the Center-North of the country. Although this is true, it is interesting to note a difference with respect to the general distribution of startups. In fact, if we consider only women's businesses, they have a greater presence in the south than the total distribution of innovative businesses. Campania, for example, is home to 10.3% of women's innovative businesses, while only 8.8% of the total Italian startups. There is also the same incidence for Molise and Basilicata, as there are respectively 1.2% and 2.1% of female-dominated startups and 0.7% and 0.9% of the total number. For Sicily and Latium, the same considerations apply, although with smaller differences in terms of percentage points. Of particular interest are the regions of Basilicata and Molise, to be considered the "pinkest" regions because they have the highest concentration of female innovative businesses. In fact, in Basilicata 29.2% of the startups in the region have a prevalence of women and in Molise 25.3%. Also above the Italian average, which amounts to 12.87%, are Sicily (18.6%), Campania (15.0%), Latium (15.0%), Sardinia (14.9%), Marche (14.6%), Abruzzo (13.7%), Umbria (13.6%), Apulia (13.3%), and Calabria (13.3%). Valle d'Aosta and Piedmont, on the other hand, are the regions with the lowest concentration of women-run businesses, since they represent 9.1% and 9.4%, respectively, of the start-ups present in the region.

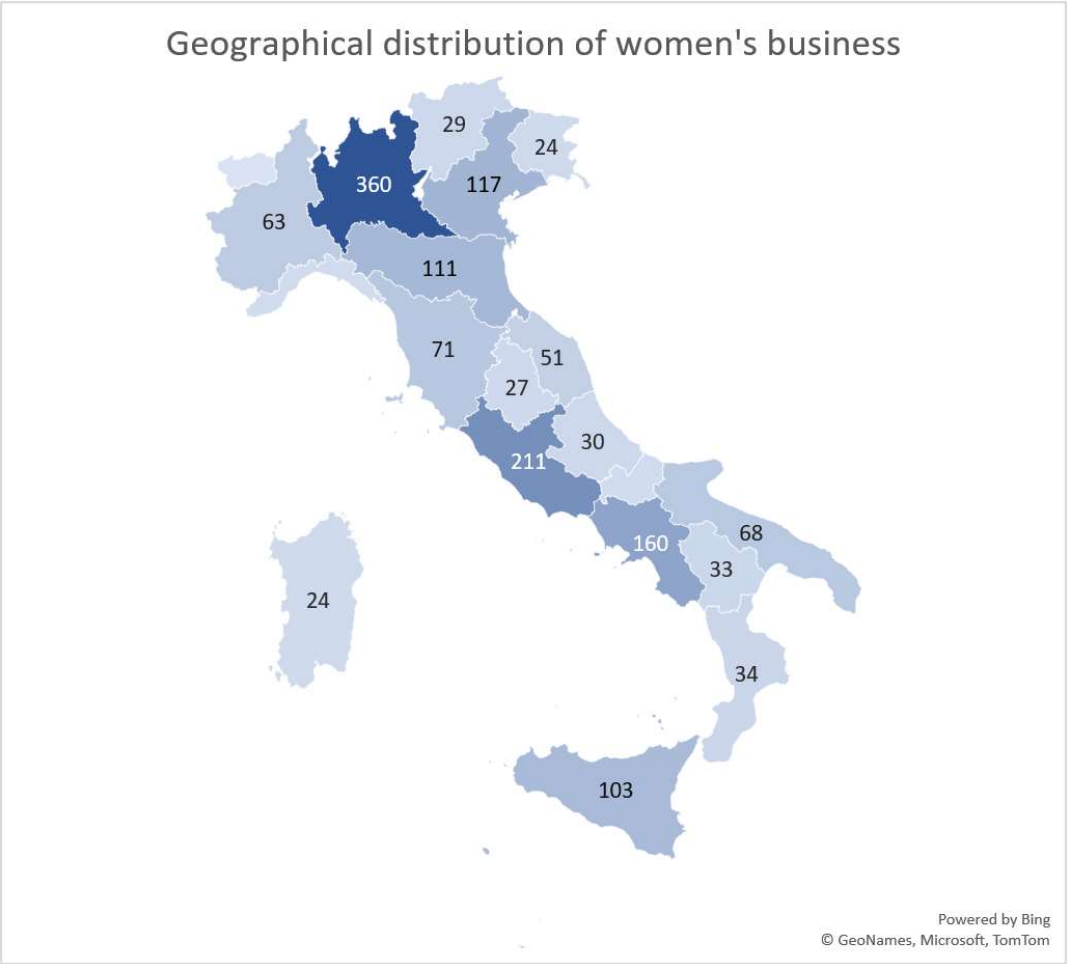

Figure 7: Geographical distribution of women's business.

Going into the details of the provinces, those with the highest incidence of female innovative businesses are Isernia, Caltanisetta and Potenza, each of which has a percentage greater than 30% of female-dominated businesses out of the total number of innovative startups present in the province. Figure 8 represents the ten "pinkest" provinces, where there is a greater presence of female businesses out of the total number of provincial innovative startups, and in all cases the percentage is greater than 20%. On the other hand, the provinces where the presence of innovative businesses is greater, Milan, Rome, Naples and Turin, are more or less in line with the national average incidence of female businesses. In particular, Rome and Naples are characterized by a slightly higher female presence, counting, respectively, 14.6% and 13.7% of businesses with a prevalence of women, while Milan and Turin are positioned a little below the average with a percentage of 11.1% and 8.3%.

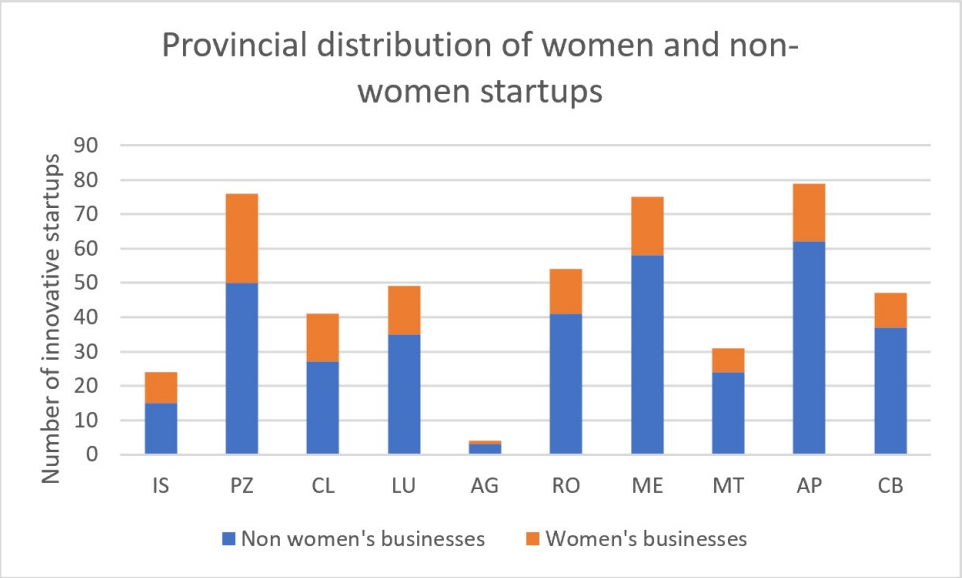

Figure 8: Provincial distribution of women's business.

Consistent with the total sample of innovative startups, even for women's startups, the distribution of the sector in which they operate is predominantly service-oriented. In fact, 76% of women's companies offer services to other companies and in particular are mainly involved in IT consulting and software production, research and development and information services. On the other hand, 16% of female startups operate in the manufacturing sector while 5% operate in commerce. While for the first two sectors, services and industry/crafts, the percentages are in line with the general distribution of innovative startups, in the case of commerce the percentage of businesses that deal with it increases from 3.3% to 5% if only female businesses are considered. In fact, almost 20% of the startups operating in the commerce sector are predominantly female, an interesting fact given that, as mentioned previously, female businesses represent less than 13% of the total number of innovative startups.

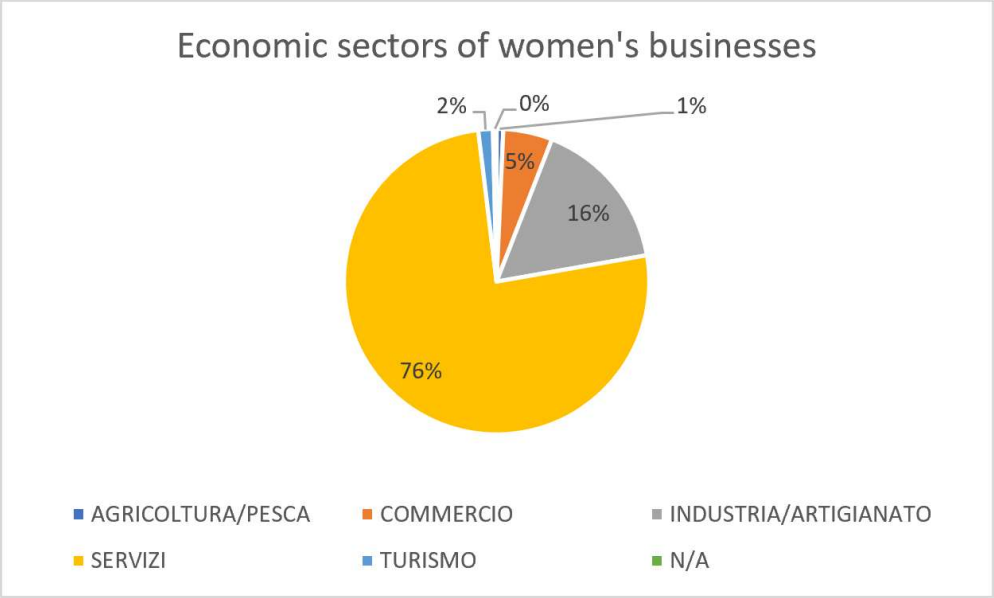

Figure 9: Economic sectors of women's business

3.4 Preliminary analysis results

From the analyses carried out, it is possible to outline the profile of female innovative enterprise. In line with what was said in the previous chapters, the rate of female entrepreneurship is lower than that of men. The presence of women in innovative startups is, in fact, still very limited since only 12.85% of startups in Italy have a female predominance within them. The companies that include a prevalence of women in their corporate structure have common characteristics. For example, they are small in size, as can be seen from the limited number of employees and the reduced share capital and production value of the startup. In addition, they are more youthful and foreign businesses and are concentrated in the service sector, in particular their incidence is high in health and social care and education services, but they are also very present in commerce and tourism. Their relevance is strong especially in businesses in the South, they are more frequently characterized by a social vocation.

4. Empirical Analysis

The factors that have been studied so far will be examined in more depth in this chapter in order to discover the connections that exist between them. The goal of the research is to determine whether or not there is any sort of relationship between the variables that reflect the major features of the study. If there is no connection between two or more variables, they are said to be independent of one another, and this is known as independence. Statistics and econometric analysis will allow us to quantify the causal connections that exist between the variables of interest, and as a result, to explain and forecast the effects on one variable of variations in another. This will be accomplished mostly via the use of the regression tool.

Due to the fact that the majority of the variables available from the Business Register are categorical rather than continuous variables, another database has been considered in order to be able to conduct more sophisticated analyses. This database combines information from the Business Register with information from the Aida database in order to be able to conduct more sophisticated analyses. Additionally to the variables listed above, economic and financial data on the startups under consideration are included, such as revenues, cash flows (EBITDA), return on investment (ROI), return on asset (ROA), return on equity (ROE), share capital (net equity), debt (net equity), and intangible assets (IP). Data is available for years spanning from 2013 to 2019, with numbers ranging in the hundreds, and there are numerous missing values, particularly in the more recent years. Due to the fact that Aida includes quantitative data only up to the end of 2019, the database under consideration will not cover innovative businesses that began operations in 2020. In this database, which was developed by students at the Polytechnic of Turin, it is also possible to get information on the number of workers that worked for the company throughout the course of its existence as well as the number of stockholders.

As a result, exploratory studies were conducted first, focusing only on the direct impacts of female predominance on the company's performance metrics. These studies, on the other hand, are oversimplified since creative businesses vary greatly from one another, for example, based on their area of origin, their age, or the industry to which they belong, among other characteristics. As a result, it has been essential to include control variables

into the studies in order to be able to determine the true impact of the predominance of women on the performance of businesses while also taking into consideration other factors that may affect performance. In order to do this, multiple regression is used, which allows for the evaluation of a number of factors or variables of interest at the same time. As a result, in this case, the use of "control variables" is employed, which are variables that do not necessarily have a direct effect on the dependent variable (performance measure), but are variables with which one attempts to correct the analysis in order to understand the effect of the independent variable (female businesses) on the dependent variable (performance measure), while keeping the other parameters constant. It is really a correlated variable with Y, which is used to control for a causative component that was missed in the regression of Y on X, but which itself has no causal impact on Y. This is known as the control variable.

4.1 Firm performance and boardroom gender diversity

The purpose of this research is to determine if gender diversity on corporate boards of directors is beneficial to the company's success. Only those businesses that were still in operation at the time of the analysis were evaluated for inclusion in the research, out of the total number of businesses in the dataset.

Dependent variables. There are many other financial performance metrics, including return on investment, return on assets, return on equity, and return on sales. Measurements that are based on accounting principles and metrics that are based on the stock market are the two major categories of these measures. The return on assets (ROA), return on equity (ROE), and return on sales (ROS) were the performance metrics utilized in this research, which were all accounting-based performance measures. Generally speaking, these profitability measures are used to assess an organization's capacity to generate accounting-based earnings and distribute profits to shareholders, among other things. The return on assets (ROA) demonstrates the management's ability and willingness to utilize the company assets that belong to the shareholders. The inefficiency of company management will be reflected in a lower rate of return on assets (ROA). Prior gender diversity studies have made extensive use of the return on investment (ROI) as a performance measure . The return on equity (ROE) is one of the most frequently used accounting metrics in performance assessment, since it indicates the return on the investments of shareholders. Furthermore, the return on sales (ROS) indicates a company's capacity to grow revenues while simultaneously decreasing production costs as a proxy for operational efficiency. To this end, this study measures firm performance using three measures: the return on assets (ROA), the return on equity (ROE), and the return on stock (ROS).

Independent variables. The proportion of female directors on boards of directors is the independent variable, and four proxy measures of gender diversity on boards of directors are employed to measure gender diversity on boards of directors. The first step is the introduction of a dummy variable that has a value of 1 when there is at least one female director on the board of directors. In this instance, each dummy variable is coded as 1 if the board included at least one female and 0 if the board did not contain any females. Second,

the percentage of female directors is determined by dividing the total number of female directors on the board by the total number of female directors on the board of directors. Another method of determining board diversity is via the use of the Blau index (Blau, 1977). Because a high proportion of female directors actually demonstrates a high degree of uniformity in terms of gender, the percentage of female directors may not be an acceptable indicator of diversity in a board of directors. Furthermore, the Blau index runs from 0 to 0.5, with a maximum value of 0.5:

$$1 - \sum_{I=1}^{n} P_i^2$$

where P_i is the percentage of the board members in each category and n represents the number of categories used.

Lastly, Gender diversity on boards was measured by the instrument recommended by Teachman (1980), which has been widely adopted to study different dimensions of demographic diversity, including gender diversity. In this study,

$$H = -\sum_{1=I}^{I} P_i (ln\, P_i)$$

where P is the proportion of a given gender, male or female, among the total number of TMT members.

Control variables. The effect of several factors (such as company size, leverage, and firm age) on firm financial performance is controlled for in this study. The size of a company is a typical predictor of its success. Larger companies tend to outperform their smaller counterparts in terms of performance because they have more market power or efficiency improvements. The logarithm of total assets is often used to calculate the size of a company. Firm-specific risks are determined by the leverage ratio, which is usually expressed as a proportion of the book value of total debt to total assets. In other words, the greater the amount of leverage, the closer the company comes to violating debt covenants and exposing the company to the danger of bankruptcy is. With a high amount of debt comes a high level of bankruptcy fees, which may be prohibitively expensive. As a result, the relationship

between leverage and company performance is anticipated to be negative. In addition, we took into account the age of the company.

Model 1:

PERF = β_0 + β_1WOMAN_ON_BOARD + β_2SIZE + β_3LEVERAGE + β_4 FIRM_AGE + ε

The output are presented in the following figures.

Linear regression

Number of obs	6,560
F(4, 6555)	33.46
Prob > F	0.0000
R-squared	0.3578
Root MSE	.39522

ROA_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
woman_on_board	-.0197126	.0106893	-1.84	0.065	-.040667	.0012419
leverage	-.5080494	.0855436	-5.94	0.000	-.6757428	-.340356
ln_assets	.0533037	.0048268	11.04	0.000	.0438416	.0627659
firm_age	.023887	.0146087	1.64	0.102	-.0047508	.0525247
_cons	-.0529414	.0363804	-1.46	0.146	-.124259	.0183761

Figure 1: Output regression ROA vs woman_on_board

Linear regression

Number of obs	6,450
F(4, 6445)	10.30
Prob > F	0.0000
R-squared	0.0015
Root MSE	4.4476

ROE_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
woman_on_board	-.0669141	.1858932	-0.36	0.719	-.4313266	.2974984
leverage	.1385162	.0710854	1.95	0.051	-.0008347	.2778671
ln_assets	-.0523996	.0320036	-1.64	0.102	-.1151372	.0103381
firm_age	-.2723774	.0877788	-3.10	0.002	-.444453	-.1003019
_cons	.3516131	.1957591	1.80	0.073	-.0321397	.7353659

Figure 2: Output regression ROE vs woman_on_board

ROS_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
woman_on_board	-.4743299	.4255047	-1.11	0.265	-1.308518	.3598582
leverage	-.5508468	.495247	-1.11	0.266	-1.521762	.4200687
ln_assets	-.6930426	.1988604	-3.49	0.000	-1.082902	-.3031832
firm_age	.5011286	.3481642	1.44	0.150	-.1814359	1.183693
_cons	1.835227	.8806966	2.08	0.037	.1086501	3.561804

Figure 3: Output regression ROS vs woman_on_board

In this analysis, we can see that, when we look at the p-value of the beta of the main independent variable "woman on board," we cannot conclude that the coefficient is statistically significantly different from zero, with the exception of when the performance indicator is ROA, in which case the beta is only marginally statistically significantly negative. A binary variable may not be a suitable indication when doing a conventional OLS regression to determine causation between the success of creative companies, or we may be lacking an appropriate control variable in our study.

Moving on, the second model we used is the following

PERF = β_0 + β_1DONNE_ADMIN_PERCENT + β_2SIZE + β_3LEVERAGE + β_4 FIRM_AGE + ε

The output are presented in the following figures.

Linear regression

Number of obs	=	6,560
F(4, 6555)	=	32.62
Prob > F	=	0.0000
R-squared	=	0.3576
Root MSE	=	.39527

ROA_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
donne_admin_percent	.0001519	.0001374	1.11	0.269	-.0001175	.0004214
leverage	-.5076625	.0855177	-5.94	0.000	-.6753051	-.3400199
ln_assets	.0533703	.0048578	10.99	0.000	.0438473	.0628932
firm_age	.0233587	.0145857	1.60	0.109	-.0052341	.0519514
_cons	-.0603314	.0357864	-1.69	0.092	-.1304843	.0098215

Figure 4: Output regression ROA vs donne_admin_percent

Linear regression

Number of obs	6,450
F(4, 6445)	9.86
Prob > F	0.0000
R-squared	0.0015
Root MSE	4.4477

ROE_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
donne_admin_percent	.0001624	.0010366	0.16	0.876	-.0018698	.0021945
leverage	.1397506	.0689339	2.03	0.043	.0046173	.274884
ln_assets	-.0525596	.0326799	-1.61	0.108	-.116623	.0115038
firm_age	-.2738259	.0883546	-3.10	0.002	-.4470303	-.1006215
_cons	.3340524	.1795958	1.86	0.063	-.018015	.6861198

Figure 5: Output regression ROE vs donne_admin_percent

Linear regression

Number of obs	4,718
F(4, 4713)	5.48
Prob > F	0.0002
R-squared	0.0081
Root MSE	11.342

ROS_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
donne_admin_percent	.0009826	.002733	0.36	0.719	-.0043755	.0063406
leverage	-.5489181	.497366	-1.10	0.270	-1.523988	.4261517
ln_assets	-.6932033	.199169	-3.48	0.001	-1.083668	-.302739
firm_age	.4861191	.3506966	1.39	0.166	-.2014102	1.173648
_cons	1.71773	.836865	2.05	0.040	.0770834	3.358377

Figure 6: Output regression ROS vs donne_admin_percent

In light of these findings, and taking into consideration the p-value of the beta of the primary independent variable "donne admin percent," we cannot conclude that the coefficient is statistically significantly different from zero. That the proportion of women directors may not be a suitable statistic to use as a proxy for gender diversity is suggested by the fact that the value of 100 percent would actually indicate that there is no gender diversity at all. In particular, we discovered that there are two modes in the data for these innovative companies, one with a value of 0 and the other with a value of 100.

Finally, in the third and fourth model we used two indicators that better quantify gender diversity. The first indicator, Blau Index, was used in the model 3:

PERF = β_0 + β_1BLAU_INDEX + β_2SIZE + β_3LEVERAGE + β_4 FIRM_AGE + ε

The output are presented in the following figures.

Linear regression

Number of obs	=	6,560
F(4, 6555)	=	33.95
Prob > F	=	0.0000
R-squared	=	0.3592
Root MSE	=	.39478

ROA_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
blau_index	-.1407777	.0343023	-4.10	0.000	-.2080213	-.073534
leverage	-.509019	.085563	-5.95	0.000	-.6767505	-.3412875
ln_assets	.0543292	.0048773	11.14	0.000	.0447682	.0638903
firm_age	.02436	.0146087	1.67	0.095	-.0042779	.0529978
_cons	-.0549017	.0363977	-1.51	0.132	-.1262531	.0164498

Figure 7: Output regression ROA vs blau_index

Linear regression

Number of obs	=	6,450
F(4, 6445)	=	10.86
Prob > F	=	0.0000
R-squared	=	0.0018
Root MSE	=	4.447

ROE_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
blau_index	-.5539876	.7881407	-0.70	0.482	-2.099005	.99103
leverage	.1346363	.0739498	1.82	0.069	-.0103299	.2796026
ln_assets	-.0482293	.0296721	-1.63	0.104	-.1063966	.0099379
firm_age	-.270814	.0875929	-3.09	0.002	-.4425251	-.0991029
_cons	.346332	.1810157	1.91	0.056	-.0085189	.7011828

Figure 8: Output regression ROE vs blau_index

Linear regression

Number of obs	4,718
F(4, 4713)	5.84
Prob > F	0.0001
R-squared	0.0087
Root MSE	11.339

ROS_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
blau_index	-1.886414	1.167148	-1.62	0.106	-4.174571	.4017419
leverage	-.5685599	.4928694	-1.15	0.249	-1.534814	.3976946
ln_assets	-.6795266	.1968618	-3.45	0.001	-1.065468	-.2935853
firm_age	.5101026	.3475635	1.47	0.142	-.1712844	1.19149
_cons	1.755612	.8414987	2.09	0.037	.1058815	3.405343

Figure 9: Output regression ROS vs blau_index

The second indicator, Teachman diversity, used in model 4, presented similar results:

PERF = β_0 + β_1BLAU_INDEX + β_2SIZE + β_3LEVERAGE + β_4 FIRM_AGE + ε

The output are presented in the following figures.

Linear regression

Number of obs	6,560
F(4, 6555)	34.00
Prob > F	0.0000
R-squared	0.3594
Root MSE	.39474

ROA_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Teachman_Diversity	-.1025843	.0242092	-4.24	0.000	-.1500424	-.0551263
leverage	-.5091193	.085565	-5.95	0.000	-.6768546	-.341384
ln_assets	.0544415	.0048835	11.15	0.000	.0448683	.0640147
firm_age	.0243804	.0146081	1.67	0.095	-.0042563	.0530172
_cons	-.0550431	.0363886	-1.51	0.130	-.1263765	.0162904

Figure 10: Output regression ROA vs Teachman_Diversity

Linear regression

Number of obs	= 6,450
F(4, 6445)	= 10.82
Prob > F	= 0.0000
R-squared	= 0.0018
Root MSE	= 4.447

ROE_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Teachman_Diversity	-.3792488	.5565719	-0.68	0.496	-1.470315	.7118171
leverage	.1345777	.0741847	1.81	0.070	-.0108489	.2800043
ln_assets	-.0480821	.0295208	-1.63	0.103	-.1059527	.0097885
firm_age	-.2709153	.0875916	-3.09	0.002	-.4426239	-.0992068
_cons	.3452533	.1803441	1.91	0.056	-.0082811	.6987877

Figure 11: Output regression ROE vs Teachman_Diversity

Linear regression

Number of obs	= 4,718
F(4, 4713)	= 5.77
Prob > F	= 0.0001
R-squared	= 0.0088
Root MSE	= 11.338

ROS_2019	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Teachman_Diversity	-1.441698	.871304	-1.65	0.098	-3.149861	.2664654
leverage	-.5720007	.4917066	-1.16	0.245	-1.535976	.3919742
ln_assets	-.6770419	.1957852	-3.46	0.001	-1.060873	-.2932113
firm_age	.5123981	.347249	1.48	0.140	-.1683721	1.193168
_cons	1.752905	.8411452	2.08	0.037	.1038674	3.401943

Figure 12: Output regression ROS vs Teachman_Diversity

Because, as we can see from the regression outputs, the beta of the Blau index and that of the Teachman diversity are both statistically significant when ROA is the dependent value at the 1 percent level (when ROA is the dependent value), indicating that using the indexes that take diversity into account produces statistically significant results.

However, the Beta is negative, suggesting that the greater the amount of gender diversity in a company, the poorer the performance of the startup, which is in opposition to hypothesis 1. This may be explained in two ways.

The first point to mention is that, although return on assets (ROA) is one of the finest accounting KPIs to evaluate profitability for businesses, startups often have negative net

profit, and therefore ROA is not typically utilized as a measure of the startup's performance. Despite this, owing to the limitations of the data that we had at our disposal, it remained the best option for use in the study.

The second argument is from a comparison with previous research that has produced conflicting findings when attempting to establish a causal relationship between gender diversity and company success. According to Canyon and Le (2017), they attempted to reconcile this difference in findings by hypothesizing that female directors have a much more beneficial effect in high-performing companies than they do in low-performing organizations. Due to the fact that the companies under investigation are startups with extremely poor performance, it is understandable why previous researchers have had conflicting findings, and it also explains why female directors seem to have a negative effect on performance in this study.

Their answer to this problem was to run a quantile regression, which is exactly what we are going to do in this last investigation.

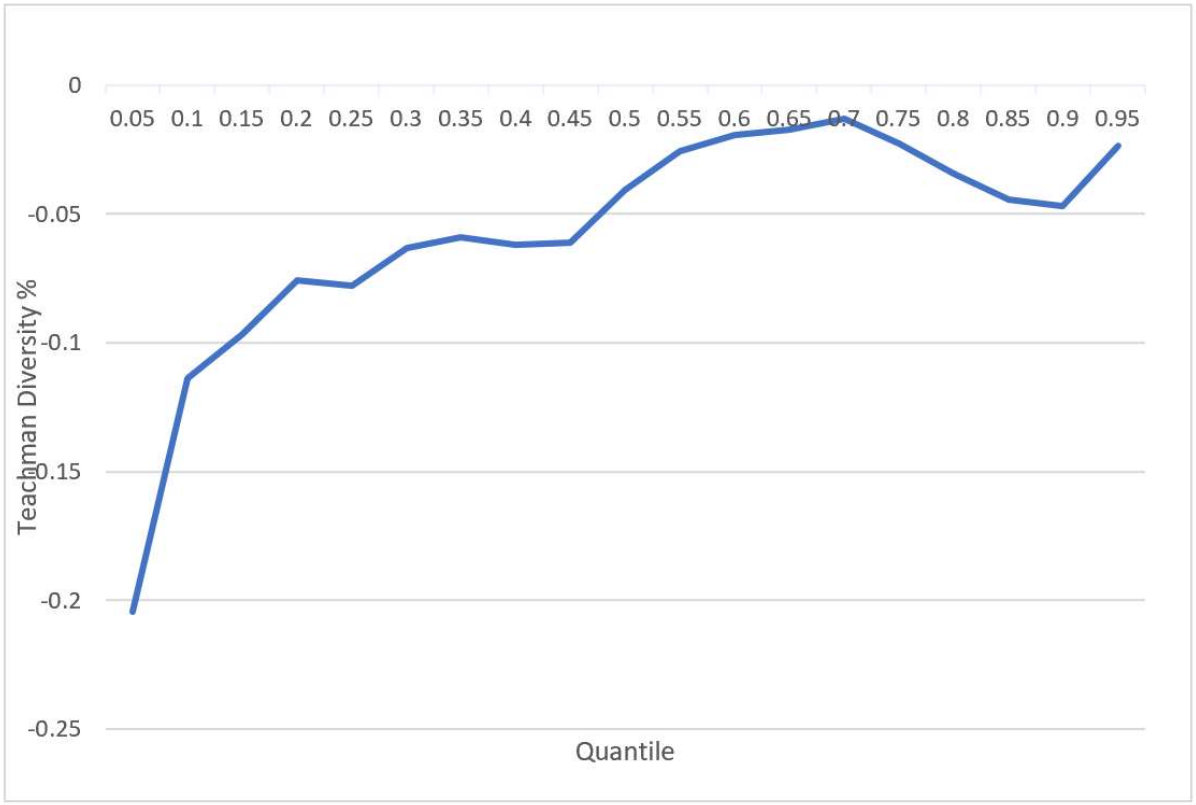

Figure 13: ROA and board gender diversity - quantile estimates.

The estimated impact of the board gender diversity variable is provided for incremental increments of 5 percent from the 5th percentile to the 95th percentile inclusive, with the 5th percentile being the starting point. The horizontal x-axis in each image represents the quantile scale, while the vertical y-axis represents the impact of board gender on Tobin's Q (Fig. 2) and return on assets (Fig. 3). In other words, the value of the calculated coefficient at a particular quantile on the xscale is represented by the y-scale of each image.

Discussion. The board of directors is one of the most important corporate governance instruments since it helps to align the interests of both management and shareholders in a corporation. The efficacy of board decisions may be influenced by the makeup of the board of directors, which can have an impact on the success of the company. Gender balance is one feature of the board's makeup. On a daily basis, the proportion of women in the work force continues to rise. As the number of female directors rises, so do debates about the potential effect of gender-diverse boards on the financial performance of companies, which are becoming more common. Specifically, the goal of this investigation is to establish the connection between board gender diversity and financial performance of a business. It has been argued that companies with a more diversified board of directors outperform their counterparts. The findings of the research, on the other hand, do not support the idea that female directors have a significant and positive impact on a company's financial performance.

4.2 Green firms and boardroom gender diversity

The next section of the research examines if increasing the number of women on a company's board of directors increases the likelihood of the company becoming a "green" company. Only those businesses that were still in operation at the time of the analysis were evaluated for inclusion in the research, out of the total number of businesses in the dataset. The environment in which an entrepreneur works may have an effect on his or her probability of pursuing an ecopreneurial business, and this is especially true for female entrepreneurs who come from disadvantaged backgrounds. In recent research, it has been shown that women's entrepreneurial activities are more strongly influenced by contextual factors than those of males. The findings of scholars show that institutionalized norms and practices have a significant effect on women's entrepreneurial opportunities. When it comes to deciding whether or not to engage in venture capital, men and women tend to react differently to institutional variables, and the degree to which male and female entrepreneurs respond differently to the institutional environment is also varied.

To verify this hypothesis we ran a probit regression, with the following variables.

Dependent variable. The dependent variable is a binary variable named “green_firms” which assume the value of 0 if the startup does not have a green mission and 1 otherwise. On the basis of what has been seen in the literature, a first semantic list was then elaborated that presented both words related to the energy field, such as "renewable energy" and "smart grid", and terms related to other relevant aspects of sustainable economy, such as "bioeconomy", "climate change" or "recycling". In the terminology list, different declinations for each keyword were included, such as "e-bike" or "ebike", and also plural forms, as well as the corresponding English translation given the wide spread of the Anglo-Saxon language in business. The list of keywords was then used to search the websites of all the Italian start-ups, whose links were retrieved from the online portal of the Chamber of Commerce. The algorithm used for this purpose was not case sensitive and in the final version compared string by string the keywords identified on all the pages of the domain for each start-up. Initially, the algorithm was also used to compare the social pages of innovative companies and any pdf documents present on the various websites, but later it was decided to exclude

these two options due to excessive ambiguity linked to the concept of advertising greenwashing in the first case and conversion problems in the second. The results of the research allowed us to verify and solve some critical issues in the algorithm, modifying at the same time the list of keywords each time on the basis of empirical considerations carried out in collaboration with the work team.

Independent variables. The representation of female directors is the independent variable; two proxies are used to measure gender diversity on boards of directors. First, the Blau index (Blau, 1977) is used to measure the diversity of a board. The percentage of female directors may not be an appropriate measure of diversity, as a high number of female directors actually shows a high degree of homogeneity in terms of gender (Campbell and Mínguez-Vera, 2008; Ararat et al., 2010). The Blau index takes the maximum value when the proportion of each category is at a maximum (Campbell and Mínguez-Vera, 2008). In addition, the Blau index ranges from 0 to a maximum of 0.5:

$$1 - \sum_{i=1}^{n} P_i^2$$

where P_i is the percentage of the board members in each category and n represents the number of categories used.

To conclude, the instrument suggested by Teachman (1980) was used to assess gender diversity on boards of directors. This instrument has been extensively used to investigate many aspects of demographic diversity, including gender diversity, throughout the years. In this study,

$$H = -\sum_{1=I}^{I} P_i(ln\, P_i)$$

where P is the proportion of a given gender, male or female, among the total number of board members.

Control variables. Different variables (i.e. firm size, leverage, firm age) are controlled for their impact on firm financial performance. Firm size is a typical determinant of firm performance (Isidro and Sobral, 2014). Larger firms tend to have higher performance compared to their smaller counterparts because of higher market power (Smith et al., 2006) or efficiency gains (Lee, 2009). Firm size is generally measured as the logarithm of total assets. Leverage, typically measured as a percentage of the book value of total debt to total assets, determines firm-specific risks. That is, the higher the leverage, the closer it is to breaching debt covenants and exposing the firm to the risk of bankruptcy (Abdullah, 2014). A high level of bankruptcy costs may be associated with a high level of debt. Thus, a negative association is expected between leverage and firm performance (Campbell and Mínguez-Vera, 2008; Isidro and Sobral, 2014). In addition, we controlled for firm age (Reddy et al., 2008) and industry (Nguyen et al., 2015).

The outputs of the regressions are presented in the following figures.

Probit regression, reporting marginal effects — Number of obs = **6560**
LR chi2(**4**) = **49.44**
Prob > chi2 = **0.0000**
Log likelihood = **-3786.2509** — Pseudo R2 = **0.0065**

green_~s	dF/dx	Std. err.	z	P>|z|	x-bar	[95% C.I.	]
blau_i~x	**.1004914**	**.0368341**	**2.73**	**0.006**	**.053712**	**.028298**	**.172685**
leverage	**.0183976**	**.0096682**	**1.90**	**0.057**	**.612908**	**-.000552**	**.037347**
ln_ass~s	**.0122705**	**.0035425**	**3.46**	**0.001**	**4.59024**	**.005327**	**.019214**
firm_age	**.0499051**	**.0152957**	**3.26**	**0.001**	**1.1746**	**.019926**	**.079884**
obs. P	**.2676829**						
pred. P	**.2662813**	(at x-bar)					

z and P>|z| correspond to the test of the underlying coefficient being 0

Figure 14: Probit regression, reporting marginal effects, of green_firms on blau_index

Probit regression, reporting marginal effects — Number of obs = **6560**
LR chi2(**4**) = **49.80**
Prob > chi2 = **0.0000**
Log likelihood = **-3786.0693** — Pseudo R2 = **0.0065**

green_~s	dF/dx	Std. err.	z	P>|z|	x-bar	[95% C.I.]	
Teachm~y	**.0722337**	**.0258481**	**2.79**	**0.005**	**.076991**	**.021572**	**.122895**
leverage	**.0184556**	**.009667**	**1.91**	**0.056**	**.612908**	**-.000491**	**.037403**
ln_ass~s	**.0121967**	**.0035441**	**3.44**	**0.001**	**4.59024**	**.00525**	**.019143**
firm_age	**.049903**	**.0152957**	**3.26**	**0.001**	**1.1746**	**.019924**	**.079882**
obs. P	**.2676829**						
pred. P	**.2662731**	(at x-bar)					

z and P>|z| correspond to the test of the underlying coefficient being 0

Figure 15: Probit regression, reporting marginal effects, of green_firms on Techaman_diversity

From what we can see, the marginal effects of the probit regression are both positive and significantly different from 0 at the 99% level. In agreement with hypothesis 2, we can see that the a unit increase of the Blau Index will cause a 10% increase in the probability that the business will be categorized as green. Similarly, an unit increase of the Teachman diversity will cause a 7% increase in the probability that the business will be categorized as green.

5. Conclusion

This paper has outlined the role of the female gender in the ecosystem of innovative startups and has carried out a gender analysis of the Italian context, highlighting the characteristics assumed by female-dominated innovative enterprises. Although we are witnessing a growth in the rate of female entrepreneurship in Italy, the presence of women in innovative startups is still very limited. In fact, less than 13% of innovative startups in Italy are women-owned. Analyses carried out on the sample of Italian innovative startups registered in the special section of the Register of Companies show that female businesses are also younger and more foreign than the national average. Moreover, they are more concentrated in the southern regions. In fact, 30.4% of female businesses come from the South or the Islands, compared to 23.5% of non-female businesses, and the most female-dominated regions are Basilicata and Molise, which have the highest concentration of female businesses in the country. As far as the distribution of economic sectors is concerned, female businesses are mainly concentrated in the service sector, with a strong presence in health and social assistance and education services. They also have a very high incidence in commerce and tourism, where they represent 21% and 20.3% respectively of the companies operating in those sectors. Innovative businesses dominated by women are small businesses, both in terms of the number of employees and economic-financial indicators. From the empirical analyses carried out on the database coming from the Business Register and integrated with data present on Aida, it emerges how the female prevalence does not have a significant impact on the ability of the business to have an excessive economic return. Female businesses, in fact, seem to have a lower performance than businesses not dominated by women.

The ultimate goal of all these measures is to incentivize women to undertake studies in STEM fields, create a business or start a startup in order to increasingly support women's participation in the labor market and the economic development of the country. In this way, by supporting female employment and entrepreneurship, we also support the areas where women are concentrated, such as social care services and education or, in general, the category of socially-oriented businesses that focus on environmental protection, the enhancement of cultural heritage, research and the provision of cultural services and social

tourism. It has also been shown that the more women work and have quality employment, the more the system prospers and grows because diversity is richness and in order to allow inclusion and development, targeted tools in favor of gender equality are necessary. Particularly important, in fact, are all measures aimed at creating infrastructures that relieve women of care duties, promote female autonomy and break down gender stereotypes, encouraging the acquisition by women of skills in science and technology, to assume an increasingly important role in innovation. From the empirical analysis carried out on the database from the Business Register and integrated with data from Aida, it emerges how the prevalence of women has a significant impact on the probability of a company having a green business, in agreement with what emerged from the other studies examined in the literature review.

Bibliography

Ahl, H. (2006). *Why research on women entrepreneurs needs new directions.* Entrepreneurship Theory & Practice, 30.

Ahmad, N.H., Seet, P., 2010. *Gender variations in ethical and socially responsible considerations among SME entrepreneurs in Malaysia*. International Journal of Business and Society 11.

Agnete Alsos, G., Ljunggren, E. and Hytti, U. (2013), *Gender and innovation: state of the art and a research agenda*, International Journal of Gender and Entrepreneurship, Vol. 5 No. 3.

Anderson, A.R. (1998), *Cultivating the garden of Eden: environmental entrepreneuring*, Journal of Organizational Change Management, Vol. 11 No. 2.

Autio, M. and Heinonen, V. (2004), *To consume or not to consume? Young people's environmentalism in the affluent Finnish society*, Young, Vol. 12 No. 2.

Bansal, P. & Roth, K. (2000), *Why companies go green: a model of ecological responsiveness*, Academy of Management Journal, Vol. 43 No. 4.

Beutel, A., & Marini, M. (1995). *Gender and values*. American Sociological Review, 60.

Betz, M., O'Connell, L. and Shepard, J.M. (1989), *Gender differences in proclivity for unethical behavior*, Journal of Business Ethics, Vol. 8.

Bird, B., & Brush, C. (2002). *A gendered perspective on organizational creation*. Entrepreneurship: Theory and Practice, 26.

Block, J.H. (1983), *Differential premises arising from differential socialization of the sexes: some conjectures*, Child Development, Vol. 54 No. 6.

Braun, P. (2010), *Going green: women entrepreneurs and the environment*, International Journal of Gender and Entrepreneurship, Vol. 2 No. 3.

Bruni, A., Gherardi, S. and Poggio, B. (2004), *Entrepreneur-mentality, gender and the study of women entrepreneurs*, Journal of Organizational Change Management, Vol. 17 No. 3.

Brush, C.G. (1992), *Research on women business owners: past trends, a new perspective and future directions*, in Storey, E.J. (Ed.), Small Business: Critical Perspectives on Business and Management, Routledge, London.

Bord, R., O'Connor, R. (1997), *The Gender Gap in Environmental Attitudes: The Case of Perceived Vulnerability to Risk*, Social Science Quarterly, Vol. 78 No. 4.

Bullough, A., Renko, M. and Abdelzaher, D. (2014), *Women's business ownership operating within the context of institutional and in-group collectivism*, Journal of Management.

Burn, S.M., Winter, P.L., Hori, B. and Silver, N.C. (2012), *Gender, ethnic identity, and environmental concern in Asian Americans and European Americans*, Human Ecology Review, Vol. 19 No. 2.

Burr V., *Psicologia delle differenze di genere*, Bologna, Il Mulino, 2000 (ed. or. 1998).

Blocker, T.J. and Eckberg, D.L. (1997), *Gender and environmentalism: results from the 1993 general social survey*, Social Science Quarterly, Vol. 78.

Chodorow, N. (1974). Family structure and feminine perspective. In M. Rosaldo&L. Lamphere (Eds.), *Women in culture and society*. Stanford, CA: Stanford University Press.

Clarke HR, Reed WJ. 1994. *Consumption/pollution tradeoffs in an environment vulnerable to pollution-related catastrophic collapse*. Journal of Economic Dynamics and Control 18(5).

Collins, E.M. and Kearins, K. (2010), *Delivering on sustainability's global and local orientation*, Academy of Management Learning & Education, Vol. 9 No. 3.

Davidson, D. & Freudenburg, W. (1996), *Gender and environmental risk concerns: A review and analysis of available research*, Environment and Behavior, Vol. 28 No. 3.

Dietz, Thomas, and Paul C. Stern. 1995. *Toward Realistic Models of Individual Choice*. Journal of Socio-Economics 24.

Dietz, T., Kalof, L. and Stern, P.C. (2002), *Gender, values, and environmentalism*, Social Science Quarterly, Vol. 83 No. 1.

Dixon, S.E. and Clifford, A. (2007), *Ecopreneurship – a new approach to managing the triple bottom line*, Journal of Organizational Change Management, Vol. 20 No. 3.

Eagly, A. (1987), *Sex Differences in Social Behavior: A Social- role Interpretation*, Hillsdale, NJ: Erlbaum.

Eagly AH, Johannsen-Schmidt MC, Van Engen M. 2003. *Transformational, transactional and laissez-faire leadership styles: a meta-analysis comparing women and men*. Psychological Bulletin 129(4).

Elam, A. and Terjesen, S. (2010), *Gendered institutions and cross-national patterns of business creation for men and women*, European Journal of Development Research, Vol. 22 No. 3.

Freedman, A. M., & Bartholomew, P. S. (1990). *Age, experience and genders as factors in ethical development of hospitality managers and students*. Hospitality Research Journal, 14.

Giddens, A. (1984), *The Constitution of Society: Outline of the Theory of Structuration*, Polity Press, Cambridge, UK.

Giddens, A. (1991), *Structuration theory. Past, present and future*, in Bryant, C. and Jary, D. (Eds), Giddens' Theory of Structuration. A Critical Appreciation, Routledge Press, London.

Gilligan, C. (1982). *In a different voice*. Cambridge, MA: Harvard University Press.

Glover, S. H., Bumpus, M. A., Sharp, G. F. and Munchus, G. A. (2002). *Gender differences in ethical decision making*. Women in Management Review, 17.

Gupta, V.K., Turban, D.B., Wasti, S.A. and Sikdar, A. (2009), "The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur", Entrepreneurship Theory and Practice, Vol. 33 No. 2.

Harris, R.J. (1975), *A Primer of Multivariate Statistics*, Academic Press, New York, NY.

Hechavarría Diana M. (2016), *Mother nature's son? The impact of gender socialization and culture on environmental venturing.* Center for Entrepreneurship, Muma College of Business. University of South Florida, Tampa, Florida, USA

Hamilton, C. (1990), *Women, home and community: the struggle in an urban environment*, Race, Poverty & the Environment, Vol. 1 No. 1.

Hendrickson, U.L. and Tuttle, D.B. (1997), *Dynamic management of the environmental enterprise: a qualitative analysis*, Journal of Organizational Change Management, Vol. 10 No. 4.

Hillary, R. (Ed) (2000), *Small and Medium-Sized Enterprises and the Environment*, Greenleaf, Sheffield, UK.

Hochschild, A. and Machung, A. (2012), *The Second Shift: Working Families and the Revolution at Home*, Penguin Book Publishing, New York, NY.

Howard, J. A., & Hollander, J. A. (1996). *Gendered situations, gendered selves*. Thousand Oaks, CA: Sage.

Isaak, R. (1999), *Green Logic: Ecopreneurship, Theory and Ethics*, Kumarian Press, West Hartford.

Hudson, S., & Miller, G. (2005). *Ethical orientation and awareness of tourism students*. Journal of Business Ethics, 62(4).

Hunter, L. M., Hatch, A., & Johnson, A. (2004). Cross-national gender variation in environmental behaviors. Social Science Quarterly, 85(3).

Isaak, R. (2002), *The making of the ecopreneur*, Greener Management International, No. 38.

Jamali, D., Abdallah, H., & Hmaidan, S. (2010). *The challenge ofmoving beyond rhetoric: Paradoxes of diversity management in the Middle East*. Equality, Diversity and Inclusion: An International Journal, 29.

Ji Li, Fuqiang Zhao, Silu Chen, Wanxing Jiang, Tao Liu and Shengping Shi (2015), *Gender Diversity on Boards and Firms' Environmental Policy,* Business Strategy and the Environment.

Kearins, K., Collins, E. and Tregidga, H. (2010), *Beyond corporate environmental management to a consideration of nature in visionary small enterprise*, Business & Society, Vol. 49 No. 3

Keogh, P.D. and M.J. Polonsky (1998), Environmental commitment: a basis for environmental entrepreneurship?, Journal of Organizational Change Management.

Kidder, D. L. (2002). *The influence of gender on performance of organizational citizenship behaviours*. Journal of Management, 28.

Kirkwood, J. and Walton, S. (2010), *What motivates ecopreneurs to start businesses?*, International Journal of Entrepreneurial Behaviour & Research, Vol. 16 No. 3.

Kolodinsky, R. W., Madden, T. M., Zisk, D. S., & Henkel, E. T. (2010). *Attitudes about corporate social responsibility: business student predictors.* Journal of Business Ethics, 91.

Lämsä, A., Vehkapera, M., Puttonen, T., & Pesonen, H. L. (2008). *Effect of business education on women and men students' attitudes on corporate responsibility in society*. Journal ofBusiness Ethics, 82.

Lepoutre, J. (2009), *Proactive environmental strategies in small businesses: resources, institutions and dynamic capabilities*, Accountancy en Bedrijfskunde, Vol. 29 No.8.

Lewis, M. and Weinraub, M. (1979), *Origins of early sex-role development*, Sex Roles, Vol. 5 No. 2.

Loo, R. (2003). *Are women more ethical than men? Findings from three independent studies*. Women in Management Review, 18.

María del Mar Alonso-Almeida, Jordi Perramonb, Llorenç Bagur (2015), *Women managers and corporate social responsibility (CSR) in Spain: Perceptions and drivers*, Women's Studies International Forum

Marimon, F., Alonso-Almeida, M.M., Rodriguez,M. P., &Cortez, C. A. (2012). *The worldwide diffusion of the global reporting initiative: what is the point?* Journal ofCleaner Production, 33.

Marquis, C., & Lee, M. (2011). Who is governing whom? senior managers, governance and the structure of generosity in large U.S. Firms. Harvard Business School, working paper.

McStay, Jan R., and Riley E. Dunlap. 1983. *Male-Female Differences in Concern for Environmental Quality*. International Journal of Women's Studies 6.

Merchant, C. (1981), *Earthcare: women and the environment*, Environment: Science and Policy for Sustainable Development, Vol. 23 No. 5.

Merchant, C. (2014), *Earthcare: Women and the Environment*, Routledge, New York, NY.

Meier, R. & Masters, R. (1988), *Sex Differences and Risk-Taking Propensity of Entrepreneurs*, Journal of Small Business Management, Vol. 26 No.1.

Miller, B. D. (Ed.). (1993). *Sex and gender hierarchies.* New York: Cambridge University Press.

Mohai, Paul. 1992. *Men, Women and the Environment: An Examination of the Gender Gap in Environmental Concern and Activism*. Society and Natural Resources 5.

Nielsen S, Huse M. 2010. The contribution of women on boards of directors: going beyond the surface. Corporate Governance 18.

Olson, J., & Zanna, M. (1994). Attitudes and attitude change. Annual Review of Psychology, 44.

Pearson, R. (2007). *Beyond women workers: gendering CSR*. Third World Quarterly, 28.

Peattie K. 2001. *Golden goose or wild goose? The hunt for the green consumer*. Business Strategy and the Environment 10(4)

Prince-Gibson, Eetta, and Shalom H. Schwartz. 1998. *Value Priorities and Gender*. Social Psychology Quarterly 61.

Priulla G., *C'è differenza. Identità di genere e linguaggi: storie, corpi, immagini e parole*, Milano, FrancoAngeli, 2013.

Rickinson, M. (2001), *Learners and learning in environmental education: a critical review of the evidence*, Environmental Education Research, Vol. 7 No. 3.

Risman, B.J. (2004), *Gender as a social structure theory wrestling with activism*, Gender & Society, Vol. 18 No. 4.

Ruspini E., *Le identità di genere*, Roma, Carrocci, 2009.

Santos, F.J., Roomi, M.A. and Linan, F. (2016), *About gender differences and the social environment in the development of entrepreneurial intentions*, Journal ofSmall Business Management, Vol. 54 No. 1.

Sartori F., *Differenze e disuguaglianze di genere*, Bologna, Il Mulino, 2009.

Schaper, M. (2012), *Making Ecopreneurs: Developing Sustainable Entrepreneurship*, Gower Publishing, Burlington, VT.

Scherer, R.F., Brodzinski, J.D. and Wiebe, F.A. (1990), *Entrepreneur career selection and gender: a socialization approach*, Journal ofSmall Business Management, Vol. 28 No. 2.

Schminke, M. and Ambrose, M.L. (1997), *Asymmetric perceptions of ethical frameworks of men and women in business and non-business settings*.

Shepherd, D.A. and Patzelt, H. (2011), *The new field of sustainable entrepreneurship: studying entrepreneurial action linking 'what is to be sustained' with 'what is to be developed*, Entrepreneurship Theory and Practice, Vol. 35 No. 1. Journal of Business Ethics, Vol. 16, pp. 719-29.

Stern, P., Dietz, T., Kalof, L., & Guagnano, G. (1995). *Values, beliefs, and proenvironmental action: Attitude formation toward emergent attitude objects*. Journal ofApplied Social Psychology, 25.

Stoll-Kleemann, S., O'Riordan, T. & Jaeger, C. (2001), *The Psychology of Denial concerning Climate Mitigation measures: evidence from Swiss Focus groups*, Global Environmental Change, Vol.11, No. 2.

Slote, M. (2007), *The Ethics of Care and Empathy*, Routledge Publishing, New York, NY.

Taurino A., *Psicologia della differenza di genere*, Roma, Carocci, 2005.

Taylor, D. & Walley, L. (2004), *The Green Entrepreneur: Opportunist, Maverick or Visionary?* International Journal of Entrepreneurship and Small Business, Vol. 1 No. 1/2, pp. 56-69.

Unger, R., & Crawford, M. (1996). *Women and gender: A feminist psychology*. New York: McGraw-Hill.

Valentine, S., Godkin, L., Page, K. and Rittenburg, T. (2008). Gender and ethics: Ethical judgments, ethical intentions, and altruism among healthcare professionals. Gender in Management: An International Journal, 24.

Van Liere, K.D. and Dunlap, R.E. (1980), *The social bases of environmental concern: a review of hypotheses, explanations, and empirical evidence*, Public Opinion Quarterly, Vol. 44 No. 2.

Walley, E.E. and Taylor, D.W. (2002), *Opportunists, champions, mavericks?*, Greener Management International, Vol. 38.

Wilkinson, S., & Kitzinger, C. (Eds.). (1996). *Representing the other: A feminist and psychology reader*. Thousand Oaks, CA: Sage.

Williams, J.E. and Best, D.L. (1990), *Measuring Sex Stereotypes: A Multination Study*, Sage Publications, Thousand Oaks, CA.

Zelezny, L. C., & Yelverton, J. A. (2000, April). *Feminine identity, collectivism, and environmental attitudes and behaviors*. Paper presented at the meeting of the Western Psychological Association, Portland, OR.