

**The Impact of Green Sustainability Strategies and Women Management Role  
on Corporate Financial Performance:  
*the Italian Wine Industry***

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### Statement of Originality

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A handwritten signature in black ink, reading "Giulia Casamatti". The signature is written in a cursive style with a long, sweeping underline.

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## Abstract

Although green sustainable strategies have become increasingly embraced, research on the relationship between businesses' green practices and their financial performance is still far from mature in the load-bearing agricultural sector and especially in the wine industry of Italy, one of the main global actors in the sector. Therefore, this study aims to investigate the direct effect of green-sustainability strategies on corporate financial performance of wineries and examine the potential moderating effect of a winery's degree of women presence within its management. Based on national data of 164 Italian wineries between 2013 and 2018, this study reveals that (i) green certifications positively affects business financial outcomes, and that (ii) the share of female managers and directors positively moderates the base relationship between the ownership of certified wine labels and total assets, suggesting that the positive impact of green practices on financial performance intensifies for wineries that welcome a certain degree of women within their boards. As one of the first attempts to explore the moderating effect of management women share on the base relationship, this study scientifically and practically contributes by emphasizing the beneficial advantages of the implementation of green sustainable strategies for enhancing business financial performance in the wine industry, and that creating director boards which are gender diversified can actually become a source of financial profitability.

*Keywords:* green sustainability strategies, environmental policies, green policies, Corporate Social Responsibility (CSR), Corporate Financial Performance (CFP), female managers, women in business management, gender diversified boards, wine industry, Italian wine sector

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## List of Abbreviations

CSR	Corporate Social Responsibility
EC	European Commission
UN	United Nations
NRBV	Natural-Resource-Based View
ROE	Return On Equity
IB	International Business
IM	International Management
SDGs	Sustainable Development Goals
CFP	Corporate Financial Performance
NBS	Network for Business Sustainability
SMEs	Small and Medium Enterprises
MLSP	Ministry of Labour and Social Policies
RBV	Resource-Based View
ROA	Return On Assets
ROI	Return On Investment
R&D	Research & Development
SPSS	Statistical Package for the Social Sciences
M	Mean
SD	Standard Deviation
SE	Standard Error
AI	Artificial Intelligence

## 1. Introduction.

Environmental issues at the global level, like waste consumption and accelerating climate change, are progressively leading to a re-examination of the role of private enterprises (Schimmenti et al., 2016). If corporations want to successfully tackle these problems, they must innovate their products, processes, and business models (Fontrodona et al., 2018). This research has the purpose to advance what is already known about environmental-sustainable practices when it comes to their application by corporations.

In this context, an extensive body of research has examined the mechanisms that lead companies to commit to Corporate Social Responsibility (CSR), which has been defined and is therefore generally recognised as “the responsibility of enterprises [...] concerning their actions over and above their legal obligations towards society and the environment”, through which they can significantly contribute to a highly competitive market economy and base the transition to a sustainable economic system (adapted from European Commission (EC), 2011). Following these statements, literature on CSR looks at positive impacts of business economic activity on environment and society, balancing the three dimensions of sustainable development of the ‘*Agenda 2030*’ adopted by the United Nations (UN) that extends it from the single social pillar to the economic and environmental ones (ISTAT, 2020).

CSR drives enterprises towards environmental sustainability (Liebert, 2008) thus environmental management and strategies are usually considered CSR components as this accountability permits businesses to commit themselves to environment (and society) (Yu & Chen, 2014). When considered at the strategic level, eco-sustainability becomes a font of incredible competitive advantages and opportunities of progress, since business actors can engage their substantial amount of resources into strategies to mitigate their impact on the natural environment (Porter & Kramer, 2006). Moreover, studies like the very up to date one from Shahzad et al. (2020) also highlight how environmentally sustainable tactics – such as the

use of updated technology or its advancement for the production of eco-friendly products (Abbas & Sagsan, 2019) - and thus outcomes can consequently lead to a greater number of green innovations. Other papers find a good correlation between green strategies and different outcomes of corporate performance. For instance, Bansal and Roth (2000), linking business results to CSR dimensions of firms, find that corporate ecological responsiveness has the potential to induce a strong positive effect on the profits of a company that engages in different types of environment-sustainability practices. Nevertheless, many established studies mainly focused on drivers and motivations of why companies go green, while underestimating that the factors influencing this type of advancement could better rely on the strategies and outputs from a firm performance- point of view. For these reasons, this thesis focuses on the specific corporate outcome namely financial performance.

This investigation mainly lays its roots within findings of management research and key theoretical perspectives of the Natural-Resource-Based View (NRBV) of the firm, theory that recognises the direct role which environmentally sustainable management strategies play for the establishment of a position of long-run competitive advantage for the company (Hart, 1995).

However, since this literature has found inconsistent results with regard to the effect of environmental sustainability on corporate performance (Capri, 2016), looking at the direct relationship is effectively no longer informative exactly because there is a whole series of other factors that might influence the relation. Among these, one that has gained a particular relevance in the current society is the presence of women within business management because there is broad consensus that fostering diversity and inclusion in area of gender is key to drive business performance. For instance, Return On Equity (ROE) has increased by 53 percent in Fortune 500 companies with at least three female directors within their management teams (BCG, 2020). Therefore, alongside the main relationship between green sustainability policies

and firm financial outcomes, this research wants to incorporate an additional factor, namely the influence of women in management boards of companies.

Building upon this third component around gender diversity within firm governance, it would be interesting to deepen the understanding of the contribution of women managers to the wine field. In recent years, many initiatives and practices have started taking place and are now incredibly growing in this context in order to enhance the female figure within a world usually governed by a male dominated preconception around alcohol. Hence, examining the possible contribution of women roles within a company's management appears particularly relevant for the singular case explored by this paper. To sow the future and reduce the gender gap, associations even at the national level are now implementing many projects supporting women to work in the world of wine: a relevant example can be found in the Italian association named "*Women of wine*", which is proposing training courses to women under the age of thirty to diminish the current wage and career opportunity -gaps in the enological field (Women of wine, 2020b).

Considering that whole business sectors tackle sustainability problems (Bohnsack et al., 2020), it is critical and interesting to specifically locate and further understand the concept of eco-sustainable practices in any certain industry. Narrowing the phenomenon only to a single sector seems effective since other studies also suggest that impacts on the natural ecosystem are better handled by the industry as a whole (Bansal & Roth, 2000). Particularly, the idea of sustainability is highly considered in the field of agricultural food and, within this, the viticultural sector has recently received more attention in business studies thanks to the extensive adoption of green strategies from wine producers (De Steur et al., 2020). Green changes within the wine sector are gaining social and organisational interest due to the ongoing environmental issues pointed out by the most globally recognised informative sources (Davis, 2020). Besides this, the rising trend could be ascribed to the fact that the special chain of agri-

food (and especially wine production) is closely and directly linked to primary resources originating from the natural environment (Capri, 2016). Vitiviniculture is perceived as a promising sector for the growth of green-oriented producers due to its highly successful possibility for product differentiation and satisfaction of the increasing eco-sustainable purchasing preferences of wine enthusiasts (Fiore et al., 2017). Not only green policies have proven to be an incredible strategy that can foster a firm's competitive position in the market (Wang, 2019), but existing literature in the field highlights there is an important gap when addressing the topic of green sustainability with regards to the specific wine industry, still a field until now puzzled and poorly investigated. Therefore, it is considered of primary importance to deepen the understanding of the specific application of green practices by wineries as they could increasingly benefit from this strategic organisational improvement in many ways.

The empirical research carried out here aims at supporting the introduction of green strategies from companies not only by taking a close look to the ones operating in the specific industry of wine production but also narrowing the focus down to a single country. One traditionally recognised key feature that still plays a substantial part even in the current international viticulture market is the origin location of the grape product (Atkin & Nowak, 2007, as cited in Maumbe & Brown, 2013). To build its empirical methodology, the research thus takes into consideration the case of one of the national states which possesses the fourth most extensive vineyard area in the world, i.e. Italy<sup>1</sup> (Shahbandeh, 2018). The choice seems appropriate also because, between the vastity of agricultural food- businesses in the country, the Italian wine sector is having special important environmental influences which would be

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<sup>1</sup> In 2017, the Italian vineyard surface area amounted to about 695 thousand hectares (Shahbandeh, 2018).

erroneous to neglect (Schimmenti et al., 2016). In fact, not only Italy is first country in the European Union (EU) for agricultural surface dedicated to biological crops<sup>2</sup> (ISTAT, 2020) but it is also studded with a wide range of vinicultural enterprises that have started putting into action a substantial number of projects over the last decade in order to stimulate their green orientation: by adhering to standards, programs or certifications regarding green sustainability. For instance, between the years 2013 and 2020, 73 Italian companies already joined the ‘*Sustainable Wine*’ project<sup>3</sup> promoted by the Italian Ministry for the Environment, Land and Sea (VIVA, 2020) and other 11 Italian wineries requested and obtained the ‘*Equalitas*’ certification<sup>4</sup>, with 16 different types of wine labelled as ‘sustainable’ (Equalitas, 2020).

The novelty and potential impact of this thesis can be both academically and practically relevant.

To start, it could be important for organisational theorists. For example, the provided knowledge can help researchers in the field as well as policy makers in forecasting ecologically driven actions performed by corporations. To specify, the relationship investigated here can be relevant for management scholars because the applicability of green innovation management is experiencing an ascending trend but research in this field still appears to be questionable, in particular when it comes to the European continent and – besides other countries – Italy (Schiederig et al., 2012). They also propose to engage in the enhancement of analyses at the micro level. Therefore, focusing the lens at firm level by centring the analysis on Italian wineries can magnify the importance of the research’s impact on both the academic and the

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<sup>2</sup> 12 percent of national total in 2016 (+3 percentage points since 2010) (ISTAT, 2020).

<sup>3</sup> In 2011 the Italian Ministry for the Environment, Land and Sea gave birth to *V.I.V.A.* national project, which aims at assessing and improving the sustainability performances of the wine supply chain through the analysis of four indicators (Air, Water, Territory, Winery) (VIVA, 2020).

<sup>4</sup> *Equalitas* certification stimulates the sustainable development of the wine production chain. The standard contemplates the certification of three production’s dimensions: the firm (Organisation standard), the final product (Product standard), and the territory (Terroir standard) (Equalitas, 2020).

practical world. This contribution thus seems to be assured by the fact that Italy's vitivincultural regions are studded with numerous small wine producers (Corrado & Odorici, 2009) passed down from generation to generation. In addition, recent works find that female leaders exert a significant influence on firm overall performance when the organisation is family owned (Bjuggren et al., 2018). Therefore, considering the Italian reality, adding the third variable about gender can improve management as well as corporate governance academic (business) literature since bibliographies around the topic with firms as units are scarce and this is especially true when it comes to focusing on companies neither large nor listed (Bjuggren et al., 2018).

In addition, the thesis could be managerially and societally relevant. First, managers of wineries can use the provided insights to increase the development of environmentally sustainable strategy and action within their companies. Other research on wine enterprises has shown that green evolutions are usually recognised to lead to competitive benefits like product quality improvement and superior innovation (Spielmann, 2017). Second, results can be important for enology enthusiasts and in general for that part of the society interested in green-oriented behaviours in which organisations engage. In fact, not only governments are now increasingly imposing charges on companies which do not comply with the legislation in force, but consumers also expect firms to support activities that cause the least harm possible to the natural environment (Bansal & Roth, 2000).

This introductory section has been a preview of the work's investigated topic and theoretical contribution; hence the literature this work refers to, the research gap, and therefore the phenomenon investigated along with the justification of the research. After that, its structure continues with a thorough literature review which has been found to be related to the research question to which this project tries to answer. Then, after individuating the theoretical framework, the paper explains how the research method has been conducted and follows with

the presentation of its empirical results. Finally, it concludes with a discussion of what can be derived from the findings, with the last section also framing their expected contributions to theory and practice in the fields of International Business (IB) and International Management (IM), hence specifically encompassing their managerial and societal relevance.

## **2. Theory.**

### **2.1. Literature review**

Since half a decade ago, with the adoption of all countries adhering to the United Nations to the Sustainable Development Goals (SDGs) (UN, 2020c), the challenges introduced in the first chapter are increasingly being perceived as a concrete global issue embedded in a completely novel economic, natural, and social environment (Malindretos et al., 2016). One of the goals of the SDGs, namely SDG number 9, is exactly to encourage sustainable innovation within industries, aiming at “increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes” by 2030 (UN, 2020b). Hence, during the last years, research has similarly seen a booming tendency towards the establishment of the field around green policies (Fiore et al., 2017), but still too little is known so far about eco-sustainable strategies in the wine industry.

A second aspect within the management and business field believed utterly important is the role of women. Although further investigated here just within the wine sector, the concrete possibility of this underestimated subgroup of the population to actually contribute to better corporate management is unfortunately not confined to a single industry but rather constitutes a general concern with global breath. Gender equality issues are embedded in another relevant SDG, namely number 5, which aims to “achieve gender equality and empower all women and girls” (UN, 2020a) also by 2030. Among the numerous points under the same SDG, one specific target (number 5.5) delivers on women representation at work worldwide, explicitly referring to ensuring females’ complete and successful participation and equal prospects for management at every degree of decision-making in economic fields (UN, 2020a). As a matter of fact, this needs to be necessarily addressed in the shortest time possible: in 2018 female workers across the world only accounted for 27 percent of total managerial roles, despite they constitute 39 percent of the employed global population (UN, 2019). With this

goal in mind, different nations worldwide recognise that it is necessary to reach sustainable development through an optimal leverage on women forces. Thus, it is of great importance that both gender pools of talents lead on the double economic and sustainability fronts.

This overall situation calls for new perspectives and investigations over the two phenomena just presented, which the current chapter further contextualises in the literature by building on theoretical background constructs. Therefore, reflecting the scope of the thesis, the subsequent paragraphs go into detail for what concerns green sustainable policies and the presence of women within corporate governance together with their relationship with firm financial performance. The following subparagraphs conclude with a positive link of both environmental sustainability and women incidence in corporate governance with (financial) performance of firms and that these relationships are applicable to the industry of grape wine of which one of the most undisputed countries for its manufacture happens to be Italy (Shahbandeh, 2018).

### ***2.1.1. CSR issue: Green sustainability – Financial performance relationship***

Nowadays green oriented sustainability has become a focal competitive corporate task in general: instead of aiming at economic objectives alone, consumers but also political institutions push companies to change their harmful impact on the environment and to generate ‘*sustainable profits*’ (Hockerts & Wüstenhagen, 2010).

To investigate more closely the revolution carried along by green management, Porter and Kramer (2011) highlight how a company’s productivity and competitiveness can be enhanced by the deployment of strategies that create value for both the firm and its external environment at the same time. Hence, sustainable strategies can contribute to the creation of many dimensions of value, which can be self-reinforcing (Nazzaro, et al., 2016). Apparently, companies can strive to diminish their effects on the environment without hampering their economic outcomes through the development of elaborate environmental strategies. The

consequent enhanced performance can encompass strategies which in the end deliver higher revenues via, among others, tactics based on product differentiation (Ambec & Lanoie, 2008). Revisions of studies on CSR and Corporate Financial Performance (CFP) explain there is a mostly positive link between these two variables (Margolis & Walsh, 2003). Eccles et al. (2014) support the argument with results about firms carrying a high level of environmental sustainability that substantially outpace competitors with a lower degree of sustainable practices in the long period, with the first group of actors achieving more advanced financial markets as well as accounting outcomes. Similarly, the study from Aguilera-Caracuel and Ortiz-de-Mandojana (2013) addresses the impact of some types of sustainable policies on various dimensions of an organisation's outputs embedding environmental and social aspects along with economic ones: the authors depict green innovation as an example factor having a concrete influence on the specific outcome of CFP. Adding to this, Flammer (2015) discovers that even just announcing that a company might engage in some sort of green strategies appears to be leading to superior financial performance, finding that firms adopting CSR value-enhancing proposals gain superior returns and amplified positive sale trends.

In the end, green management directly affects the economic performance of enterprises in a positive way (Ma et al., 2018) and consequently, adopting a green perspective can be a successful option for firms to differentiate their outputs and tackle new challenges in the market (Fiore et al., 2017). Porter and Kramer (2011) suggest that one way this can be achieved is by reinventing products, that is to say through the creation of a result of the productive chain which is good for the customers, as it can be the case with the production of a retail-consumption good like wine is.

### ***2.1.2. Gender issue: Women management - Financial performance relationship***

Shifting the focus on the gender issue, this second concern that can be easily applied to corporate vision since also complementing the three pillars of CSR - alongside environment and economy (EC, 2011).

Gender aspects within the composition of business governance are found to impact firm outcomes in different ways (Bjuggren et al., 2018): inclusiveness of women roles at high levels of business hierarchy positively links with corporate outcomes, whether they are financial or not (Chadwick & Dawson, 2017). For years now, studies demonstrate that the reduction of gender gap in the company increases productivity and revenue; but it also reduces accidents and absenteeism as well as it improves psycho-physical conditions of workers (MLSP, 2020).

With referral to the specific financial side of business performance, several academic researches carried out from every corner of the globe discover a positive effect of gender diversity at board management level on CFP of firms. Women representation within boards positively correlates with their monitoring responsibility and strategic involvement together with CFP expressed as accounting returns (Post & Byron, 2015). Female top managers and directors essentially increase the profits of the enterprises they lead (Amore et al., 2014). Some of those studies also advocate that gender diversity within a company stimulates both innovation and creativity, which in the end drive a firm towards positions of competitive advantage (Rawat & Sharma, 2019), which again can foster innovation (Vosmeer, 2020).

### ***2.1.3. Industry contextualisation: the Wine sector***

The relevance of ecological sustainability towards the special category of (agri)food products has increasingly grown in the past years (Muscio et al., 2017). Within this group, wine is usually considered a unique production output of agricultural processes with various features. The literature of Castellini et al., (2014) highlights the special and intricate correlation between grape products and their original territory, ecological environment, and overall ecosystem. The

relevance of green development in the wine industry is also reflected in that several institutional organisms have specifically applied the general principles of sustainable development to viticulture. One of the most important entities worldwide, the International Organisation of Vine and wine (OIV), defines the concept of *'Sustainable viticulture'* at the economic level as a

*“global strategy on the scale of the grape production and processing systems, incorporating at the same time the economic sustainability of structures and territories, producing quality products, considering requirements of precision in sustainable viticulture, risks to the environment, products safety and consumer health and valuing of heritage, historical, cultural, ecological and aesthetic aspects”* (OIV, 2004, p. 2).

Given this relevance, wineries nowadays confront the modern view of structuring their organisation in a way that encompasses eco sustainable strategies (Spielmann, 2017). With the final goal to leave the planet in better conditions for the generations to come, business actors in the wine sector have raised their attention to ‘clean winegrowing’; for example towards the advancement and perfecting of organic wine production processes (Iordachescu et al., 2009). Therefore, the environmentally sustainable concept in the wine field seems a possible starting point for the development of innovative strategies in the entrepreneurship framework (Malindretos et al., 2016).

There is a broad variety of eco-friendly strategies that wine companies can integrate within their operations to address sustainable-based trends, differing in their design structure, methods of application, and objectives (Spielmann, 2017). Leenders and Chandra (2012) recognise different types of ecologically sustainable practices in the specific wine sector and based on their findings, those all generally seem to have a significant direct positive impact on business performance. Especially, an example of green strategy which significantly fosters company performance the authors provide consist in the strategic attainment of certifications

for the production of organic wines through green processes and the usage of ecologically safe chemicals. According to Fiore et al. (2017), corporations should also engage in communication and marketing initiatives which are environmentally friendly, which can concern, for instance, organic types of production or resourceful water consumption from agricultural activities.

However, the radical commitment of companies to undertake an environmentally sustainable position can be difficult and problematic. Also, as tested by Corbo et al. (2014), no one innovative green strategy seems to be 'better' than the other: each initiative has its own strengths and positive characteristics. So, this may lead to conclude that firms should be prudent when choosing their '*green path*' and that the strategic outcome will depend on the single specific context to which every single program is applied. Despite this awareness, firms should understand the importance of implementing green practices within their organisation, as capable of giving them the possibility to turn challenges into chances for innovation.

The increasing relevance of this type of innovative strategies is perfectly reflected on buyer choices (Fiore et al., 2017). According to the Network for Business Sustainability (NBS), keeping quality and functionality at a constant level, in the future time customers will be more willing to pay a higher price for sustainable organic wine bottles (on average, up to 5 to 10 percent more), even given the price difference with conventional ones. In turn, Hillman and Keim (2001) find that satisfying consumer demand and thus upgrading the relations of the winery with primary stakeholders improves corporate competitiveness. One way for companies to get their customers to 'buy green' is to obtain certifications from independent bodies in order to approve the sustainability of their products (Turner, 2013). Comprehending what society now expects from corporations and embracing these novel purchasing fashions will boost firms to deploy green-oriented strategies even further, allowing them to leverage on important features such as brand value and recognition (Fiore et al., 2017).

#### ***2.1.4. Country contextualisation: the Wine sector in Italy***

Although the theory uncovered appears generalisable and applicable to what particularly investigated, at the same time it suggests the need for empirical evidence related to the specific context of Italian wineries. The key finding consists in the presence of a conditional but on average positive causal effect of corporate environmental sustainability on financial performance.

Creating a bridge with the triple-pillar concept of CSR (EC, 2011), it has to be recognised how economic outcomes are intertwined with environmentally alongside socially sustainable ones. The findings from Zanni and Pucci (2014) emphasise how, in recent years, Italian wineries have been additionally combining ecological- and social- CSR aspects and business financial performance in their organisational structures. Even so, more is needed to test the emerging view that ‘it pays to be green’ and especially when and to what degree this is likely to happen.

Delving deeper into the wine industry, its product is a critical element of the culture and identity of many national states and, within these, it symbolises an essential segment of the Italian economy<sup>5</sup>. The viticultural sector represents a very important industry for the country with regard to its economic development and employment of natural resources (Muscio et al., 2017). According to Muscio et al. (2017), Italy appears to be truly engaged in cultivating and producing wine products without causing any further harm to the environment. Moreover, Corbo et al. (2014) find that this industry’s stakeholders (i.e. winegrowers and producers of grape products) are increasingly committed to eco sustainability over time. Privately-owned winegrowers and producers located in Italy, both individually and grouped together in

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<sup>5</sup> Italy is still the biggest producer of wine worldwide, with a recorded production of almost 51 million hl in 2016 (OIV, 2016).

consortiums, have initiated a large number of environmentally sustainable projects, taking seriously the introduction of eco-sustainable standards in the viticultural sector (Corbo et al., 2014). In addition, Schimmenti et al. (2016) suggest that the presence of a sustainable entrepreneurship is growing in the Italian wine industry. An even more tight link to the investigation carried out here comes from the empirical analysis of Contò et al. (2013), who make use of certifications and eco-labelled products to test for orientation to sustainability of green-innovating firms in the Italian (Apulia's) wine sector. An additional point in support of the use of this type of measure comes from the study of Muscio et al. (2013), who point out that in Italy the number of wine labels increased by 76% between 1996 and 2012, indicating the priority of companies to focus on higher quality labels.

Engagement is also happening with regard to the parallel social aspect of sustainability. Here, a direct link comes with gender mix issues within corporate governance which can as well be applied to the case that concerns Italy's wine producers. Academic researches about Small and Medium Enterprises (SMEs) – which have been defined as enterprises with a staff headcount between 10 and 250 employees (EC, 2003) - show that the governance structure of this company category has customarily been homogeneous over time and that its structure of management boards is typically composed - for the majority if not entirely - of male figures (Arzubiaga et al., 2018). However, this type of firm can be affected by women's involvement in the board. These statements therefore make it a possible case applicable to the wine sector because it is thus far acknowledged how small size stand out as a major feature of Italian wineries (Corrado & Odorici, 2009). The applicability to the Italian wine economy is perfectly reflected by the findings of Amore et al. (2014) which implicate that women at the top of corporate governance positively impact firm productivity. Anyway, a double-case study about the role of women (in sustainable industry) reports that two Italian wineries - both managed by females - economically innovated sourcing, production, and marketing in a specific fashion:

these activities have benefited from the thoughtful business decisions taken by those successful women which have been in the end even more effective than men and, although influenced by very different regional and corporate settings, applied their leadership skills to finally improve business outcomes (Benedetto & Corinto, 2015).

Nevertheless, the Italian wine economy is currently working to close the gap. A perfect example is the national association named '*The women of wine*', only constituted by around twenty associates back at its foundation in 1988 and now counting more than 800 women which are managing wineries dispersed all over the national territory. Members are not just wine-growers and producers but also owners of wineries and restaurants, or again sommeliers, enologists, and journalists – basically every type of female figure involved in the winemaking field or with a background experience in vineyards. The association's purpose is to promote the knowledge and culture of wine and the position of the woman in Italian wine entrepreneurship (Women of wine, 2018). This strong focus on empowering females and the steady increase of the number of members joining the community utterly reflect the growing need for consideration of the important role played by the woman at the management level. Another aspect that additionally strengthens the relevance of the connection of the initiative with this piece of work is the group theme for this year - 2020 - which is exactly the *Environment*. Recently, the association has given birth to the project '*Women in class A*' about innovation in the winery. The initiative aims at showing the strong contribution of female managers to sustainability, respect of the land, energy saving, waste reduction, and water usage rationalisation. Some data exemplify that a survey carried out in 2017 about the female producers belonging to the association revealed that enterprises in conversion phase, biological, and biodynamic were 16 percent more than the national mean (Women of wine, 2020a).

This first part of the theoretical chapter has reviewed current key literature perspectives and findings over the addressed topic and has explained the constructs the thesis is writing

about in order to define them in greater detail. The following part translates the identified gap which needs to be bridged within a more concrete set of hypotheses and theoretical model.

## **2.2. Arguments: Hypotheses and Theoretical framework**

Building upon existing literature and theories, extensive arguments are developed below to specify the theoretical framework which supports the justified hypotheses. The argumentation thus aims at deriving the assumptions and including their constructs in the conceptual model (Figure 1) which proposes an interesting addition to the current state of research.

The first assumption conveys the direct effect focusing on whether green sustainability strategies directly affect CFP. The second one includes the moderating effect of gender diversity in the management to understand the conditions under which the baseline relationship operates.

### ***2.2.1. First hypothesis: effect of green strategies on financial performance***

The specific theoretical development for the main argument in support of the first relationship can be rooted in the management field; specifically, the rigor of the base relationship can be explained by the NRBV of the firm. The theory itself links green strategies to performance outcomes (Hart, 1995), widening its parent Resource-Based View (RBV) - economic theory to include environmental aspects of corporate practices, showing how they lead to many firm competitiveness-advantages (Wernerfelt, 1984). This first 'base' theory centres firms' capabilities purely on corporate internal resources: a part from meeting the basic requirements of being valuable (i.e. rent-producing) and non-substitutable, key characteristics must be rare (i.e. firm-specific) (Barney, 1991) and tacit (i.e. causally ambiguous) or socially complex in order for businesses to gain superior positions in the market (Wernerfelt, 1984).

This view has been further deepened into the streams of Strategic Management that encompass the study of greening of corporate practices as well. The concept of competitive

advantage that is at the origin of the (N)RBV can be extended to Sustainable Strategic Management, which calls for higher firm maturity about having a concrete impact on the environment rather than just focusing on simple outcomes of green strategies. As evinced by this perspective, the environmental strategies-benefits link expands through the entire value chain of the corporation up to the point where the enterprise is able to stand for sustainability in a complete fashion, focusing important sustainable values and assumptions on its strategic decisions about economic, social and ecological matters (Stead & Stead, 2008). Hart (1995), via the NRBV, stresses the necessity to contemporarily consider a firms' external environment and thus poses more attention to natural resources because the natural environment can bring a competitive advantage to the company. Therefore, the theory suggests that green strategies aimed at reducing the environmental impact of the company can be perceived as resources that enhance the competitiveness of enterprises and help them to improve their performance, compared to those which do not pay attention to this type of strategic capabilities. How this 'evolved' theory applies to the topic here under study relies within the developed awareness of management to consider a company's impact on the natural environment as a source for competitive advantages even in the long term. The theory identifies strategies like product stewardship and sustainable development as requirements to gain a superior position. More explicitly, green strategies like product stewardship implemented through, for instance, the adoption of environmental certifications, can be effective in pre-empting competitors because they leverage on the key resource of stakeholder integration (Hart, 1995).

The wide range of possible positive links between environmental and economic performance can be contextualised in the sector of wine- growers and producers, which can apply different ecological-friendly strategies like – among others – obtaining 'green' labels for their wine bottles. Moreover, according to Ambec and Lanoie (2008), opportunities to increase revenues through the possibility of differentiating products are more likely to occur when there

is credible information about the environmental features of the product as well as consumers' willingness to pay for them. Both these elements appear to be applicable to the wine market (Turner, 2013), as it has been increasingly happening, for instance, in Italy over the last years (Equalitas, 2020; VIVA, 2020). Since the importance of sustainability for consumers in the wine market also tends to develop a sort of retention with regards to the brand or to the type of wine purchased, it could be even more important to investigate the positive impact of green strategies on firm performance because this relation can be crucial for companies. Hence, the contextualisation of the investigated baseline relationship within the sector of wine provides a justification for the following first hypothesis:

***H1:** The implementation of green sustainable strategies in the Italian wine sector leads to a higher corporate financial performance.*

### **2.2.2. Second hypothesis: moderating effect of women on the base relationship**

The first interactive effect moves beyond a single level of analysis in order to understand when such an outcome occurs; specifically, when the contingency of having females within the management board of the winery is present. Justifications of the expected relationship are based on existing literature also for the third construct of the conceptual model.

The mechanism behind the defined formulation of the additional indirect type of effect between the variables can again refer to Strategic Management and Sustainable Strategic Management -perspectives. The same argumentative reasoning carried out for H1 in the previous subchapter can be stretched towards the third sustainability pillar – the social one – linking the moderating role of women management in the conceptual model.

One of the most recent models developed by Sustainable Strategic Management approach enlarges the business ability of a company to generate economic outcomes via the sustainability path to the whole value chain up to corporate stakeholders, which encompass, among others, a firm's employees. According to this view, business human capital – entailing

board members like directors and managers as well – is perceived to also have intrinsic value rather than just being an instrument for seeking competitive advantages (Freeman & Liedtka, 1997). This makes it possible to refer back again to the RBV because a clear point of the strategies which this theory refers to (i.e. sustainable development actions presented above; Hart, 1995; Hart, 1997) is that they should be developed by the employees of the company in order to benefit from their opportunities (Stead & Stead, 2008). The application to this analysis is clarified by the possibility board members have to leverage on their value to take concrete decisions for the implementation of eco-sustainability strategies which can generate positive outcomes for the corporation and impacts for the natural environment contemporarily.

Moreover, key findings of business researchers highlight not only that boards which entail some female roles actually enhance business performance (Terjesen et al., 2016) but also that business teams composed of both men and women in equal proportions achieve higher sale and profit -outcomes than male-dominated ones, thus making it possible to conclude that female managers appear to be able to improve corporate outcomes like their male counterparts are (Hoogendoorn et al., 2013). Therefore, considering the moderation, if and how this could affect the base relationship is interesting because – based on the argumentation provided over the preceding paragraphs – the situation of growth in (financial) performance for companies whose managers integrate such green policies could also be happening (or even be more probable) when it is guaranteed at least a certain degree of women presence within management boards. More explicitly, among certified companies, the ones with a higher rate of women within their board could show a higher performance level.

Thanks to its particularities, the wine sector itself looks like the perfect context where this eventuality can take place. Among all food supply chains, wine managers are a very necessary firm resource and their role is currently drawing greater attention to some environmentally sustainable strategies. This can be happening because - besides regulations of

local institutions – there is a concrete proactiveness coming from wineries to realise higher market outcomes through product differentiation strategies, compared to food manufacturers in general; and where this increased product quality in the end enhances firm performance (Pullman et al., 2010).

The moderating component about corporate governance closes the business perspective of standing completely for sustainability via centring the strategies of the enterprise on economic, social, and environmental matters at the same time. Consequently, these statements allow for the integration of the aspect of gender diversity as a moderating factor in the conceptual model, which then moves to focusing on specific boundary conditions that can make stronger (or dampen) the relationship between the two main independent and dependent factors. Therefore, together with the first base relationship, an explicit type of connection based on a moderation effect can be added to the conceptual model and allows to formulate the following second hypothesis:

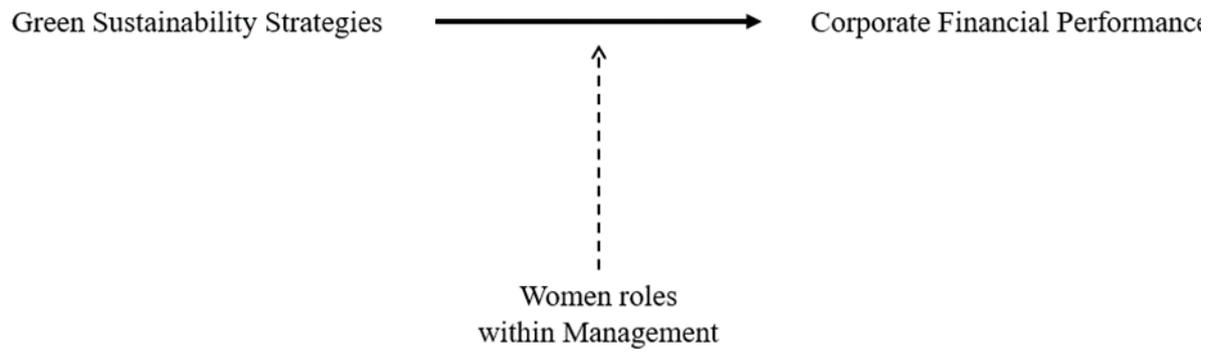
***H2: The incidence of women within corporate management reinforces the base relationship between green strategies and CFP in the Italian wine sector.***

### ***2.2.3. Conceptual model***

These new arguments support and give a theoretical answer to the research gap which has been individuated over the first chapter. The literature as a starting point helps uncover key trends and outline general mechanisms as causes of profitability, but theory always needs to be translated to the specific situation to be most useful. The strict connection between green strategies and corporate performance opens the path for further investigation because, although classical economic theories drive managers on directing their knowledge and responsibilities to maximise shareholder value, enterprises are progressively more requested to deliver initiatives which foster ecological and social wealth (Margolis & Walsh, 2003). The conclusions proposed before suggest a lack of clearness also around what could now be the

concrete volume of contribution of female managers to corporate performance and call for further investigation. Therefore, this second chapter allows to end with the representation of the following theoretical framework:

**Figure 1.** Conceptual model



### **3. Data and Method.**

#### **3.1. Research design: Techniques and procedures**

The feasibility of this project is realistically assessed in the following paragraphs, describing how the study is conducted and fully explaining the methods applied, including any problems encountered.

The research has a theoretical orientation which departs from practice; that is to say it investigates a practical problem providing a solution through the analysis of the implementation of green sustainability in the wine industry from a theoretical perspective. It departs from positivism, with which highly structured methods are employed to facilitate replication, resulting in law-like generalisations. The choice of the positivist philosophy seems appropriate for the thesis project since it relies on a cyclical relationship between hypothesis testing and theoretical development, where quantifiable lend themselves to statistical analysis.

Conclusions are drawn from inference based on evidence and reasoning, which is here reached through deduction. As such, this top-down (i.e. from general to specific) pattern allows to test the theoretical hypotheses stated within the theoretical framework (Section 2.2), with theory as a starting point and providing a confirmation through examination. Therefore, this deductive approach aims to test whether H1 and H2 are true by using explanatory principles to make sense of observations.

This empirical analysis aims at supporting the introduction of green practices from companies by taking a close look to the ones operating in the industry of wine production. Therefore, the data technique gets a holistic approach by taking into account all of the three fundamental pillars of sustainability: environment, society, and economy (EC, 2011; Capri, 2016). Here, the first relates to vineyard management, which considers green practices used for wine growing and production; the second links to women presence within the managing board;

while the third connects to the presumably-derived benefits due to the implementation of eco sustainability from the selected wineries.

This piece of work proceeds with an analysis of the strategies employed by wine producers based on parameters like the existence of determined features in the winery (i.e. discriminating on the adherence to projects aimed at improving eco-sustainability such as green-certified labels). The strategy consists at the same time of a relational and explanatory type of study, since the objective of the research is both to investigate and explain the relationships between the three variables being analysed and to establish causality in these relations. Thus, the two aims fulfilled by the analysis' design are: (i) an explanatory objective through the understanding of the effects of the Independent Variable (IV) on the Dependent Variable (DV) based on a specific theoretical model; (ii) a predictive objective through the identification of a linear combination of independent observations to predict in the best way the values of one variable (DV) based on the values of another variable (IVs). This research design should rule out alternative potential explanations for the observed relationships and thus it meets the qualitative criteria of internal validity ensuring that the findings can really be attributed to causality between the dependent and the independent variables.

The methodological process has been chosen after having carefully reviewed databases and previously published papers from experts that use a similar methodology for theory testing and assessment of green practices and/or financial outcomes of businesses. Relevance of data sources has been evaluated by relying on more than a single peer reviewed source, of which background checks had been done. Methods have been structured as to ensure objectivity and lack of bias; and strategies for assessing credibility have been applied by triangulating data, thus using at least two measures for the analysis.

In conclusion, this thesis had been feasible because an accurate measurement and a valid and reliable data collection and analysis produce consistent findings. Informed by

positivist methodologies, these provide a degree of generalisability that make it possible to draw believable conclusions.

### **3.2. Data collection**

For the collection procedure, data sources are diverse: for example, records are not only retrieved from websites and administrative and annual (sustainability) reports (for the IV of green practices), but also gathered raw from databases and afterwards processed to address the particular research framework and the connected hypotheses (Section 2.2). More specifically, the descriptive statistical procedure is developed through an archival research strategy using information derived from a (re-)analysis of secondary data, originally collected and already available in the public domain. Particularly, the method makes use of the specific databank '*Orbis*', containing comprehensive information on companies worldwide, even on unlisted ones - as it is the case for this investigation. The advantages of a secondary type of data guarantee ease of access to information and to capture the past of firm behaviour. Furthermore, organising the collection of content data within a single database in a purposeful way allows to facilitate its access in order to address the particular research carried out here.

To test the theory, the empirical methodology selected is established via the quantitative method of linear regression prediction. The overall design of the data analysis available for the study is addressed through hierarchical modelling, including multiple levels: central units of analysis are organisations, but data about the variables are gathered within a specific industry (the wine sector) and geographical level (Italy).

The sample choice seems appropriate to base the analysis within a cross-sectional time horizon. Since the group of observations consists at the same time of qualitative (i.e. non-numerical information – for the IV) and quantitative (i.e. numbers) data (moderator and DV), the connection between the variables (both categorical and numerical) can be assessed with a type of descriptive statistics which summarises and tests the association between their values,

where first the correlation  $r$  analyses the DV as a function of the predictors. The methodology's appropriateness is also based on the different levels of measurement used for the main variables of interest, which in the end guarantee nominal strength.

### **3.3. Sample**

To delve deeper into the empirical analysis, the population in which the study has an interest are companies operating in the wine industry in Italy, as justified by the theoretical framework. Selection of the enterprises based on the activity performed and the sector and classification of the commodities they produce reflects the manufacture of wine from grape (European NACE code 1102). Since this group is massive, the thesis takes a subset of those via applying some sample selection criteria. Main benchmarks concern firm size, specifically constraining the research to corporations for which the number of employees is above the threshold of 20 (minimum); and period of time, which is set between 2013 and 2018. 2013 is taken as starting point in time because from that year the certified practice the analysis takes into consideration (Section 3.4.2) has been opened to all nation-based wineries which have been interested in taking part in the project and because from that date onwards the number of its members has been in continuous increase. Moreover, the DV can be better assessed considering years until 2018 because these allow for more robust results than latest data (i.e. from 2019-2020), especially when it comes to test business performance. Apart from providing bigger sets of information about returns with the smallest possibility of encountering missing values, corporate outcomes - and particularly economic ones - deriving from the implementation of innovative strategies only reveal themselves after a couple commercial periods of firm operation (Ernst, 2001). Therefore, after the application of these criteria for the data collection research in *Orbis*, the final sample is composed of 164 wineries observed between 2013 and 2018 and hence the dataset is composed of 984 firm-year observations – which are the unit of analysis in the regression model.

A good and properly designed sample, free from bias, permits to test the hypotheses and, since it is large enough, to statistically generalise the result from the representative subset back to the overall population and to finally draw a conclusion guaranteed by external validity.

### **3.4. Variables**

The following paragraphs offer an idea about how the fundamental constructs are measured for the conduction of the research analysis.

#### ***3.4.1. Dependent variable***

The first data collection step entails collecting data for the DV, which consists in business performance and looks at its economic side, measuring the financial performance of the selected Italian wineries.

Financial performance is usually considered a standard for investments and in general defined based on dimensions like capital adequacy, asset quality, earnings, and liquidity (Rogers, 2006). Most of the present scientific research evaluates the impact of business practices on firm financial outcomes by mostly applying economic measures of, respectively, Return On Assets (ROA), ROE, sales, and Return On Investment (ROI) (Alshehhi et al., 2018). Here instead, the accounting-based measure of total assets [TOAS] is used as proxy of firm financial performance because other analyses consider it for evaluating financial- assets and operational efficiency of businesses (Duvall & Austin, 1965; Hays et al., 2009; Mukherjee & Varela, 1993); plus, by deviating from usual procedures, it could be added to the list of the most used indicators.

In the end, this type of data is expressed in numerical terms because measured through significant indicators compared to other financial figures that do not perfectly apply to wineries (like solvency coefficients). This generates a discrete variable where an absolute zero point exists and is meaningful -i.e. a data value of zero represents the absence of the characteristic

being studied. Economic outcomes of wine producers are thus measured through continuous values which guarantee the highest degree of strength.

### ***3.4.2. Independent variable***

The second data collection step involves assessing corporate environmental impacts via the IV of green sustainability strategies.

The collection procedure for firms' adherence to such policies entails evidence regarding certifications, and in particular green-certified labels of wine. The presence of certification measures and labels, other than being an effective source for marketing strategies, is part of sustainability policies and a proxy of eco-performance (Muscio et al., 2013), as similarly suggested by other case studies which used the same variable. For instance, Guoyou et al. (2013) employ certifications of ecological labels as a measure for green innovation.

Eco-labels and green products can therefore be considered green initiatives (Miroshnychenko et al., 2017) and this is also applied to the specific wine market. Organic and sustainable certifications are likely to claim environmental sustainability (Waldrop et al., 2017), of which new wine labels that last three years at least are also considered a Research and Development (R&D) variable driven by innovation activity (Muscio et al., 2013).

For this variable, files are retrieved from websites which can guarantee strength and reliable evidence because text documents that report which companies have adhered to some kinds of eco-sustainable initiatives have good quality. Furthermore, this provides a more consistent pool of information about environmentally friendly practices as the collection process involves data about enterprises operating in the Italian viticultural sector that this project may not have immediate access to.

Anyway, this variable of the framework describes the adherence (or not) to green sustainability of the wineries in the sample; specifically, to *VIVA* sustainability labels for their wine bottles. This initiative, introduced in the first chapter one, is chosen among all the others

possible in Italy (listed by Zanni & Pucci, 2014) because it is the only program owned by the Italian Ministry for the Environment, Land and Sea for the measurement, certification and improvement of sustainability performances of the Italian wine supply chain (VIVA, 2020). To adhere to the initiative a company ‘must’ first execute the sustainability analyses on the four indicators (Air, Water, Vineyard, Territory) at its own expense, in conformity with what specified in the ministerial technical disciplinaries. Then it has to get the achieved results verified and validated by an independent third body before asking for the approval by the Ministry for the Environment. Once the company is admitted to the program, the same Ministry provides its own institutional collaboration, monitoring and coordinating the activity of the enterprise either for what concerns the analyses of indicators and the choice of solutions for the improvement of performances of sustainability (VIVA, 2020).

Therefore, this thesis makes use of a nominal categorical measure to classify the eventuality of membership of each winery in the sample. The process to quantify and interpret the variable entails its categorisation (with numbers indicating a subgroup) that allows to include it in the content regression analysis. Specifically, the generated dummy predictor [Certification] is coded with 0 when there is no adherence to VIVA from the company and 1 when the winery has obtained the green-certified label for its wine products or organisation.

### ***3.4.3. Moderating variable***

Coherently with the theoretical framework, the moderating variable taken into consideration is in terms of the incidence of women in the director/management board of the Italian wineries to test whether management gender discriminates over CFP in the investigated context.

The data collection can make use of the same *Orbis* database employed for the other two variables since this also encompasses the gender aspect of firm governance.

Here, the moderator is a share variable with a statistical time invariant cohort. It is represented by the percentage of women within the board [WomenShare] calculated as the number of female roles on the total of directors and managers of each winery.

#### **3.4.4. Control variables**

Control variables are mainly selected based on what other studies have taken into consideration and that can have influence on business performance but are not theoretically novel enough to be included in the main hypotheses. The study entails three additional controls: *Age*, covariate expressing the number of years each winery has been operating on the market since its foundation; *Region*, multiple-categorical covariate differentiating each winery's region (and province) of origin amongst the four macro areas into which Italian regions (and provinces) are grouped based on the geographic division provided by ISTAT (2018) guidelines (namely: North, Center, South, Islands). The *North* group is chosen as a baseline because it entails the majority of wineries' location. It might be interesting to compare all other groups against the macro-region within which wine producers are majorly based. Therefore, in the regression model the coefficient is interpreted against the *North* category: if for the other classes the coefficient is positive, it means that the companies located in that macro area have a better performance compared to those ones based in the North of Italy. Lastly, the analysis controls for the variable *Year*, specifying the time-year which data refer to.

### **3.5. Econometric model**

The hypotheses are one-tailed, that is to say H1 and H2 have a positively related direction, while the other possibility indicates there is no relation or, in case there is one, it goes in the opposite direction.

Both H1 and H2 are tested for causality through relevant statistics based on regression analyses, a technique that examines the linear relation between two constructs: the single IV of green sustainability strategies [Certification] and the DV of CFP [TOAS]. Specifically, a

hierarchical regression for the main relationship is run because the analysis also entails the four control variables announced before. Finally, the further steps use *Process* Model 1 of SPSS<sup>6</sup> to run the secondary relationship (i.e. simple moderation) - in order to test the conditional indirect effect of whether the main IV [Certification] influences the DV [TOAS] only at some levels of the moderator [WomenShare].

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<sup>6</sup> Extension of the statistical software SPSS (Statistical Package for the Social Sciences).

## 4. Analysis and Results.

After covering the analysis carried out from the data collection based on the multiple sources which have been presented over the previous methodological chapter, the current sections go further by reporting and commenting on all relevant statistical results that can be derived from the analysis.

### 4.1. Quantitative analytical strategy

#### 4.1.1. Descriptives and Correlations

The undertaken sequential steps from raw data to hypotheses testing includes running frequencies at the beginning for data cleaning and screening, which are useful to spot mistakes and examine errors in data entry before running any analysis.

Descriptives of main variables - summarised in Table 1 – indicate that only 4% of the sampled wineries has implemented the environmental certification strategy ( $M = 0.04$ ) but that at the same time they present a high level of women incidence within their boards,  $M = 0.16$  (high level starts from  $WomenShare = 0.12$ ) - equal to 44%<sup>7</sup> of female managers/directors, denoting that, on average, the Italian wineries in the sample present a management board composed of women for almost half of their members. In addition, the companies possess a mean total asset of 43,322 thousand of euros and an average age of 38 years since the start of their activity ( $M = 38.08$ ).

To ensure analysis reliability, data are double checked and multiple measures for the same construct (triangulation) are used (like including both  $\beta$  and  $t$  values). Further deep, internal consistency reliability of scales is computed to assess the extent to which items that are supposed to measure the same construct, yield similar results.

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<sup>7</sup> The variable *WomenShare* has been standardised, thus a 0.16 result in the dataset equals a concrete 44% of women in the board.

Particularly, the financial performance scale has high consistency (Cronbach's Alpha ( $\alpha$ ) = 0.87) and average corrected inter-item correlation above 0.30, indicating that all the items have a good correlation with the total score of the scale. Also, none of the items would substantially affect reliability if deleted. Results of reliability analysis are reported on the diagonal of the correlation matrix (Table 1).

Assembling a full correlation matrix, Pearson  $r$  coefficients quantify the linear relation between variables. The correlation analysis run on the main variables of interest allows to quantify the intensity and meaning of the relationship between variables but not their association type yet. Given the way single variables are measured in this research, the financial indicator has a positive relationship with the presence of the certification [Certification = 1]: in detail, total assets have a strong correlation with *Certification*,  $r(984) = 0.35$ . Moreover, considering the minimum significance level at 95%, the rate of women in the board also positively correlates with *TOAS*,  $r(984) = 0.07$ . The *Age* control instead, has a significant positive relation with *Certification* ( $r(984) = 0.08$ ) but is negatively associated with *WomenShare* ( $r(984) = -0.10$ ).

**Table 1**

*Descriptive and Correlation matrix: Means, Standard Deviations and Reliability*

Variable	M	SD	1	2	3	4	5	6
1. Total Assets	43,322	67,979	(.87)					
2. Certification	0.04	0.20	0.35**	-				
3. Women Share	0.16	0.17	0.07*	-0.04	-			
4. Age	38.08	21.47	-0.05	0.08**	-0.10**	-		
5. Center	0.12	0.32	0.07*	0.07*	0.05	0.002	-	
6. South	0.15	0.35	-0.14**	-0.05	-0.11**	-0.08**	-0.15**	-
7. Islands	0.07	0.26	-0.07*	-0.01	-0.05	0.13**	-0.10**	-0.12**

*Notes.* N=984. Values before transformation. \*\* $p < .01$ , \* $p < .05$ . Certification is coded as 0 missing, 1 present. Parenthesis specifies the Cronbach's Alpha of the financial scale.

### **4.1.2. Variables Transformations**

In this model, the main independent predictor [Certification] is categorical; hence this dichotomous variable does not need to be transformed together with the two controls *Age* and *Year* because they already present a normal distribution with data dispersed symmetrically around the centre of all scores. In addition, to control for localisation, *Region* is coded and represented through several dummy variables, as to enable it to be used in more elaborate statistical analyses.

However, both *WomenShare* and *TOAS* are treated to be at the continuous numerical level, hence needs to be transformed, respectively creating the new variables *StWomenShare* and *StTOAS* (yet continuing to be named *WomenShare* and *TOAS* from here onwards). Those ratio and scale variables are normalised using techniques – logarithms [ $\log(10)$ ] - to transform their distributions in order to apply the empirical criteria of accepting skewness or kurtosis statistic values between -1 and +1.

Although the overall dataset does not have any counter-indicative items, a few observations are excluded based on the performed transformation of *TOAS* and *WomenShare* - variables because containing some suspicious elements.

Finally, dealing with the eventuality of missing data, the analysis uses a pairwise deletion procedure since it retains more information without reducing the effective sample size and power and deflating variation in an artificial way.

## **4.2. Linear regression models**

### **4.2.1. Verification Tests and Data Analysis: Hypothesis 1**

The first test of verification of hypothesis examines H1 through hierarchical multiple regression. This linear analysis is performed to investigate the ability of the model to predict levels of total assets depending on the presence of the wine certification, after controlling for every covariate. Results are summarised in Table 2.

In the first step of analysis, all control predictors are entered. This model is statistically significant  $F(10, 928) = 10.54, p < .001$  and explains 10% of variance in total assets, as indicated by the Coefficient of Determination (R Square), which provides information of the predictive ability of the regression model. After entry of *Certification* as second step, the total variance explained by the corresponding  $F$  test for the whole model is 15%;  $F(11, 927) = 14.72, p < .001$ . The introduction of the predictor explains additional 5% variance in total assets, again after introducing all controls ( $R^2$  Change = 0.05;  $F(1, 927) = 50.91, p < .001$ ). In the final step of this first model the predictor *Certification* is statistically significant, with a positive standardised partial regression coefficient (Beta value)  $\beta = 0.22; t(971) = 7.14, p < .001$ ; contrarily to the standardised slope (beta) of those controls that are significant at level set at 95%: *WomenShare* ( $\beta = -0.09; t(971) = -2.97, p = .003$ ), *South* ( $\beta = -0.28; t(971) = -9.04, p < .001$ ) and *Islands* ( $\beta = -0.08; t(971) = -2.60, p = .01$ ).

Converting data analysis into words, if *Certification* codes 1 rather than 0 (i.e. if the winery has implemented the certification strategy), its financial performance will increase by 22%, as indicated by the biserial correlation coefficients. On the other hand, if the rate of women within a winery's board codes one (meaning that the business management comprises only female figures), total assets will decrease by 9%; hence highlighting that higher financial outcomes can be better reached by wineries which do possess a certain degree of gender-mix within their managers and directors rather than boards composed of either only women or men. The same reasoning applies for the localisation control. In other words, while Italian central provinces (*Center*) are not significant in the model, both *South* regions and *Islands* have a negative direction with *TOAS*. Since the *North* group has been chosen as baseline and because the coefficient of these other classes is significantly negative, the results suggest that wineries geographically located in Italian Southern regions or islands (i.e. Sardinia and Sicily) have a worse performance compared to those ones based in Italy's Northern regions.

**Table 2***Hierarchical Regression of Certification on Total Assets ( $\beta$ -value and T-test)*

	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Change	$\beta$ (Model 1)	<i>t</i> (Model 1)	$\beta$ (Model 2)	<i>t</i> (Model 2)
<b>Model 1</b>	.32	.10***					
<b>Control variables</b>							
<i>Women Share</i>				-0.10**	-3.18**	-0.09**	-2.97**
Age				0.01	0.28	-0.01	-0.26
Center				-0.03	-0.94	-0.04	-1.45
South				-0.29***	-9.13***	-0.28***	-9.04***
Islands				-0.09**	-2.68**	-0.08**	-2.60**
Year dummies included				YES	YES	YES	YES
<b>Independent Variable</b>							
<i>Certification</i>						<b>0.22***</b>	<b>7.14***</b>
<b>Model 2</b>	.35	.15***	.05***				

Notes. N=983. Statistical significance: \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

#### 4.2.2. Verification Tests and Data Analysis: Hypothesis 2

After the first regression analysis, the conditional effect of simple moderation is tested through Model 1 of *Process* in SPSS to understand under what circumstances the effect of the main relationship exists; explicitly for which type (gender) of people it does exist, as measured here by the moderating variable *WomenShare*. For better results, as first step the IV [Certification] and moderator are centred before calculation of the product term. The second step entails running the regression analysis via Model 1 of SPSS' *Process*, including both independent variables (IV and moderator) and their interaction term. Afterwards, since this product term is significant in the regression equation, the two-way interaction is tested and interpreted as the relationship between the IV and DV, moderated by the third variable *WomenShare*.

Analysis' results are represented in Figure 2 below by the two-way linear plot and summarised in Table 3 below. This solution model explains 18% of variance of the financial DV ( $R^2 = 0.18$ ), which is statistically significant ( $p < .001$ ).

Here the findings are that the moderation effect takes place because the p-value of the interaction term is significant ( $p < .001$ ), meaning that the effect of green sustainability strategies on CFP depends on the gender mix of the wineries' board members. The effect of obtaining green certified labels on the level of total assets is different between male-only and gender-mixed boards. The coefficient of the interaction term equals 12.95 and it is statistically different from zero,  $t(927) = 5.93$ ,  $p < .001$ ; thus, as *Certification* codes 1 rather than 0 (i.e. the winery is certified), the difference in financial outcome (total assets) between a producer that welcomes a certain degree of gender mix within its board and another that does not, increases by almost 13 units. The first conditional effect of *Certification* on *TOAS* when *WomenShare* =

0 (i.e. its Mean (M), around zero)<sup>8</sup> estimates a -0.24 difference in total assets between certified and uncertified wineries among those having an average level of standard women share (M = 0.06; corresponding to 14% of women in the board)<sup>9</sup>, but it is significant only at 90% level ( $p = .06$ )<sup>10</sup>. The second conditional effect of *WomenShare* on *TOAS* when *Certification* = 0 (i.e. no certification)<sup>11</sup> estimates a -0.77 difference in total assets between two wineries which differ in welcoming a low rather than high degree of women share, among those scoring zero on that type of green policy, and it is significant ( $p < .001$ ).

Analysis of Figure 2 identifies a positive relationship pattern between eco-sustainable strategies and CFP when the moderation effect takes place. Table 4 provides a closer inspection of this type of relation between the baseline variables, which indicates that the indirect effect of *WomenShare* is positive and significant only among medium and especially high levels of women percentage in the board (effect = 1.27, SE = 0.15 for *WomenShare* = 0.12), if compared to low ones (effect = -0.24, SE = 0.13 for *WomenShare* = 0). As it can be seen from probing the significant interactions (Figure 2,  $p < .10$ ), the slope linking the eventuality of certification attainment and total assets is positive only within high levels of women share in the winery's board. In other words, adhering to that type of green sustainability practice increases a winery's financial performance, only if at least the 31%<sup>12</sup> of a management board is represented by females.

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<sup>8</sup> Since *WomenShare* has been standardised, its 0 equals to its average (M = 0.06).

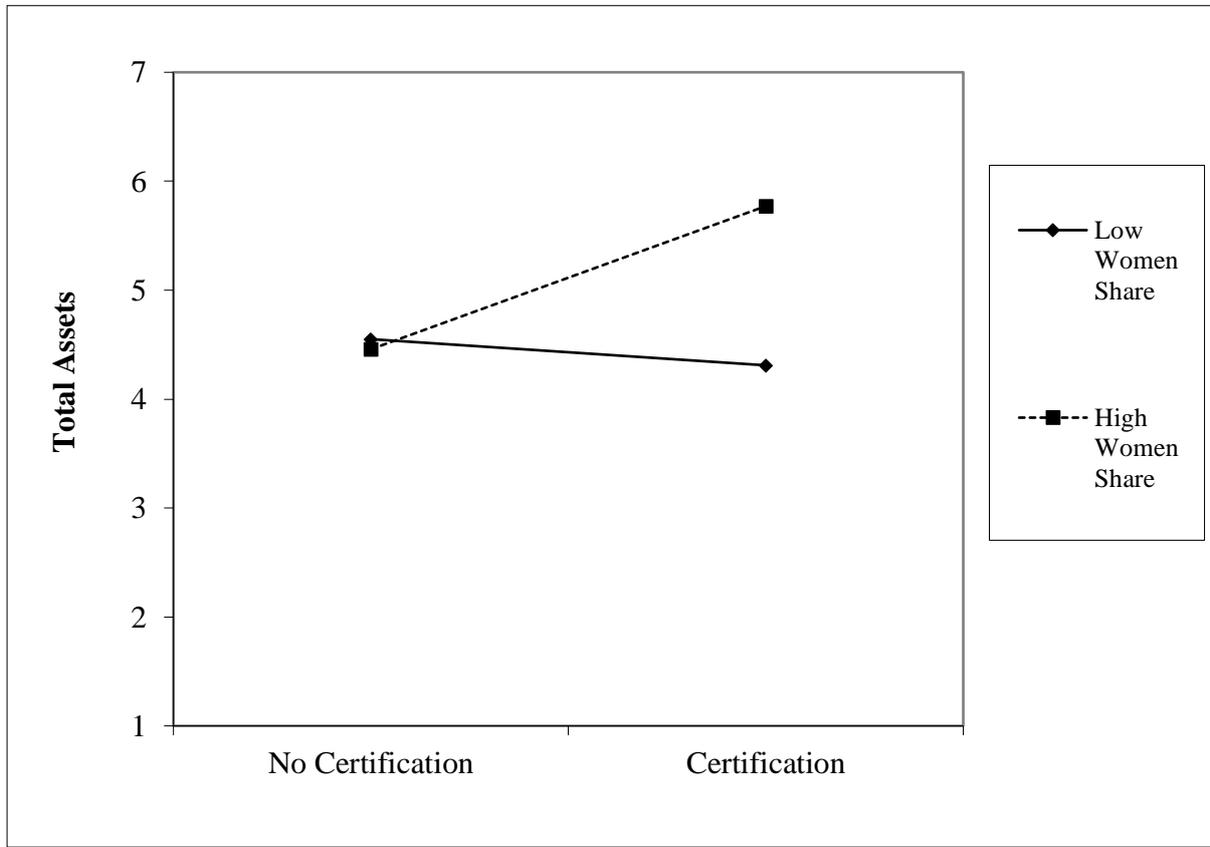
<sup>9</sup> The mean level 0.06 of the standardised variable *WomenShare* corresponds to a concrete percentage of women in the board equal to 14% in the dataset.

<sup>10</sup> Confidence level is set at 95% maximum for the whole analysis.

<sup>11</sup> In the dataset *Certification* is coded as 0 = No; 1 = Yes. This allows to interpret the coefficient in a meaningful way.

<sup>12</sup> The variable *WomenShare* has been standardised, thus its high-level threshold at 0.12 equals 31% of female board real percentage in the dataset.

**Figure 2.** Moderation: plot of Women Share on the baseline relationship



Note. 'Low' and 'High' are defined for *WomenShare* values  $< 0.05$  and  $> 0.12$ , respectively (specified in Table 4).

**Table 3***Simple Moderation Regression of Women Share on the baseline relationship*

<b>Conditional effects</b>	Coefficient	SE	<i>t test</i>	<i>p</i>
Intercept (Constant)	4.55	0.04	102.74	< .001
Certification (IV)	-0.24	0.13	-1.87	.06
<i>Women Share</i>	<i>-0.77</i>	<i>0.23</i>	<i>-3.38</i>	<i>&lt; .001</i>
<b>Interaction term</b>				
<i>Certification*Women Share</i>	<b>12.95</b>	<i>2.18</i>	<b>5.93</b>	<i>&lt; .001</i>
<b>Control variables</b>				
Age	-0.0001	0.001	-0.19	.85
Center	0.10	0.04	-2.39	.02
South	0.36	0.04	-9.37	< .001
Islands	0.14	0.05	-2.69	.01
Year dummies included	YES	YES	YES	YES
$R^2 = 0.18, p < .001$				
$F (12, 926) = 16.77$				

Notes. N = 939. Pairwise deletion based on all variables of the procedure.

**Table 4***Marginal conditional effects at levels of Women Share*

Level	Women Share value	Effect	SE	<i>p</i>
Low	0.00	-0.24	0.13	0.06
Medium	0.05	0.41	0.06	< .001
High	0.12	1.27	0.15	< .001

Note. *WomenShare* value specifies the board rate which the percentile-level refers to.

## 5. Discussion and Conclusions.

The current chapter summarises the most important results and contextualises them within the theory presented over the previous chapters. Then, it discusses the value of the findings for the research and practical fields the thesis aims to contribute to.

The gap that this thesis tries to bridge about the relationship between green sustainability strategies and CFP in the wine sector, moderated by the effect of management gender, has allowed initially to formulate and therefore to answer the following research questions:

*‘What are the consequences of the implementation of green sustainability strategies on corporate financial performance in the wine industry?’*

*‘Does the effect of wineries’ environmental sustainability on their financial outcomes depend on the presence of women within their management board? Specifically, does the ownership of wine green certifications result in higher total assets among wineries which boards comprehend also female managers?’*

Based on the analysis, the conclusions that can be drawn are to confirm the two hypotheses. Firstly, the hierarchical multiple regression - significant at 95% minimum - leads to conclude that it is likely that, on average, ‘the implementation of green sustainable strategies in the wine sector leads to a higher CFP of Italian wineries. Thus, the results support the first part of the research question by showing that the integration of green practices in the wine industry causally influences – with a positive direction - CFP of wine businesses. Next, the observational study also supports the second hypothesis generated by the framework by highlighting that ‘the presence of women in the management board reinforces the base relationship’. Consequently, building on the second part of the research question, it can be concluded that the sign of the main effect interacts with the moderator variable: the effect of wineries’ environmental sustainability on their financial outcomes depends on the presence of

women within their management board. Specifically, financial performance can be moderated by the existence of a certain degree of female managers or directors within the board for the wineries that implement green certifications and this relation is especially reinforcing for those businesses that foster female roles within their boards to a rather high degree.

## **5.1. Implications**

The final section elaborates more on this chapter by extending the possible concrete contribution of this piece of academic work - which should be relevant not only to the academic community but also to managers and policy makers - and concludes with the limitations the research has encountered thus proposes insights to forthcoming studies in the business field.

### ***5.1.1. Expected contributions to theory and practice***

Parallel to the rising trend wine consumption is experiencing all around the world, the ecological sustainable aspect of this output is also attracting growing attention from all the stakeholders in the segment. Companies operating in the viticultural sector need to confront themselves with the negative impact of current environmental problems, like water consumption and reduction (Dodds et al., 2013).

The expected objectives of the research encompass the accurate evaluation of the real effects of green strategies adopted in the wine sector on business performance along with how this can be influenced by the percentage of women in the winery's management. In this way, this paper should deliver some degree of contribution to theory and practice as it could be interesting to scientific communities, political authorities, environmental activists, and wine growers, producers, and customers.

By solving the addressed matter, this work could be used for purposes in research and study in the enological field. Even if there is a good amount of research concerning ecologically sustainable practices (Capri, 2016), there is still the necessity for its general understanding and then specific application to the wine industry. Therefore, this paper provides a new critical

perspective on existing knowledge and helps to solve the missing contribution to the topic via a detailed and thorough analysis of the literature - in part explored and discussed in the introductory and theoretical chapters - by deepening existing knowledge around the important developments that are now rising in the viticultural sector (Christ & Burritt, 2013). Using a more pragmatic approach to the possible different aspects of environmental sustainability and by using an impact analysis constructed over statistical indicators to assess the variable of green sustainability strategies, the study adds something more to common ones, which mainly focus on producers' perceptions and only provide insights based on delivered surveys (Dodds et al., 2013). Ecological sustainability concerns are embedded in the wine sector and producers of this grape beverage have lately demonstrated to be involved and extremely willing to provide solutions to those problems (Ouvrard et al., 2020). Hence, to reach this ultimate goal, wineries' management must incorporate environmentally driven strategies within their businesses. In this sense, this scientific research can interest not only academics (via stimulating additional upcoming studies) but also managers because it recommends long-term adoption and implementation of green sustainability strategies and thus it could operate as an incentive for managers working in the wine industry.

The wine industry itself is considered an appropriate field for sustainability-oriented research (Malindretos et al., 2016) since the viticultural sector is not exempt from ecological problems (Ouvrard et al., 2020). The (wine) glass is looking half empty as the rise in global temperatures threatens the world's wine supplies. Via studying territories where eleven famous types of wine grape can grow, scientists have discovered that global heating might lead to wine shortage. Although countless other examples could be provided, just this one gives an idea about the practical relevance of the topic the study is investigating. Additionally, the connection between wine and territory is suitable to be measured in sustainable evaluations due to the (economic) impact the first has on relevant aspects of the natural environment, like biodiversity

and landscape (Capri, 2016). Consequently, the feasibility of the assessment of this link indicates that the research has practical relevance as well.

The empirical research case based on the territory of Italy is likely to ease the efforts towards ongoing environmental-friendly outcomes of wine businesses under the current circumstances within the globalised market, together with wider managerial implications in the direction of 'green protection' and brand-value fortification. Still, the choice of this kind of industry appears appropriate since the existing literature has paid relatively little attention to the particular Italian market, which has not been entirely investigated yet when it comes to the relationship between green strategies and corporate performance of sustainable wineries. An additional and strong justification for narrowing the focus to the specific case of Italy comes from the fact that certain countries may be more impacted by climate change than others due to their already higher temperatures and hence less able to offset upcoming shortfalls (Davis, 2020). Italy has a long (cultural) tradition with regard to wine and the country is characterised by a massive number of wineries all over its territory, which from 2009 has followed an increasing trend<sup>13</sup> (Schmid, 2019). Those researchers explicitly state that Italy in particular could experience a loss of vineyard land up to 90% if heating rises up to more than 4°C compared with pre-industrial trends (i.e. the 1970s) (Davis, 2020); therefore effective sudden actions must be taken in the country by wineries and supporting institutions and organisations in order to avoid worst disasters.

Lastly, the topic should be interesting and relevant for policy makers. Many classic studies underline how a tight environmental regulation has the possibility to drive corporations towards innovation and differentiation and that governments actions can be a source for

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<sup>13</sup> The number of enterprises in the production of grape wine in Italy has risen from 1,175 in 2009 up to 2,061 in 2016 (+16%) (Schmid, 2019).

demand of green solutions and environmentally sustainable products. (Porter & Van der Linde, 1995). An even closer link to the study conducted here comes from Aguilera-Caracuel and Ortiz-de-Mandojana (2013), which stress that governments - as well as Non-Governmental Organisations (NGOs) - can effectively support enterprises in generating ecologically responsible strategies while contemporaneously increasing their financial performance. Consequently, corporate commitment to avoid and reduce as much as possible harmful environmental actions could be better facilitated with a higher degree of governmental help through a more appropriate assistance to those firms that, despite the increased risks they could possibly encounter, choose anyway to take the path that leads to the creation of 'sustainable profits'.

#### ***5.1.2. Limitations and Future research***

The determinants discussed hitherto can be relevant and give further insights to the field of management and sustainability. However, this research does not come without any limitations, which are examined in the current subsection and that also provide the following paragraphs with the opportunity to underline possible insights for future research.

The major limitation involves the time constraint this thesis has been subjected to.

Because of this restriction, the methodological research design could not consist of surveys delivered directly to enterprises which could have led to a deeper understanding of the most important green practices that are possible to be implemented in the wine sector. Consequently, this study only takes into consideration a single category of environmentally sustainable strategy – certified labels – and, among these, a distinct one, although many can be obtained nowadays not only worldwide but also in Italy (Zanni & Pucci, 2014). Taking a step forward, future research should be looking at other initiatives around the topic of green sustainability as well as considering more than one practice at a time. Practical examples reside in the application of Artificial Intelligence (AI) and robot (like for the use of chemical

substances) to agriculture because the digital revolution in this field, among other benefits, reduces pollution (De Biasio, 2020).

Additionally, forthcoming studies should analyse a wider time interval in order to discriminate between short and long period effects which had not been possible here due to the limited time to which this project has been subjected and limited data that are made publicly available for the specific type of industry and geography addressed.

Although the selection of a threshold for firm size has been made on purpose for delving deeper into the context of Italian wineries, upcoming research could focalise on small and medium enterprises at the same time, since these firm sizes are the ones that mostly characterise the Italian market (Corrado & Odorici, 2009). Likewise, it could focus on other countries to make it possible to compare different territories and to include every aspect of IM and IB.

Perhaps, the investigation can as well extend the exploration to the whole (agricultural)-food sector with also the inclusion of all themes and issues that are nowadays present in the sector. An example can comprise paying attention to NGOs and their targeted action to fight climate change, since those organisations can effectively drive enterprises to take steps towards a generally more sustainable state of agriculture and food production and consumption (Aguilera-Caracuel & Ortiz-de-Mandojana, 2013).

Finally, future studies can look at all negative aspects that characterise these extensive industries, so to integrate them with positive ones and see if there effectively is a sustainable model of production and consumption in the agricultural sector. They could examine issues that are even more present in the countries which agri-food aliments mainly come from, like Latin America. Just one example could be the case of the south American country of Brazil after its involvement in the global scandal around spoiled meat exported to EU countries (Coldiretti, 2018).

## 5.2. Conclusion

The ideas and findings of the thesis have been linked to the relevant academic literature and contribute to the current level of scientific knowledge. Based on what has been found in the study, this thesis makes a contribution to existing academic knowledge within the field of interest.

Relying on existing literature and in line with the resulting analytical approach, this thesis claims for an escalating trend in the direction of green sustainability and corporate strategies to foster this kind of necessary development. The time has come to repair and take care of our broken planet. The ultimate goal of environmentally sustainable practices at the firm level would be beneficial for companies – in terms of, among others, gaining superior advantages and (financial) performance - and contemporarily for the natural ecosystem on multiple fronts. Additionally, the detailed findings argue increased awareness and welcome to the insufficiently recognised potential contribution of women roles at the top of corporate hierarchy. Both those elements of sustainability foundations – environment and society – must clearly receive convinced greater support from every kind of organisation.

More specifically, it is believed that the selected segment of the wine sector must progress towards its engagement in defending the ecosystem in the recent future. The call for urgent actions is underlined by the upcoming displacement of vines, which will increasingly need to be moved towards the North of planet Earth because of climate change. For instance, some winegrowers in Italy will need, among others, to invest in the cultivation of varieties of grapevine with greater adaptability (like Nebbiolo and Sangiovese). This is surely not only an Italian problem but the impending rise in medium temperature beyond 2°C is estimated to cause a loss of 56 percent of lands suitable for vines. The drastic shift in the geography of vineyards that will follow will have clearly different effects: if some region in the South of the globe will need to adapt, other countries will see an opportunity, like the United Kingdom, which has in

fact already started to study the areas more suitable for viticulture (Morales-Castilla et al., 2020).

It is necessary that the work of women and their competencies are defended and valued rather than merely being considered as secondary. The dynamic potential of the wine industry must also drive efforts to create diverse economies through strategically efficient environmental relationships based on gender aware values. Family wineries have handed down their business to empowered women, which are managing them very successfully (Harcourt, 2017). The women position within the industry demands for increasingly larger changes for expertly managing the wineries they are responsible for and introducing (green) innovations in wine production. The rising relevance of female management for wine production (Corinto, 2014) emphasizes the need for new and outstanding roles of women generating positive economic-level impacts.

To summarise, both global sustainability threats – environmental and social – require exceptional measures to fight the devastating effects they are able to generate on the global economy (as third CSR element). Worldwide responses need to be permanent and forecasted in advance, without minimising any evidence. Companies should act as first sustainability driver to induce real changes through triple bottom line -investments. But in the end those behaviours should also turn to an aligned responsibility of politics and society: political institutions must design a sustainable future and citizens must constantly inform themselves and engage into actions that allow to avoid any additional risk.

In conclusion, this thesis is relevant because the recommendations and conclusions drawn in the research provide useful insights and directions for further research that are expected to enrich the available knowhow around green sustainability and female roles in the wine industry.

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