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Does sustainability matter?
An investigation of investors' reactions to sustainability disclosure in US-based start-ups

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INTRODUCTION

What is sustainability? Currently sustainability has become a concept that people worldwide have to deal with daily. From traditional media to social networks, from newspapers, family and friends to scientific articles, today we encounter sustainability in every aspect of our lives. Each people on earth is aware of the environmental problems our world is facing, knowing that the commitment of everyone is fundamental in the transition towards a more sustainable future. But are we sure that people all around the world possess a clear understanding of this concept? To achieve this aim, in 1987, the United Nations in the Brundtland Report (known also as "Our Common future") has delivered a precise definition of sustainability: "*meeting the needs of the present without compromising the ability of future generations to meet their own needs*" (United Nations, 1987, Report of the World Commission on Environment and Development, "Our Common Future", page 15). In this description, the long-term orientation of the notion is immediately emphasized, and the urge of conserving the planet from harmful activities and degradation is cardinal. The countries in the world are interdependent, therefore they are all, without distinctions, called to action to enable the transition towards sustainability.

However, well aware of the many environmental problems existing nowadays and the importance of tackling climate changes, it should not be forgotten that sustainability is not just environment: the three pillars of sustainability, environmental, social and economic, are all equally important and only together they enable an integrated and sustainable development. Today, the concept of sustainable development in fact refers to the virtuous equilibrium between these three dimensions, or triple bottom line approach. While, as already anticipated, the environmental pillar deals mostly with the conservation and protection of natural resources, the fight against climate changes, the reduction of pollution and waste management, the social pillar copes with the reduction of poverty, inequalities and discrimination, as well as with the promotion of social justice, decent standards of living for all and peaceful and inclusive societies. The economic pillar, on the other hand, promotes sustainable economic growth, economic progress in line with the nature, improved work opportunities and conditions, efficient economic practices and the conduction of a satisfactory life for all.

Despite all these well-promising sustainable practices, concerns are always raised on the real importance and value assigned by individuals, companies and governments worldwide to these matters. Are all these subjects actually devoted to sustainability and engaged in the transition towards a better future or, on the contrary, are they willing to rely on sustainability only apparently, as long as they can show their commitment to the others, while actually preferring to keep a traditional purely economic logic? Many initiatives worldwide are in place in order to convince an increasing number of people to conduct a sustainable life, and companies are always more regulated in order to reduce their emissions and waste, optimize their resources, and to take actions to tackle climate changes. However, it is difficult to detach people and organizations from their individualistic-economic nature, so efforts must be made in order to change the logic and to get sustainability issues more at the centre of everyone's priorities. Therefore, more sustainable economies and systems are essential in order to decrease the dangers of climate change, to construct more equitable and prosper societies and to avoid additional pandemics (PWC, 2021).

A crucial role in this transition is played by the high number of small companies at their initial stage that exist worldwide: start-ups are a fundamental subject to investigate because, thanks to their innovative nature and dynamic structure, they have the potential to alter the rule of the game and to initiate changes towards a better future. Due to their prominent position in societies, it is interesting to explore whether start-ups establish a foundation of sustainability culture from their first stage. Investigating whether sustainability is taken into consideration at the start of companies' lives gives insights into the actual propensity of founders to take into accounts non-financial matters in their decisions. Moreover, exploring whether sustainable start-ups are able to attract more funds from capital providers produces evidence on whether investors actually appreciate and give value to the sustainable orientation of companies.

In light of this, the aim of this thesis is to investigate the existence of a relationship between the amount of sustainability-related information disclosed on the website of US-based start-ups in the financial and sustainability industry and the value that investors assign to those start-ups. Therefore, this research intends to collect data on a list of start-ups, specifically focusing on how much money they raise from investors and to correlate those data with the way these young companies present themselves in

terms of economic, social and environmental sustainability, with the ultimate goal of understanding statistically whether there is a correlation between the sustainability orientation of start-ups and investors' actual valuation of these firms in their early stage. The conclusive result will explain whether start-ups that communicate their commitment to the three pillars of sustainability more actively are able to raise more money. Investors' reactions to companies' sustainability disclosure are traditionally studied in the literature in the context of large public companies, therefore the novelty of this project is that it investigates companies at their initial stage.

Moreover, the choice of start-ups as the target of the study reflects the fact that, while established firms are mandated by law to disclose their sustainability, start-ups do it voluntarily. These young firms are just born and therefore they have fewer mandatory requirements, hence it is interesting to understand their willingness to report their sustainable activities in order to discover the value that is assigned to them. By correlating the amount of sustainable information disclosed with the money that start-ups are able to raise from investors, it is possible to grasp whether these activities are actually of value for them.

The decision to focus on the US context stems from the fact that raising money form investors is more typical of US firms than European ones, the latter being more inclined to finance their operations through bank loans (European Investment Bank, 2018). Therefore, geographical choice, in addition of being driven by linguistic matters, it is also the result of historical and institutional reasons. As far as the sectors analysed are concerned, fintechs, the small start-ups in the financial industry, as well as start-ups that define themselves as sustainable have both been elected as subjects of this study for specific reasons. The first sector, besides being a field of interest for the writer of this thesis, is selected because of its rising importance nowadays and the stunning development that it went through in the last decades. Moreover, conventionally, finance is not perceived as a "sustainable" domain, therefore this thesis is intended also to investigate whether this belief is well-founded or not, examining if the potential sustainability of start-ups in the financial services is appreciated. In contrast, start-ups that characterize themselves as pertaining to the sustainability industry are an attractive target to inspect in order to discover whether: they actually communicate

actively their sustainability and, more importantly, if this commitment is valued by capital providers.

This thesis is structured as follows: the first introductory chapter sets the stage and in the first section it acknowledges the importance of sustainability for both human and the planet; then a second part is dedicated to sustainability disclosure with particular reference to companies' website as a channel of communication with the public; the third part of the chapter is dedicated to the presentation of the framework employed in this study. Chapter two presents a review of the literature, that, after having distinguished sustainable finance from the traditional one, it is centred on large established firms, their sustainability effects and their communication. The third chapter is entirely dedicated to the subjects of the analysis, start-ups, firms in their first years of life. It presents start-ups' definition, it reviews some of the existing literature and it provides information on start-ups' formation and growth. The subsequent chapter offers a review of the regulation in the US context in order to get insights on the regulatory context in which start-ups are operating. Chapter five illustrates the data collection methods, highlighting the relevance of Crunchbase, the database used to retrieve companies' information, and it explains start-ups' selection criteria; the second section is dedicated to the presentation of some statistics on the sample, with information and data on the 102 companies analysed. Chapter six introduces the methodology of the research, explaining how the framework has been employed and introducing the data used for the regression as well as the hypotheses tested; a focus on the methodological reflections and on the difficulties encountered is also provided. In the seventh chapter, the results of the regression are presented, together with a qualitative analysis of the outcomes obtained. In the last chapter, some implications based on the results obtained from the research are presented. The thesis ends with a conclusion that highlights the main findings and with some acknowledgments and the list of references.

CHAPTER 1- SUSTAINABILITY

This first introductory chapter plunges the reader into the sustainability world, providing information on its omnipresence in every aspect of human life and highlighting the prominent role that it plays in companies. It also focuses on start-ups' website as an important channel of communication, emphasising the relevance of

sustainability disclosure for firms. It then sheds light on the framework that will be used in this research.

1.1 The worldwide diffusion and importance

Recent phenomena such as growing population and changing consumption patterns have significantly impacted the environment and the lives of individuals, creating challenges at a global level. In order to tackle these sustainability issues, the action of ecological companies is fundamental, together with the transition towards a more sustainable business model of existing firms (Bocken, 2015). Also Schoenmaker (2018) has remarked that the necessity to shift to a more sustainable economy, capable of tackling environmental issues, is worldwide accepted. The United Nations, as will be explained in more details in a later section, are at the head of this ecological transition. This organization has developed the 2030 Agenda for Sustainable Development, containing 17 Sustainable Development Goals (SDGs) that aspire to encourage efforts over activities of vital prominence for both mankind and for the environment. SDGs deal both with actions needed to tackle the negative externalities created by human activities and with the promotion of inclusiveness in every action of human life (Ziolo, 2021). Therefore, the objectives contained in these goals are all interrelated and support the sustainable development. This last concept has already been examined by Gladwin et al. (1995) who specified five principles of sustainable development:

-**Inclusiveness**: sustainable development has to take into account the interests of everyone in the world without discrimination, respecting the life of each people existing today but also of every single individual of future generations and importantly, of the planet.

-**Connectivity**: sustainable development is an integrated concept, and all the aspects of human life and activities are interrelated between them and with the environment. In parallel, all the challenges faced by the planet are to be tackled in an integrated vision, not individually.

-**Justice**: in order to progress, sustainable development needs a healthy context with shared moral principles, and equitable distribution of natural resources, both among existing individuals and between people of current and future generations.

-**Prudence**: the inherent complexity and sensitivity of both natural and human systems command prudence and care in using natural resources, in order to limit overcapacity and harmful activities.

-**Security**: as an integral part of sustainable development, security is fundamental to protect and preserve the environment, the communities and the well-being of individuals of all generations.

As Piccarozzi (2017) has claimed, with the Brundtland Report, the acknowledgment of the three pillars of sustainability has established that the transition towards sustainable development needs the parallel consideration of planet, people and profit. The need to decouple economic growth from environmental impacts is in fact a shared objective today (Bergset and Fichter, 2015), and a prominent role in this process will be played by young companies, that are able to implement radical sustainable innovations, valuable for this transition. In accordance with this argument are also Halberstadt et al. (2014), that have remarked the importance of start-ups for sustainable development. Their argument is that also young companies should engage in sustainability because of their widespread presence in all industries, and therefore, despite their small individual impact on pollution, their join effect is significant on the environment. Moreover, hopefully, these start-ups will grow, becoming large companies, hence it is important that they learn to be sustainable since their early stages. In addition, the positive image that sustainable entrepreneurs gain when engaging in ecological practices, represents a way through which the importance and the value of sustainability is remembered to societies at large (Halberstadt et al., 2014). The survey "Innovation Bottom Line" (2013) by MIT Sloan Management Review in collaboration with The Boston Consulting Group have revealed that sustainability is actually paying off for always more companies. In particular, 37% of respondents profit from sustainability, while half of the companies in the sample have modified their business models in order to take advantage of some sustainability opportunities.

The paramount importance that sustainability today has on everyone, is in fact translated into the vast body of firms, that, worldwide, are always more willing to engage in sustainable practices, known as Corporate Social Responsibility (CSR). The Dow Jones Sustainability Index, that monitors the performance of companies in their sustainability practices, has defined CSR as "*an approach that creates value for*

shareholders and stakeholders by embracing opportunities and managing risks deriving from economic, environmental, and social developments" (Dow Jones Sustainability Indices, 2013, https://doi.org/10.1007/978-3-642-28036-8_577). According to this definition, CSR benefits equally providers of financial resources and other parties interested in the organization, in a way that is respective for all the people involved, for the wider communities and for the environment. The KPMG Survey of Sustainability Reporting (2020) has revealed that worldwide, among the biggest organizations, 93% of corporations do engage in CSR activities. Moreover, the Chartered Financial Analyst (CFA) Institute has found that, in 2020, 85% of investors were willing to take sustainability matters into account in their financing decisions. This Institute also has stressed the accelerating growth that sustainable investing is facing in the last years: this same percentage of investors considering sustainability issues into their decisions was in fact only 73% in 2017. Furthermore, in their Corporate Responsibility Report, Ernst &Young (2010), have agreed that even if the number of challenges that companies face in CSR matters is growing, firms should take advantage of them because sustainable practices constitute an opportunity valued by all stakeholders. The importance of the shift to a greener economy has been emphasized also by the Bank of America, that has publicly announced to be willing to deploy 1$ trillion for its environmental business initiatives (Reuters, 2021).

Organizations today need to take into account both financial and non-financial performance to benefit shareholders and stakeholders and to be considered good citizens. Ernst &Young (2010) in fact has affirmed that stakeholders are always more aware of climate change challenges, so they exert pressure on corporations in order to stimulate them to take on sustainable initiatives. Organizations worldwide are in fact gradually changing their business focus: from a predominantly economic logic, they are moving sustainability concerns to the centre of their operations, recognizing that proactive CSR practices are always more becoming an indispensable driver of value (PWC, 2021). A similar argument is supported also by Bocken (2015) who have claimed that, despite being resources-limited and having a low public visibility, start-ups have the potential to lead sustainable development, thanks to their entrepreneurial style of management that makes them in the conditions to pursue innovative and effective approaches to sustainability. It is exactly for this reason that the actions of young firms are fundamental to tackle environmental and social problems (Bocken, 2015). As far as

financial firms are concerned, Henderson (2017) has argued that, since they are still merely profit-oriented, it is essential to drive them towards a more sustainable growth, in line with the Sustainable Development Goals (SDGs). This is important also because fintech start-ups have the potential to steer finance towards a more sustainable approach for the common good (Henderson, 2017).

1.2 Corporate sustainability disclosure

The goal of this thesis is to understand whether start-ups communicating their sustainability on the website get higher funding compared to those that do not. It is assumed that companies manifest sustainability to their public when these types of arguments matters to them, therefore the important aspect to investigate is whether this website disclosure is valuable for investors too. The decision to analyse start-ups' website has been influenced by some patterns used in similar researches in the existing literature: the majority of the articles examined, in fact, has gathered companies' information directly from their official websites. This methodology has the advantage of collecting the information straight from the company without intermediaries, therefore the data collected from the website are a direct and transparent manifestation of start-up's intentions of communication.

Company's disclosure through the internet is particularly relevant nowadays, since approximately two third of the world population now has access to the web. According to Statista (2022), the number of internet users globally has reached 4.9 billion in 2021, even if internet access is not homogeneously distributed in all the areas of the world. In recent times, a prominent role in the increasing usage of internet worldwide has also been played by smartphones, that, thanks to their worldwide availability, they have made mobile internet widely available and affordable. Compared to 2010, when the number of internet users in the world was 1'871,35 million, in 2020 this number has risen to 4'573,83 million, an exceptional growth that is expected to continue in the forthcoming years (Statista, 2022). From the same source, it is possible to acknowledge that, in the context of United States, more than 90% of the population have access to the internet and for most of them the web constitutes an irreplaceable part of their personal and professional life. Therefore, in the present context, it becomes evident the reason why online disclosure in increasingly effective and essential in a firm's strategy. As Garett et al. (2016) have commented, websites represent the major companies' channel

of public communication, therefore the information contained in them is crucial for users' engagement and affiliation with the company.

Some papers that are worth mentioning that have used companies' website as primary data source are: Bergset (2018), who has claimed that she has collected information provided by the companies' websites for her evaluation of the challenges that start-ups face in accessing finance; also Lins et al. (2016) have asserted that their primary data source for their work has been websites; Chen and Gavious (2015), in a similar way have collected CSR information for their sample of companies through the websites; in order to obtain more information on the sample of companies that they have analysed, also Gazel and Schwienbacher (2021) relied on start-ups' website. Importantly, Diana et. al. (2016) have remarked the relevance of websites in our era of the Internet of Things (IoT): consumers rely on companies' website in order to get information on unknown brands, on products and services and in order to exploit online services and to do shopping online; for this reason, the website assumes a central role since it constitutes the first impression that people have about a firm.

The relevance of the inclusion of an appropriate disclosure in a company's strategy has been largely mentioned in the literature. Information on company's performance, activities and governance enables firms to attract more capital, since transparency of data decreases the cost of capital and the asymmetry of information, therefore leading investors to make more informed funding decisions (Zhang et al., 2021). Information asymmetry is a diffuse critical issue in companies, and it is defined as the difference in the amount of information that it is possessed by firm's internal managers and external investors: people inside the company are more informed about the actual potential and value of the firm, while outside parties inevitably possess less of these data. A transparent disclosure of information is essential in this regard since it demonstrates trust vis à vis stakeholders and it contributes to the creation of competitive advantages (Du and Yu, 2021). More particularly, the literature on information asymmetry is abundant and very relevant since it entails many managers' implications: companies are willing to disclose a lot of information in order to provide investors with appropriate data to reduce the asymmetry of information. However, the other side of the coin reveals that when a company discloses private information, these data are also at the disposal of competing firms that could steal competitive advantages, therefore the disclosing

organization could suffer costs and challenges due to this information leakage. Consequently, companies are faced with competing tensions that, on the one hand, make them willing to disclose a greater amount of information to investors, but, on the other hand, drive them to be eager to hide proprietary data to not spread relevant information to competitors. Therefore, managers' challenge is to strike a balance between these two competing objectives (Zhang et al., 2021).

The inclusion of sustainability-related information into companies' disclosure help firm in the reduction of information asymmetry (Du and Yu, 2021). Moreover, with the transition of companies from a pure shareholders' orientation to a more extended stakeholders' perspective, CSR disclosure proves essential to provide investors with appropriate information for their decisions. This idea stems from the fact that enterprises should behave responsibly not only towards capital providers but also with respect to other societal groups, exercising efforts to meet their needs (García-Sánchez et al., 2021).

1.3 The framework: Sustainable Development Goals (SDGs)

Start-ups' communication of sustainability should be quantified; therefore, a framework was identified to help with the analysis. The three pillars of sustainability are composed, as previously mentioned, by more than one target; in order to have a tool that covers all the possible sustainability aspects, the Sustainable Development Goals (SDGs) framework was employed, to precisely classify every sustainability sentence present in start-ups' websites. The Sustainable Development Goals (SDGs) are a list of 17 goals established in the 2030 Agenda for Sustainable Developments by United Nations with the aim of "*providing a shared blueprint for peace and prosperity for people and the planet, now and into the future*" (United Nations, 2022, official website https://sdgs.un.org/). This framework is relevant because the goals, established by the United Nations in September 2015 and meant to be reached at a global level by 2030, are nowadays penetrating in our lives in a tangible and pervasive way. The point of strength of the goals in fact is their universal nature, since they are aimed to tackle problems that are common to all countries in the world.

The goals, intended to contrast the current development model, considered unsustainable, deal with themes such as poverty, inequalities and other global challenges that, divided into 169 specific objectives, concern all the aspects of human

lives and planet. The SDGs are intended to be all reached in an equal and effective way, so that no goal has to be pursued at the expense of another: an integrated approach to their achievement is hence sought. Therefore, they are aimed to give centrality to the sustainable development in an integrated vision, gradually abandoning the strictly economic perspective. The list of 17 SDGs, as defined by United Nations (UN), together with some targets that could be more useful in this research is reported here below:

Figure 1: UNs' 17 Sustainable Development Goals (SDGs) complete list

Source: UN Sustainable Development Goals – Sustainable Development. Available at https://sdgs.un.org/goals

-**SDG 1: No poverty**: End poverty in all its forms everywhere. Importantly for this work, this goal aims to ensure that all men and women have equal rights to economic resources, access to basic services, ownership and control over land and properties, appropriate new technology and financial services, including microfinance.

-**SDG 2: Zero hunger**: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. More particularly, it aspires to double the agricultural productivity and incomes of small-scale food producers through secure and equal access to land, productive resources and inputs, knowledge and financial services.

-**SDG 3: Good health and wellbeing**: Ensure healthy lives and promote well-being for all at all ages. It is worth mentioning the willingness to strengthen prevention in order to reduce premature mortality and diseases.

-**SDG 4: Quality education**: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Particularly valuable is the equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university, in order to increase the number of people with relevant skills valuable for employment, decent jobs and entrepreneurship.

-**SDG 5: Gender equality**: Achieve gender equality and empower all women and girls. Importantly, many efforts are centred on the elimination of women discrimination, in order to ensure them a full and effective participation and equal opportunities for leadership in every sphere of their life, including equal rights to economic resources, access to ownership and control over land and properties.

-**SDG 6: Clean water and sanitation**: Ensure availability and sustainable management of water and sanitation for all. Remarkable are the attempts to achieve universal and equitable access to drinking by reducing pollution and improving water quality and ensure equitable sanitation and hygiene for all.

-**SDG 7: Affordable and clean energy**: Ensure access to affordable, reliable, sustainable and modern energy for all. Important are the objectives to augment the share of renewable energy in the global energy mix and to increase the global rate of improvement in energy efficiency.

-**SDG 8: Decent work and economic growth**: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Particularly relevant for this work are the objectives of achieving higher levels of economic productivity, fostering decent job creation, full and productive employment and entrepreneurship for all women and men, protecting labour rights and encouraging the formation and development of enterprises. This goal also aims to improve resource efficiency in consumption and production to decouple economic growth from environmental degradation.

-**SDG 9: Industry, innovation and infrastructure**: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. The aims of developing quality, reliable, sustainable and resilient infrastructure and supporting economic development and human well-being are worth mentioning. This goal also seeks to improve the access of small-scale enterprises to financial services. The industries and infrastructures' sustainability upgrade as well as greater adoption of clean and environmentally sound technologies are other two important points of this

goal.

-**SDG 10: Reduced inequalities**: Reduce inequality within and among countries. More particularly, it aims to promote the social, economic and political inclusion of all and to ensure equal opportunities and to reduce inequalities of outcome.

-**SDG 11: Sustainable cities and communities**: Make cities and human settlements inclusive, safe, resilient and sustainable. Worth mentioning are the objectives of increasing the number of cities adopting integrated policies towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters.

-**SDG 12: Responsible consumption and production**: Ensure sustainable consumption and production patterns. Crucial for this goal are the sustainable management and the efficient use of natural resources as well as the reduction of global food waste. Moreover, it aims to encourage companies to adopt sustainable practices and to integrate sustainability information into their reports.

-**SDG 13: Climate action**: Take urgent action to combat climate change and its impacts. In particular, integrating climate change measures into national policies, strategies and planning, while improving education and awareness-raising on climate change mitigation.

-**SDG 14: Life below water**: Conserve and sustainably use the oceans, seas and marine resources for sustainable development. Among others, prevent and reduce marine pollution as well as sustainably manage and protect marine and coastal ecosystems are important objectives of this goals. Worth mentioning are also the willingness to minimize the impacts of ocean acidification and to regulate harvesting and end overfishing.

-**SDG 15: Life on land**: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation as well as halt biodiversity loss. It is useful to ensure the conservation and restoration of terrestrial and inland ecosystems, halt deforestation, combat desertification, restore degraded land and soil and ensure the conservation of mountain ecosystems.

-**SDG 16: Peace, justice and strong institutions**: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. Relevant for the purpose of this study are the objectives of ensuring responsive, inclusive, participatory and

representative decision-making at all levels and of reducing corruption and bribery in all their forms.

-**SDG 17: Partnerships for the goals**: Strengthen the means of implementation and revitalize the global partnership for sustainable development. Remarkable are the objectives of assisting developing countries in attaining long-term debt sustainability and of promoting the development and transfer of environmentally sound technologies.

Therefore, this established framework seems appropriate for the purpose of the analysis of this thesis; however, also other existing standards have been considered, the most important ones being the Global Reporting Initiative (GRI) standards. GRI Sustainability Reporting Standards are divided into three categories: Universal Standards, Sector Standards and Topic Standards. The three Universal Standards are meant to be used by every organization, since they are composed by: GRI 101 Foundation, an introduction to key concepts for sustainability reporting, explanation of specific requirements and reporting principles to answer to the purpose of the organization; GRI 102 General Disclosure, a standard containing guidance for companies in order to report information on their reporting practices, activities, workers, governance, strategy, policies, practices, stakeholders' engagement; GRI 103 Material Topics, a standard with indications on the effective ways to detect material topics, a firm's relevant impacts on the economy, environment, and people. The second category of this framework, the Sector Standards, are standards that exclusively apply to one of 40 specific sectors: they give companies useful information on sector's most relevant material topics that are used by them to decide what to report for each material topic. The sectors are divided into 4 categories:

-basic materials (including oil, gas, coal) and needs, such as food, banking, insurance, utilities, metal processing;

-industrial, such as construction materials, automotive, construction, chemicals, pharmaceutical, electronics;

-transport, infrastructure, tourism, like media and communication, software, real estate, transportation infrastructure, airlines, packaging;

-other services and light manufacturing, such as educational services, household durables, medical services, commercial services, non-profit organizations.

The third GRI category is Topic Standards, displaying information used by firms to report their impacts with reference to specific topics. The Topic Standards are

categorized as economic (such as economic performance, market presence, anti-competitive behaviour, etc.), environmental (energy, water, biodiversity, emissions, waste, etc.), social (employment, training and education, equal opportunity, non-discrimination, etc.) (Source: GRI Organization official website: https://www.globalreporting.org/about-gri/).

Even if it is an extremely useful tool for companies to understand and report their environmental impact, this framework is too complex to be used in the analysis carried out in this thesis. Therefore, the United Nations' SDGs of the 2030 Agenda are kept as the framework for this work. It is an established framework that everyone is aware of, and it provides a broad categorization of different sustainability issues, both environmental, social and economic, therefore it is useful for this analysis to categorize which information start-ups disclose about themselves. The framework has been employed in an Excel file, in which the rows represent the different start-ups considered, and the columns constitute the 17 SDGs.

Summarizing, this chapter, after having provided some insights on the concept of sustainable development, it has explained why start-ups are fundamental actors in the sustainability transition. It has introduced the concept of Corporate Social Responsibility (CSR) and the reasons why it is always more a priority for companies. It also has explained why, due to the internet revolution, disclosing information through website is an increasingly important activity for companies. Then, it has made clear to the reader the relevance and the appropriateness of Sustainable Development Goals (SDGs) as the framework to carry out the analysis.

CHAPTER 2 – LITERATURE REVIEW

This second chapter presents a deep review of the literature, focusing on sustainability and communication of large established companies, for which the literature is abundant. It sheds light on the ongoing debate on the effects of sustainability on firm's value, revealing that different authors have reached quite different results.

2.1 Premise

Prior to start the review of the literature, a premise must be made: in the existing literature the body of work on the three pillars of sustainability in start-ups' communication is not massive, thus difficulties have been encountered in finding academic articles relating specifically to these firms, since the literature primarily focuses on large established companies. The study that more closely reflects the research of this thesis is the one by De Lange (2017). This paper analyses the mission and the business model of a sample of start-ups, investigating whether they relate to the environmental or to the social pillar of sustainability. However, no other categorizations are made in De Lange's work, so specific aspects of the three pillars of sustainability are neither detected nor mentioned. Moreover, the author has analysed start-ups in general, making no reference to specific industries.

Academic articles have been collected from Google scholar and from specialized academic journals such as Abacus, Accounting and Business Research, Accounting and Finance, Accounting, Auditing and Accountability Journal, Accounting, Organizations and Society, British Accounting Review, Contemporary Accounting Research, Critical Perspectives on Accounting, The European Accounting Review, Journal of Accounting and Economics, Journal of Business Ethics, Business Strategy and Environment, Journal of Business Venturing, Strategic Management Journal. The articles have been sought through the function "key word search" with the majors being: sustainable finance, fintechs, reputation start-ups, sustainability start-ups, impression management start-ups, communication start-ups. Moreover, the articles have been selected according to the criteria of the number of citations (a high amount is an indicator of recognition) and the publication date: only the most recent articles have been considered (those published from 2014 on).

2.2 Conventional vs. Sustainable Finance

Due to the recent change of companies' perspective, no more exclusively focused on meeting shareholders' expectations but willing to engage in a stakeholder orientation, sustainable investments have grown in popularity worldwide (García-Sánchez et al., 2021). Revelli and Viviani (2015) also have agreed that, in the last two decades, sustainable investment has been a topic of increasing interest for both investors and academics. Stressing the importance of the transition from conventional to sustainable

finance, Schoenmaker (2018), has claimed that sustainability of organisations and the socio-ecological system are inseparable and integrated with each other. The author believes that the socio-environmental impact of individual organisations should be considered in conjunction with organisations at the system level. The core part of Schoenmaker's (2018) work, is, in fact, the idea that the financial system has a major role in sustainable development, since it can direct resources to their most efficient use, assisting in making strategic decisions. Assigning investments to sustainable companies, the financial system is able to foster the transition to a low-carbon, circular economy; funding is in fact a necessary requirement for reaching sustainable goals. Furthermore, investors play a major role in the companies in which they have put their money, since their influence is able to direct companies towards sustainable business practices. Inversely, the author has argued that in conventional finance, shareholders' goal is to achieve the optimal financial risk-return mix, thus investors are focused on companies' short-term performance (Schoenmaker, 2018).

Similarity, in an attempt to draw up the main differences between sustainable finance and investment and traditional ones, Cunha et al. (2021) have noted that not only sustainable finance and investments integrate social and environmental considerations into their decisions, but they are also anchored to tackle long-term global sustainability issues. Due to these peculiar characteristics, according to the authors, sustainable finance and investments should produce results that are in some way measurable and clear on which the social or environmental aspect they support is. In conformity with those principles, they produced a precise definition of sustainable finance and investments: "*the management of financial resources and investments with the aim of promoting long-lasting, positive, and measurable social and environmental impacts*" (Cunha et al., 2021, Sustainable finance and investment: Review and research agenda; Business Strategy and the Environment, 30(8), page 3826). In this domain, the authors also have been able to determine four classes of actors that have an impact in sustainable finance and investments: providers, that have the merit to channel funds to sustainable projects; recipients, comprising companies that implement sustainable initiatives; supporters, such as governments and regulators, that are essential to create a proper institutional environment and to provide the enabling factors; beneficiaries, namely the society and the environment (Cunha et al., 2021).

The same line of though is followed also by Logvinovich (2020), that, in his paper, has recognized that the concept of sustainable finance indicates "*the process of taking due account of environmental and social considerations when making investment decisions, leading to increased investment in longer-term and sustainable activities*" (Logvinovich, 2020, Sustainable investment strategies for a venture capitalist: the issues of implementation, page 169). Logvinovich (2020) in fact has admitted that in order to reach more sustainable economies it is essential to take into consideration social and environmental aspects in the investment process. The author has argued that even if sustainable financial products have risen in recent times, they are still limited to ecological companies, while their use in capital markets is confined: social and environmental practices in addition to commercial aspects seem overcharging for entrepreneurs, who prefer to focus on product modification and development of market strategies. However, the writer of the paper has argued that environmental and social matters boost start-ups' competitiveness and reputation, accommodating the needs of sustainability-oriented consumers (Logvinovich, 2020).

Aware of the potential benefits of sustainable finance is also Ziolo (2021), that, basing on the premise that to achieve the Sustainable Development Goals (SDGs) financing is necessary, has asserted that domestic resource mobilisation is a good way to finance sustainable development, but financial markets are also needed in order to complement the growth of sustainable economies. This author considers conventional finance as not appropriate to reach SDGs, since this type of capital neglects the three pillars of sustainability. The findings of this study demonstrate that the more sustainable, effective and integrated a finance model is, the better a country in effectively achieving SDGs is, thus governments should promote synchronous development and efforts toward sustainability between public and private financial systems (Ziolo, 2021). In their survey, PWC (2021) have founded that sustainable investing had grown to more than US$ 30tn globally by 2018 and since then it has continued to increase, demonstrating the awareness of the financial system to integrate environmental, social and economic considerations in its operations (PWC, 2021).

2.3 Research evolution

The path that the literature has followed is clearly presented by Andrew and Baker (2020), who, in the attempt of bringing order in the vast body of accounting literature concerning CSR (Corporate Social Responsibility), have identified three main directions

of research, each with a specific scope of investigation: descriptive, instrumental, and normative. More particularly, the authors have recognized that the descriptive path depicts the range of CSR practices in context, their features and their influencing factors, discovering that they mostly depend on managers' personal commitment to social and environmental issues, as well as on specific financial characteristics. Differently, instrumental research investigates the economic feasibility of CSR activities, trying to give an answer to the ongoing debate on whether pursuing these practices improves financial performance. Some studies are also concentrated on some particular aspects of CSR practices, like environmental, social and governance (ESG) metrics, discovering that market participants assign higher valuation to good ESG performers. The normative field, on the contrary, explores weather CSR has a positive impact on society, examining the ethical and moral principles of CSR practices. This approach hence asks weather CSR reporting reflects actual environmental and social performance, leading companies in the pursuit of accountability (Andrew and Baker, 2020).

2.4 Established firms

This section of the review is dedicated to the literature on established firms; in particular, the first part depicts the potential negative effects that firms suffer when engaging in sustainable activities. On the other hand, in the subsequent part, the positive relationship between sustainability and firm's value is emphasized. Therefore, it is possible to appreciate the different contributions and to understand how the literature is still debating on these topics. A focus on the way in which large firms communicate with stakeholders is also made, as well as a description of their sustainability reporting practices, together with the ongoing debate on the presence of a perceived bias in their accuracy. Ultimately, the last part is dedicated to the literature on the influence that both managers and investors have on companies' practices and valuations.

2.4.1 Negative effects of sustainability on value

Orienting the attention towards contributions that focus on large established firms, this section will provide evidence on the ongoing debate on the relationship between sustainability and firm's value. In his paper, Huang (2021), describes the financial drivers that lie behind the integration of economic, social and governance (ESG) considerations into investors' decision-making. The first perspective identified in his study reflects the finance theory, according to which the motivation to consider ESG is linked to the fact that financial performance is considered to be positively linked to them

(Huang, 2021). The author also has recognized the role played by agency and signalling theory, arguing that ESG disclosure contributes to decrease information asymmetries between managers and investors in a company. An additional vision states that, through ESG practices, a company strengthens the perception of its existence and the awareness of its activities within the broader society, in line with stakeholder and institutional theory (Huang, 2021). The main findings of the study agree that, generally, capital providers include ESG information into their decision-making process mostly because of their potential positive financial effects. Ethical considerations, thus, are usually left apart, giving predominance to the economic motives (Huang, 2021). Nevertheless, the author has asserted that it is also true that some investors include both financial and non-financial information into their investment choices, considering also factors like ethical consumption and consumers' growing interest in sustainability.

A similar result has been provided by Narayanan and Adams (2017), that in their contribution, have explored the relation between organisational discourses, organisational practices and the consequential change towards sustainability. These two authors in fact have highlighted the contributions of calculative practices and interpretive schemes in the advancement of the transition toward sustainability, taking as a case study an Australian bank. The problem of organization inertia -namely the unwillingness of firms to move from their status quo- according to Narayanan and Adams (2017), can be resolved only through a change of company's beliefs and values. However, when firm's status quo is no longer viable due to some kind of environmental disturbance, organizations are forced to overcome their resistance to change. Accentuated people awareness of sustainability problems, government regulations and employees' environmental consciousness are all examples of disturbance that can lead a company to overcome inertia (Narayanan and Adams, 2017). Nevertheless, the research claims to be aware of the way in which the organization perceives the sustainability pressures: they can be considered primarily as business challenges and only on a second instance as environmental ones. The authors in fact lament that the bank in question has always ranked shareholders' interest first, leaving behind the sustainability's concerns. They conclude that companies are willing to integrate sustainability issues into their decision processes, but only to the extent that there are no clashes with the profit-making rational.

2.4.2 Positive effects of sustainability on value

In a different way, there is a large body of contributions that emphasise the existence of a positive relationship between sustainability and firm's value. In a first instance, Bose et al. (2020) based their study on the argument that CSR reports do not necessarily reflect actual firm's commitment. Company's implementation of CSR practices is more realistically mirrored in its CSR actual expenditure (Bose et al., 2020); with their research thus, the authors wanted to investigate the relation between CSR expenses and capital markets' reactions and firm performance. Bose et al. (2020) have argued that organizations can consider expenditures on CSR activities as a strategic tool to build reputation and consequently increase performance. The results of the investigation have shown that socially responsible investments pay off in the capital markets. Another point that the authors have mentioned is to be aware of the use that managers make of CSR expenditures: if they employ them in an opportunistic way, firm value will be negatively affected; if, on the contrary, they make a wise use of them, the entire company will benefit and market value will increase (Bose et al., 2020). Of a similar opinion are Brooks and Oikonomou (2018), that, in their study, have revealed that environmental disclosure has a positive influence both on financial performance and on actual environmental performance, working as a commitment device.

The contribution of Lopatta et al. (2016) is also relevant, since they have provided evidence that when companies engage in Corporate Social Responsibility (CSR) activities, they are able to reduce the asymmetry of information that is inevitably present vis à vis investors. They also have claimed that these practices allow companies to improve their image and reputation with a modest cost. In the same line of reasoning, Saeidi et al. (2015) in their research have found that CSR and firm performance are positively correlated, not through a direct relation, but they are mediated by other three factors, namely competitive advantage, customer satisfaction and reputation. The logic of this mediated relation, as the authors of this paper have explained, is that costumers' satisfaction affects performance, since buyers become always more loyal through repeated purchases. However, another factor is integrated between the two: reputation in fact plays an important role in attracting customers and keeping them loyal, since it represents the satisfaction of the public when company's products are meeting or exceeding expectations (Saeidi et al., 2015). These authors have argued that these two abovementioned mediators, namely costumers' satisfaction and reputation, constitute

the base of a sustainable competitive advantage. Thus, collectively, these three ingredients represent the foundation for a firm's financial performance through CSR (Saeidi et al., 2015).

Another contribution is the research by Fonseka et al. (2019), that aims to investigate the relationship between environment information disclosure (EID) and a firm's value, measured as its cost of equity capital (COEC) in a sample of Chinese energy firms. The paper also has exploreed whether the energy type supplied by these companies affect the cost of equity capital. The authors have discovered that as the amount of environment information disclosure increases, the cost of equity capital decreases, and vice versa, thus limiting both information asymmetry and agency problems. As far as the second research question is concerned, they have found that some energy products have a positive association with cost of equity capital, while for others the opposite is true. More particularly, high-polluting energy sources increase cost of equity capital of a firm when it increases its environment information disclosure; on the contrary, companies employing low-polluting energy sources and augmenting their environment information disclosure are able to face a reduction in the cost of capital (Fonseka et al., 2019).

Zhou et al. (2017) aimed to investigate whether the use of integrated reporting, that communicates more holistic and comprehensive company's information, is actually valuable for capital markets. This reporting method extends beyond the typical financial information, thus not only it offers to investors a broader view of the company, but it also allows the reporting entities to enjoy a stronger reputation and a lower cost of capital (Zhou et al., 2017). The authors have remarked that the effectiveness of this method is visible through the increasing number of firms that use it voluntarily, as well as the growing attention and interest of investors and regulators on these themes. As Zhou et al. (2017) have observed, in fact, integrated reporting has the merit of decreasing both information asymmetry and uncertainty, thus allowing for a superior performance evaluation. Coherently, the result of the research demonstrates that the more precise a company's integrated reporting is, the more accurate the forecasts of its performance are. Moreover, when a company is committed to enhance the accuracy of its integrated reports, it will enjoy benefits in terms of reduced cost of equity capital and improved market returns (Zhou et al., 2017).

In accordance with this view are also Barth et al. (2017), that, in their study, have asked whether the value of a company is correlated with the quality of its integrated report. They have found that integrated report quality has a positive effect on expected future cash flow and liquidity, since, on the one hand, capital market participants have access to more data and, on the other hand, internal managers can make more informed decisions. Furthermore, integrated reporting has found to have the potential to reduce the cost of capital, through the reduction of uncertainty and information asymmetry. The discovery of a positive relationship between the quality of integrated reports and the predicted future cashflows is coherent both with the idea that integrated reporting can help managers making better decisions and with the belief that when investors are given an improved knowledge of the firm, they are able to revise their estimates upwards (Barth et al., 2017).

Other results in this direction have been provided by the research of Wang and Tuttle (2014), who have investigated whether Corporate Social Responsibility (CSR) performance has a positive effect on investors' credibility of company's financial disclosure. Therefore, since information on the reputation of company's managers is not always available, capital providers leverage on non-financial information to decide the amount of money to invest in the firm (Wang and Tuttle, 2014). The authors have found that companies with a higher level of CSR activities provide investors with an overall impression of trustworthiness and competency, thus augmenting financial information credibility, reducing the cost of equity capital and attracting more capital providers. On the other hand, giving impression of a short-term focus reduces credibility.

The importance of an high level of CSR disclosure is also stressed in the work by De Villiers and Marques (2016), who have argued that companies are willing to disclose their Corporate Social Responsibility (CSR) activities mainly for two reasons: the first lies in the fact that, in this way, they are able to stick with what the community expects from them and, secondly, they allow capital markets to access better information in order to evaluate firm's performance. They have asserted, in fact, that market participants are more inclined to get company's information directly from the company itself. Results of the study communicate that the amount of CSR information disclosed by companies is higher in sensitive industries: a low level of information in these sectors is in fact usually interpreted by investors as a signal that the company has made something

suspicious. Moreover, other factors that, among others, have found to be stimulating for CSR information are a correct protection of investors, a government that works properly, a good level of regulatory quality and the freedom of press (De Villiers and Marques, 2016). As far as companies are concerned, some characteristics as a larger size, good profitability, high level of leverage, strong book-to market ratio and older equipment seem to encourage a higher display of CSR information. The other important finding of this research is that CSR disclosure is actually valued by investors, therefore leading the company to enjoy higher share prices; on the contrary in fact, a low degree of CSR information reduces the firm value, since capital providers can believe that the company has something to hide (De Villiers and Marques, 2016).

Martin and Moser (2016) have inquired which investors' reactions to disclosure of CSR investments are, with the particular focus of discovering whether the influence on future cash flow is a factor that is taken into account by these capital providers. The authors have argued that when a company makes green investments, investors react positively, mirroring their willingness to reward the company for taking up activities of value for them. Moreover, the results of the study demonstrate that when the information on CSR activities displayed by a company is oriented more towards their societal benefits and less towards their costs, financers' feedback is more positive. As a response, managers are able to anticipate those attitudes and act accordingly, building their discourse around the benefits that accrue to society, remaining silent on the costs of CSR activities (Martin and Moser, 2016). De Villiers et al. (2021) have worked on the same topics but with slightly different results: based on the belief that the disclosure of information is highly valued by investors thanks to the possibility to express more accurate financial forecasts, they have explored whether capital providers show willingness to pay for financial, social and environmental information and to which degree. They found that actually shareholders are inclined to pay more only for financial and environmental information, while they are not for social type of disclosure. A shared consensus is lacking also in this field, since the research conducted by Qiu et al. (2016) has revealed opposite results: the authors in fact have found that investors value only social companies' disclosure, providing evidence that the firms furnishing more data on social matters are able to obtain higher market values.

Also Sadiq et al. (2021) in their study have focused on large companies, claiming that CSR (Corporate Social Responsibility) operations enhance firms' reputation and boost long-term business performance. Even if their study concentrates on the Pakistan context, it offers some interesting insights: in Pakistan companies, social and environmental CSR positively contributes to financial performance, intensifies employees' engagement and helps managing the money areas (Sadiq et al., 2021). The authors have affirmed that CSR practices benefit companies in terms of improved image towards society and help them prosper in their industry. Moreover, they believe that putting sustainability at the heart of companies' development is the only way to recover from the global crisis of Covid-19: because of the pandemic in fact many previously planned green projects have been suspended or abandoned, since nations have concentrated their efforts and finances to tackle the health emergency (Sadiq et al., 2021). These authors therefore support an intense CSR activity for both nations' economic recovery and firms' financial performance. Also Provasnek et al. (2017) have agreed that organizations devoted to sustainability outperform those that are less likely to consider sustainability as an essential element in innovation. They argue in fact that firms that are less entrepreneurial in nature and less committed to sustainability, are also less likely to thrive in the long-term (Provasnek et al., 2017).

The contributions from the literature that recognize a positive relationship between sustainability and firm's value continue with the work of Komodromos and Melanthiou (2014), who have claimed that CSR produces multiple benefits for a firm, many of which are intangible: a positive effect on employees, on reputation, on the environment and on stakeholders. CSR in fact reduces company's risk and boosts revenues, therefore enabling firms to gain a competitive advantage over competitors (Komodromos and Melanthiou, 2014). Focusing on the service industry, the authors have claimed that it is essential for organizations to implement some form of CSR practices in order to obtain a competitive advantage and to build a legitimate existence in society, using those practices as a form of advertising to increase sales. However, among all the companies, the smallest ones tend to dedicate less effort to CSR, preferring to concentrate more on other activities. Another consideration is that nowadays always more consumers prefer to buy from companies that they perceive as ethical, since a firm is being considered a good citizen only when it positively affects the people and the community in which it operates (Komodromos and Melanthiou, 2014).

The fragmented results obtained in the literature on the debate of the effect of CSR on firm's performance are derived, according to García-Sánchez et al. (2021), at least in part from the difficulties that investors encounter in understanding the actual firms' commitment in CSR. Friede et al. (2015) in their literature review have concluded that the large majority of studies has found a positive or a non-negative relationship between environmental, social and governance (ESG) practices and firms' financial performance. A similar comprehensive review of the literature has been performed also by Revelli and Viviani (2015) who have found slightly different results: from their analysis they have concluded that the incorporation of CSR considerations in stock market portfolios represents neither a weakness nor a strength with respect to traditional investments. Therefore, despite the attempts of different authors to clarify and synthetize the large body of existing results, a real consensus on the topic has not emerged yet (Revelli and Viviani, 2015).

2.4.3 Communication and disclosure

Dedicating this part to large firms' communication, it is important to highlight the contribution from Zhang et al. (2021), who have explored the relationship existing between company's innovation and the disclosure of management discussion and analysis (MD&A). This research has aimed to explain how firms decide their disclosure strategy in the pursuing of two opposite objectives: providing investors with the necessary information, in an attempt to limit information asymmetry, while avoiding that competitors get access to important data (Zhang et al., 2021). The authors have based their research on the conviction that investors and rivals have diverse information needs: the former are able to gain information from both the content and the tone of MD&A, while the latter wish to capture more detailed and specific information. The results of the study show that companies manipulate both the textual content and the linguistic tone of their disclosure to meet the two competing goals. More particularly, the authors are claiming that companies tend to limit the amount of information present on the textual content, so that they are able to restrict the amount of information available to competing firms, while at the same time they augment the data contained in the linguistic tone to offer more information useful to capital providers. According to the writers, this is especially true for innovative firms, since higher levels of innovations are generally considered good news. At the same time, data on R&D allow rivals to gain specific knowledge, at the disadvantage of the disclosing

firm. Therefore, Zhang et al. (2021) have claimed that this is exactly the reason why companies whose proprietary costs are particularly high are willing to use more generic and boilerplate type of disclosure, exploiting instead a more positive linguistic tone in order to provide information to capital markets.

The importance of an effective and targeted communication is stressed also by Khojastehpour and Johns (2014), who have asserted that the willingness of consumers to purchase goods and services from socially responsible firms leads to a favourable corporate image and affects firm's reputation positively. However, CSR activities to be relevant must be understood and valued by potential customers. If the firm does not communicate its sustainability to the public, investors can't take them into account in their decision making. The purchase of goods from socially responsible firms also directs the companies towards higher economic value due to a premium price at which these goods are sold. Once again, consumers' willingness to pay a higher price is subordinated to buyers' awareness of company's CSR practices and thus to an effective corporate communication (Khojastehpour and Johns, 2014).

Potential problems in implementing a communication that does not reflect properly the actual value of a company are discussed by Hawn and Ioannou (2016). They have observed that, generally, some companies engage in beneficial internal CSR actions without communicating them properly to the external community, while others focus more on external CSR actions and less on internal ones. Starting from these different types of approaches, the authors wanted to investigate what the actual connection between the type of CSR practices conducted by a firm and its market value is. From this study, results have revealed that internal and external CSR actions together boost firm's value, but when there is a mismatch between the two, market value suffers. More particularly, if the firm engages more in external practices than in internal, it could be perceived from stakeholders as "green-washer"; however, when the opposite is true, the market does not have a sufficient knowledge to value the beneficial internal actions (Hawn and Ioannou, 2016). Furthermore, the greater the disconnection between the two types of actions, the lower the firm's market value. Hawn and Ioannou (2016) have observed that, usually, when firms suffer from a gap between internal and external CSR practices, this is mainly due to the fact that some companies are reluctant to display information to the external community, largely for secrecy reasons, but also for fear of

external judgments when their practices are not completely tested, in order to avoid extra pressure from stakeholders. It follows that companies can increase their market value by, on the one hand, engaging in CSR activities and, in the other hand, in communicating these beneficial practices to the external public, that would otherwise be uninformed (Hawn and Ioannou, 2016).

As far as firms' communication strategies, Pesci et al. (2015) wanted to explore companies' narrative and visual disclosure in the context of social and environmental matters in order to detect the presence of repetitions. The authors have argued that the repetition can be used as a rhetorical device in order to generate "impressions" in the reader. In narrative disclosures, repetitions usually serve to ensure cohesion in the report, however, the repetition can assume a different role, becoming a way to form impressions to stimulate reader's learning process (Pesci et al., 2015). As the authors found, in more than 70% of their sample of companies' social and environmental reports, repetition is used extensively at various degrees of intensity, in order to recreate impressions and stimulate new learning. In addition, the research highlights the importance of visual communication in order to allow a better understanding even for those readers that are not expert in the field.

For the purpose of this thesis it is worth mentioning also the research by Diana et al. (2016), that, basing on the premise that the more credible a website is, the more users get engaged, have built a framework describing four different ingredients of websites' credibility: surface credibility, source credibility, reputed credibility and content credibility, and all of them, have a relevant influence on user engagement. Surface credibility, referring to website's appearance, is the first element that is perceived by users surfing the website. Source credibility refers to the perceived trustworthiness of an information source, while content credibility relates to the reliability and accuracy of the content of the message itself. Lastly, reputed credibility concerns users' perception of website's credible reputation, that can be stimulated, for example, by third party recommendation and awards (Diana et al, 2016).

2.4.4 Sustainability reports

As Du and Yu (2021) have remarked, nowadays an increasing number of companies produces stand-alone CSR reports, documents releasing information on organization's practices in the social, environmental, and economic fields. As Qiu et al. (2016) have

remarked, the reporting of non-financial information has growth tremendously in the last decades: while in the 1970s it consisted of only one page dedicated to the treatment of employees, nowadays companies produce entire and detailed reports. The main difference with financial reporting is that CSR is generally voluntarily and unregulated, while financial data are required by law, verifiable and enforceable. Moreover, if financial reporting is primarily targeted to companies' shareholders, CSR communication is devoted to a larger audience of stakeholders (Du and Yu, 2021). This discretionary type of information mirrors companies' self-confidence in their CSR practices, otherwise voluntarily disclosure would be omitted (García-Sánchez et al., 2021).

A particular focus on the sustainability reports of large firms has been provided by Haji et al. (2021). In their work, they have investigated how the valuation of a firm by investors is influenced by the presence of Corporate Social Responsibility (CSR) information in company's financial disclosure. The authors have found that when CSR disclosure is contained in a separate report from the financial one, investors perceive it as more informative, thus their reaction is stronger. Accordingly, when negative CSR information is disclosed separately, the valuation that capital providers assign to the firm is lower. In an opposite way, when positive CSR information is present in a separate report, the perceived firm value is higher than when there is no CSR disclosure (Haji et al., 2021). These authors have interpreted the result remarking the higher impression that a separate CSR report can give to investors: non-financial information contained in a single integrated report in fact tend to vanish, being overcome by economic data. Consequently, they have concluded that when managers wish to attract investors' attention on CSR matters, they should report them into a single separated report. Moreover, Du and Yu (2021) have agreed that when the information disclosed in CSR reports is easily readable and optimistic in tone, it contributes heavily to information sharing and to a positive firm's performance.

Bellucci et al. (2019) also have agreed on the importance of sustainability disclosure, arguing that social, environmental and sustainability (SES) reports are not only aimed at displaying more information and to be accountable towards society, but they are also a mean of engaging in a relationship of mutual responsibility with stakeholders. This argument arises from the emerging practice of dialogic accounting (DA), a critical

accounting perspective that has the goal of reversing the typical approach in which stakeholders' opinions are usually neglected, by incorporating some space and opportunities also to their view (Bellucci et al., 2019). Sustainability reports thus should serve as a vehicle to achieve this aim. In their sample, the authors have investigated the presence of DA by: inspecting the inclusion of stakeholders' viewpoints in the report, the admission of challenges faced by an organization during the stakeholders' engagement process, and the presence of details regarding the methods and procedures utilized to facilitate interaction among various stakeholders' groups. In the subset of companies that do employ DA, the authors have discovered that stakeholders' engagement is omnipresent, and that it actually contributes to company's objectives. However, the existence of dissenting views has been detected in only half of the organizations in the sample (Bellucci et al., 2019).

2.4.4.1 Sustainability reports' accuracy and reliability

A large body of literature focuses on the accuracy and reliability of firms' sustainability reports, revealing contrasting evidence. García-Sánchez et al. (2021) have discovered that CSR disclosure is valuable only to the extent that it is reliable and credible. Clarkson et al. (2011) have focused on a sample of Australian firms from the mining or manufacturing sectors to investigate whether voluntarily disclosed environmental information actually reflects environmental performance. Their research stems from the idea that environmental disclosure could represent a strategic tool that firms can use to boost their legitimacy, in an easier way than to actually implement changes to their operations. The main results of the study in fact assert that the amount of voluntary environmental information that a company discloses is negatively associated with its actual environmental performance. The authors thus have affirmed that in their sample, the companies with higher levels of emissions score higher disclosure indexes. Therefore, implications from this research are that concerns on the credibility of voluntary environmental disclosures are well justified, since both the level and nature of firms' environmental disclosure could reflect in a distortive way its underlying performance (Clarkson et al., 2011).

A similar result is found in the paper by Michelon et al. (2015), who wanted to investigate if CSR practices are reflected in an actual commitment and superior quality of the information disclosed or if, on the contrary, they are only used as a tool to boost company's image with the aim of positively influence stakeholders. The outcomes of

their research give support to the second hypothesis: CSR reporting practices seem to be used in a symbolic way, since they are not combined with superior disclosure quality (Michelon et al., 2015). Moreover, when firms communicate CSR information through a separate report, these details are blended with other data, so that companies seem more willing to disclose only their commitment without revealing important aspects. This fact confirms, according to the authors, that CSR activities are not meant to purely give an answer to accountability demands, and the concerns expressed on them are justified. However, according to the authors also a slightly positive correlation between Global Reporting Initiative (GRI) indicators and firm's performance does exist, so that GRI reporting companies are able to display information in a more complete way, thus acting also in a substantive way, not only a symbolic one (Michelon et al., 2015).

Concerns in this regard have been expressed also by Brooks and Oikonomou (2018), who have argued that, traditionally, companies are willing to display sustainability information in order to accrue some benefits: enhancing reputation and transparency, meeting or exceeding stakeholders' expectations, satisfying employees' motivation. However, the authors have found the presence of some disagreements on the effectiveness of this type of information. Some stakeholders in fact believe that companies, in displaying sustainability information, could be not completely honest, transmitting only the positive data that improve their image, disregarding all the negative aspects. This is also linked to the fact that it is expensive for companies to measure and collect sustainability information, thus usually they are willing to report only the positive data that will outweigh the costs of these measurements (Brooks and Oikonomou, 2018). As a consequence, according to the research, firms with good social and environmental performance will display more information. The authors also have discovered that both companies with a well-established reputation and those that are large in size are more willing to disclose sustainability information, the former in order to maintain their brand value, and the latter in order to respond to their significant public scrutiny.

The same argument is sustained also by Cho (2021), that has commented that companies are very selective in the information that they decide to repot voluntarily: firms do not report all the activities that they engage in. According to him, companies report their sustainability in order to show it to the public, but actually they continue to

do business as they have always done. More particularly, Cho (2021) has made an analogy between sustainability reporting and zoos: both are meant to show something in a way to give people the impression that everything is good, while actually a simple display of both (animals and sustainability) it is not sufficient to conclude that everything is good in the world, they could be just an illusion. This author hence has concluded that, as far as sustainability reporting is concerned, words matter more than actions.

Similarly, Diouf and Boiral (2017) in their paper wanted to investigate stakeholders' opinions on the quality of companies' GRI (Global Reporting Initiative) reports. Sustainability reports, according to the authors, may serve as an impression management instrument targeted at influencing stakeholders' opinions, rather than as a way to give additional information. Results from their research have argued that many sustainability reports are not balanced, in the sense that they show all the positive data, while hiding the negative ones, that are instead received by investors from external sources. Moreover, most of GRI indicators are found to be incomparable between companies and time and also inaccurate in the information that they provide (Diouf and Boiral, 2017). Another problem mentioned by the authors lies in the fact that usually investors need to take decisions rapidly, but, due to their inherent complexity, sustainability reports are usually released too late. Lastly, the authors also lament lack of clarity and reliability in GRI reports, suggesting the employ of an external auditor in order to verify the information and to render them more credible. Therefore, GRI indicators are frequently chosen, changed, or modified following the demands of businesses; however, despite these drawbacks, they still constitute a significant instrument to improve the standardization and rigor of reports (Diouf and Boiral, 2017).

Grahn (2020) wanted to investigate the relationship between environmental liability regime and managers' propension to reduce pollution and to report accurately. He has based his study on the assumption that a shareholder delegates environmental pollution choices to a manager, considering that the former can't control the results and that the latter receives a compensation whenever he is able to reduce pollution. The author has identified three different possibilities: (1) no liability scenario; (2) strict liability scenario, in which the organization is liable for the damages provoked by its pollution; (3) a negligence rule, in which the condition of the previous scenario is applied in the

cases in which the company acts negligently. The results of the study have affirmed that only the strict liability provides effective incentives for actual pollution reduction, since shareholders are responsible for pollution damages, thus being worse off if managers manipulate pollution reports. On the contrary, in the negligence scenario, the Environmental Performance Index (EPI) accuracy and the actual pollution level have a non-monotonic relationship, therefore in this case, the correctness of EPI plays a role, since, in the event that managers manipulate them, actual pollution increases, and environmental damages are provoked. Moreover, under this regime, shareholders are better off when managers are able to manipulate EPI, since in this way there is less chance of being considered negligent, thus of having to pay for the damages (Grahn, 2020).

Different results are obtained by Clarkson et al. (2020), who have found a positive relation between CSR performance and the level of disclosure. The authors have claimed that linguistic features predict the CSR performance type: good CSR performers are recognizable by a more sociable and cooperative attitude, characteristics that reflect their greater commitment. The findings of the study have highlighted that when good CSR performers employ a language that is plain in the reports, their valuation is boosted. Another observation by the authors is that poor CSR performers utilize a tone that is more negative than the one of good CSR performers. The major results of the research therefore are that not only the quantity of words of the CSR reports is important, but also the "how", so the way in which these documents are written plays a role: linguistic features of a CSR report are hence significant to forecast CSR performance type (Clarkson et al., 2020).

Stuart et al. (2021) aimed to explore if, when a negative occurrence is experienced by a company, the disclosure of previous CSR practices is able to tackle negative investors' reactions. The authors also asked whether capital providers value CSR activities that are exclusively related to benefits for society or if they need also a more strictly financial motivation. Their findings have indicated that prior of a negative event, investors primarily investigated the effect on future cash flows of CSR initiatives, while, with a negative occurrence taking place, they are inclined to judge management's practices in a more ethical way, in order to understand the cause of the corporate's difficulty. Consequently, according to the authors, when a company aims to exclusively benefit

society through CSR activities, it is able to demonstrate that managers are not at fault; assurance of CSR disclosures is another way to demonstrate an other-regarding culture, even when CSR initiatives have also financial ends (Stuart et al., 2021). The authors thus have concluded that assurance proves essential to mitigate the drawbacks of "financial CSR" in the case of negative events.

2.5 The influence of investors

In the literature it has been remarked more than once the fact that both investors and managers' characteristics have an impact on the valuation and success of a company. Kuselias (2020) in his study has asserted that positive social information about a company influences the investment decision in different ways depending on the degree to which capital providers share organization's identity. He has found that shared identifiers are willing to invest more in a company with positive social information compared to other investors. However, paradoxically, the capital providers that identify themselves with the organization are more willing to invest in it also when negative social information is disclosed, therefore even if the predicted future profit is low (Kuselias, 2020). Consequently, the author has demonstrated that these investors are ready to sacrifice financial gains in order to foster their social identification with the company and their connection to the group. Moreover, the study stresses the importance of the electronic word of mouth (eWOM) in helping investors in their funding decision. Results have indicated that positive eWOM plays a role for a company in engaging investors and this effect is amplified when capital providers are shared identifiers with the organization. This outcome has led the writer to conclude that, as far as social information is concerned, people who are deeply committed to a social identity support the organization both in good and bad times, while weakly committed ones shift back to individual positions when confronted by a threat (Kuselias, 2020). A similar result has been found by Bergset (2018), who has claimed that entrepreneurs' motivation to contribute to sustainable development influences the choice of the type of investors with which to interact: sustainable start-ups need investors who share the same values in order to avoid "mission drifts".

Chen and Gavious (2015) have investigated the influence of investors' characteristics on companies' CSR practices. They have separated investors in two groups: on the one hand, investors trading shares on the exchange, and on the other hand investors buying shares in large transactions outside the exchange (for example mergers and acquisitions

-M&A-). The authors have argued that this latter investor type possesses more information about the firm as well as a higher amount of company's stakes compared to the previous one. Findings have suggested that, even if M&A investors are able to gain more data on firm's intrinsic value compared to exchange investors that are less informed, large M&A investors do not assign a higher value to firms committed to sustainability, convinced that those practices offer no additional profit potential. On the other hand, exchange investors do value positively firms' CSR (Chen and Gavious, 2015). This work hence remarks once again the prominent role of investors' characteristics on firm's value.

2.6 The influence of managers

Building his study on the idea that investments in companies are characterized by a high level of risk and information asymmetry, Köhn (2018) has asserted that it is remarkably challenging to assign a valuation to a young company. His main result has asserted that companies' determinants are either financial or non-financial in nature, with the latter type of information considered as the aggregation of some meaningful firms' characteristics. The author in fact has claimed that founder and team characteristics affect companies' valuations, since having more than one founder and a complete management team positively affect the assessment. Other drivers of superior valuation include founders' prior experience and managers' industry knowledge. Köhn (2018) also has admitted that the acquisition of intellectual property is a relevant factor for Venture Capitals (VCs) in their companies' evaluation, since in this way they are able to diminish information asymmetry. Similarly, Czaja et al. (2021) have argued that team's education does not influence project's funding success, while the number of team members does.

Everaert et al. (2019) have analysed the impact of top managers' characteristics on social-accountability practices. More particularly, their aim was to understand if managers' ethical ideology plays a role in the perceived importance of Corporate Social Information (CSR) and in the decision to report this type of information on company's website. Actually, the authors have found that chief executive officers (CEOs) with a prominent interest for social issues prioritize altruistic values, while low social interest managers tend to focus on self-centred ones. The main result is that when CEOs believe in the stakeholders-oriented perspective and when they are more idealistic, they are inclined to display more CSR information on their company's website, thus there is an actual link between their ethical ideology and the importance assigned to CSR concerns.

On the contrary, highly relativistic CEOs tend to be less focused on ethical and social considerations, being more likely to take into account also harming alternatives. Everaert et al. (2019) therefore have concluded that before their organizations will publish CSR matters on their websites, managers must first believe that ethics and social responsibilities are crucial.

Vaznyte and Andries (2019) have inspected the influence of entrepreneurial orientation (EO), -namely a start-up's willingness to take on innovative practices, predisposition to take risks, and reactiveness in exploiting market opportunities– on financing decisions. Evidence from this research has indicated that, as far as less risky industries are concerned, firms with a scarce entrepreneurial orientation are more inclined to prefer external debt over external equity as a source of financing, while the opposite is true in the case of companies with higher entrepreneurial orientation. On the other side, organizations operating in riskier industries tend to rely more on external debt when they have a better fit with the unpredictable climate. Moreover, companies' entrepreneurial orientation shows a superior influence on financing choice during the early stages of the life of the company (Vaznyte and Andries, 2019). Nevertheless, the main contribution of these authors is that a firm's external financing decision depends both on the costs and on the benefits of the various capital sources, and it is exactly for this reason that companies with a low degree of entrepreneurial orientation employ more external debt than equity; while the ones with higher amount of EO utilize more equity financing (Vaznyte and Andries, 2019). In conclusion, entrepreneurial orientation is connected to the choice of which external financing to employ, and company's development stage and industry risk also play a role.

Table 1: *Summary table of the literature review on large established firms*

AUTHORS	RESEARCH FOCUS	KEY FINDINGS
Huang (2021).	Financial drivers behind the integration of (Environmental, Social and Governance) ESG factors into investors' decisions.	Investors include ESG information into their decision-making process mostly because of their potential positive financial effects. Ethical considerations are usually left apart.
Narayanan and Adams (2017).	The relation between organisational discourses, organisational practices and the change towards sustainability.	Companies are willing to integrate sustainability issues into their decision processes only to the extent that there are no clashes with the profit-making rational.

Bose et al. (2020).	The relation between CSR expenses and capital markets' reactions and firm performance.	Socially responsible investments pay off in the capital markets, but managers should make a wise use of CSR expenditures. If they behave opportunistically firm value will be negatively affected.
Brooks and Oikonomou (2018).	The effect of environmental, social and governance disclosures on firm's value.	Environmental disclosure has a positive influence on financial and environmental performance, working as a commitment device. Stakeholders believe that companies could be not completely honest in displaying sustainability information, disclosing only positive news.
Lopatta et al. (2016).	The benefits of Corporate Social Responsibility (CSR).	Companies' CSR strategy actually reduces information asymmetry.
Saeidi et al. (2015).	The contribution of Corporate Social Responsibility (CSR) to firm's financial performance.	CSR and firm performance are positively correlated through the mediation of competitive advantage, customer satisfaction and reputation.
Fonseka et al. (2019).	The relationship between environment information disclosure and firm's value.	There is an inverse relation between the amount of environment information disclosure and the cost of equity capital.
Zhou et al. (2017).	The value of integrated reporting for capital markets.	Integrated reporting decreases information asymmetry and uncertainty, allowing more accurate performance evaluation, reduced cost of equity capital and improved market returns.
Barth et al. (2017).	The relationship between the quality of the integrated report and firm's value.	Integrated report quality has a positive effect on expected future cash flows and liquidity and it reduces the cost of capital. Capital market participants have access to more data and internal managers make more informed decisions.
Wang and Tuttle (2014).	The effect of Corporate Social Responsibility (CSR) performance on investors' credibility of company's financial disclosure.	Higher levels of CSR activities provide investors with impression of trustworthiness and competency, augmenting financial information credibility and reducing the cost of equity capital.

De Villiers and Marques (2016).	The reasons for disclosing Corporate Social Responsibility (CSR) performance.	CSR disclosure is valued by investors, leading the company to enjoy higher share prices. Low levels of CSR information reduce firm's value, since capital providers can believe that the company has something to hide.
Martin and Moser (2016).	Investors' reactions to companies' disclosure of Corporate Social Responsibility (CSR) investments.	Investors react positively to companies' green investments. When CSR information is oriented more towards societal benefits and less towards costs, financers' feedback is more positive.
De Villiers et al. (2021).	Capital providers' willingness to pay for financial, social and environmental information.	Investors are inclined to pay more only for financial and environmental information, while they are not for social type of disclosure.
Qiu et al. (2016).	The relation between environmental and social disclosure and corporate financial performance.	Investors value only social companies' disclosure, and the reporting of non-financial information has grown tremendously in the last decades.
Sadiq et al. (2021).	The contributions of Corporate Social Responsibility (CSR) activities to firm's financial and non-financial performance.	Social and environmental CSR operations enhance firms' reputation and image and boost long-term business performance.
Provasnek et al. (2017).	The role of sustainability on entrepreneurs' strategy towards innovation.	Innovative organizations engaged in sustainability outperform those that do not.
Komodromos and Melanthiou (2014).	The relationship between strategic Corporate Social Responsibility (CSR) and corporate reputation.	CSR produces multiple benefits for a firm: positive effects on employees, on reputation, on the environment and on stakeholders. CSR reduces risk and boosts revenues, enabling firms to gain a competitive advantage.
García-Sánchez et al. (2021).	The relationship between Corporate Social Responsibility (CSR) and financial market outcomes.	Discretionary information mirrors companies' self-confidence in their CSR practices. This disclosure is valuable only when it is reliable and credible.
Friede et al. (2015).	Review of the existing literature on the relationship between Environmental, Social and	The majority of studies has found a positive or a non-negative relationship between ESG practices and firms' financial performance.

	Governance (ESG) activities and financial performance.	
Revelli and Viviani (2015).	Review of the existing literature on the relationship between socially responsible investing and financial performance.	The incorporation of CSR considerations in stock market portfolios is neither a weakness nor a strength compared to traditional investments.
Zhang et al. (2021).	The relationship between company's innovation and the disclosure of management discussion and analysis.	Companies limit the information present on textual contents, to restrict the amount of information available to competitors, while they augment the data contained in the linguistic tone to offer more information to capital providers.
Khojastehpour and Johns (2014).	The relationship between Corporate Social Responsibility (CSR) activities and corporate reputation and profitability.	Consumers' willingness to pay a higher price for products and services from socially responsible firms is subordinated to their awareness of CSR practices: an effective corporate communication is essential.
Hawn and Ioannou (2016).	The connection between the type of Corporate Social Responsibility (CSR) practices conducted by a firm and its market value.	Internal and external CSR actions together boost firm's value, but when there is a mismatch between the two, market value suffers.
Pesci et al. (2015).	Companies' narrative and visual disclosure on social and environmental matters.	Repetition is used extensively at various degrees of intensity by companies in their disclosure in order to recreate impression and stimulate new learning.
Diana et al. (2016).	The relationship between website credibility and user engagement.	Surface credibility, source credibility, reputed credibility and content credibility, the four main ingredients of website credibility, all have a relevant influence on user engagement.
Du and Yu (2021).	The effects of Corporate Social Responsibility (CSR) report readability and tone on future CSR performance and markets' reactions to CSR reports.	When CSR reports are easily readable and optimistic in tone, they contribute heavily to information sharing and to positive firm's performance.
Haji et al. (2021).	The influence of Corporate	When CSR information is communicated in a

	Social Responsibility (CSR) disclosure in the valuation of a firm by investors.	separate report the impression given to investors is higher. Non-financial information contained in an integrated report tends to be overcome by economic data.
Bellucci et al. (2019).	The role of sustainability reporting and stakeholders' engagement processes in dialogic accounting.	Social, environmental and sustainability reports are also a mean of engaging in a relationship of mutual responsibility with stakeholders.
Clarkson et al. (2011).	The accuracy of voluntarily disclosed environmental information in reflecting environmental performance.	The amount of voluntary environmental information that a company discloses is negatively associated with its actual environmental performance.
Michelon et al. (2015).	The relation between company's Corporate Social Responsibility (CSR) practices and its actual commitment.	CSR activities are frequently used to boost company's image to positively influence stakeholders. Therefore, CSR reports are used in a symbolic way.
Diouf and Boiral (2017).	Stakeholders' opinion on the quality of companies' Global Reporting Initiative (GRI) reports.	GRI indicators are frequently chosen, changed, or modified following the companies' needs.
Grahn (2020).	The relationship between environmental liability regime and managers' propension to reduce pollution and to report information accurately.	Only the strict liability scenario provides effective incentives for actual pollution reduction, since shareholders are responsible for pollution damages, thus being worse off if managers manipulate pollution reports.
Clarkson et al. (2020).	Disclosure patterns in Corporate Social Responsibility (CSR) Reports.	A positive relation exists between CSR performance and the level of disclosure; linguistic features of a CSR report are significant to forecast CSR performance type.
Stuart et al. (2021).	The role of Corporate Social Responsibility (CSR) practices in tackling company's negative occurrences.	Disclosure of previous CSR practices are essential for companies to mitigate the effects of negative events in the eyes of investors.
Kuselias (2020).	The influence of investors' social identity on investment decisions.	In a company positive social information influences the investment decision in different ways depending on the degree to which investors share organization's identity.

Chen and Gavious (2015).	The influence of investors' characteristics on companies' Corporate Social Responsibility (CSR) practices.	Investors trading shares on the exchange value positively firms CSR, while mergers and acquisitions (M&A) investors do not assign a higher value to firms committed to sustainability.
Everaert et al. (2019).	The impact of top managers' characteristics on social-accountability practices.	There is an actual link between CEO's ethical ideology and the importance they assign to Corporate Social Responsibility (CSR) concerns. CEOs that believe in the stakeholders-oriented perspective are inclined to display more CSR information on their company's website.
Schoenmaker (2018).	The sustainable finance framework and the tensions between shareholders and stakeholders' perspectives.	The financial system has a major role in sustainable development: it directs resources to their most efficient use, it assigns investments to sustainable companies to foster the transition to a low-carbon economy. Investors can influence companies' sustainable practices.
Cunha et al. (2021).	Review of the existing literature on sustainable finance and investments.	Sustainable finance and investments integrate social and environmental considerations into decisions-making and tackle long-term global sustainability issues. Four actors impact sustainable finance and investments: providers, recipients, supporters, beneficiaries.
Ziolo (2021).	The role of finance in achieving Sustainable Development Goals (SDGs).	In order to achieve SDGs countries should have sustainable, effective and integrated finance models; therefore, governments should promote synchronous sustainability between public and private financial systems.
Andrew and Baker (2020).	Review of the existing literature on Corporate Social Responsibility (CSR) reporting.	In the accounting literature, three main directions of research with specific scopes of investigation have been identified: descriptive, instrumental, and normative.

Source: Personal elaboration from the literature review phase of the work

In conclusion, this chapter has highlighted the massive body of literature existing on firm's sustainability, revealing that consensus has not been reached neither on its effect on company's value nor on its reliability and trustworthiness. However, due to the recent debates on climate change, it remains a relevant topic that is always more investigated.

CHAPTER 3 - START-UPS

This chapter provides the reader with a complete understanding of start-ups, starting from their definition and formation process to a deep review of the existing literature on them. More particularly, it focuses on the relationship between start-ups and sustainability, describing how different authors have deduced dissimilar inferences from their investigations.

3.1 Formation and early stages' trends

This thesis concentrates on start-ups employing between 1 and 50 people; the Organisation for Economic Co-operation and Development (OECD) Statistics Directorate (2022) differentiates two categories of companies in this employee range: micro firms employing at most 10 workers, and small firms having less than 50 employees. The same categorization is supported also by Erasmus for Young Entrepreneurs (2022) in its website. These small and micro firms play an essential role in the development of world's economies, since they elaborate new technologies and radical innovations that can be exploited to improve the current economic models and to give benefits to entire societies (Piccarozzi, 2017).

The process of start-ups' formation and development has been clearly explained by Jeong et al. (2020) in their paper. They have argued that a company originates from a new opportunity discovered in the market; in its first phase the product is still an idea, therefore there is not a specific business plan nor precise technical knowledge and adequate skills to support the growth of the start-up. In the subsequent stage, the firm starts having an own shape, thanks to the development of a business plan that is followed till the expansion phase, when the company organizes its work around a group of skilled workers and gradually enlarges its market presence through advertising, having benefitted from positive responses from its public. During the last phase, the

start-up becomes successful in the market and enjoys increased sales (Jeong et al., 2020).

More particularly, each funding status during start-ups' lives is different from one another according to this classification provided by Crunchbase database:

Table 2: Four different types of funding status during start-up's life

Seed	The first round of funding a start-up receives in its infancy that contributes to its formation; the founder might have an idea for a product or service; the company is working to gain traction.
Early-Stage Venture	A start-up releases its product in the market, fine-tunes its market strategy and develops its sales channels further. Product or service development needs a large sum of capital to operationalise.
Late-Stage Venture	Start-up has already developed its core product and its target market, demonstrating some level of viability. Stronger presence in the market, well-known products and strong growth potential characterize this stage.
Private Equity	Start-up has already proven itself to have a successful business model and its operations get less risky. More and new capital providers expect to invest significant sums of money in it.

Source: Personal elaboration from Crunchbase data on start-ups' funding status

It goes without saying that from their formation and during all their development stages, a fundamental role in the survival and in the success of start-ups is played by the access to financial resources. Bergset (2018) has claimed that an adequate funding is essential to guarantee the success of a start-ups, since all types of challenges faced by these young firms emerge from their difficulties in raising the needed capital, due to a lack of collateral and inexistent credit history, that fail to provide investors with appropriate benchmarks for their decisions (Bergset, 2018). Also Laitinen (2019) has agreed that, during their initial phase, young firms, due to their inherent unstable development, lack the necessary means to provide investors with the adequate information to form a complete valuation. In this respect, Bruna and Nicolò (2020) have asserted that start-ups worldwide, due to their limited access to financial resources, are at a significant danger of going bankruptcy, and their typical survival rate in the first five years of life is approximately only 52% (USA data). This vulnerability is due to the difficulties they

suffer in accessing appropriate resources, causing them to remain structurally undercapitalized and fragile (Bruna and Nicolò, 2020).

Due to their limited experience in business and the scarce knowledge of the external environment, start-ups usually have to act and to take their most important decisions in extremely uncertain contexts. In order to be able to access a greater amount of information about their environment, it is not infrequent that young firms create networks and collaborations for their mutual benefits: in this way they become able to economise on the acquisition of the necessary information (Keidel et al., 2021). This argument is supported also by Escalfoni et al. (2020), who have argued that start-ups form business communities in which all the parties engage in activities to create mutual benefits. This is the reason why a multitude of start-ups tends to establish in a specific area: economies of scale and network effects give benefits to those companies and make them in the condition to contrast the structural challenges that they face to survive and prosper (Gazel and Schwienbacher, 2021). However, the same authors have argued that start-ups concentration could also represent a risk because firms engage in competitive behaviours with one another in order to obtain some kinds of competitive advantages.

3.2 Challenges and difficulties

Contrasting evidence is found in the field of the difficulties that sustainable start-ups have to deal with. Bergset (2018), aware of the importance of finance for start-ups, has investigated the challenges that green start-ups have to face to access financial resources. The author has defined "green" start-ups as those that market environmentally friendly products or services, thus providing a positive environmental impact. The main finding of Bergset (2018) is that those green start-ups generally do not face additional challenges in accessing finance compared to traditional young firms. On the contrary, according to the author, a scarce business education and a high level of innovativeness are likely to be the major drivers of difficulties for green start-ups.

An opposite perspective was given by the contribution of Hoogendoorn et al. (2019), that, in their study, wanted to investigate the perceived difficulties that sustainable entrepreneurs face compared to those experienced by regular ones. They have defined sustainable entrepreneurs as those who start a new business not only to address self-interests but also to accommodate collective social and environmental needs. The results of the study have revealed that more institutional barriers are likely to be

perceived by sustainable entrepreneurs than by traditional ones. These obstacles are explained in terms of a difficult access to financial, administrative, and informational resources. However, the risk attitudes of sustainable entrepreneurs are approximately similar to that of conventional ones, even if sustainable entrepreneurs are more inclined to fear personal failure, both of financial and non-financial type, mainly due to the varied and complex relationships that they instal with their stakeholders (Hoogendoorn et al., 2019). Moreover, in today's societies, the discrepancy between the creation of private value and the generation of social value poses an additional challenge for sustainable entrepreneurs. Access to financial resources is perceived as a strong barrier for sustainable entrepreneurs since capital providers are usually reluctant to invest if they are unsure about the financial return, and standardized measures for the evaluation of sustainable businesses' performance are lacking (Hoogendoorn et al., 2019).

An analogous argument is developed by Ribeiro-Soriano et al. (2021), who, leveraging on the idea that companies are key actors in the transformation toward sustainability, have affirmed that firms should simultaneously contribute to economic, social, and environmental issues, committing to triple-bottom-line value creation. These authors have found that start-ups' rush towards sustainability is challenging because these young firms are expected to be more innovative and more credible than larger firms in their approach to sustainability. Start-ups in fact are expected to be able to simultaneously maximize profit and generate economic, ecological, and social value. Ribeiro-Soriano et al. (2021), nonetheless, have admitted that sustainable start-ups that devote disproportionate attention to environmental and social activities risk generating negative financial performance and strive to survive.

As far as specific sectors are concerned, also start-ups that define themselves as pertaining to the sustainability industry are largely dependent on the amount of financial resources that they are able to acquire. Sustainable entrepreneurs in fact usually experience particular challenges in the relationship with investors; due to the existence of a high level of information asymmetry, green companies need to specifically disclose personal information to their capital providers (Bergset, 2018). These young firms' success is in fact strictly influenced by the financial means they dispose of in their initial stages, since appropriate capital can contrast their liquidity and performance problems, representing the way through which they can survive from early failure

(Bergset and Fichter, 2015). The same is true also for start-ups pertaining to the financial sector, dominated by a high degree of digitalization and automation (Beinke et al., 2018). Despite the potential advantages that financial start-ups could enjoy, thanks to their innovations and technological advancements, in their early stages they are strongly in need of differentiating themselves from competitors, leveraging on factors such as lower fees and faster transaction times to obtain some kinds of competitive advantages. Fintech companies in fact develop innovative business models that improve the process, delivery, and use of financial services (Mention, 2019). According to this author in fact new companies are able to provide in a more efficient, agile and differentiated way financial services, that were once provided only by large traditional financial institutions.

3.3 Remedies and strategies

As far as the strategies and the remedies that start-ups can exploit in mitigating these challenges, Gazel and Schwienbacher (2021) in their paper have argued that the digital economy grants firms profitable possibilities to innovate. According to the authors, these opportunities are amplified in the financial industry, since start-ups are able to offer new, user-friendly financial services based, among others, on blockchain, smart contracts and artificial intelligence that are more efficient than those of established firms. Haddad and Hornuf (2019) have investigated the factors that most influence the formation and the development of fintech start-ups, acknowledging that when a country's economy is well-developed and when there is availability of venture capital, more fintech start-ups are formed and able to prosper. This is also a consequence of the fact that, according to what the author has discovered, when the economy is well developed, individuals ask for more asset management services. Moreover, the number of secure internet servers, together with the available labour force, positively influences start-ups' survival and development. Another factor that Haddad and Hornuf (2019) have found to be an enabler of fintech start-ups' formation and growth is the difficulty that other companies encounter in accessing loans in their country. The supporting infrastructure also plays a role, since when technical advancements and the latest technology are available, fintech entrepreneurs can rely on them for the advancements of their start-ups (Haddad and Hornuf, 2019).

Again, keeping the focus on the financial industry, Mention (2019) instead has analysed the difficulties that start-ups encounter in their formation and growth: despite the

technological advancements that they can offer, these firms strive to deliver a precise value proposition, since they offer is service-based and they often face an unclear product-market fit. However, importantly, to scale up, fintech firms need to raise fundings, especially from venture capitalists, that call for exclusive and uncommon offerings with high potential (Mention, 2019). The writer of this study also has asserted that fintech firms must develop trust with consumers, in order to reassure them of their data security and reliability.

Continuing with the studies that describe the elements supporting the success of a sustainable start-ups, in his research, Bocken (2015) has highlighted the role of venture capitalists. This author started from the premise that companies engaged in the protection of the natural and social environment will gain a competitive advantage in the following years; thus, he has claimed, sustainability is also a business' opportunity. Venture capitals are central for the development of young firms, since they have the potential to make them grow faster, creating more value. In identifying their target businesses, sustainable venture capitalists face a dual challenge: they have to find the firms that simultaneously generate economic returns and have a positive impact on environment and society (Bocken, 2015). Therefore, the role of venture capitalists is stressed by the authors for both the capital that they provide and the business advice that they can give to the new firms.

An argument supporting Bocken (2015) is the one by Jeong et al. (2020) that, in their study, have investigated the relationship between Venture Capital (VC) investments and start-ups sustainable growth and performance, demonstrating that when VC investments are made at the initial stage of the companies, start-ups perform better. According to the authors, this benefit arises from the fact that VC firms provide companies not only with financial resources, but also with valuable intangible assets, experiences and advice, since VC firms usually participate actively in the management and control of the business process, thus reducing information asymmetry. In order to address the difficulties that start-ups face in attracting capital, Jeong et al. (2020) have argued that knowledge of VC firms constitutes a valuable resource and allow start-ups to obtain competitive advantages. Due to the information asymmetry that characterizes each firm in its initial stage, VC firms are very selective on the company in which to invest, choosing only the ones that they consider of higher growth potential.

Consequently, being chosen for a VC investment in their initial stage is of paramount importance for start-ups in order to signal their quality and value, otherwise unprovable due to lack of concrete performance (Jeong et al., 2020). The main result of Jeong et al. (2020) is in fact that start-ups that have secured VC investments are able to gain higher performance levels and market expectations, and the earlier a start-up receives that investment, the better it performs. This critical role of VC investors in start-ups' valuations is stressed also by Köhn (2018).

Another crucial role in start-ups' survival is played, as Bruna and Nicolò (2020) have mentioned in their paper, by corporate reputation. Young firms in fact suffer from a lack of background, thus stakeholders possess no proofs on which to base their decisions (Bruna and Nicolò, 2020). Hence, in order to get access to resources, it is paramount for start-ups to establish solid fiduciary relationships with stakeholders. It is exactly for this reason that Yue et al. (2019), in their research, have discovered that Chief Executive Officers (CEOs) are constantly increasing their social media presence, as a relevant and cost-effective mean with which to establish a dialogue with their public, build corporate brand, image and reputation. In analysing start-ups during their research, these authors have found in fact that online interactions foster a sense of community, connecting directly firms and stakeholders, and for this reason they are a perfect tool for entrepreneurs, who are usually resource-limited and in need of assigning their scarce resources in order of importance. Otherwise, entrepreneurs in fact would tend to neglect communication activities, leaving them to be handled in an ad hoc and cost-effective basis and concentrating more efforts on core operations (Yue et al., 2019). On the contrary, as the authors have affirmed, established firms are able to take advantage of their reputation and resources to build their brand.

3.4 Communication and signalling

As far as start-ups communication and signalling, Van Werven et al. (2015) have asserted that entrepreneurs confront with the challenge of promoting their distinctiveness with respect to competitors in the eyes of capital providers. These authors have claimed that entrepreneurs have at least six different types of arguments at their disposal in order to complete this task. The first category is "argument by analogy": entrepreneurs can use analogies as effective tools to promote their arguments. Secondly, they can employ "argument by classification": they exploit an accepted generalized conclusion to refer to their specific case. The third category proposed is

"argument by generalization," that is the opposite of the previous one: start-ups' founders exert an inductive reasoning to start from their specific case and build a law or a structure. With the "argument by cause", entrepreneurs stating a causal link between phenomena are able to assign creative power to particular facts. Another method available is "argument by sign", used by entrepreneurs when they assign to a specific characteristic the power to be an expression of a more general event, thus correlating two factors positioned in different levels. Last, "argument from authority", occurs when people link others' credibility to the one of themselves (Van Werven et al., 2015).

The relevance of the quality of the information that companies display to the public has been stressed also by Lins et al. (2016): analysing companies' projects in crowdfunding platforms, they have argued that visible information constitutes a major determinant to transmit relevant aspects about projects, which then influences the crowd's funding decision and is relevant for successful outcomes. Similarly, studying initial coin offerings (ICOs), Czaja et al. (2021) wanted to investigate the effective quality signals that determine ICO funding success. Since ICO investments are characterized by the principal–agent problem, project representatives strive to reduce information asymmetry in order to attract investors' funds (Czaja et al., 2021). Useful quality signals that play a role in this process, according to the authors, are the ones that proxy for venture quality, since early stage ICO projects cannot provide precise performance measures. Therefore, entrepreneurs are committed to show unambiguous information and potential risks through detailed ICO parameters in order to stimulate transparency and funding success (Czaja et al., 2021). Thus, a major point of this contribution is that funding success is positively related to projects' active communication. This concept is applied also in the social media context, since consumers increasingly make use of them to get information on unknown brands, stimulating entrepreneurs to intensify their social presence and communication in order to receive more funds from investors (Czaja et al., 2021).

As another signal of quality that start-ups can exploit, Islam et al. (2018) have examined the effect that government research grants have on the venture capital financing of technological start-ups. The authors have underlined how relevant for start-ups is to get those grants, since these awards can be exploited by companies as signals of quality, and they can be tools that are even more powerful than the traditional patents. Their study

has revealed that venture capitalists actually value these grants, and thus they are willing to provide more funds to awarded companies. Other two important points mentioned by these authors are that venture capital firms respond rapidly to grant announcements, another signal of their real value, and that start-ups possessing a lower number of patents are favoured in this process. One important conclusion hence is that, despite the numerous challenges that start-ups, by their very nature, have to face, there are important signals provided by policymakers that enable them to surmount difficulties (Islam et al., 2018).

3.5 Negative effects of sustainability on value

Concentrating the discussion on start-ups, as previously mentioned, De Lange (2017) has built all his investigation on the question: *"If start-ups are most often struggling to find resources, does a start-up enhance its chances from an investor's perspective by being sustainable?"* (De Lange, 2017, Start-up sustainability: an insurmountable cost or a life-giving investment? Journal of Cleaner Production, 156, page 838). Therefore, the aim of the author has been to question whether a start-up could have the potential to build its reputation and legitimacy through sustainable practices that are valued by society. In the regression of his work, De Lange (2017) treated as dependent variable the amount of money invested in the companies by capital providers. He then leveraged on start-ups' business model to investigate whether sustainability is central for the company or not. The results of the study have indicated that investors consider Corporate Social Responsibility (CSR) practices as not having a relevant profit potential in a business. Moreover, he also has found that a sustainable start-up has no profit-making advantages from investors' point of view. Thus, De Lange (2017) has asserted that investors are not attracted by start-ups' sustainable mission nor by their sustainable business model. In a similar way, according to the author, capital providers neither value the environmentally sustainable context in which start-ups operate, while they consider slightly favourable a context that is socially sustainable. The author in fact has affirmed that when start-ups also have objectives other than profit, capital providers are unsure about value capture. These results hence have demonstrated that investors are primarily driven by financial returns and avoidance of business risk rather than by sustainable initiatives, so De Lange's (2017) comment that it will not be investors the ones that drive the sustainability transition is justified.

3.6 Positive effects of sustainability on value

Of a different opinion are Paoloni and Modaffari (2021), that, in their paper, have found that from the performance evaluation perspective of start-ups, considering economic, social and environmental aspects is fundamental to achieve competitiveness in the long-term. A similar argument is expressed also by Bergset and Fichter (2015) that, in their paper, have asserted that in our current society stakeholders do not focus exclusively on short-term profits, but they expect firms to meet a triple bottom line of economic, environmental, and social value creation. These authors then have affirmed that companies in pursuing their green orientation can focus on one or more aspects: product-related characteristics, entrepreneur-related characteristics, strategy-related characteristics. These three categories are of central importance for investors that decide whether or not to put their money in the company. Green start-ups and sustainable entrepreneurs are in fact usually the targets of value-oriented sources of capital like "sustainable" business angels, green venture capital firms, venture philanthropists, social banks, microfinance, crowdfunding platforms (Bergset and Fichter, 2015).

This line of thinking is also supported by Halberstadt et al. (2014), who have argued that companies that since their first stage address sustainability matters will have an advantage over the others. This is because in the future, when these companies will be mandated by law to state their environmental and social impacts, those that are already used to do it will gain a competitive advantage (Halberstadt et al., 2014). However, the authors also have admitted that the existing processes for sustainability assessment and reporting are complex and time consuming; for this reason, in the paper, they have developed a manageable and straightforward tool with this aim.

Piccarozzi (2017) in his paper has focused on start-ups in the Italian context with the precise aim to with investigate the effect of social innovation on sustainability. This research is based on the premise that young firms are essential to foster sustainable growth, technological development, and employment. The main result of the study is that many innovative start-ups do implement actions or initiatives in order to meet one or more pillars of sustainability. The writer through his sample of start-ups has found also that the main initiatives carried out by these companies are oriented towards social values and life quality. Most of the start-ups carry out these activities through the use of digital platforms, that allow cohesion, sharing, and accessibility of the proposed services

and thus they are a useful tool to achieve social sustainability goals. However, even if unconsciously and indirectly, through platforms start-ups are able to reduce their costs and to open new job opportunities, therefore contributing to the economic pillar of sustainability too. So, while the actions directed towards social sustainability are clearly stated as goals, the positive economic repercussions are unintentional (Piccarozzi, 2017).

Macchiavello et al. (2020) have asserted that the combination of technology and sustainability is the driver of more affordable, sustainable and healthier societies, especially after the crisis created by the Covid-19 pandemic. Similarly to Piccarozzi (2017), the authors of this paper have discovered that in general firms are involved in sustainable activities and millennials are inclined to invest in them. However, they have remarked that one of the major difficulties in the sustainability integration in investments' assessment is the lack of an adequate ESG education of existing investors and the scarcity of data available, due to the absence of standardized indicators and metrics. Macchiavello et al. (2020) have affirmed that this problem is amplified since the existing Economic Social and Governance (ESG) data are often deemed to be untrustworthy because of the potential presence of un-material aspects and un-checked information. To tackle the problem, the paper suggests increasing the use of green' crowdfunding platforms, effective tools to provide finance to environmentally sustainable enterprises, as well as to enhance the employment of technologies such as AI and big data analytics to process data about companies' social and environmental impacts (Macchiavello et al., 2020).

Table 3: Summary table of the literature review on start-ups

AUTHORS	RESEARCH FOCUS	KEY FINDINGS
De Lange (2017).	The relationship between start-ups' sustainability and their value to investors.	Sustainable start-ups have no profit-making advantages from investors' point of view and capital providers are not attracted by start-ups' sustainable mission and business model.
Paoloni and Modaffari (2021).	The relationship between firm's external relations and long-term competitiveness.	Start-ups need to consider economic, social and environmental matters to achieve competitiveness in the long run.
Bergset and	The challenges of green	In the current society stakeholders expect firms to

Fichter (2015).	start-ups in delivering their products and services.	meet a triple bottom line of economic, environmental, and social value creation. Appropriate capital is essential for start-ups to contrast liquidity and performance problems and to survive from early failure.
Halberstadt et al. (2014).	The management of sustainability in start-ups and micro-enterprises.	Companies that since their first stage address sustainability matters will have a competitive advantage in the future.
Piccarozzi (2017).	The effect of social innovation on sustainability.	Many innovative start-ups implement actions to meet one or more pillars of sustainability and their role is essential in the development of world's economies. However, while the activities directed towards social sustainability are stated as goals, the positive economic repercussions are unintentional.
Macchiavello et al. (2020)	Sustainability considerations in investments' decisions.	Investors' lack of an adequate ESG education represents a major difficulty for the sustainability integration in investments' assessment. The absence of standardized indicators and metrics amplifies the difficulty.
Bergset (2018).	The challenges that green start-ups have to face to access financial resources.	Green start-ups generally do not face additional challenges in accessing finance compared to traditional ones. Sustainable entrepreneurs need to disclose personal information to capital providers in order to look for investors who share the same values to avoid "mission drifts".
Hoogendoorn et al. (2019).	The difficulties that sustainable entrepreneurs face compared to conventional ones.	Sustainable entrepreneurs perceive more difficulties in accessing financial resources and more institutional barriers compared to traditional ones. They are also more inclined to fear personal failure.
Ribeiro-Soriano et al. (2021).	The contribution of innovation to the transition toward sustainability.	Start-ups are expected to be more innovative and more credible than larger firms in their approach to sustainability.
Gazel and Schwienbacher	The formation and dynamics of	Start-ups tend to establish in networks to exploit economies of scale and benefits to contrast structural

(2021).	entrepreneurial clusters in the emerging fintech industry.	challenges, to survive and prosper. The digital economy grants firms a profitable possibility to innovate.
Haddad and Hornuf (2019).	The factors influencing the formation and the development of fintech start-ups.	Availability of venture capital and a well-developed economy influence start-ups' formation and growth.
Mention (2019).	The difficulties that start-ups encounter during their formation and growth.	Despite their potential advantages in terms of innovations and technology, financial start-ups need to differentiate from competitors. Start-ups strive to deliver a precise value proposition and have an unclear product-market fit. They need to raise funding from Venture Capitalists (VC) that ask offerings with high potential.
Laitinen (2019).	Measures of start-ups' financial success.	Start-ups lack the necessary means to provide investors with the adequate information to form a complete company's valuation.
Bocken (2015).	The role of venture capitalists in sustainable start-ups.	Sustainable venture capitals make start-ups grow faster and give them business advice, but in identifying their target businesses Venture Capitalists (VC) have to find the firms that simultaneously generate economic returns and have a positive impact on environment and society.
Jeong et al. (2020).	The relationship between Venture Capital (VC) investments and start-ups sustainable growth and performance.	VC investment at the initial stage makes start-ups to perform better because VCs provide financial resources and advice. Being chosen for a VC investment in their initial stage allows start-ups to signal their quality and value, achieving higher performance levels.
Köhn (2018).	The determinants of start-ups' valuations in the Venture Capital (VC) context.	VCs play a critical role in start-ups' valuations, but also founder and team's characteristics affect start-ups' valuations. Founders' prior start-ups experience, managers' industry knowledge and acquisition of intellectual property represent other drivers of superior valuation.
Bruna and Nicolò (2020).	Corporate reputation and social sustainability	Due to their limited access to financial resources, start-ups are at a significant danger of going

	in the first stage of companies' life.	bankruptcy. Their vulnerability is the cause of their structural undercapitalization. In start-ups' survival, corporate reputation plays a role.
Yue et al. (2019).	Start-ups' and established firms' CEOs communication methods.	Resources-limited CEOs constantly increase their social media presence as a cost- effective mean to establish a dialogue with their public, foster a sense of community, build corporate brand, image and reputation.
Keidel et al. (2021).	Influential factors on changes in networks of start-ups.	Start-ups frequently create networks and collaborations for their mutual benefits in order to economise on the acquisition of the necessary information.
Escalfoni et al. (2020).	The social relations in ecosystems of start-ups.	Start-ups mostly establish around business communities in order to be able to engage in activities that create mutual benefits.
Van Werven et al. (2015).	Arguments that entrepreneurs can use to gain legitimacy and support for their ventures.	Entrepreneurs can employ six types of arguments to promote their distinctiveness in the eyes of investors: "by analogy", "by classification", "by generalization", "by cause", "by sign", "from authority".
Lins et al. (2016).	Impression management strategies for entrepreneurs to fund their projects.	Visible information is a major determinant to transmit relevant aspects of the projects, to influence crowd's funding decisions and to lead to successful outcomes.
Czaja et al. (2021)	The quality signals that determine ICO funding success.	Funding success is positively related to projects' active communication: quality signals that proxy for venture quality and that show unambiguous information and risks are useful to reduce information asymmetry, to increase transparency and to attract investors' funds.
Islam et al. (2018).	Quality signals in the early stage of start-ups.	Government research grants can be exploited by firms as signals of quality valued by venture capitalists, that are willing to provide more funds to awarded companies.
Vaznyte and Andries (2019).	The influence of entrepreneurial orientation on financing	Start-up's external financing decision depends: on the costs and benefits of the various capital sources, on company's development stage and on the level of

	decisions.	industry risk.
Logvinovich (2020).	Sustainable investment strategies' implementation issues.	The integration of social and environmental aspects into the investment process is essential to reach more sustainable economies. Sustainable financial products boost start-ups' competitiveness and reputation but they are still limited to ecological companies.

Source: *Personal elaboration from the literature review phase of the work*

In conclusion, this chapter has provided insights on start-ups' characteristics and growth, highlighting some significant contributions that have explained to the reader the main communication and signalling strategies that these firms can employ to address their challenges and to balance their structural undercapitalization. The focus on start-ups' sustainability aspects has revealed, once again, that there is contrasting evidence and that different authors arrived to diversified conclusions on this topic.

CHAPTER 4 - REVIEW OF THE REGULATION

This fourth chapter introduces to the reader the regulatory field to which the start-ups of the sample are exposed. More particularly, it analyses 19 different reporting instruments on sustainability matters that are in force in the United States, together with a description of their applicability, their issuers and the types of organizations covered by them.

4.1 US mandatory and voluntary requirements

In order to have a clear vision of the regulations that apply in the geographical context in which the companies analysed in this thesis are located, an overview of voluntary and mandatory requirements is carried out. In this section data from Carrots and Sticks (2020) on mandatory and voluntary instruments that either require or encourage organizations to report sustainability-related information are provided. In the American context, laws on environmental matters are present at both the state and federal level. While state laws regulate environmental damages that are not legislated at the federal level, the federal laws, through the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) imposes strict obligations on the

polluting enterprises for the costs of clearing up hazardous waste-contaminated sites (Grahn, 2020).

The number of reporting instruments identified in the United States of America is 19 and they are differentiated according to their applicability: 15 of them are mandatory while only 4 are voluntary. The list of instruments taken from Novaware, Carrots & Sticks (2020) is as follows:

- **Amended Clean Air Act (CAA) of 1970**: a federal law whose application is mandatory. It has been amended in 1990 and sets the foundation for the air pollution management practices with the aim of protecting public health and public welfare and to regulate emissions of hazardous air pollutants. More particularly, it establishes, among others, national ambient air quality standards, hazardous air pollutants standards, motor vehicle emissions standards, stationary source emissions standards, acid rain control measures and enforcement provisions. It also defines the state implementation plans (SIPs) aimed to reach the standards. It is issued by Environmental Protection Agency (EPA) and covers public organizations and agencies of all industries, specifically stationary sources that emit 10 tons per year or more of a hazardous air pollutant, or 25 tons per year or more of a combination of hazardous air pollutants.

-**Amendment to S-K Regulation: Pay Ratio Disclosure Rule**: a mandatory public law prescribing SEC (Securities and Exchange Commission) registrants to include the median of all workers' annual remuneration in their proxy statements, as well as the ratio of the median to the CEO's (Chief Executive Officer's) annual total compensation. This piece of law has been issued by Securities and Exchange Commission in 2015 and applies to all large private and listed companies.

- **California Transparency in Supply Chains Act**: as the name suggests, this mandatory public law issued in 2010 has a sub-national geographical scope. It requires large retailers and manufacturers to offer information to customers about their efforts to eliminate slavery and human trafficking from their supply chains. Therefore, it has the aim to put consumers in the conditions to make informed buying choices, so that they can opt for companies that responsibly manage their supply chains. This act covers large private and listed companies in manufacturing and retail trade industries.

-**Clean Water Act (CWA)**: it is a public mandatory law with federal geographical application issued in 1972 by Environmental Protection Agency (EPA). It mandates American companies to report on their environmental performance with respect to water pollution. It involves also monitoring and reporting measures to guarantee that clean water rules are followed. It covers large private and listed companies of all industries.

-**Dodd-Frank Wall Street Reform and Consumer Protection Act**: this law, issued in 2010, is mandatory and applies at federal level. It establishes specific disclosure measures that compel select annual report issuers to declare their ties to conflict minerals, as well as whether those minerals came from the Democratic Republic of Congo or neighbouring nations. More particularly, this act prescribes an independently audited and certified report that provides a description of the actions used to exercise due diligence. It entails major modifications to existing financial regulations in the United States. In particular, companies subject to the rule will analyse their supply chain operations to ascertain the source of their conflict minerals. It has been issued by Securities and Exchange Commission, and it covers large private and listed companies of all industries.

-**Federal Acquisition Regulation; Ending Trafficking in Persons**: this mandatory rule has federal scope and aims to improve protections against human trafficking in federal contracts. It was issued in 2015 by Department of Defense and in covers all companies in all industries.

-**Guidance on Pay Ratio Disclosure**: it gives directions and standards for non-financial reporting, and it is mandatory with a federal geographical scope. It was issued in 2017 by Securities and Exchange Commission and it covers large private and listed companies of all industries. The Securities and Exchange Commission (SEC) has released interpretive guidelines to help corporations in complying with Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act's pay ratio disclosure requirement.

-**Mandatory Greenhouse Gas Reporting Rule**: this mandatory rule mandates reports of greenhouse gas data from large sources and suppliers in the United States. Its goal is to gather precise Greenhouse Gas (GHG) data that will be useful to future policy

decisions. It was issued in 2014 by Environmental Protection Agency (EPA) and it covers large private and listed companies that emit 25,000 metric tons or more of carbon dioxide equivalent per year.

-**NYSE Section 3 Corporate Responsibility**: this mandatory rule has a federal geographical scope, and it requires listed companies to adopt and disclose a code of business conduct and ethics. It was issued in 2014 by New York Stock Exchange (NYSE) and it covers large private companies of all industries listed in the exchange.

-**Regulation S-K**: this disclosure regulation is mandatory, and it lays out the standards for climate change disclosures in various SEC filings used by public firms. It was issued in 2010 by Securities and Exchange Commission, it has a federal geographical scope, and it covers large private and listed companies of all industries with specific additional reporting requirements for mine operators.

-**SECTION 709(c), Title VII, Civil Rights Act of 1967 as Amended by the Equal Employment Opportunity Act of 1972**: this is another piece of mandatory public law that has a federal geographical scope. It requires annual reporting on the accessibility of employment records, in order to assess whether unlawful employment practices, including employee racial and gender profiles, have been committed. It was issued in 1972 by Equal Employment Opportunity Commission and it covers all companies with more than 100 employees in all industries.

-**The Sarbanes-Oxley Act**: this mandatory act has a federal geographical scope, and it was issued by Government of the United States in 2002. This rule establishes new reporting requirements for all US public company boards, management and public accounting firms. The aim of this act is to increase corporate transparency and it applies to all companies in all industries.

-**The Toxic Release Inventory (TRI):** this is another mandatory law that has a federal geographical scope. It compels businesses with more than ten full-time employees to provide data to the US Environmental Protection Agency (EPA) on harmful chemical emissions. It was issued in 1988 by Environmental Protection Agency and it covers all companies with more than 10 employees of all industries.

-**Title 40 Part 711 TSCA Chemical Data Reporting Requirements**: this is a public mandatory law with federal geographical scope. It mandates manufacturers to provide

the Environmental Protection Agency (EPA) with information on the chemicals they produce or import into the United States. These data are then employed to measure the effects on the environment and on human health of these substances. Noncompliance is illegal, and it can result in a civil penalty as well as criminal charges. It was issued in 2011 by Environmental Protection Agency (EPA) and it covers large private and listed companies in the manufacturers and importers industries that meet specific production volume thresholds of a chemical substance.

-**ESG DISCLOSURE SIMPLIFICATION ACT OF 2021**: it is a public law, and it is mandatory with a federal geographical scope. It mandates issuers with registered securities or annual reports to include information about an annual shareholder meeting in any proxy or consent solicitation material. It requires a detailed explanation of the relationship between environmental, social, and governance (ESG) indicators and the issuer's long-term business strategy, as well as any procedure the issuer employs to assess the influence of these ESG measurements on its long-term business strategy. It was issued in 2021 by Committee on Financial Services and it covers large private and listed companies of all industries.

-**Benefit Corporation Legislation**: a public law whose application is voluntary with sub-national geographical scope. It is a state legislation that authorizes the organization of Benefit Corporations, companies with new commitments requiring them to adhere to greater standards of purpose, accountability, and transparency. The aim of benefit corporations is to create a material positive impact on society and the environment. It was issued in 2012 by Local Government and covers all companies in all industries.

-**ESG Reporting Guide 2.0 - A Support Resource for Companies**: this voluntary instrument conveys the long-term value of measuring, managing, and reporting environmental, social, and corporate governance data, and it serves as a tool for doing so. It emphasizes the necessity of Environmental, Social and Governance (ESG) reporting for both companies and investors, emphasizing the importance of considering bottom-line implications and improving management processes. It was issued in 2019 by NASDAQ, it covers large private and listed companies of all industries, and it has a federal geographical scope.

- **Securities and Exchange Commission Guidance Regarding Disclosure Related to Climate Change**: a voluntary instrument that gives public corporations advice on how to comply with the Commission's existing climate change disclosure requirements. It presents some areas as examples of where climate change may need disclosure requirements: impact of Legislation and Regulation, impact of International Accords, indirect Consequences of Regulation or Business Trends, Physical Impacts of Climate Change. It was issued in 2010 by Securities and Exchange Commission and it covers large private and listed companies of all industries, and it has a federal geographical scope.

-**The Certification of Adoption of Sustainability and Transparency Standards Act**: it introduces a voluntary disclosure to encourage dialogue among Delaware corporations and their stakeholders about sustainability and responsibility. It makes no particular requirements for performance standards, metrics, or evaluation criteria. Instead, it requires any entity seeking certification under the Act to create principles, guidelines, and standards to guide its economic activities in a sustainable and responsible manner, as well as criteria for determining whether it has reached its objectives. It was issued in 2018 by State of Delaware and it is open to all Delaware business entities of all industries (Novaware, Carrots & Sticks, 2020).

As it has become clear from this review, many practices are controlled by laws and there is a high number of regulations across federal, state, and municipal levels that assure effective market economies. This regulatory burden is especially challenging for start-ups, that, due to their small size and their lack of adequate resources, risk to suffer from the complexity and uncertainty of the vast body of law (Centre for American entrepreneurship, CAE, 2022).

Summarizing, this chapter has presented to the reader 15 mandatory and 4 voluntary instruments that apply in the United States of America, both at a state and federal level. These pieces of law provide firms with the rules to correctly report sustainability-related information.

CHAPTER 5 – DATA COLLECTION

This fifth chapter, after having explained the source from which the data have been retrieved, presents to the reader the criteria according to which the sample of start-ups has been chosen. Moreover, it displays the variables of interest that have been collected for each start-up. The last part of the chapter is dedicated to some statistics and information on the final sample of 102 companies.

5.1 Crunchbase database

Data on start-ups have been collected from the Crunchbase Database, the highest quality source of company data. The effectiveness and the relevance of this database in providing companies' information is visible also in the existing literature: many of the examined articles used Crunchbase as their exclusive or major source of data. For example, Beinke et al. (2018), defining it as the world's largest start-ups database, have employed Crunchbase as their primary data source. Moreover, Haddad and Hornuf (2019) assigning to Crunchbase the merit of providing specific data on fintech start-ups' formations and financing, have utilized it as the unique source of information. In a parallel way, also the very relevant paper of De Lange (2017), used Crunchbase as the principal source of data for the companies' variables.

5.1.1 Start-ups' selection criteria

Having identified Crunchbase as the database from which to acquire start-ups' information, some filters have been applied to detect only the companies relevant for the purpose of this thesis. The start-ups' selection criteria have been:

-industry: financial services and sustainability;
-headquarters location: United States;
-foundation date: from January 1st 2018, to December 31st 2020 – a three-year range;
-number of employees: from 1 to 50.

The types of companies that are included in the financial services' industry, according to Crunchbase, are: accounting, angel investment, asset management, auto insurance, banking, bitcoin, commercial lending, consumer lending, credit, credit bureau, credit cards, crowdfunding, cryptocurrency, debit cards, debt collections, finance, financial exchanges, financial services, fintech, fraud detection, funding platform, gift card, health insurance, hedge funds, impact investing, incubators, insurance, insurTech, leasing,

lending, life insurance, micro lending, mobile payments, payments, personal finance, prediction markets, property insurance, real estate investment, stock exchanges, trading platform, transaction processing, venture capital, virtual currency, wealth management. On the other hand, the kinds of firms pertaining to the sustainability industry are: biofuel, biomass energy, clean energy, clean tech, energy efficiency, environmental engineering, natural resources, organic, pollution control, recycling, renewable energy, solar, sustainability, wind energy, water purification, waste management.

Having applied all these filters, the start-ups' variables that have been recorded are:

Table 4: Companies' variables collected from Crunchbase database during the data collection phase of the work

Company's name
Founding date: date the organization was founded
Number of founders: total number of founders
Description: text of organization description, industries, and industry groups
Headquarters location: where the organization is headquartered
Number of employees: total number of employees
Website: link to homepage
Total funding amount: total amount raised across all funding rounds
Number of founding rounds: total number of funding rounds
Funding status: organization's most recent funding status
Number of investors: total number of investment firms and individual investors
Number of lead investors: total number of lead investment firms and individual investors
Last funding type: last funding round type
Estimated revenues: estimated revenue range for the organization
Investment made: total number of investments made by the organization
Active tech: total number of technologies currently in use by the company
Monthly visits: total visits to site for the last month (including desktop and mobile web)

Source: Personal elaboration from Crunchbase database variables

Figure 2: An example of how the data collection phase has been organized

NAME	FOUNDING DATE	N° OF FOUNDERS	DESCRIPTION	HEADQUARTERS LOCATION	N° OF EMPLOYEES	WEBSITE	TOTAL FUNDING AMOUNT ($) in thousands	N° OF FOUNDING ROUNDS	FUNDING STATUS	N° OF INVESTORS
EcoCart	2019	2	EcoCart is a climate and sustainability-focused eCommerce enablement startup pitching consumers on ways to offset their carbon emissions.	San Francisco, California	11 to 50	https://ecocart.io/	3000	2	Seed	10
Amogy	2020	1	Amogy builds an innovative clean energy system using ammonia as a renewable fuel	Brooklyn, New York	11 to 50	https://www.amogy.co/	22300	2	Early Stage Venture	5
LanzaJet	2020	NA	LanzaJet producer of aviation fuel that captures waste gas emissions and uses bacteria to turn it into useable ethanol fuel.	Illinois City, Illinois	11 to 50	https://www.lanzajet.com/	114000	4	NA	5
Project Canary	2019	3	Project Canary is a B-Corp that reduces GHG emissions and impacts in the energy, waste, and agriculture sectors through sensor measurement.	Denver, Colorado	11 to 50	https://www.projectcanary.com/	121000	4	Early Stage Venture	10
Carbon Capture	2019	2	Carbon Capture is a climate tech company that makes machines that remove CO2 directly from the atmosphere.	Pasadena, California	11 to 50	https://carboncapture.com/	35000	1	Early Stage Venture	5
Bright Night	2019	NA	Bright Night provides renewable power solutions in a safe and reliable way.	California, Kentucky	11 to 50	https://brightnightpower.com/	500000	1	NA	1
Holy Grail	2019	3	Holy Grail develops energy storage and battery technology that uses electrons to capture carbon dioxide from the atmosphere.	Mountain View, California	1 to 10	https://www.holygrail.ai/	3040	2	Seed	11
Nitricity	2018	3	Nitricity is an energy company that creates renewable on-site nitrogen fertilizer production with zero carbon emissions.	Stanford, California	1 to 10	https://www.nitricity.co/	6056	3	Seed	6

Source: Screenshot of a personal elaboration in Excel from Crunchbase data. Start-ups are presented in the rows, start-ups' variables are displayed in the columns

Data have been collected during the month of January 2022, and they have been updated on March 29th, 2022.

5.2 Summary statistics

In this section some information on the sample of companies that has been used to develop the thesis will be provided. As already mentioned, all start-ups' variables have been collected from the research on Crunchbase Database.

The sample is composed by 102 start-ups whose headquarters are located in the United States; half (50%) of the sample (51 companies) is taken from the financial services industry, while the other 50% (51 companies) is from the sustainability sector.

Figure 3: Sample start-ups' industries distribution
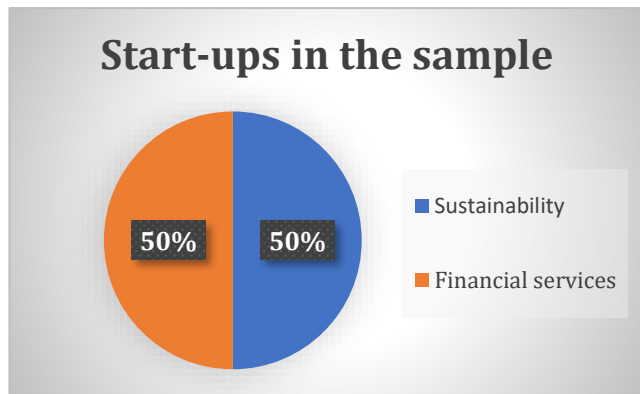
Source: Personal elaboration created with Excel from Crunchbase data on start-ups' industries

As far as the geographical distribution of the start-ups, as it is possible to appreciate from the table and the map below, the majority of the companies are based around the area of New York and San Francisco (Silicon Valley), and particularly:
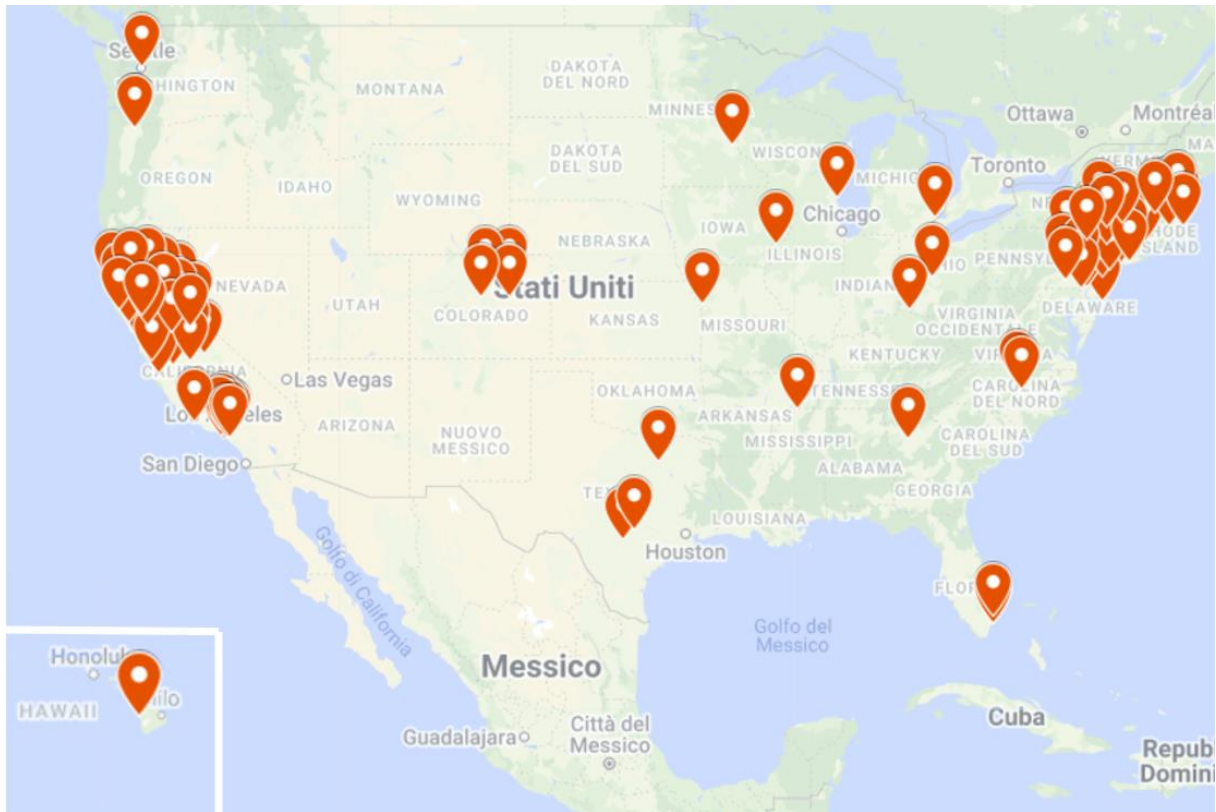
HEADQUARTERS LOCATION	NUMBER OF STARTUPS
Atlanta, Georgia	1
Belmont, Massachusetts	1
Beverly, Massachusetts	1
Boston, Massachusetts	3
Boulder, Colorado	1
Brooklyn, New York	2
California, Kentucky	1
Cambridge, Massachusetts	2
Cary, North Carolina	1
Chicago, Illinois	1
City Of Industry, California	1
Cupertino, California	1
Dallas, Texas	1
Denver, Colorado	1
Detroit, Michigan	1
Dublin, Ohio	1
Durham, North Carolina	1
Emeryville, California	1
Fairfield, California	1
Fort Lauderdale, Florida	1
Golden, Colorado	1
Illinois City, Illinois	1
Kailua Kona, Hawaii	1
Kansas City, Missouri	1
Lakewood, Colorado	1
Los Angeles, California	5
Menlo Park, California	1
Miami, Florida	2
Milpitas, California	1
Milwaukee, Wisconsin	1

Mountain View, California	2
New York, New York	19
Newark, Delaware	1
Oakland, California	1
Olive Branch, Mississippi	1
Pasadena, California	1
Portland, Oregon	2
Reading, Pennsylvania	1
Saint Paul, Minnesota	1
San Antonio, Texas	1
San Francisco, California	19
San Jose, California	1
San Marcos, Texas	1
San Mateo, California	2
Santa Barbara, California	1
Santa Monica, California	1
Seattle, Washington	1
Somerville, Massachusetts	1
Stanford, California	1
Summit, New Jersey	1
Venice, California	1
Walnut, California	1
Wilmington, Delaware	1
Woburn, Massachusetts	1

Source: Personal elaboration from start-ups' headquarters locations variable, collected in Crunchbase

Figure 4: *Geographical distribution of the sample of start-ups within the United States*

Source: *Personal elaboration created with "My maps" from start-ups' headquarters location variable, collected in Crunchbase*

The geographical distribution of the start-ups of the sample reflects the argument supported by Gazel and Schwienbacher (2021) in their paper: new firms tend to be formed in precise areas or cities where they create clusters that allow them to enjoy mutual benefits and economies of scale for the access to external resources.

The maximum number of employees in the companies analysed is 50, and, more precisely, 47 start-ups have from 1 to 10 employees (46% of the sample) and 55 start-ups employ from 11 to 50 people (54% of the sample). Investigating the number of workers differentiating the companies by industry, the results are:

Table 6: *The percentage of companies in the sample in the two ranges of people employed, divided by sector.*

INDUSTRY	1 to 10 EMPLOYEES	11 to 50 EMPLOYEES
FINANCIAL SERVICES	14 start-ups (27,5%)	37 start-ups (72,5%)
SUSTAINABILITY	33 start-ups (64,7%)	18 start-ups (35,3%)

Source: *Personal elaboration from companies' number of employees variable, collected from Crunchbase*

Therefore, in the two sectors the trend is inverse: most of the companies in the financial services industry have more employees, while the start-ups in the sustainability sector tend to employ less people.

The total funding amount that the start-ups have been able to raise ranges from a minimum of $45 thousands to a maximum of $ 600'000 thousands. The number of funding rounds that each company has gone through to raise capital range from just 1 to 11; as it is possible to note form the graph, the average number of funding rounds is between 1 and 4, with some isolate cases of companies that went through 6, 7, 9 and 11 funding rounds, respectively.

Figure 5: The distribution of the number of funding rounds carried out by start-ups in the sample
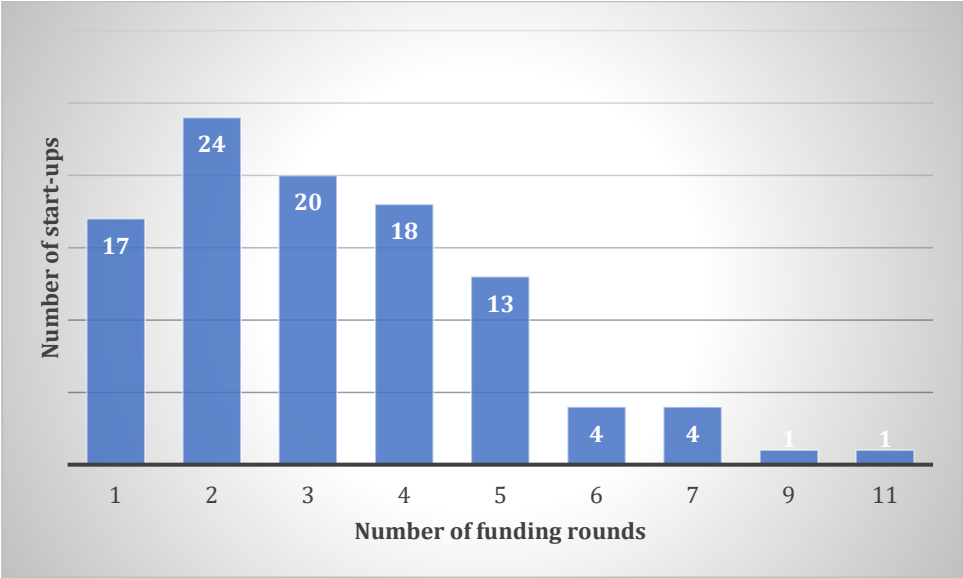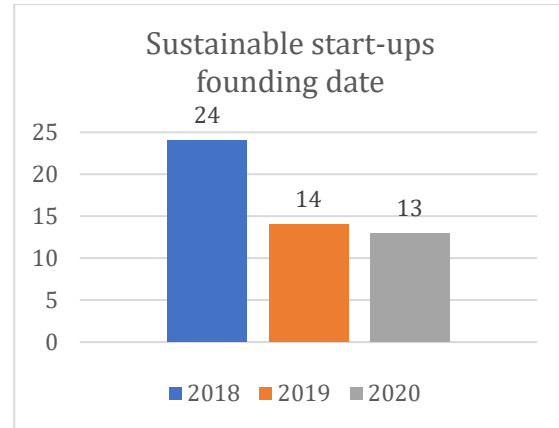

Source: Personal elaboration created with Excel from Crunchbase data

Figure 6: The distribution of financial services start-ups founding date in the three years under consideration
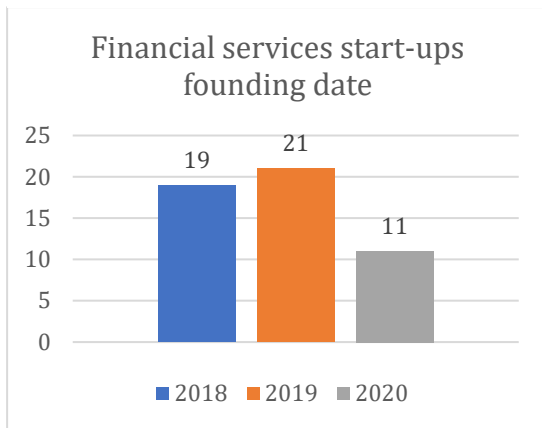
Source: Personal elaboration from Crunchbase data

Figure 7: The distribution of sustainable start-ups founding date in the three years under consideration

Source: Personal elaboration from Crunchbase data

As far as the founding date is concerned, the situation is slightly different from one sector to the other. In the two graphs it is possible to appreciate on the y-axis the number of start-ups, and in the x-axis the three years under consideration. While for the sample of financial companies the majority of them has been founded in 2019 (21 companies), in the sustainability sector the start-ups have been mostly founded in 2018 (24 companies). Shifting the attention towards the number of founders of each start-up, it ranges between 1 and 5, with only 3 start-ups in which this information is not available. The majority of young firms in the sample (32 companies out of 102; 31,4%) has been founded by two people; while 30 companies (29,4%) have just one founders. Founded by 3 people are 24 companies (23,5% of the sample), while the remaining 13 companies have been founded by a team of 4 or 5 people.

Additionally, as far as the precise stage in which start-ups are, the four types of funding status, described individually in a precedent section, that are detected among the sample of companies are divided as follow:

Table 7: Absolute number and percentage of companies in the sample pertaining to each funding status

FUNDING STATUS	NUMBER OF START-UPS
Seed	43 → 42,2% of the sample
Early-Stage Venture	38 → 37,7% of the sample
Late-Stage Venture	5 → 4,9% of the sample
Private Equity	2 → 2% of the sample

Source: Personal Elaboration from sample data collected from Crunchbase

Therefore, the majority of the companies in the sample are in the Seed on in the Early-Stage Venture phase, confirming once again that the companies considered are in their initial years of life. For the remining 14 companies that are not classified in the table, this information is not available.

As far as the number of investors in each start-up, this ranges from just one to 56. More particularly, as it is noticeable from the table below, the largest part of companies has a total number of capital providers that ranges between 1 and 10. This result was expected since small firms in their initial stages usually are not able to attract a high number of investors.

Table 8: The distribution of sample start-ups' number of investors

NUMBER OF INVESTORS	NUMBER OF START-UPS
1	11
2	7
3	8
4	5
5	10
6	4
7	9
8	4
9	3
10	9
11	3
12	3
13	3
14	4
15	1
18	5
19	2
20	1
21	3
32	2
43	2
49	1
50	1
56	1

Source: Personal elaboration from Crunchbase data

Additionally, even if for 36 companies (35,3% of the sample) this information is not available, it is interesting to investigate the estimated revenues of the start-ups. The

revenues are classified according to some ranges, and the interval into which the majority of the start-ups falls is the one with estimated revenues between $ 1 million and $ 10 million, specifically 41 companies (40,2%). Moreover, a large part of companies (23, corresponding to 22,55% of the sample) is estimated to produce less than $ 1 million in revenues. Ultimately one start-up is in the range $ 10 million to $ 50 million and also just one company fits into the $ 500 million - $ 1 billion range.

There are also other two variables of the sample that are worth mentioning: as far as the active technologies that each start-up possesses, this number ranges from a minimum of just one to a maximum of 100; however, the average number of active technologies owned by the companies in the sample is 34. For 4 companies, this information is not available. The other meaningful variable analysed is the number of monthly visits in start-ups website; the number of monthly visits ranges from a minimum of 318 to a maximum of 973'272. However, the average number of monthly visits on the website of the start-ups in the sample is 50 thousand. This information is not available for 21 out of 102 firms in the sample.

In conclusion, this chapter has proved necessary in order to gain a deep understanding of the sample of companies utilized to conduct the research. More particularly, some interesting insights have emerged from the analysis of many variables of the sample, so that this chapter constitutes a fundamental preliminary work for the investigation.

CHAPTER 6 – METHODOLGY

This sixth chapter presents to the reader the methodology that has been employed to conduct the research of this work. In particular, the first paragraph guides the reader into the SDGs framework, explaining how each goal has been categorized as pertaining to a specific pillar of sustainability. Proceeding with the chapter the reader gets insights on the websites track, explaining how this phase of the work has been conducted. Then, basing on this work, it presents some companies' characteristics that are typical either of the financial industry or of the sustainability one. Finally, the last paragraph is dedicated to the hypothesis to be tested in the regression.

6.1 SDGs and the three pillars of sustainability

For the purpose of this thesis, the 17 Sustainable Development Goals (SDGs) have been divided into three sectors, categorizing each of them into one of the three pillars of sustainability. This distinction is fundamental in order to get insights on which the sustainability aspects that most drive a company's value are. As Amini and Bienstock (2014) have commented, in fact, in order to stay sustainable in the long tun, a firm needs to embrace all the three domains in which it is rooted: environment, society, economy. Therefore, a company to be valuable does not need to exclusively provide profit to shareholders, but managers should also make trade-offs in order to benefit the wider group of stakeholders (Chen and Gavious, 2015).

Table 9: *The subdivision of the 17 UN SDGs into the three pillars of sustainability*

ENVIRONMENTAL	SDG 6: Clean water and sanitation
	SDG 7: Affordable and clean energy
	SDG 12: Responsible consumption and production
	SDG 13: Climate action
	SDG 14: Life below water
	SDG 15: Life on land
SOCIAL	SDG 1: No poverty
	SDG 2: Zero hunger
	SDG 3: Good health and wellbeing
	SDG 4: Quality education

	SDG 5: Gender equality
	SDG 10: Reduced inequalities
	SDG 11: Sustainable cities and communities
	SDG 16: Peace, justice and strong institutions
ECONOMIC	SDG 8: Decent work and economic growth
	SDG 9: Industry, innovation and infrastructure
	SDG 17: Partnerships for the goals

Source: *Personal elaboration from UN 17 Sustainable Development Goals (SDGs)*

By mean of this categorization, it has been possible to classify each sustainability sentence detected in start-ups' website, based on the argument each of them seemed to support. Each phrase has been assigned the related SDG and all sentences have been stored both in Word and Excel file; in this way, it has been possible to visualize, for each start-up, the number of sustainability sentences present on the website, together with the SDG they promote and the total number of sentences that each company has dedicated to environmental, social and economic sustainability, respectively. As an outcome of this work, it has been possible to visualize the total number of sustainability sentences of each start-up, divided into sustainability pillars and into their specific dimensions, represented by the SDGs. The same work has been done both for start-ups in the financial services industry and for start-ups that consider themselves as sustainable. In the snapshot below, it is possible to appreciate how the work has been organized during these phases. In order to render the work more visually understandable, each sustainability pillar has been assigned a specific colour: green for environmental, violet for social, yellow for economic. An additional column called "other" has been created in order to record eventual important mentions that are not captured by the 17 SDGs. The collection of sustainability-related sentences has been a neutral process: surfing the websites, the precise number of times each sustainability issues was mentioned has been recorded. Therefore, this approach is both qualitative - which phrase reflects which particular goal is an objective and verifiable assessment - and quantitative – the numerical count of how many mentions of every specific SDGs for every company.

Figure 8: *An example of the website track phase of the work*

STARTUP	WEBSITE	SUSTAINABILITY SENTENCE	SDG
Bright Night	https://brightnightpower.com/	Our projects go beyond the standard renewable energy design by providing customers with hybrid, multi-technology, dispatchable solutions aimed to support decarbonization and overcome the challenges of intermittent renewable supply.	ENVIRONMENTAL SDG 12
Bright Night	https://brightnightpower.com/	We deliver projects that provide high economic returns for landowners while being sensitive to environmental and community needs	ECONOMIC SDG 8
Bright Night	https://brightnightpower.com/	We deliver projects that provide high economic returns for landowners while being sensitive to environmental and community needs	SOCIAL SDG 11
Bright Night	https://brightnightpower.com/	We strive to help those in need by extending our services in countries we serve. We are proud to collaborate with the Abundant Future Foundation to help provide shelter, sanitation and electricity to the people in the Rohingya refugee crisis and local Bangladesh residents.	SOCIAL SDG 1
Bright Night	https://brightnightpower.com/	Together with SOLARKIOSK and the HOPE Foundation, we helped deliver solar-powered clinics to provide health services for communities that lack medical coverage, electricity and purified water	SOCIAL SDG 1
Bright Night	https://brightnightpower.com/	We also understood the need for lights in communities with no electricity. Working together with BRAC and d.Light, we deployed solar-powered lanterns that enable families to commute at night, cook dinner inside their huts, and play with their children after dark	SOCIAL SDG 1
Holy Grail	https://www.holygrail.ai/	We use electrons to capture carbon dioxide from the atmosphere	ENVIRONMENTAL SDG 13
Holy Grail	https://www.holygrail.ai/	In 2042 energy storage systems are carbon negative	ENVIRONMENTAL SDG 13

Source: *Screenshot from the personal elaboration of start-ups' websites. In this phase, start-ups' websites have been investigated to detect sustainability sentences. Then each of them has been classified according to a specific SDG.*

Figure 9: *An example of the framework elaboration phase of the work*

	SDG 1: NO POVERTY	SDG 2: ZERO HUNGER	SDG 3: GOOD HEALTH AND WELLBEING	SDG 4: QUALITY EDUCATION	SDG 5: GENDER EQUALITY	SDG 6: CLEAN WATER AND SANITATION	SDG 7: AFFORDABLE AND CLEAN ENERGY	SDG 8: DECENT WORK AND ECONOMIC GROWTH	SDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE	SDG 10: REDUCED INEQUALITIES
EcoCart	1		1			1	3	4	2	
Amogy			1				3	1	1	2
LanzaJet							7	1	1	
Project Canary		2					2	6	1	2
Carbon Capture						1	1	1		
Bright Night	3						4	2	2	
Holy Grail							2			
Nitricity							2			
Verdox							3	2		
Glanris		3				5	2	3	1	
Alturus							1	5	2	
ElectraSteel			1				1	2		2
Thiozen								1	1	
Refiberd					1			1		
Phoenix Tailings								4	3	
Nabaco		1						4	1	

Source: *Screenshot from the personal elaboration of start-ups' websites. For each start-up (rows), the number of sentences relating to each specific SDG (columns) has been recorded.*

	OTHER	TEXT	VIDEO	IMAGE	TOTAL ENVIRONMENTAL	TOTAL ECONOMIC	TOTAL SOCIAL	TOTAL
EcoCart	The website shows the SDGs that the company aims to address	YES	NO	YES	24	6	3	33
Amogy		YES	YES	YES	8	2	4	14
LanzaJet		YES	NO	YES	14	2	2	18
Project Canary		YES	YES	YES	7	7	4	18
Carbon Capture	Graph showing climate change trend with data	YES	NO	YES	7	1	0	8
Bright Night		YES	NO	YES	5	4	4	13
Holy Grail		YES	NO	YES	7	0	0	7
Nitricity		YES	YES	YES	7	0	0	7
Verdox		YES	YES	YES	11	2	0	13
Glanris		YES	YES	YES	14	4	5	23
Alturus		YES	NO	YES	7	7	0	14
ElectraSteel		YES	NO	YES	5	2	3	10
Thiozen		YES	NO	YES	2	2	0	4
Refiberd		YES	NO	YES	4	1	1	6
Phoenix Tailings		YES	YES	YES	10	7	0	17
Nabaco		YES	NO	YES	6	5	1	12

Source: *Screenshot from the personal elaboration of start-ups' websites. The total number of sentences related to each pillar of sustainability has been recorded.*

As it is possible to see from the last snapshot, for each start-up's website, the presence of text, video and image contents has been recorded. As it is easily imaginable, the 100% of the websites in the sample possess both visual and textual context. However, the presence of videos is registered in only 7 out of 51 companies in the financial services industry (14%) and in only 20 out of 51 in the sustainability sector (39%). Therefore, only 26,5% of the total sample present videos in their website communication. The analysis of the type of disclosure employed by companies in their website has been conducted in order to investigate the effectiveness with which they can communicate their sustainability. If text and images are present in every website, the existence of video contents is believed to increase the success of start-ups' communication. In the regression, the hypothesis that, if the sustainability communication is carried out also through video contents, the value of the firm increases will be tested.

6.1.1 Sectors' specific characteristics

As far as the differences between the two industries are concerned, what has been detected from the websites' track phase of the work is: 46 out of 51 start-ups in the financial sector reported 0 environmentally related sentences in their website. This is a plausible result, since, as far as finance is concerned, companies are expected to dedicate themselves primarily to the other two pillars of sustainability; this is also due to the nature of their offerings, that is service based. The other 5 financial services' start-ups recorded 1, 2, 3, 5, 16 environmental sentences respectively. The results of the

regression will discover if these firms will be more valued by investors compared to the others. Still focusing on the financial industry, the mean number of sentences relating to the economic pillar of sustainability is 6, while the mean of social sentences is 4.3 (to have a benchmark, for environmentally related phrases this number is less than 1). Therefore, as it could be expected, start-ups in the financial services industry are more willing to disclose on their website information concerning their economic sustainability. Also social sustainability is enough communicated by these firms. The mean number of the total sustainability sentences in firms' website (all the three pillars together) is 11 for this industry.

Shifting the attention towards the sustainability sector, results are different, as it is easily predictable. These firms, by their very nature, are more concentrated on sustainability and, hence, more willing to show it to the public. As far as the mean number of total environmental sentences present in start-ups' website, now the number is approximately 9.5, a huge difference with the average of 0.5 of before. However, turning to the other sustainability pillars, results are surprising: the average number of sentences that reflect start-ups' economic sustainability is only 2.4, and the data on social sustainability is even worse, 1.4 sentence on average. These results demonstrate that start-ups that define themselves as sustainable are disproportionally more willing to disclose their environmental sustainability, leaving apart the other two pillars. As far as the total number of sustainability phrases disclosed, young firms in the sustainability sector report 13.3 as a mean; therefore, this number is higher than before, suggesting that the companies in this industry, on average, disclose more on sustainability compared to their financial counterparts. To keep in mind, however, it is the fact that, this superior number of sustainability sentences communicated, is disproportionally driven by sustainable start-ups' environmental orientation.

As far as the single SDGs are concerned, as expected, the situation in the two industries is very different. As it is possible to appreciate from the bar graph below, in the financial sector, the three SDGs most mentioned are: SDG 8 "Decent work and economic growth"; SDG 9 "Industry, innovation and infrastructure"; SDG 12 "Reduced inequalities". Clearly, two economic SDGs (namely SDG 8 and 9) have the absolute predominance over the others, with SDG 8 being mentioned on average 4,4 times per start-ups, and SDG 9 with a mean of 1,6 sentence for each company. As it is possible to note, there are many SDGs

that have never been mentioned in the sample of start-ups analysed, namely SDG 2, SDG 6, SDG 7, SDG 12, SDG 14, SDG 15, SDG 17; the majority of them pertains to the environmental sphere.
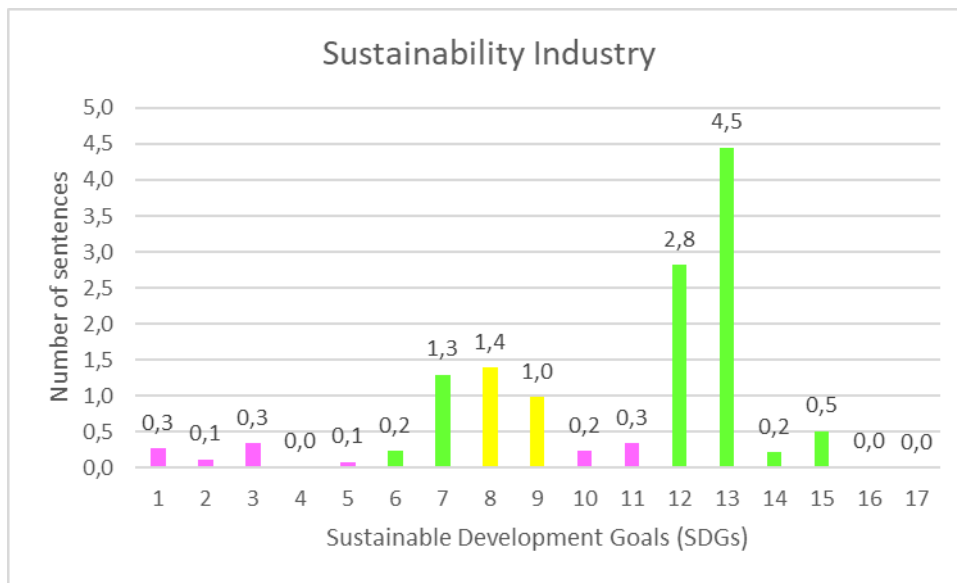
Figure 11: *SDGs-related mentions on the website of financial start-ups*
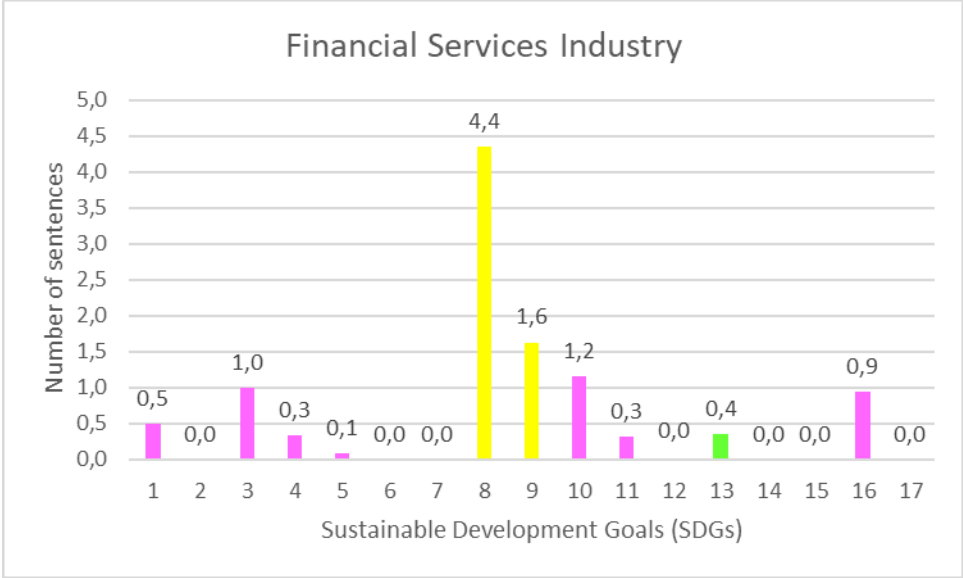
Source: *Personal elaboration created with Excel*

The situation is different among the start-ups that define themselves as sustainable. It is possible to note that each industry develops its own understanding of what to communicate to the public, and the sustainability-related information that start-ups disclose are sector-specific. As it is possible to note immediately, the two most recurrent SDGs in sustainable companies are SDG 13 "Climate action" and SDG 12 "Responsible consumption and production", both environmentally related. These two goals are mentioned, on average 4,5 and 2,8 times respectively in each start-up. The third most frequent SDG in sustainable start-ups' communication is SDG 8 "Decent work and economic growth", immediately followed by SDG 7 "Affordable and clean energy". In this sector, the predominance of environmentally related SDGs is evident. Moreover, in these companies, the number of SDGs that have never been mentioned in start-ups' website is smaller than before. Specifically, SDG 4, SDG 16, SDG 17 mainly social, are mentioned zero times.

In conclusion, as expected, start-ups in the financial services industry predominantly disclose sentences pertaining to the economic pillar of sustainability; while start-ups in the sustainability industry are more willing to communicate in their websites the environmentally related pillar of sustainability.

6.2 Hypotheses development and regression's parameters

In order to correlate the sustainability-related information collected through start-ups' websites with the amount of money each company has been able to raise from investors, a statistical regression has been conducted. The precise aim of the regression is to understand whether companies' total funding amount depends on the sustainability disclosure on their website. To achieve this aim, the following hypotheses have been tested:

-**H1***: The higher the number of sentences related to the environmental pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.*

-**H2***: The higher the number of sentences related to the social pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.*

-**H3:** *The higher the number of sentences related to the economic pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.*

-**H4***: The presence of sustainability-related videos in a start-up's website leads to a higher amount of money raised by the company.*

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To run the regression, Stata (Statistical software for data science) has been used. Since the sample of start-ups is relatively small (102 companies in total) one single regression has been run, with the inclusion of the industry variable as a control variable. The regression is structured as follows:

Table 10: The list of variables used in the statistical regression

VARIABLE	SOURCE OF DATA	STATA NAME	TYPE OF VARIABLE
DEPENDENT VARIABLE	Total funding amount (in $ and in thousands)	VALUATION_TOT	Numerical
INDEPENDENT VARIABLE	Number of environmentally related sentences on the website	ENV_QUOTES	Numerical
INDEPENDENT VARIABLE	Number of social sentences on the website	SOCIAL_QUOTES	Numerical
INDEPENDENT VARIABLE	Number of economic sentences on the website	ECON_QUOTES	Numerical
INDEPENDENT VARIABLE	Presence of sustainability related videos on the website	VIDEO_PRESENCE	Binary: 0 if there is no video in a start-up's website; 1 if at least one video is present
CONTROL VARIABLE	Industry	INDUSTRY	Binary: 0 for financial services; 1 for sustainability
CONTROL VARIABLE	Number of funding rounds	FUND_ROUNDS	Numerical; the logic is: the higher the number of funding rounds a company has gone through, the larger the total funding amount
CONTROL VARIABLE	Funding status	FUND_STATUS	Categorical: 0 for Seed; 1 for Early-Stage Venture; 2 for Late Stage Venture; 3 for Private Equity; empty cell when this information is not available.
CONTROL VARIABLE	Number of investors	INVESTORS_TOT	Numerical: the logic is that the higher the number of investors for each company, the larger the

			total funding amount
CONTROL VARIABLE	Number of employees	EMPLOYEES	Categorical: 0 to the smallest start-ups, having from 1 to 10 employees; 1 to start-ups that have from 11 to 50 employees
CONTROL VARIABLE	Founding date	COMPANY_AGE	Categorical: based on the year a start-up has been founded [1]
CONTROL VARIABLE	Number of founders	FOUNDERS_TOT	Numerical [2]
CONTROL VARIABLE	Availability of estimated revenues	REV_ESTIM_AVAIL	Binary: it explains whether information on start-up's estimated revenues is available or not. 0 when estimated revenues are not available; 1 when they are present
CONTROL VARIABLE	Estimated revenues	REV_ESTIM	Categorical: it indicates the range of revenues that is estimated for each start-up [3]
CONTROL VARIABLE	Active technologies	ACTIVE_TECH	Numerical: it represents the number of active technologies possessed by a start-up. When this information is not available, the cell is left empty.
CONTROL VARIABLE	Monthly visits	MONTHLY_VISITS	Numerical: it represents the number of monthly visits on the website of a start-up. When this information is not available, the cell is left empty.

Source: Personal elaboration

[1] The value of 0 is assigned to the youngest start-ups, those founded in 2020 and therefore having 2 years of age; the value of 1 is assigned to start-ups founded in 2019, having 3 years of age; the value of 2 is assigned to the "oldest" start-ups, those founded in 2018, therefore having 4 years of age.

[2] This numerical variable counts the number of start-up's founders; an empty cell means that this information is not available. The interpretation is that increasing (decreasing)

the number of founders by 1, the start-up will get more (less) funding. It could be expected that this relationship will not be linear, it could be like an inverted parabola: a smaller total funding amount when there is just one founder, a higher total funding amount when there is a team of 2,3, or 4 people, but when the team gets too large (5,6,7 people) the funding will decrease.

[3] A value of 0 is dedicated to companies having estimated revenues of less than $1 million; a value of 1 is assigned to start-ups whose estimated revenues are comprised between $1 million and $10 million; the category 2 refers to firms with estimated revenues from $10 million to $50 million; the value of 3 is conferred to start-ups whose estimated revenues are in the range $500 million - $1 billion.

Table 11: *The categorization of the estimated revenues variable for the regression*

VALUE	$ RANGE OF ESTIMATED REVENUES
0	less than 1 million
1	1 million - 10 million
2	10 million - 50 million
3	500 million - 1 billion

Source: *Personal elaboration*

6.3 Methodological reflections and difficulties

The first methodological reflection of this work has been whether to assign a binary variable (0 and 1) for the presence of sustainability-related sentences in financial start-ups' website. This consideration has been generated from the awareness that financial companies do not disclose much information on sustainability, therefore the solution of reporting only whether they mention at all or not a particular SDG could have been meaningful. However, this alternative has not been adopted for the reason that follows: turning the investigation to the sustainability industry, it has been found that these companies disclose more on sustainability, so the allocation of a more precise rating based on the number of sustainability sentences disclosed would have been viable and useful in this sector. Therefore, as anticipated, in order to keep the work consistent, the alternative of simplifying the research on financial start-ups, limiting them to binary variables, was excluded. Hence, the same methodology has been used for the ratings of the companies of the two industries in order to avoid a lack of consistency.

The second methodological reflection concerned the use of the framework: are SDGs relevant for the purpose of the analysis or would it be better to switch to another framework? The answer to this question has been easily found. After having investigated all the 17 SDGs and having read more on their targets, it has become clear that SDGs represent the correct balance of social, environmental and economic factors, therefore they are applicable and they make sense in this context. As explained before, the 17 SDGs have been divided into environmental, economic and social: this categorization is a personal elaboration since no other established classification has been found on the internet. Additionally, before the start of the research, a doubt has arisen on whether it would be possible to understand when a sentence actually reflects one specific SDG. The solution has been quite easy: once it is possible to distinguish whether a phrase pertains to the social, environmental, or economic pillar of sustainability, it is straightforward also to identify to which particular SDG it refers to. Therefore, if some difficulties could have been encountered initially in understanding which sentence pertains to which goal, the problem gradually dissolved as more start-ups got included into the analysis and as the research went on.

Summarizing, this chapter, after having made clear to the reader how the framework has been divided into environmental, social and economic pillars of sustainability, has given details on the websites' investigation phase, namely when each sustainability sentence has been categorized as pertaining to one of the 17 SDGs. From the subsequent analysis, the strong dependence of financial start-ups to the economic pillar of sustainability has emerged, together with the high reliance on the environmental pillar of sustainability by sustainable start-ups. In the subsequent paragraph, the independent and dependent variables to be used in the regression as well as the control ones have been explained and the four hypotheses to be tested have been developed. Some difficulties encountered during the work have also been discussed.

CHAPTER 7 – ANALYSIS AND RESULTS

This seventh chapter displays the results obtained from the regression. A table is presented to visualize all the coefficients and the significance of the three models. In the later section, each coefficient is discussed, together with its sign, in order to analyse and detect which independent variables are significant in explaining the dependent one.

7.1 Preliminaries and results

In this chapter an analysis of the results of the regression is conducted. It will be a neutral and technical discussion in which regressions' coefficients, signs and significance will be described, together with a review on whether the hypotheses tested are confirmed or rejected. In order to achieve the aim of this thesis, three different regressions have been run: the first model is a regression with no interaction terms, the second model has just one interaction term, the third model includes three interaction terms. In order to arrive at the results of the thesis, some steps have been carried out through Stata: firstly, the already prepared Excel file (with all the variables and the data) has been imported into the software, then, the variables of interest have been selected. The names of start-ups, although useful, have not been included in the regression. The main hypotheses to check are whether disclosure metrics, namely, environmental, social and economic quotes and video presence (the independent variables) affect start-ups' total valuation (the dependent variable). As already mentioned, some control variables that are interesting to investigate have been inserted. More particularly, all the variables that have been included into the regression from the beginning are:

-environmental, social and economic quotes (numerical variables) that are included with the hypothesis that more sustainability related sentences in a start-up's website mean higher valuation;

-videos: binary variable for their presence in companies' website. Images variable has not been included since it has been found that all the websites possess at least one;

-industry: as a control binary variable;

-funding rounds: as a control numerical variable;

-funding status: as a control categorical variable;

-investors total: as a control numerical variable;

-employees: as a control categorical variable;

-company age: as a control categorical variable;

-total founders: as a control numerical variable;

-estimated revenues: only the binary variable displaying the availability of this information has been used as control variable in the regression. The categorical variable with the ranges of dollar revenues has been disregarded at this point because, due to the lack of availability of this information for many start-ups, it would not have been meaningful for the regression;

-active tech: as a control numerical variable;

-monthly visits: as a control numerical variable.

Therefore, having included in Stata all the abovementioned variables, the regression has been run. However, the number of observations employed by the software was only 69 out of 102 companies in the sample. After some investigations for the reason of this lower number of observations, it has been found that for some of the variables included in the regression, namely funding status and monthly visits, the data were missing for a significant number of start-ups, due to the lack of availability of this information on Cruchbase. Stata software does not count the observations of which at least one variable is missing. Therefore, funding status and monthly visits, since they are not really crucial for the purpose of this study, have been eliminated from the model and the regression has been run again in order to arrive as close as possible to 100 observations. The new and final model includes 96 observations that is really close to the actual sample of companies, so the regression has become significant and meaningful. To recap, the final regression includes the following variables: VALUATION_TOT; ENV_QUOTES; SOCIAL_QUOTES; ECON_QUOTES; VIDEO_PRESENCE; INDUSTRY; FUND_ROUNDS; INVESTORS_TOT; COMPANY_AGE; EMPLOYEES; FOUNDERS_TOT; REV_ESTIM_AVAIL; ACTIVE_TECH.

The regression has provided some interesting results that are all displayed in the table below, but before analysing them, let's recall which the four hypotheses tested were:

-H1: The higher the number of sentences related to the environmental pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.

-H2: The higher the number of sentences related to the social pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.

-H3: The higher the number of sentences related to the economic pillar of sustainability in a start-up's website, the higher the amount of money that the firm is able to raise.

-H4: The presence of sustainability-related videos in a start-up's website leads to a higher amount of money raised by the company.

Table 52: *Results obtained from the three regressions*

VALUATION_TOT	Model 1	Model 2	Model 3
ENV_QUOTES	-3118.294	-1305.904	
	(-1.04)	(-0.51)	
INDUSTRY#c.ENV_QUOTES			
0			-3082.4
			(-0.46)
1			-691.4602
			(-0.24)
SOCIAL_QUOTES	-1779.06	-1883.672	
	(-0.56)	(-0.59)	
INDUSTRY#c.SOCIAL_QUOTES			
0			-1266.116
			(-0.35)
1			-4219.258
			(-0.55)
ECON_QUOTES	11397.09 ***		
	(2.91)		
VIDEO_PRESENCE	-35328.5	-28594.64	-29072.46
	(-1.37)	(-1.12)	(-1.11)
INDUSTRY#c.ECON_QUOTES			
0		6118.515	6362.315
		(1.56)	(1.40)
1		17135.9 ***	17209.61 ***
		(2.68)	(2.64)
INDUSTRY	78543.31 *		
	(1.94)		
FUND_ROUNDS	-940.692	-1062.13	-1256.549
	(-0.13)	(2.66)	(-0.17)
INVESTORS_TOT	3487.756 ***	3375.69 ***	3319.994 **
	(2.76)	(2.66)	(2.57)
COMPANY AGE			
1	2842.994	3578.178	3352.733
	(0.09)	(0.12)	(0.11)
2	-13092.42	-14708.55	-14714.22
	(-0.45)	(-0.50)	(-0.50)
1.EMPLOYEES	25797.7	20249.64	20695.78
	(1.03)	(0.81)	(0.79)
FOUNDERS_TOT	-1059.351	-372.5829	801.8066
	(-0.11)	(-0.04)	(0.08)
REV_ESTIM_AVAIL	-1436.619	-6333.801	-6358.207
	(-0.05)	(-0.24)	(-0.24)
ACTIVE_TECH	491.0071	508.5697	473.5561
	(0.96)	(0.98)	(0.89)
_cons	-61277.63	-17906.09	-21183.95
	(-1.39)	(-0.45)	(-0.52)
Number of observations	96	96	96
F-statistic	2.47***	2.36***	2.02**
R-squared	0.2816	0.2726	0.2746
* p < .10; ** p < .05; *** p < .01.			

Source: *Personal elaboration from the results of the regressions run with Stata*

7.2 Analysis of the results

Analysing the results of the regression, the two numerical variables ENV_QUOTES and SOCIAL_QUOTES, namely the number of sentences that stress the environmental and social pillar of sustainability respectively, have negative coefficients, -3118.294 and -1779.06 respectively. These negative coefficients would mean that the number of environmental and social quotes would have an inverse relationship with start-ups' valuations: more quotes mean lower valuations. However, both are not statistically significant, since their p value is 0.300 and 0.578 respectively. Being the p value of both these variables higher than the significance level, the sample of start-ups contains insufficient evidence to declare the existence of a relationship between these variables. Therefore, it is not possible to say anything about H1 and H2 because they are not statistically significant. Consequently, even if the coefficients seem to be negative, statistically it is not possible to make any conclusion on the relation between social and environmental quotes and companies' value, it can be just random.

What is significant though, are the economic quotes. The coefficient of the variable ECON_QUOTES, namely the presence of indicators pertaining to the economic sphere of sustainability on start-ups' website is positive and it is 11397.09. A positive sign means that, according to this regression, the more economic related quotes companies put on their website, the higher their total valuation is. Moreover, this relationship is strongly significant, with a p value of 0.005, that is lower than the level of significance. Even if with a confidence interval of 99% this relationship still holds. Therefore, since the coefficient of the variable ECON_QUOTES is positive and strongly significant it is possible to declare the existence of a positive relationship between the number of the sentences relating to the economic pillar of sustainability and the valuation of start-ups. This means that the higher the number of economic quotes, the higher the valuation assigned by investors to the company, and the lower the number of the economic sentences, the lower also the valuation. Therefore, a clear result of the regression is that economic quotes matter, confirming H3.

As far as the VIDEO_PRESENCE variable is concerned, namely the existence of at least one video related to sustainability on start-ups' website, it does not seem to be statistically significant, since the p value of 0.175 is higher than the significance level. Therefore, even if the coefficient of -35328.5 would suggest a negative relationship, whether there is a video or not in companies' website does not really affect the

valuation. Accordingly, the results of the regression have provided that there is not enough evidence to declare the existence of a relationship between the presence of videos and start-ups' valuation, thus, it is not possible to say anything about H4.

Shifting the attention towards control variables, as far as the INDUSTRY variable is concerned, it is marginally significant in the usual 5% threshold: the p value for the industry variable is 0.056. Considering instead 10% as a threshold, in the case of a 90% confidence interval, it is possible to affirm that the variable INDUSTRY is statistically significant. The coefficient is positive and it is 78543.31, therefore it is possible to claim that for the companies whose industry was equal to 1 the valuation is higher. This is another major interesting result from the regression.

The variable FUND_ROUNDS has a p value of 0.897 that is higher than the significance level, therefore, there is not enough evidence to establish the existence of a relationship between the absolute number of funding rounds and firms' valuation. The coefficient of this variable is -940.692, and this negative sign would be a bit counterintuitive: it was expected that the more funding rounds a company had, the higher its total valuation would be, while the actual negative coefficient would command an opposite relationship. However, the variable is not significant, hence it is not possible to conclude anything on the existence of a relationship between the two.

Shifting the attention towards the INVESTORS_TOT variable, the regression has given an expected result. The coefficient of this variable is positive and it is equal to 3487.756. This means that the more investors a company has, the higher its valuation is. This variable is significant since its p value is 0.007 that is lower than the level of significance. Therefore, it is possible to claim the existence of a positive and strongly significant relationship between the number of investors of a start-up and its total valuation. However, this result does not explain anything about the sum of money per investor. A company's overall valuation in fact can be achieved either from a small number of investors dedicating large sums of money to the firm or from a larger number of investors devoting lower amount of money to the organization, or a combination of the two. This relationship only affirms that the more investors a start-up has, the more money it obtains, therefore, this is not really a major finding.

The variable COMPANY_AGE reflects the year of foundation of the start-ups. According to the regression, this variable does not seem to matter at all, since its p value is too large to provide any kind of evidence. Therefore, it is not possible to conclude anything on the existence of a relationship between the year in which a start-up has been founded and its total valuation: the fact that companies fall into the different categories is not significant, they are not dissimilar in terms of valuation. To some extent, this result was expected, since there is not so much variation between the companies' age: the sample has been chosen from companies whose foundation date ranges between 2018 and 2020, so the fact that a start-up has two, three or four years of age does not really matter for the valuation.

Continuing the analysis of the control variables, EMPLOYEES variable, whose positive coefficient of 257997.7 would reveal a direct relationship between the number of people employed in a start-up and its total valuation, is not significant. The p value of this variable is in fact 0.308, that is higher than the significance level. Therefore, this result does not provide enough evidence to posit the existence of a relationship between these two variables. Similarly, for the ACTIVE_TECH variable, namely the number of active technologies possessed by a start-ups, the p value of 0.342 is higher than the level of significance, therefore a relationship between the number of active technologies and the total valuation of companies cannot be declared. Accordingly, even if its coefficient of 491.0071 would command a positive relationship, it is not possible to draw any conclusion. This result is a little bit surprising: it was expected that the number of active technologies possessed by a start-up actually would have affected the valuation.

The last two control variables of the regression are FOUNDERS_TOT and REV_ESTIM_AVAIL. The first variable describes the total number of founders of each start-up. As far as this variable is concerned, a positive coefficient was expected, but the actual coefficient comes out to be negative, precisely -1059.351. However, this variable is not significant because p value is 0.914, too large to provide evidence on the existence of a relationship between the number of founders of a company and its total valuation. Therefore, due to a lack of significance, it is not possible to comment on this variable. Finally, the availability of the estimation of start-ups' revenues is not statistically significant. This variable has a negative coefficient of -1436.619 but, having a p value of 0.957, larger than the level of significance, it is not statistically significant. Accordingly,

also for the REV_ESTIM_AVAIL it is not possible to establish the existence of a relation with companies' total valuation.

Summarizing the results obtained from this model, it is possible to affirm that two interesting findings have come out: the first is that sustainability sentences related to the economic pillar of sustainability displayed in a company's website do matter to investors, and this interest is translated into a higher total valuation assigned by capital providers to those companies. The second result is that the industry to which a start-up belongs plays a role in its valuation, and more particularly, companies classified as pertaining to the sustainability sector are valued more by investors compared to their financial counterparts. However, as far as the sustainability quotes stressing the environmental and the social pillar, nothing has emerged, since the regression has not provided enough evidence to comment on them. The same lack of significance is found also in the video presence variable: it is not possible neither to state the existence of a relationship nor to comment on the kind of connection between them.

From the results of the first regression, it has emerged that the industry variable is significant and it has revealed that sustainable companies on average enjoy a higher valuation than financial ones. Consequently, at this point, it has become interesting to analyse whether an interaction between the industry variable and the economic quotes actually exists. This would reveal whether the economic related sentences matter for investors more in sustainability than in financial companies. To achieve this aim, a second and a third regressions have been run. The second model includes only the interaction term ECON_QUOTES * INDUSTRY. The third regression includes three interaction terms between industry and the three types of quotes, namely: ENV_QUOTES * INDUSTRY; SOCIAL_QUOTES * INDUSTRY; ECON_QUOTES * INDUSTRY. The results of these two models can be read in the abovementioned table.

The results from these last two models have revealed that only the interaction between industry and the economic quotes is significant. As it is possible to see from the second model in table, the p value of the interaction between the industry and the economic quotes is 0.009 for the category 1 of the variable industry, namely the sustainability one. This value is lower than the level of significance, hence it posits the existence of a relationship. The coefficient of this variable is positive and equal to 17135.9. Consequently, according to this second regression it is possible to establish a direct and

significant relationship between the sustainability industry variable and the number of sentences in start-ups' websites that relate to the economic pillar of sustainability. Therefore, it is possible to affirm that the effect of economic "disclosure" on valuation is stronger for the sustainability start-ups category than for finance. Moreover, according to the third model, both the environmental and the social types of sustainable quotes are not significant since their p values are too large to establish the existence of any relationship between the variables.

Synthesizing, this chapter has presented the outcomes of the regression, both in tabular and narrative way. The main results from the analysis are that as far as the three pillars of sustainability are concerned, only the economic one, measured as the number of sentences related to economic sustainability in a start-up's website, is positive and significant, while the other two pillars are not even significant. Moreover, the analysis has revealed that, making a comparison between the two industries, economic quotes disclosed by sustainable companies are more valuable for investors than the same sentences displayed by financial firms.

CHAPTER 8 – DISCUSSION

This last chapter discusses in a deeper way the results obtained from the regression. More particularly, the first part is dedicated to the development of some implications useful for many stakeholders of the companies. The subsequent part of the chapter is devoted to a comparison of the results obtained in this thesis with the studies already existing in the literature.

8.1 Implications

In this thesis a regression has been run in order to test some hypotheses: the more environmentally related information, measured as the number of quotes a start-up displays on its website, the higher its total valuation. The same hypothesis has been tested also with sentences pertaining to the social and economic pillar of sustainability. Moreover, the aim was also to test whether the presence of videos on the website actually increases the total valuation. Results of the regression have shown that the hypothesis related to the environmental quotes is not supported by the model: the data

have revealed that environmentally related information does not affect at all the valuation. The same situation is true for social related quotes and the presence of videos. On the contrary, for the sentences relating to the economic pillar of sustainability the relationship is positive and statistically significant. Therefore, it has been found that the relationship between the number of economic related quotes and the valuation is direct.

Important implications of this work are that investors seem to be caring more about the economic sustainability indicators and not so much about the environmental and social sustainability during their initial stage; moreover, the presence of sustainability related videos in company website does not affect total valuation. Another fundamental implication is that companies pertaining to the sustainability industry, on average, enjoy a higher valuation compared to the financial ones. However, this result is a little bit controversial: according to the regression, the fact that one company categorizes itself as pertaining to the sustainability industry matters to investors, as revealed by the higher valuation that they assign to the start-ups in this sector, compared to the ones pertaining to the financial services industry. Capital providers' higher valuations of start-ups in the sustainability industry should be linked to the fact that investors feel better when they are putting their money in sustainable enterprises. However, at the same time, according to this regression, investors do not seem to look that much at the environmental and social quotes and information that start-ups disclose about themselves in their website. These results sound a little bit paradoxical, but once interpreted, they actually make sense: investors show their willingness to commit to sustainable enterprises, pretty because they feel a moral duty to put their money into activities valued by the larger society. However, a deeper analysis reveals that, as a matter of fact, their sustainability interests are limited to the sphere that has some economic repercussions. It can be observed that, even if their intentions seem charitable, investors' main priorities are still of economic nature.

Elaborating on the results obtained from the regression, it is possible to affirm that they are in line with some discussions that are currently taking place in the United States. More particularly, the professor Charles Cho (2021) has affirmed that in the United States, sustainability is understood differently than in Europe: according to the American perspective, sustainability is more a tool for investors to evaluate their risks rather than a way to really create value for environment and society. In his study,

professor Cho has focused on large companies, however, according to the results obtained from this regression, it is possible to claim that even from the first stage of companies the same trend is observed: investors seem to care more about economic motives than about environmental and social related quotes. Therefore, it has emerged that investors remain investors and care more about the economic and profitability related aspects rather than social and environmental ones. Accordingly, as far as the ongoing debate present on the literature on whether investors actually value sustainability or if they just focus on the economic rational, the results of this study highlight this second aspect: they still focus on the economic part.

The present thesis can be considered as an exploratory work on the effects that the disclosure of sustainability on US start-ups' website has on their valuation by investors. Overall, from this study it can be deducted that sustainability actually plays a role in investors' decision making. This is revealed by the fact that sustainable start-ups, on average, are assigned a higher valuation from capital providers than financial ones and from the existence of a positive relationship between start-ups' valuation and one of the three pillars of sustainability. However, as explained in the beginning of this work, sustainability is a multifaceted concept that embraces three different while integrated and complementary spheres: the environment, the society and the economy. These three domains all contribute to the definition of sustainability, they all coevolve and they are codetermined, proving essential to promote a sustainable development. However, this research has demonstrated that, when investors need to decide where to put their money, they only value the economic sphere of sustainability, assigning no value to the other two pillars. The originality of this study hence revels that, despite the efforts of integrating together all the aspects of sustainability, capital providers are still focused on the economic motives.

8.2 Comparisons with the existing literature

This part is dedicated to the comparison of the results obtained from this research with the findings present in the existing literature. As already mentioned, there is a running debate on the relationship between sustainability and firm's value, so that some of the studies have found inferences that are similar to those of this thesis, while others show completely different results.

More particularly, this study seems to confirm the research of Huang (2021), who has concluded that investors actually include sustainability related considerations into their decision-making processes, but they don't do so in the light of ethical concerns, but because of some positive financial effects. Therefore, the results of this thesis and the ones of Huang (2021) seem to agree on the fact that capital providers tend to focus on the economic aspect of sustainability. The predominance of economic motives in investors' decisions discovered in this thesis was mentioned also by Haji et al. (2021), who have asserted that non-financial information tends to be overcome by economic data in companies' reports. The study on start-ups performed by Paoloni and Modaffari (2021), has revealed that these companies should integrate economic, social and environmental practices to stay at pace with stakeholders' expectations. Similarly, Halberstadt et al. (2014) have found that start-ups need to address sustainability matters to gain a competitive advantage. Also Logvinovich (2020) has concluded that sustainable practices boost start-ups' competitiveness. However, contrary to those studies, the outcome of this thesis has revealed that actually only economic motives play a role in this aim.

Findings of this work coincide only partially with those by Bose et al. (2020). These authors in fact have acknowledged that, in general, socially responsible investments are worthy and pay off in terms of valuation. On the other end, this thesis has discovered that sustainable investments are valuable only to the extent that they relate to some economic aspects. Results similar to the ones of Bose et al. (2020) are those by Saeidi et al. (2015), who have claimed that there exists a positive correlation between the sustainability of a company and its financial performance. The same line of thinking is followed also by De Villiers and Marques (2016), who have asserted that sustainability disclosure is valued by investors and that low levels of Corporate Social Responsibility (CSR) information reduce firm's value. The result of this thesis instead affirms that this is true only as far as economic sustainability is concerned, while no relationship has been found for social and environmental types of information. It is interesting also to comment on the differences between the results obtained in the present work and the ones from De Lange (2017). This author has claimed that sustainable start-ups aren't more valuable from investors' point of view compared to traditional counterparts, while, according to the regression performed in this thesis, on average, sustainable start-ups are assigned a higher valuation. De Lange's (2017) argument includes the fact that

capital providers are not attracted by start-ups' sustainability, while results of this study command that actually they are valuing firm's economic sustainability.

The study by Wang and Tuttle (2014) supports the idea that the higher the amount of sustainable information a company displays, the better its perception in the eyes of investors is. Also Pesci et al. (2015) have asserted that firms' narrative and visual disclosure on social and environmental matters plays a role. Similarly, the results provided by Provasnek et al. (2017) have revealed that companies engaged in sustainability perform better than those that do not. However, on the contrary, the present work has found a positive correlation between the number of sustainable sentences and the value of the firm only limited to the economic sphere. Therefore, these results are only partially coinciding. A partial agreement with the present thesis is found also in the work by Revelli and Viviani (2015). These two authors in fact have acknowledged that the integration of sustainability related information is neither a weakness nor a strength for companies. This result is confirmed in the present regression only as far as the environmental and the social sustainability are concerned, having found not significant relationships between them and companies' value. When Schoenmaker (2018) has investigated the role of the financial system in sustainable development, he has asserted that investors can influence companies' sustainable practices. However, this result is not completely confirmed by this thesis, since it has been discovered that investors only consider valuable firms' sustainable practices when these are related to the economic aspects, therefore companies could have no incentive to engage in social and environmental activities.

A different result has been obtained by Brooks and Oikonomou (2018), who have commented that environmental disclosure has a positive influence on financial performance, working as a commitment device. However, as already mentioned, in this research no relationship has been found between the amount of environmental information disclosed, measured as the number of sentences present on the website, and firms' total valuation. On the other hand, Fonseka et al. (2019) have discovered the existence of a negative relationship between the amount of environmental information disclosure and the cost of equity capital. This result cannot be neither confirmed nor refused by this thesis since, according to the regression, there is no sufficient evidence to

establish a connection between environmental type of information and start-ups' valuation.

The study by De Villiers et al. (2021), suggesting that investors are willing to pay more for environmental information but not for social information, cannot be confirmed by the results of this thesis. The regression performed in this work in fact has found no sufficient evidence for the existence of a meaningful relationship between social and environmental types of disclosure and capital providers' willingness to put their money in the companies. Also the findings by Qiu et al. (2016) cannot be confirmed by the present work: Qiu et al. (2016) have claimed that investors value social companies' disclosure, while this thesis has found no similar evidence. Moreover, it is possible to note differences from the results obtained in this thesis and the ones found by Sadiq et al. (2021): these authors have acknowledged that both social and environmental companies' operations foster business performance, while, this thesis has found not significant evidence between the two. In contrast with the result of this thesis is also Martin and Moser (2016), who have argued that capital providers value companies' green investments and that the more the information regarding these investments are directed towards societal benefits and less towards economic costs, the better investors' valuation is. Moreover, Friede et al. (2015), in their literature review, have acknowledged that the majorities of the existing studies actually found a positive or a non-negative relationship between sustainability and firms' financial performance. The present thesis, on the other hand, has declared that investors do not care so much about the social and environmental aspects of sustainability, and that they respond positively only to economic results.

An important implication of the differences encountered between these papers and the present thesis is that all these studies refer to large established companies, while the focus of the present research are start-ups. Therefore, contrasting results could also be attributable to the initial stages of life of the companies' analysed. It would be interesting for future research to perform again this study on the same sample of companies some years from now, in order to see if the relationship between the firms' valuation and the sustainability disclosure changes with companies' life stage and size.

Summarizing, this chapter has developed some implications based on the research that has been conducted. In particular, it has emerged that start-ups' investors focus on the

economic pillar of sustainability, assigning far less importance to the other two and revealing that they still preserve a predominantly profit-oriented logic. The section has also pointed out some apparently paradoxical results that has emerged from the analysis. Finally, the last paragraph has shed light on the fact that, due to the lack of consensus on the topic in the literature, the present thesis supports the results of some authors, while it is in contrast with others.

CONCLUSION

This thesis has been structured in several chapters in order to provide a complete and multifaced description of the topic. The first four chapters constitute the theorical part that lays the foundation for the core part of the research, contained in the last four chapters, that constitute the real contribution of this work.

More particularly, what has emerged from the first chapter is the worldwide diffusion of sustainability and the ubiquitous agreement that it is nowadays an important concept to be borne in mind in every aspect of human life. In addition to this, the reader has appreciated the contribution of its three pillars in the transition towards sustainable development. The framework used to categorize information disclosed by the sample of companies of this thesis has been the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda, a comprehensive tool that has allowed to precisely analyse the meaning of every single sustainability related sentence. The second chapter has provided an exhaustive review of the literature on established firms, focusing on their sustainability commitments and their disclosure patterns. Consequently, the third chapter has been entirely dedicated to start-ups, so that the reader has gained a full understanding of their characteristics and of the main contributions of the literature on them. The fourth chapter has proved necessary to get an understanding of the regulatory field related to sustainability that exists in the American context.

Subsequently, from chapter five on, the thesis has concentrated on the core part of the research, where the study has been conducted. Chapter five has provided information on the sample of 102 companies, collected from Crunchbase database, revealing that, coherently with the literature, they are mainly concentrated around some areas, namely New York and San Francisco. Moreover, statistics of many other variables of the sample

have been provided to the reader. Chapter six has described the methodology used in this study, starting from an explanation of the way in which the framework has been divided into the three pillars of sustainability, and continuing with the development of the four hypotheses to be tested into the regression.

From an analysis of the sentences retrieved through the framework it has emerged that, on average, start-ups that define themselves as pertaining to the sustainability industry disclose more information on sustainability than their financial counterparts, but their communication is predominantly focused on the environmental pillar of sustainability. On the other hand, the majority of financial services' start-ups does not disclose at all environmentally related information. It has emerged that instead, these start-ups largely communicate their economic sustainability. As far as social sentences are concerned, it has been discovered that they are not the main focus for both types of companies.

Chapter seven contains a table with the results of the regression, together with some explanations of the coefficients and of the significance levels. The reader also has acknowledged the reason why three models have been run to get to the final results. Finally, chapter eight has shed light on the implications derived from the results of the study: the regression has revealed that, for the sample of companies analysed, a significant relationship is present only between the total number of sentences related to the economic pillar of sustainability and start-ups' total valuation. Being this relation positive, it has been concluded that economic type of sustainable information on companies' website is valued by investors. On the other hand, it has emerged that neither environmentally nor socially related sentences are significant from a total valuation perspective. A lack of evidence also has been found on the relationship between the presence of video and firms' value. However, this could be due to the limited size of the sample, that could be extended in future research. The other important finding of this work has been the acknowledgment of the fact that sustainable start-ups, on average, are valued more than financial ones. An implication of these results has been that even if investors seem to value more start-ups that define themselves as sustainable, in reality they only assign value to the economic pillar of sustainability.

Therefore, this study contributes to the existing debate on the relationship between companies' sustainability and value that, as explained in this thesis, has produced very

different results in the literature. Despite the small size of the sample, this work has provided interest insights that could be used and extended in future research. In particular, analysis of this type can be conducted with a larger sample of companies, or considering different industries or alternatively, considering the same sample of companies some years from now. Another interesting approach would be to include in the analysis also other types of start-ups' channels of communication, such as social networks or press releases. Hence, the methodology and the framework employed in this study can be reused or customized for future research.

Closing the circle, the question posed during the introduction on whether people's sustainable orientation is real or apparent seems to be answered, because, according to the results of this thesis, actors still focus on economic matters and still today it is difficult to detach them from their inherent individualistic and economic nature. From this research in fact it has emerged that start-ups' investors have the propensity to give value only to the economic orientation of companies. Great efforts must still be made in order to change the logic.

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REFERENCES

Amini, M., and Bienstock, C. C. (2014). Corporate sustainability: an integrative definition and framework to evaluate corporate practice and guide academic research. Journal of Cleaner Production, 76, 12-19.

Andrew, J., and Baker, M. (2020). Corporate social responsibility reporting: the last 40 years and a path to sharing future insights. Abacus, 56(1), 35-65.

Barth, M. E., Cahan, S. F., Chen, L., and Venter, E. R. (2017). The economic consequences associated with integrated report quality: Capital market and real effects. Accounting, Organizations and Society, 62, 43-64.

Beinke, J. H., Nguyen, D., and Teuteberg, F. (2018). Towards a business model taxonomy of startups in the finance sector using blockchain.

Bellucci, M., Simoni, L., Acuti, D., and Manetti, G. (2019). Stakeholder engagement and dialogic accounting: Empirical evidence in sustainability reporting. Accounting, Auditing & Accountability Journal.

Bergset, L. (2018), "Green start-up finance – where do particular challenges lie?", International Journal of Entrepreneurial Behavior & Research, Vol. 24 No. 2, pp. 451-575.

Bergset, L., and Fichter, K. (2015). Green start-ups–a new typology for sustainable entrepreneurship and innovation research. Journal of Innovation Management, 3(3), 118-144.

Bocken, N. M. (2015). Sustainable venture capital–catalyst for sustainable start-up success? Journal of cleaner production, 108, 647-658.

Bose, S., Saha, A., and Abeysekera, I. (2020). The value relevance of corporate social responsibility expenditure: evidence from regulatory decisions. Abacus, 56(4), 455-494.

Brooks, C., and Oikonomou, I. (2018). The effects of environmental, social and governance disclosures and performance on firm value: A review of the literature in accounting and finance. The British Accounting Review, 50(1), 1-15.

Bruna, M. G., and Nicolò, D. (2020). Corporate reputation and social sustainability in the early stages of start-ups: A theoretical model to match stakeholders' expectations through corporate social commitment. Finance Research Letters, 35, 101508.

Carrots and Sticks, (2020). Novaware.
Carrotsandsticks.net. https://www.carrotsandsticks.net/

Center for American Entrepreneurship (CAE). (2022, February 2). https://startupsusa.org/

Chartered Financial Analyst (CFA) (2020). Future of sustainability in investment management: from ideas to reality. https://www.cfainstitute.org/en/research/survey-reports/future-of-sustainability

Chen, E., and Gavious, I. (2015). Does CSR have different value implications for different shareholders?. Finance Research Letters, 14, 29-35.

Cho Charles, Youtube. (2021 October 9th) Hijacking 'Sustainability' (Accounting): The Case of 'ESG' and the IFRS [Video File] retrieved from
https://www.youtube.com/watch?v=PBAE4jfkLr8

Clarkson, P. M., Overell, M. B., and Chapple, L. (2011). Environmental reporting and its relation to corporate environmental performance. Abacus, 47(1), 27-60.

Clarkson, P. M., Ponn, J., Richardson, G. D., Rudzicz, F., Tsang, A., and Wang, J. (2020). A textual analysis of US corporate social responsibility reports. Abacus, 56(1), 3-34.

Crunchbase database. (2022). Crunchbase.com. https://www.crunchbase.com/home

Cunha, F. A. F. D. S., Meira, E., and Orsato, R. J. (2021). Sustainable finance and investment: Review and research agenda. Business Strategy and the Environment, 30(8), 3821-3838.

Czaja, D., and Röder, F. (2021). Signalling in Initial Coin Offerings: The Key Role of Entrepreneurs' Self-efficacy and Media Presence. Abacus, 58(1), 24-61..

De Lange, D. E. (2017). Start-up sustainability: an insurmountable cost or a life-giving investment?. Journal of Cleaner Production, 156, 838-854.

De Villiers, C., and Marques, A. (2016). Corporate social responsibility, country-level predispositions, and the consequences of choosing a level of disclosure. Accounting and Business Research, 46(2), 167-195.

De Villiers, C., Cho, C. H., Turner, M. J., and Scarpa, R. (2021). Are Shareholders Willing to Pay for Financial, Social and Environmental Disclosure? A Choice-based Experiment. European Accounting Review, 1-28.

Diana, F., Bahry, S., Masrom, M., and Masrek, M. N. (2016, August). Website credibility and user engagement: A theoretical integration. In 2016 4th International Conference on User Science and Engineering (i-USEr) (pp. 216-221).

Diouf, D. and Boiral, O. (2017), "The quality of sustainability reports and impression management: A stakeholder perspective", Accounting, Auditing & Accountability Journal, Vol. 30 No. 3, pp. 643-667.

Dow Jones Sustainability Indices, (2013). Schmiedeknecht, M. H., Encyclopedia of Corporate Social Responsibility, 832–838. https://doi.org/10.1007/978-3-642-28036-8_577

Du, S., and Yu, K. (2021). Do corporate social responsibility reports convey value relevant information? Evidence from report readability and tone. Journal of business ethics, 172(2), 253-274.

Erasmus for Young Entrepreneurs, (2022). What is the European Union definition of micro, small or medium-sized enterprise (SME)? - Erasmus entrepreneurs FAQ. https://www.erasmusentrepreneurs.eu/page.php?cid=6&pid=019&faqcat=14&faqid=101

Ernst & Young (2010). Corporate Responsibility Report. https://assets.ey.com/content/dam/ey-sites/ey-com/nl_nl/topics/corporate-responsibility/cr-reports/ey-nl-corporate-responsibility-report-2010-2011.pdf

Escalfoni, R., Silva, M. F. D., and Oliveira, J. (2020, November). Analyzing Social Relations in Startup Ecosystems. In XVI Brazilian Symposium on Information Systems (pp. 1-7).

European Investment Bank, (2018). Financing the Deep Tech Revolution: How investors assess risks in Key Enabling Technologies (KETs).

Everaert, P., Bouten, L., and Baele, A. (2019). CSR website disclosure: the influence of the upper echelons. Accounting, Auditing & Accountability Journal. Vol. 32 No. 2, pp. 421-455.

Fonseka, M., Rajapakse, T., and Tian, G. L. (2019). The effects of environmental information disclosure and energy types on the cost of equity: Evidence from the energy industry in China. Abacus, 55(2), 362-410.

Friede, G., Busch, T., and Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210-233.

García-Sánchez, I. M., Hussain, N., Khan, S. A., and Martínez-Ferrero, J. (2021). Do markets punish or reward corporate social responsibility decoupling?. Business & Society, 60(6), 1431-1467.

Garett, R., Chiu, J., Zhang, L., and Young, S. D. (2016). A literature review: website design and user engagement. Online journal of communication and media technologies, 6(3), 1.

Gazel, M., and Schwienbacher, A. (2021). Entrepreneurial fintech clusters. Small Business Economics, 57(2), 883-903.

Gladwin, T. N., Kennelly, J. J., and Krause, T. S. (1995). Shifting paradigms for sustainable development: Implications for management theory and research. Academy of management Review, 20(4), 874-907.

Grahn, A. (2020). Precision and Manipulation of Non-financial Information: The Curious Case of Environmental Liability. Abacus, 56(4), 495-534.

Greenly, (2022). Everything you need to know about the three pillars of sustainable development.https://www.greenly.earth/blog-en/3-pillars-of-sustainabledevelopment#:~:text=The%20sustainable%20development%20concept%20owes,%3A%20social%2C%20economic%20and%20environmental%20.

GRI - About GRI. (2022). Globalreporting.org. https://www.globalreporting.org/about-gri/

Guiral, A., Moon, D., Tan, H. T., and Yu, Y. (2020). What drives investor response to CSR performance reports? Contemporary Accounting Research, 37(1), 101-130.

Haddad, C., and Hornuf, L. (2019). The emergence of the global fintech market: Economic and technological determinants. Small business economics, 53(1), 81-105.

Haji, A. A., Coram, P., and Troshani, I. (2021). Effects of integrating CSR information in financial reports on investors' firm value estimates. Accounting & Finance, 61(2), 3605-3647.

Halberstadt, J., and Johnson, M. (2014). Sustainability Management for Startups and Micro-Enterprises: Development of a Sustainability-Quick-Check and Reporting Scheme. In EnviroInfo (pp. 17-24).

Hawn, O., and Ioannou, I. (2016). Mind the gap: The interplay between external and internal actions in the case of corporate social responsibility. Strategic Management Journal, 37(13), 2569-2588.

Henderson, H. (2017). Fintech: Good and Bad News for Sustainable Finance. Pesquisa & Debate. Revista do Programa de Estudos Pós-Graduados em Economia Política, 28(1 (51)).

Hoogendoorn, B., Van der Zwan, P., and Thurik, R. (2019). Sustainable entrepreneurship: The role of perceived barriers and risk. Journal of Business Ethics, 157(4), 1133-1154.

Huang, D. Z. X. (2021). Environmental, social and governance factors and assessing firm value: valuation, signalling and stakeholder perspectives. Accounting & Finance, 62, 1983-2010.

Islam, M., Fremeth, A., and Marcus, A. (2018). Signaling by early stage startups: US government research grants and venture capital funding. Journal of Business Venturing, 33(1), 35-51.

Jeong, J., Kim, J., Son, H., and Nam, D. I. (2020). The role of venture capital investment in startups' sustainable growth and performance: Focusing on absorptive capacity and venture capitalists' reputation. Sustainability, 12(8), 3447.

Keidel, J., Bican, P. M., and Riar, F. J. (2021). Influential Factors of Network Changes: Dynamic Network Ties and Sustainable Startup Embeddedness. Sustainability, 13(11), 6184.

Khojastehpour, M., and Johns, R. (2014). The effect of environmental CSR issues on corporate/brand reputation and corporate profitability. European Business Review. Vol. 26 No. 4, pp. 330-339.

Köhn, A. (2018). The determinants of startup valuation in the venture capital context: a systematic review and avenues for future research. Management Review Quarterly, 68(1), 3-36.

Komodromos, M., and Melanthiou, Y. (2014). Corporate reputation through strategic corporate social responsibility: Insights from service industry companies. Journal of Promotion Management, 20(4), 470-480.

KPMG (2020). The KPMG Survey of Sustainability Reporting 2020: The time has come. KPMG IMPACT December 2020. https://home.kpmg/sustainabilityreporting.html

Kuselias, S. (2020). Follow the Crowd: How Social Information and Social Identity Influence Investing Decisions. Abacus, 56(3), 407-435.

Laitinen, E.K. (2019). Discounted Cash Flow (DCF) as a Measure of Startup Financial Success. Theoretical Economics Letters, 9, 2997-3020.

Lins, E., Fietkiewicz, K. J., and Lutz, E. (2016, January). How to convince the crowd: An impression management approach. In 2016 49th Hawaii international conference on system sciences (HICSS) (pp. 3505-3514).

Logvinovich, E. A. (2020). Sustainable investment strategies for a venture capitalist: the issues of implementation.

Lopatta, K., Buchholz, F., and Kaspereit, T. (2016). Asymmetric information and corporate social responsibility. Business & society, 55(3), 458-488.

Macchiavello, E., and Siri, M. (2020). Sustainable Finance and Fintech: Can Technology Contribute to Achieving Environmental Goals? A Preliminary Assessment of 'Green FinTech'. European Banking Institute Working Paper Series 2020, 71.

Martin, P. R., and Moser, D. V. (2016). Managers' green investment disclosures and investors' reaction. Journal of Accounting and Economics, 61(1), 239-254.

Mention, A. L. (2019). The future of fintech. Research-Technology Management, 62(4), 59-63.

Michelon, G., Pilonato, S., and Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. Critical perspectives on accounting, 33, 59-78.

MIT Sloan Management Review and The Boston Consulting Group (2013). Survey "Innovation Bottom Line". Findings from the 2012 Sustainability & Innovation Global Executive Study and Research Report.

Narayanan, V., and Adams, C. A. (2017). Transformative change towards sustainability: the interaction between organisational discourses and organisational practices. Accounting and Business Research, 47(3), 344-368.

OECD Statistics Directorate. (2022). OECD Glossary of Statistical Terms - Small and medium-sized enterprises (SMEs) Definition.
https://stats.oecd.org/glossary/detail.asp?ID=3123#:~:text=Small%20and%20medium%2Dsized%20enterprises%20(SMEs)%20are%20non%2D,a%20given%20number%20of%20employees.&text=Small%20firms%20are%20generally%20those,also%20used%20to%20define%20SMEs.

Paoloni, P., and Modaffari, G. (2021). Business incubators vs start-ups: a sustainable way of sharing knowledge. Journal of Knowledge Management. Vol. 26 No. 5, pp. 1235-1261.

Pesci, C., Costa, E., and Soobaroyen, T. (2015). The forms of repetition in social and environmental reports: insights from Hume's notion of 'impressions'. Accounting and Business Research, 45(6-7), 765-800.

Piccarozzi, M. (2017). Does social innovation contribute to sustainability? The case of Italian innovative start-ups. Sustainability, 9(12), 2376.

Provasnek, A. K., Schmid, E., Geissler, B., and Steiner, G. (2017). Sustainable corporate entrepreneurship: Performance and strategies toward innovation. Business Strategy and the Environment, 26(4), 521-535.

PWC, (2021). Private Equity Responsible Investment Survey.
https://www.pwc.com/gx/en/services/sustainability/publications/private-equity-and-the-responsible-investment-survey.html

Qiu, Y., Shaukat, A., and Tharyan, R. (2016). Environmental and social disclosures: Link with corporate financial performance. The British Accounting Review, 48(1), 102-116.

Revelli, C., and Viviani, J. L. (2015). Financial performance of socially responsible investing (SRI): what have we learned? A meta-analysis. Business Ethics: A European Review, 24(2), 158-185.

Reuters. (2021, April 8). Bank of America to deploy $1 trillion for sustainable finance by 2030. https://www.reuters.com/business/sustainable-business/bank-america-deploy-1-trillion-sustainable-finance-by-2030-2021-04 08/#:~:text=April%208%20(Reuters)%20%2D%20Bank,the%20same%20project%20 in%202019.

Ribeiro-Soriano, D., and Piñeiro-Chousa, J. (2021). Innovative strategic relationships among sustainable start-ups. Industrial Marketing Management, 94, 106-114.

Sadiq, M., Nonthapot, S., Mohamad, S., Ehsanullah, S., and Iqbal, N. (2021). Does green finance matter for sustainable entrepreneurship and environmental corporate social responsibility during COVID-19?. China Finance Review International. Vol. 12 No. 2, pp. 317-333.

Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., and Saaeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. Journal of business research, 68(2), 341-350.

Schoenmaker, D. (2018). A framework for sustainable finance. CEPR Discussion Paper, DP12603.

Stata (Statistical software for data science). https://www.stata.com/

Statista, (2022).; Topic: Internet usage worldwide.
https://www.statista.com/topics/1145/internet-usage

Stuart, A. C., Bedard, J. C., and Clark, C. E. (2021). Corporate social responsibility disclosures and investor judgments in difficult times: The role of ethical culture and assurance. Journal of Business Ethics, 171(3), 565-582.

United Nations (1987). Report of the World Commission on Environment and Development, "Our Common Future".

United Nations (2022). Home | Sustainable Development. https://sdgs.un.org/

United Nations (2022). Sustainability | United Nations.
https://www.un.org/en/academic-impact/sustainability

United Nations (2022). THE 17 GOALS | Sustainable Development.
https://sdgs.un.org/goals

Van Werven, R., Bouwmeester, O., and Cornelissen, J. P. (2015). The power of arguments: How entrepreneurs convince stakeholders of the legitimate distinctiveness of their ventures. Journal of Business Venturing, 30(4), 616-631.

Vaznyte, E., and Andries, P. (2019). Entrepreneurial orientation and start-ups' external financing. Journal of business venturing, 34(3), 439-458.

Wang, L., and Tuttle, B. (2014). Using corporate social responsibility performance to evaluate financial disclosure credibility. Accounting and Business Research, 44(5), 523-544.

Yue, C. A., Thelen, P., Robinson, K., and Men, L. R. (2019). How do CEOs communicate on Twitter? A comparative study between Fortune 200 companies and top startup companies. Corporate Communications: An International Journal. Vol. 24 No. 3, pp. 532-552.

Zhang, Z., Wu, H., Ying, S. X., and You, J. (2021). Corporate Innovation and Disclosure Strategy. Abacus.

Zhou, S., Simnett, R., and Green, W. (2017). Does integrated reporting matter to the capital market? Abacus, 53(1), 94-132.

Ziolo, M., Bak, I., and Cheba, K. (2021). The role of sustainable finance in achieving Sustainable Development Goals: does it work? Technological and Economic Development of Economy, 27(1), 45-70.