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Women Venture Capitalists in social and traditional funds

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Abstract

In this thesis, traditional and social venture capital funds are analyzed from a gender perspective to extrapolate the differences in terms of management teams. Do women have to study more to achieve the same role as men in venture capital funds? Are social funds more open to a female management team? Is there a positive relationship between the female presence in the management team and women founded funds? The study addresses these and many other questions and identifies, through a comparison between traditional and social impact funds, some of the crucial implications on the current and future role of women.

To this aim, it has firstly been conducted a systematic review of the literature on gender diversity, impact investing and the current status of women entrepreneurs and venture capitalists. Then, an existing database extrapolated from Crunchbase has been enriched through a meticulous collection of data about the listed funds and partners. Finally, the descriptive statistics allowed to describe and understand the features of the sample introducing, besides the gender perspective, also the distinction between social and traditional funds. The results obtained mainly confirm the most prominent issues arisen from the literature and constitute a contribution to the research in this area and a support for further analyses.

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1. INTRODUCTION

1.1 Overview

Venture Capital (VC) can be often considered a crucial source of capital to raise successful companies allowing the development of radical new technologies and disruptive business models, promoting industrial and social changes and the growth of a country's gross domestic product (GDP), stimulating research, innovation and technological performance. Venture Capitalists almost exclusively invest in young, high-growth companies, adding value with services in excess of their cash investments. Some of the most important firms in the world, including Federal Express, Google and Apple, and, more recently, Facebook, LinkedIn, Zynga and Groupon have been funded by VC.

In this context sustainability and corporate responsibility are increasingly important to companies and individuals. In the last years, following this trend, has emerged the so-called impact investing. The Global Impact Investing Network (GIIN) defines impact investing as “investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return.” Impact funds are structured as traditional funds with a crucial role played by impact investing: their investors exhibit an intention to generate both positive social or environmental returns and positive financial returns.

Finance is a male-dominated profession, especially at the top. According to the U.S. Bureau of Labor Statistics and Catalyst Research, in 2018 women in the U.S made up 46.9% of the total labor force in finance and they accounted for only 19.4% of senior-level managers in the investment sector. Often women are accurately scrutinized and neglected for positions of power. In a nutshell, it is not rare that their work is underestimated and, consequently, they have to reach a higher standard and to work harder to achieve the same results as men in their careers.

Stereotypes are difficult to avoid and often unconsciously arise in a predominantly male community. In addition, in the same context, cultural norms tend to show a bias against women. Although these constraints, many studies have supported the positive effects

deriving from women's involvement in firms, especially when they hold leadership positions. Indeed, women can help to make better decisions bringing new ideas and cooperating with one another.

Based on an assessment of the empirical evidence, on the demand-side, only a small proportion of women-owned businesses raise venture capital. The obstacles women face in starting a new venture are linked to several elements such as lower experience, reduced propensity to risk, lack of training opportunities and institutional support, lower access to the social and financial capital required for the recognition and pursuit of a market opportunity. Also on the supply-side few women are involved in making investments, either as venture capital fund managers or as business angels. Fortunately, in the last years, the situation is improving and there are now more opportunities in finance than ever before for women; this result has been obtained in large part by women who have pioneered in the field, often by willing to stand out, take risks, and refuse "no" as an answer.

1.2 Structure of the thesis

This research consists of two parts, a theoretical and an empirical one. The theoretical part firstly introduces the relevant concepts to understand the VC industry and its fundamental characteristics. The topics that will be analyzed are how venture capitalists work and their trends, the structure of the funds, the characteristics of the portfolio companies, the different roles inside the funds and, finally, the social impact funds. Subsequently, a literature review of academic research about top management team (TMT) and women in finance will be introduced. This chapter aims to get a sufficient understanding and overview of the current status of the women in male-dominated industries, especially in entrepreneurship and venture capital fields. Additionally, the goal is to figure out the pros and cons of having a homogenous or heterogenous TMT and how this affects gender bias. Subsequently, a short paragraph focuses on women in impact investing and ends up with an introduction to the concept of gender lens investing. The findings and conclusion of this theoretical part are used as a starting point of the subsequent analysis.

The third chapter is about the methodology. Firstly, some existing databases extrapolated from Crunchbase (a platform for researching commercial information on private and public companies) have been combined to create a unique database and to identify social and

traditional funds. Then, a meticulous collection of data has been carried out on the industry specialization of the funds and the organizations, the education of the venture capitalists and whether the fund or the organization has been founded or led by women. Additionally, for all the women that have a partner role has been added the information regarding the number of female and male partners that work in that fund. For all the organizations that have received at least one investment from a female venture capitalist have been reported if the organization is women-founded and/or led. Finally, as commonly occur in almost all research, also in this final database, many variables show missing data. Not to drastically reduce the number of observations, the majority of the missing information has been searched and manually added to the database. In particular, most of these data concerned gender and geographical position. A separate database provides also information about investments.

Then, the subsequent chapter shows some descriptive statistics which will allow describing and understanding the features of the sample. The analyses that will be carried out, firstly by making some explorative statistics and then with a more precise approach, are performed on the education, investments, people, jobs and companies. Additionally, general statistics consider the whole population, both women and men, while a deeper study will focus only on the female sample. Besides the gender perspective also the distinction between social and traditional funds has been introduced. All the statistics have been carried out on Stata, an integrated software package that allows doing manipulation, visualization, statistics, and automated reporting.

Finally, the last chapter points out the conclusion of the work. The first paragraph will discuss the findings concerning the issues arisen from the literature review. Then, based on previous research and through the outcomes of this thesis, a few actions that could help to make progress on gender diversity will be suggested. However, as with any research, this thesis has limitations, but these main shortcomings could be used as inputs for future research. In this regard, a survey that has been thought in parallel to this work and a preliminary regression with a Probit model will be proposed. To conclude, the last paragraph shows how this study presents peculiar insights into the venture capital industry and, for that reason, it could be used as a reference for future research.

1.3 The Venture Capital industry

1.3.1 Definition of Venture Capital and its trends

US authors consider private equity (PE) a general term which comprises VC and PE in a narrow sense, as two major subcategories. In contrast, European research tends to employ VC and PE synonymously. However, one important difference between venture capital and other private equity deals is that venture capital tends to focus on emerging companies seeking substantial funds for the first time, while private equity tends to fund larger, more established companies that are seeking an equity infusion or a chance for company founders to transfer some of their ownership stakes. Venture capital funding is increasingly becoming popular, and even essential, for new companies or ventures that have limited operating history and lack access to capital markets, bank loans, or other debt instruments. This capital provides a substantial infusion of financial resources but, at the same time, it enlarges and improves the firm's resources and capabilities through coaching activities and the network of business contacts. For this reason, they are called activists or "smart money" investors for their active, even operational, role to help their portfolio companies grow after the initial investment. The injection of money usually occurs at a relatively early stage of development, i.e. the provision of seed, start-up, or growth capital, and the work is completed once the portfolio company is successfully divested. As financial intermediaries, venture capitalists raise capital primarily from institutional fund investors, like insurance companies, pension funds, or fund-of-funds who allocate their assets over a broad set of different asset types. Beyond that, they collect money from investors like wealthy families or endowment funds, since VC potentially guarantees higher investment profits than regular asset classes. However, VC does not always take a monetary form, but it can also be provided as technical or managerial expertise.

This market is characterized by a positive sorting mechanism: more reputable and experienced venture capitalists tend to "cherry-pick" the best companies and, at the same time, higher quality entrepreneurial ventures actively seek venture capitalists and favor likewise more reputable ones. Furthermore, venture capitalists convey a signal to other uninformed parties that certify the quality of a firm, facilitating the access to additional finance in the form of financial debts, operational debt, or external equity. Usually, they expect a much higher return than a standard risky investment, in the range of 25%-35% per year over the life of the investment.

The first step of the investment process is called *scouting* and consists of an initial quick review of the venture to understand if it meets the venture capitalist's interest; then, with the *screening* phase is made a detailed evaluation of the business plan; if interested in the proposal, the firm or the investor must then perform the *due diligence*, which includes a thorough investigation of the company's business model, products, management and operating history, etc. Once the due diligence has been completed, the firm will pledge an investment of capital in exchange for equity in the company. These funds may be provided all at once, but more typically the capital is provided in rounds, and the investors exit the company after a period of time, typically from four to six years since the initial investment, by a merger, acquisition, or initial public offering (IPO).

Most of the deals financed by venture capitalists are in the technology industry, but other industries also have benefited from this kind of funding. Outstanding examples are Staples and Starbucks, which both received venture money. Furthermore, for example, Google and Intel have separated venture funds to invest in emerging technology. Starbucks also recently announced a \$100 million venture fund to invest in food start-ups. Thanks to the growth of the average deal sizes and the presence of more institutional players in the mix, venture capital has consolidated over time. The industry now involves different stakeholders and investor types who invest in diverse stages of a start-up's evolution with different risk scale.

Data from the NVCA and PitchBook indicated that VC firms funded US \$131 billion across 8,949 deals in 2018, more than 57 percent from the previous year, and 52 percent of the global investments alone. The year 2018 saw a total of \$254 billion invested worldwide into 18,000 start-ups through venture capital financing. In these last years, late-stage financing has increased in popularity because institutional investors prefer to invest in less-risky ventures. Meanwhile, angel investors have remained constant or declined over the years.

In 2020, due to the COVID-19, global venture fundings decreased compared to previous years; however, the result is not as dramatic as expected. Overall, total venture dollars for 2020 amounted to \$129 billion for the first half of the year. This includes all funding stages, from seed, venture, corporate venture, and private equity rounds. That \$129 billion is far from the pick of 2018, and 7 percent less compared to the first half of 2019. During Q2'20, both VC investors and start-ups tried to understand the 'new normal' and how it would change business operations. In this quarter, VC investments in the US targeted particularly fintech investments. In Europe, transportation and logistics, health and biotech, and fintech sectors attracted significant investors' attention. Finally, in Asia, the investments remained

relatively soft. Globally in this quarter, VC-backed companies raised \$62.9 billion across 4,502 deals, and pharma and biotech companies saw increased investment. However, VC investors continue to be cautious and the global VC market has declined in early-stage deals.

1.3.2 Venture Capital funds

A venture fund is the main investment vehicle used for venture investing. From an organizational perspective, VC literature typically differentiates among four general types of firms: *independent VC (IVC)*, *corporate VC (CVC)*, *bank-controlled VC (BVC)* and *governmental VC (GVC)*.

Independent funds are the most known. They are usually backed by many different investors and are organizationally not linked to any of their capital providers. Their objective is to maximize the net capital gain over the life of the fund, to achieve higher deal flow and to establish new rounds of financing. Independent venture capitalists need above-average returns to raise subsequent funding from third parties and typically they have an active and on-going role in the management and monitoring of their activities. By contrast, corporate VC funds are typically subsidiaries of other companies, both financial and non-financial (e.g. Intel, Google, Johnson & Johnson). These funds usually pursue both financial and strategic goals, such as gaining a window on valuable and novel technologies, exploiting complementary resources and accessing strategic options. For this reason, CVC needs a strategic alignment with the Research and Development (R&D) functional unit as well as with the business lines of the parent company. As regards bank-controlled VC, in many European countries, commercial banks are the main financial contributors to VC firms. Compared to IVCs, they are under less pressure to divest early and can easily provide additional capital in subsequent financing rounds. These investors follow a strategic goal hoping to create future customers for the lending and underwriting activities of its affiliated bank. Additionally, BVC financing can convey to the market a signal about the quality of invested firms. Finally, Governmental venture capitalists usually prefer a social return; indeed, their selection process is typically biased towards investments that generate higher spillovers or localized public benefits. Their intervention tries to correct the failures in the supply-side of domestic VC markets or to fill the “financing gap” caused by early-stage ventures.

Analyzing the Independent VC funds, they are organized as a limited partnership governed by partnership agreement covenants. The structure of the funds is characterized by Limited

Partners (LPs) and General Partners (GPs). The first are the ones that commit capital to the venture fund. They are mostly institutional investors, such as pension funds, insurance companies, endowments, foundations, family offices, and high net worth individuals. Furthermore, LPs have limited liability and, typically, do not interfere with the fund's regular business operations. Secondly, the General Partner (GP) is the venture capital partner of the management company. They raise and manage venture funds, carry out active management, set and make investment decisions and help their portfolio companies exit. They have a fiduciary responsibility to their Limited Partners, and, in the case of financial losses, GPs carry out active unlimited liability. Moreover, it could be they invest personal assets in the investment fund; however, in most of the cases, the capital commitment is around 1 percent of the total fund capital, whereas the LPs provide the remaining 99 percent.

Concerning the lifetime of the VC fund, it is usually between 7 to 10 years, and it is split into two different periods: the investment and divestment period. The investment period represents the first three to seven years. During this time the GP draws down the committed capital needed to make investments or to pay costs, expenses or management charges. During the subsequent period, the investments are divested, or dependent on investment success, liquidated. At the end of the fund lifetime, the fund is legally and economically dissolved and all remaining assets are transferred to the investors.

As regards the compensation structure, the venture capitalists try to best harmonize the incentives with their investors. To this aim, the remuneration consists of two different contributions: the *management fee* and the *carried interest*. The management fee is used to cover the running cost related to the operation of the venture firm, such as rent, salaries of employees, etc., but also the basic remuneration of the VC managers. Historically, venture capitalists initially receive on average 2 percent of the committed capital as a management fee. The carried interest normally represents 20 percent of the realized investment profits. The reference parameter is typically the total investment return (overall investments made) of the fund and not the respective return on single investments. Finally, a *hurdle rate* guarantees a minimum return to the fund investors. As a result, the GP benefits from the carried interest only once a minimum return (usually 8 percent) is achieved and the LPs have at least been repaid their initial investment amount. In venture capital funds money must be raised before making any investments. The potential investors of the fund receive a prospectus and, then, are called by the fund's operators to finalize the individual investment amounts. The investors' return is maximized through the covenants. A set of covenants are

related to the investment type, others to the overall fund management such as the restriction of the total amount of investment in any single firm or other covenants may prohibit the investment of personal funds in certain companies. Such covenants prevent biased interest in the selection of investments by venture capitalists.

Venture capital funds invest in different types of business, from dotcom companies to biotech and peer-to-peer finance companies. Many VC funds, to mitigate the risk in the case of failure, make small bets on a wide variety of young start-ups. Indeed, they invest principally in companies whose shareholding rights are not yet traded on public exchanges. As concerns the funding lifecycle, it is composed of different stages of development that are classified considering the financial requirements, the related sources and uses of funds. The *pre-seed* funding typically refers to the period in which the company's founders are first getting their operations off the ground. In this stage, the founders themselves, close friends, supporters and family are the most common funders. The *seed-stage* financing is provided to portfolio companies that have not yet fully initiated commercial operations; *start-up* investing is primarily given to firms that are progressively set up or may have been in business for a short time and that, usually, have not yet sold their product commercially; *early-stage* financing increases manufacturing and sales capacity or allows the realization of first marketing campaigns; *expansion-stage* financing occurs typically into companies with a consolidated business model, but they still require substantial liquidity to further expand their business operations; *later stage* is frequently quoted as prepublic-stage which represents an indication for an upcoming exit event. Venture capitalists invest in all stages of firm growth but predominantly in the early growth with Series A and Series B investment rounds. Series A funding rounds are substantial injections of money necessary to attack the market, to enter new ones or to launch “collateral” products/services, to develop distribution channels, to consolidate marketing initiatives and strategies. Instead, in the Series B round, investments are higher than in Round A and the startup’s risk of failure is lower. They concern medium-size start-ups that want to move to the scale-up phase, acquiring other companies, entering new geographic or product markets. Then, in the sustained growth stage, additional capital is provided through rounds of series C, D and so on.

Finally, although the roles within a venture capital firm are different from firm to firm, a general structure can be defined considering the following figures: *associates* usually have experience in either business consulting or finance, and sometimes have a business degree.

They are responsible for more analytical work, analyzing business models, industry trends and subsections. Starting as “junior associate”, after a couple of years, they can become “senior associate”; *principal* is a mid-level professional on the board of portfolio companies. People in this position are in charge of checking the smoothness of the operations, identifying the investment opportunities and negotiating the acquisition and exit terms; *partners* are primarily focused on specific area and businesses to invest in, they approve deals occasionally sitting on the board of portfolio companies, and generally represent the firm. Concerning this role, there are different types of partners: *Managing Partners* are the founders or leaders of the fund and they are responsible for fundraising as well as investment decisions; *General Partners* are members of the investment fund and part of the decision process for investments. They may or may not be involved with the fundraising process for the fund; *Venture Partners* have typically a part-time position and are responsible for deal sourcing (deal scout).

1.3.3 Impact investment funds

An increasing number of investors are making investments that provide them not only a simple rate of return but also benefit society at large. A recent survey of investors by TIAA revealed that a third of respondents already own some form of socially responsible investment (SRI), and about half of the remaining declare that they plan to move soon in this direction. Patrick Drum, a portfolio manager at Saturna Capital, has created a spectrum of socially dimensioned investments called “Sustainability Smile” that categorizes the different kinds of investments.

On one end of the spectrum, there are purely *traditional* investments purchased only for their profit potential, extraneous to any impact on society at large. The second category, *integrated investing*, takes environmental, social, and governance (ESG) impact into account together with the investment returns. These funds, in addition to the financial aspect, consider the level of innovation, energy efficiency, the relationship with the social partners, the quality of management and the level of transparency within a company. All these elements allow a better understanding of the company itself.

The next step, far from a pure profit, is named *ethical/advocacy* investing. It balances the profit aim with the investor’s beliefs by removing certain categories such as “sin” stocks like alcohol, tobacco, or firearms. An example is The Carbon Divestment Campaign, which challenges and encourages companies that deal with carbons to move towards renewable energy. The return on capital does still matter, but with lower importance. Then, the

subsequent category is labeled *thematic/impact investing*. Financial performance is secondary to the investment's social theme or impact. The aim is to generate specific beneficial social or environmental effects and, thus, to make a positive impact by investing in several industries including healthcare, education, energy (especially green and renewable), agriculture. Impact investing attracts individuals as well as institutional investors such as hedge funds, private foundations, banks, pension funds, and other fund managers. Finally, the last category of investment is purely *philanthropic*; in this case, the return expectation is only social.

Impact investment funds have the same role as the investment funds in the traditional capital markets: they pool money from investors and then reinvest it in certain asset classes. Funds and the organizations can focus only partially on impact investments; some of them may have a very small fraction of their asset under management dedicated to these investments, and others have the entire portfolio composed of sustainable investments. Social impact funds that invest primarily or exclusively in the equity of early-stage companies are usually called social venture capital.

The main problems arisen from this type of investment are the high fragmentation, the lack of transparency, and quantitative measures in terms of social impact or social value creation. Additionally, there is still a shortage of literature on this type of funds due to the absence of publicly available data.

What emerged from the Annual Impact Investor Survey (2020) is that a clear majority of respondents consider the impact investing market to be “growing steadily”, 21 percent describes the market as “about to take off” and notably, no respondents see the impact investing market “declining”. Impact investors’ motivation is at the heart of the industry’s development. The main three reasons for making this kind of investment concern impact; indeed, most of the respondents consider both “impact being central to their mission” and “their commitment as responsible investors” as “very important” motivations. Additionally, 81 percent believe that impact investing is an efficient way to achieve impact goals. It is interesting to note that, 70 percent of investors find the financial attractiveness of impact investing relative to other investment strategies at least somewhat important. Finally, 88 percent of respondents report that they met or exceeded their financial expectations and 67 percent seek risk-adjusted, market-rate returns for their assets. The latter finding could give evidence against the obsolete assumption of a trade-off between impact and financial performance. Indeed, since social and environmental issues increasingly affect consumer

behavior and business conditions, there is a growing certainty that ESG programs can improve returns and limit risk.

Considering the indicators of market growth over the past decades, respondents cited that the greatest area of progress was in “research on market activity, trends, performance, and practice” (42 percent see “significant progress” made over the past decade). Additionally, many respondents believe that “significant progress” has been made on the “sophistication of impact measurement and management practice” and “professionals with relevant skill sets” (39 percent and 32 percent, respectively).

Overall, it can be concluded that this is great momentum for this industry, proven by the increasing participation of organizations and individuals; most of them show a growing trend in the implementation of social impact investments towards new geographical areas, new sectors, and across many stages of development (from venture-stage to mature-stage companies). However, the development does not go at the same pace all over the world: there are countries in which it is more advanced, UK and USA mainly, and others, most of them, where the political, economic and cultural reality has decelerated the diffusion.

2. LITERATURE REVIEW

“It is well known that women, both in PE and VC firms, are significantly underrepresented as investment decision-makers, as well as in the leadership of companies that receive this capital. Only 10 percent of all senior positions in PE/VC firms globally are held by women, and less than 3 percent of global VC was invested in women-led teams in 2017” (Prequin 2017; Zarya 2018).

2.1 Top Management Team: theoretical approaches and gender diversity

Top management team (TMT) is defined as “the relatively small group of most influential executives at the apex of an organization—usually the CEO (or general manager) and those who report directly to him or her” (Finkelstein, Hambrick, & Cannella, 2009, p. 10).

The impact of diversity of the TMT is usually analyzed in two theoretical ways. The UE approach, developed by Hambrick and Mason, states that individual characteristics of top managers have an impact on their strategic actions which, in turn, are related to corporate performance. As a result, corporate performance can be explained by the different characteristics of TMT members (Finkelstein & Hambrick, 1990); but the decision-making and cognition processes cannot be completely understood considering the demographic characteristics of the TMT. The second approach, based on social psychology, is divided into the information decision-making perspective and the similarity-attraction perspective (Jehn et al., 1999; van Knippenberg, De Dreu, & Homan, 2004). The first perspective underlines the positive impact of diversity on decision-making (Bantel & Jackson, 1989; van Knippenberg et al., 2004; Williams & O’Reilly, 1998). Thus, greater team diversity leads to broader horizons, to an increase of the shared information and, consequently, to an enhancement of decision quality.

On the contrary, the similarity-attraction perspective focuses on the positive effects of team homogeneity (Williams & O'Reilly, 1998). Numerous theories explain how individuals prefer homogeneous group composition since communication among individuals is based on the perceived demographic, belief, value and activity similarity. Social identity and self-categorization describe how individuals consider themselves as different from others relying on observable characteristics; theories of selection, socialization and homophily are also used to explain the existence of homogeneous groups. According to Allport (1954), when individuals create new groups, they try to minimize uncertainty coming from unfamiliarity with unknown team members and to escape from potential relational conflicts. Indeed, heterogeneity among team members tends to generate fear and uncertainty.

Research on TMT composition in traditional organizations mostly deals with variables such as age, sex and experience in determining work outcomes. Age, sex, race, ethnicity, and all the attributes that are present from birth, are considered as demographic characteristics. The literature shows how sex homogeneous groups are present in a wide range of samples, from adolescent groups to MBA student projects, from volunteer associations to corporate boards. The existence of sex homogeneity explains why individuals traditionally have more interaction with similar subjects. However, several types of research demonstrate the benefits of diversity in leadership. Diverse leadership teams are less likely to have the same thoughts and, consequently, avoid carrying conscious and unconscious biases in decision-making processes. In this way, team members may become more aware of their deep-set ways of thinking and start questioning their assumptions, allowing a better knowledge of information and avoiding making mistakes in decision processes (Rock and Grant 2016).

Gender diversity, defined as the equitable or fair representation of people of different genders documented and generally accepted in business, can originate different views, problem-solving approaches, and increase innovation and risk management effectiveness (Rock and Grant 2016). Previous studies on gender diverse leadership and performance suggest a positive correlation between gender diversity and performance. Only a few kinds of research pointed out that increasing gender diversity would negatively affect organizational performance, with some exceptions to compulsory changes driven by regulations (e.g., mandatory board quotas [Ahern and Dittmar 2012]). The report on the Women in Investment Management Initiative noted the importance of gender diversity within teams because “diverse teams can deliver better results” and found that teams with

greater gender diversity can have “a 41% higher return on equity than the companies with no women” (CFA Institute, 2016, p. 2).

Finally, as far as venture capital is concerned, Limited Partners generally declare to consider gender diversity as an important issue, but their lack of actions does not enable General Partners to perceive it. According to a survey conducted in 2019 by the International Finance Corporation, about 65 percent of limited partners view gender diversity of a firm’s investment team as a relevant aspect when committing capital to funds. However, General Partners report that less than 30 percent of their Limited Partners, when conducting due diligence, actually ask about the gender diversity of their investment teams. Furthermore, General Partners state that only about 20 percent of their Limited Partners promote gender diversity outcomes and consider it a condition of committing capital. According to the International Finance Corporation, gender-balanced funds realized an excess net internal rate of return of 1.7 percentage points greater than male-or female-dominated funds analyzing them for vintage, geography, strategy and fund size. Sixty-seven percent of General Partners surveyed declared that achieving gender balance in their investment partner teams is important to their firm, but less than 10 percent implement strategies or targets for increasing the female presence.

2.2 Women and gender gap

2.2.1 Women in male-dominated industries

Society rewards and reinforces different types of behavior for men and women (Eagly, 1987). Gender roles have raised expectations on how men and women should behave in a variety of dimensions, including professions (Cejka and Eagly, 1999). Consequently, some types of occupations have been stereotyped as “masculine” while others as “feminine” (Heilman, 1997). For example, engineering and construction are viewed as masculine occupations, whereas nursing and childcare are considered as feminine occupations (Heilman, 2012). Although in most industrialized countries women have equal rights and can access the same level of education as men, they still encounter difficulties and prejudice to reach executive management positions. The finance industry and financial institutions are an example; indeed, they are heavily male-dominated in top leadership positions and this may lead to a positive bias toward men in this field (Chin et al., 2018). This relates to Kahneman’s research about the frequency of exposure – if the finance industry has always

had men in top leadership, those making decisions may believe that this is the best option and continue to perpetuate these leadership and gender biases (Kahneman, 2011).

Additionally, “If women work in non-traditional, male-dominated work, are they agents for change or [have they] changed themselves?” Bagilhole (2002, p.2) question, based on the current literature, introduces the following considerations: women try to fit within a male environment by becoming “one of the boys”; they feel a strong pressure to reach outstanding performances showing themselves to be ‘twice as good’ as their male counterparts. Also, their physical appearance has an important role and brings challenges in terms of sexual harassment and gender inequalities. For these reasons, some women adopt male hairstyles and cover their female figure by wearing male clothes (Tessa, 2011).

The current situation derives from men’s historical ongoing dominance in a power position and social norms founded on accepted ideas about masculinity or femininity. These stereotypes have been holding women back for years, and while some areas are improving such as healthcare, others are still disproportionately male-dominated (World Economic Forum, 2016). To fight this male-dominated industry, the action of institutional forces, which influences both individual and collective interests and desires, is crucial.

2.2.2 Current status of women entrepreneurs

The commitment of the European Union (EU) to gender equality dates to 1957 when the principle of equal pay for equal work became part of the Treaty of Rome. Later in 1999, the inclusion of gender mainstreaming led member states to consider the gender impact of all policies under the guidelines of employability, adaptability, strengthening equal opportunities, and entrepreneurship. Employment guidelines are common priorities and targets for employment policies that are proposed by the Commission, agreed upon by national governments, and adopted by the EU Council.

More than a decade ago, the Organization for Economic Cooperation and Development (OECD) noted (OECD 2004, p. 6) “It is critically important to improve the factual and analytical underpinnings of the role of women entrepreneurs in the [EU] economy . . . women entrepreneurs play an important role in the entrepreneurial economy, both in their ability to create jobs for themselves and to create jobs for others.” Women’s participation in entrepreneurship brings positive results and simultaneously leads to less inequality between men and women. Recently, an increasing motivation to develop programs, policies, and

initiatives promote the creation of an entrepreneurial ecosystem and the growth of entrepreneurial activity across regions.

Nevertheless, it is clear that women entrepreneurs' participation, access to resources, and outcomes in ecosystems are different from those of men. The Global Entrepreneurship Monitor (GEM) Global Women's Report, showed a substantial discrepancy in start-up rates between men and women in 74 economies, with only five economies showing parity (GEM Global Report, 2016/2017). These differences are attributed to several framework conditions such as institutions, cultural, political, economic, infrastructure, financial markets, policies and programs, etc. More specifically, evidence shows that women have to face more challenges in accessing start-up capital.

A survey of Small Business noted that nearly 65 percent of women-led firms start with less than \$5000 while about 45 percent of men-led firms start with the same amount of capital (NWBC 2017). Other researches illustrate that women have the intention to use debt financing, but they receive less favorable treatment in terms of loan size, interest rates, and collateral requirements, and they are less satisfied with lending relationships.

In conclusion, the entrepreneurship ecosystem is moving forward and in 2017, there were 114% more women-owned businesses than 20 years prior and, between 2016 and 2018, the number of black-women-led start-ups doubled.

2.2.2.1 Policies to overcome the gaps

Public policy support for women's entrepreneurship dates back to the 1970s as a response to the growing numbers of women entering the labor market. In the US, during these years, particular attention was given to special rules and loans for women. More recently, among the different policies and initiatives can be mentioned the "Promoting Women in Entrepreneurship Act, 2017" and the "Women's Entrepreneurship and Economic Empowerment Act, 2018 (WEEE)". The first Act encourages to recruit and support women to extend their focus beyond the laboratory and into the commercial world, while the second requires that 50% of the U.S. Agency for International Development (USAID)'s SME resources are targeted to reach enterprises owned, managed and controlled by women. Additionally, policies and initiatives have also been taken by the Government or by the Employees, such as the "Women's Business Centers (WBCs)" that provides training in finance, management, marketing, and the Internet, as well as offering access to all of the SBA's financial and procurement assistance programs to women and the "OECD Gender

Initiative United States Council for International Business (USCIB)” that supports the OECD on global advancement of women and girls in the economy.

Overall, the objectives of most entrepreneurship policies are to increase the ease of doing business, to facilitate access to resources required to start-up and firm growth (Acs & Virgill, 2011), taxes and bureaucracy, government programs, school-level entrepreneurship education and training, post-school entrepreneurship education and training, R&D transfer, commercial and professional infrastructure, internal market dynamics and internal market burdens (Global Entrepreneurship Monitor – GEM, 2015).

Within the European Union, a call for action is clearly articulated in the Entrepreneurship 2020 Action Plan, which asks for awareness-raising, entrepreneurship training, improved access to financing, stronger networks, and support in reconciling business and family life (EU, 2012). As far as women are concerned, the European Commission tries to promote their economic empowerment and entrepreneurship through networking and initiatives. Furthermore, to achieve these goals the EU relies on some supports tools, such as “The European on-line Platform for women entrepreneurs WEgate (2016)” that provides information and links on training, mentoring, advice and business networking opportunities to women of all ages who want to start, run and grow a business; “The European Community of Women Business Angels and women entrepreneurs (2017)” that supports women entrepreneurs in accessing alternative sources of funding; “The European network to promote women's entrepreneurship (WES)” that is a policy network with members from 31 European nations responsible for promoting and supporting female entrepreneurship at national level; “The European network of female entrepreneurship ambassadors (2009)” that is made up of around 270 entrepreneurs from 22 European countries with the aim to act as role models by telling their story to raise awareness and encourage entrepreneurship; and, finally, “The European Network of Mentors for Women Entrepreneurs (2011)” that provides advice and support to women entrepreneurs on the start-up, management and growth of their businesses in the early phases. Finally, there are several public policy instruments used in the EU Member States to improve access to finance for women entrepreneurs, for instance, grants, microcredit, financial platforms and instruments (including crowdfunding and public procurement opportunities). In particular, grants for women entrepreneurs are either small grants (i.e. typically under EUR 10,000) that intend to help women start a small-scale business or largescale grants (approximately EUR 25,000) to support the development of high-potential business ideas (OECD/EU, 2013; 2014; 2015); instead, microcredit is an

instrument to improve financial inclusion by overcoming market and social barriers in the financial market. These loans are for less than EUR 25,000 and are often complemented with financial education and business advice.

2.2.3 Gender bias within Venture Capital

The venture capital industry has been depicted as male-dominated, small, and geographically concentrated. In the last decade, entrepreneurs have presented their business plans to partners who were “white males between the ages of thirty-five and fifty who got their MBAs from Harvard or Wharton.”¹ In one survey of 145 venture capitalists of 98 firms, more than 67 percent had an MBA and, of those, 56 percent graduated from Stanford or Harvard. A majority had more than ten years of business experience, 35 percent of which was in corporate management, and 30 percent were former entrepreneurs.² This industry is dominated by a top-tier group of venture capital firms who controls a significant majority of funds invested.

From recent research, it was also found that 86% of venture capitalists are men (Tinkler, Whittington, Ku, & Davies, 2014) and that 74% of venture capital firms in the United States have no female investors (Hernandez, Raveendhran, Weingarten, & Barnett, 2019). Very few women are making decisions when it comes to venture capital investment, which could be a contributing factor to the lack of funding that receives female founders. Trish Costello, CEO of the Center for Venture Education, declared: “Most venture capitalists have a tight and trusted circle of business colleagues who act as gatekeepers for high-potential deals, and women have rarely been networked into this small inner circle.” Network studies demonstrate that people tend to associate with others similar to themselves and, therefore, women tend to associate with other women, men with other men. Consequently, if only a few women are involved in investment decision-making positions in the venture capital industry, women entrepreneurs have less access to gatekeepers and, thus, less possibility of potential deals.

In 1995, women represented only 10 percent of management-track venture capitalists, falling slightly to 9 percent in 2000, despite the significant industry diffusion. Usually, those senior-ranking women managers are the only key females in their firms. Additionally, 64 percent of the women in the industry in 1995 was no longer in the industry in 2000 (compared to 33

¹ Calacanis, J. 2002. Editor’s letter: Why we love lists. *Venture Reporter*, May/June

² 6 Smart, G., Payne, W. & Yuzaki, H. 2000. “What makes a successful venture capitalist?” *Journal of Private Equity*, Fall: 7-29.

percent for males); this frequent turnover allows only a few female venture capitalists to become partners and achieve higher visibility.

Today, women represent a mere 21 percent of all venture capital employees, with 36 percent of women in venture capital in junior-level positions, 29 percent in mid-level positions and 11 percent in senior-level positions. Female board members are even less, with just 6 percent of all venture capital board representatives' women. Geographically, across all regions, the ratio of total women employees in the industry remains at around a fifth. However, according to data released by Axios, the venture capital industry is slowly changing. A survey conducted by the company shows that the percentage of women “decision-makers” at VC firms has constantly increased.

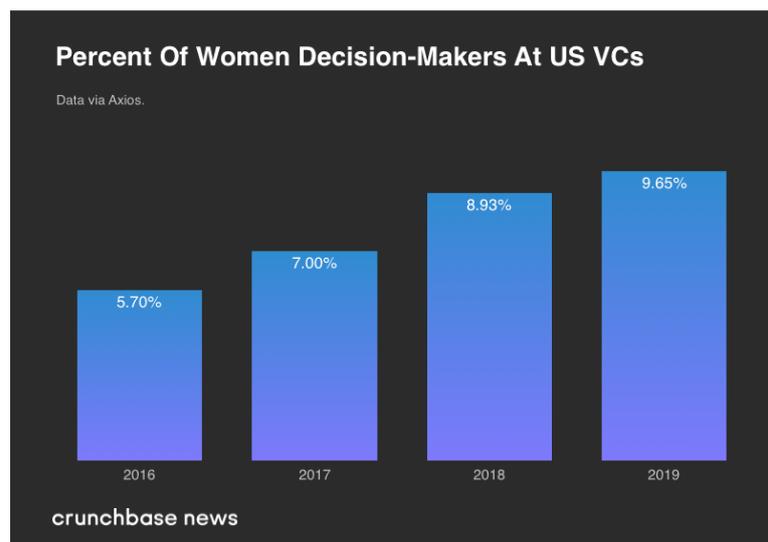


Figure 1 Percent of Women Decision Makers at US VCs

The firms included in the survey had raised at least one fund of \$100 million over the past five years (in this case, 2014-2018). In 2019, without considering corporate VC funds, the sample size was made by 284 firms. Additionally, in the same year firms like Andreessen Horowitz, Benchmark, Redpoint Ventures and Union Square Ventures added their first-ever women General Partners. In conclusion, although these positive results, the change is still very slow.

2.2.4 Women’s leadership in VC firms and VC-funded companies

As explained above, the percentages of women both involved in venture capital firms and as recipients of venture capital funding is low. Overall, it seems that there are systematic biases and stereotypes within the venture capital and entrepreneurship industry, which greatly

impact the investment opportunities for female entrepreneurs. The tendency toward homophily may lead male investors to disfavor female entrepreneurs. It is argued that investing in someone similar to yourself limits uncertainty, which is a very big part of venture capital investment (Tinkler et al., 2014). While Coleman et al. (2019) reported that homophily would lead to female investors investing in more female entrepreneurs. Additionally, Tinkler et al. (2014) suggested that because of the homophilic nature of entrepreneurship, “increasing the proportion of women in the venture capital world may help women entrepreneurs build strategic connections” (p. 13), and ultimately lead to more women receiving venture capital investment. Although there is no consensus on this issue in the literature, a study conducted by Crunchbase shows that the number of female partners in the firm increases when there is a female co-founder. Furthermore, Crunchbase research identifies a small group of venture capital firms that was either founded by a woman and/or had a relatively high percentage of female partners. Typically, in these firms, a high number of funding rounds and a high percentage of their total funding occur in female-founded firms. The percentage of funded start-ups with at least one female founder has increased to 18 percent in 2014 but remains relatively low.

According to *All In: Women in the VC Ecosystem 2019* by Pitchbook and All Raise, female investment decision-makers are twice as likely to invest in female founders as their male counterparts and 69,2 percent of the top-performing funds have female General Partners. Women are starting funds, not just micro funds but large ones too, and established firms are promoting or recruiting women GPs. In this regard several examples can be mentioned: Mary Meeker raised \$1.25B for Bond Capital, her debut fund; five years after co-founding Aspect Ventures, Theresia Gouw's new firm, Acrew Capital, raised \$250 million for a new fund. Alexa von Tobel, founder of LearnVest, and Penny Pritzker, former US Secretary of Commerce and billionaire heiress have raised \$200 million for their venture firm Inspired Capital.

Finally, several VC firms are focusing on women-led early-stage companies. For instance, BELLE Capital USA invests in companies with objectives focused on information technology, digital health, and cleantech; they required either a women founder or one in a leadership position. Another example is Texas Women Ventures that look for women-led companies in the Southwest United States. Their focus is on businesses achieving annual revenues of \$10-100 million; the organization also provides networking opportunities. Instead, Women’s Venture Capital Fund invests in women's and girls’ products, particularly

in the area of mobile technology, and on services like budgeting, home and car maintenance, and shopping. Furthermore, there are also business incubators and accelerators dedicated to supporting women.

2.2.5 How women view finance and investing differently than men

It is commonly known that while men like risk, women are cautious and want security; men are thought to be more risk-friendly than women. Behavioral gender differences have been studied extensively in psychology and other fields, but not in corporate finance. Prior researches suggested that female executives are more risk-averse comparing with the male. (Bernasek & Shwiff, 2001; Agnew, Balduzzi & Sunden, 2003). Women make different corporate financial and investment decisions than men: firms with female executives are less likely to make acquisitions and are less likely to issue debt than firms with male executives. (Jiekun Huang & Darren J.Kisgen, 2012). This assumption has produced an increased lack of trust in women's abilities to make high-risk decisions (Shubert et al., 1999). Furthermore, society has classified risk-taking as a distinct male-typed characteristic (Shubert et al., 1999). Women who choose to engage in such behavior may be penalized for it on the grounds of incongruent gender role expectations (Eagly & Karau, 2002). The representation of women's incapacity of managing high-risk situations can be explicitly traced down to gender stereotyping. Biases and shortage of trust in women's risk management capabilities, could therefore potentially warn venture capitalists to invest in the female business. According to Anja Peter, of Bank Coop in Switzerland "naturally, there are differences between men and women, biologically and socially, and this is reflected in investment behaviour." For instance, women are generally more interested in ecology, ethics and microcredits. The Centre for Financial Research at the University of Cologne found that female fund managers switch around their portfolios less than their male colleagues. Furthermore, women's strategies, and the resulting performance, tend to be more stable.

The German Institute for Economic Research (DIW) evaluated data on the investment behavior of more than 8,000 men and women. The study does not seem to strongly confirm the standard view since it shows that 38 percent of women were invested in risky financial products whereas men were 45 percent. However, a regression analysis figures out that women would take more risk if they had more money, but generally, they can invest half of what men invest and, therefore, they have to be more cautious. Additionally, studies conducted by the German Comdirect Bank and the DAB pointed out that although women had less confidence in their financial knowledge than men, this was not matched by poorer

investment choices and management. Indeed, in 2007 and during the crisis year of 2008, almost half a million private portfolios showed that women on average did 4-6 percent better than men.

2.3 Women and Impact Investing

The increasing interest in impact investing and the growing influence of women in the wealth of their country are two phenomena with no negligible consequences in finance. Previous research found that women are more interested in socially responsible and impact investing than men. For example, a Morgan Stanley study found that 84% of women versus 67% of men indicated an interest in sustainable investing. However, there is still a lack of action in this direction. In a recent survey, half of the wealthy women declared to be interested in social and environmental investing, whereas only one-third of wealthy men did. 65 percent of women consider social, political and environmental impacts are important, as compared to just 52 percent of men. But women, also in this case, have to face more barriers than their male counterparts. According to previous studies, some of the possible reasons for this significant gap between women's interest and action are that they are less confident in their investment knowledge, they spend far less time on investment activities and have lower risk tolerance. However, according to certain research, also supported by the literature review and in-depth interviews, women have a crucial role in accelerating the development of the impact investing ecosystem. Additionally, high net worth women, in certain circumstances, behave more strategically than men concerning charitable giving.

To benefit from the opportunities arising from these trends, intentional and coordinated steps towards increasing women's participation and leadership in impact investing are needed. Social lenders figured out that focusing initiatives, such as microfinance lending on women, had effective outcomes on the whole communities. Further programs include special prizes, support networks for female entrepreneurs and gender lens investing. The latter creates a female-centered portfolio that provides, in a more systematic way, capital to women and opens the door to many female investors.

Additionally, according to the literature findings, in social enterprises, there is a slightly higher percentage of females in the boardroom than in traditional ones. Social Enterprise UK's 2011 State of Social Enterprise Survey demonstrated that 86 percent of social

enterprise leadership teams included at least one female director. Conversely, only 13 percent of the members of the Institute of Directors, a UK organization for corporate board members, are women.

In conclusion, in the past century, women have successfully shot down many of the barriers of this male-dominated industry, but to manage the world of finance is crucial to understand, in every circumstance, gender differences and how they are changing over time. The world is significantly moving towards social investing and women are creating an entire ecosystem based on female financial power.

2.3.1 Gender lens investing

An increasing number of investors, particularly in the sustainable, responsible and impact (SRI) investing context, is considering “gender lens investing” and, therefore, the use of gender as a category of analysis in investment decision-making.

New financial products and funds focus on the gender-related topic. SRI investors are looking at gender as a more explicit variable in the environmental, social, and governance (ESG) analysis. According to Criterion Institute, gender investing is commonly applied through three basic lenses.

First, investments focus on increasing access to capital for women. This includes not only access to equity, loans, and financial training, but also land ownership, power dynamics between women borrowers and male bankers and loan officers, and even implicit societal biases. A second lens consists of workplace equity. This means increasing the number of women on boards and in senior leadership positions, but also policies that are beneficial for women, such as wage equity and paid maternity leave. Finally, the third lens considers products and services for women, such as female hygiene products and maternal healthcare, as well as items like clean cookstoves in the developing world.

3. METHODOLOGY

This chapter outlines the research methodology; it shows the methods used to collect data, to create a unique database, and to identify social and traditional funds. Subsequently, the descriptive statistics of these findings are carried out.

3.1 Social funds designation in Crunchbase Database

The analyses will be conducted starting from an initial database obtained from Crunchbase that contains data on over 15,500 companies invested by BAs and VCs, over 152,000 deals and 44,000 rounds of financing. In particular, the collected data concerns the name of the company (“investor_name”), the univocal code (“investor_uuid”), the continent in which it is based (“investor_continent”), the respective country (“country_code”) and the type of investor (“investor_type”). A “uuid” in the Crunchbase API is a globally unique identifier of a Node across the entire CrunchBase Graph, independent of Node type and it is a 32-character alphanumeric String.

This database is composed of 40,217 rows and 39,937 unique values of the “investor_uuid”. It includes funds located in 129 different countries all over the world (Asia, Europe, Africa, North America, South America and Oceania). For each fund, it is necessary to understand if it is traditional or social, considering that an impact fund implements investments that generate a measurable, beneficial social and/or environmental impact in addition to a financial return.

To identify such funds, a second database deriving from Impactbase has been created updating an already existing one of more than one year ago. The list of social impact funds has been identified by researching private equity/growth capital and venture capital. This second database includes 288 different social impact funds and reports information regarding the “fund/product name”, the “firm/manager”, the “status”, the “target aum”, the “committed capital”, the “minimum investment required” and the “investment size (average)”. To understand which funds of the Crunchbase database are social, a match between the two

databases has been completed. The results are then reported on the Crunchbase database. A column called “social impact IB” equal to “1” identifies the social impact funds contained both in ImpactBase and Crunchbase databases. To trace the entire process and analyze the data in a combined way, a “union” table in which there is a correspondence between the names available on Impact Base and Crunchbase has been created.

After this first match, the other two databases have been realized extrapolating data from ImpactAsset and ImpactSpace. As regards the first, in the section “ImpactAssets 50” of the website, it is possible to find a database focused on social funds operating in a wide range of impact investing activities across geographies, sectors and asset classes. To trace this information, for a total of 139 social impact funds, an Excel file has been created reporting the name of the fund (“investor_name”), the continent (“investor_continent_code”), the country (“investor_country_code”) and the type of investor (“investor_type”). To understand which funds in the Crunchbase database are social, the same previous procedure has been applied. In particular, an exact match compares the “investor_name” of the two databases with the Excel function “vlookup”. Then, a manual check has been carried out to figure out if the fund was the same but just written slightly different. To make this operation Crunchbase website has been used. Subsequently, the matching results have been reported in the previous Crunchbase database. Specifically, a column called “social impact IA” equal to “1” indicates which ImpactAssets funds are in the Crunchbase database. To trace the entire process and analyze the data in a combined way from the two databases, a “union” table has been created.

ImpactSpace is an open platform that shares basic investment information. To identify further social funds in the Crunchbase database, 3,350 social impact funds have been manually reported in an Excel file. The included information is the same described in ImpactAssets. However, data concerning the continent and the country of the funds were not always available, and, in these cases, Crunchbase website, LinkedIn and, finally, the official fund website have been used to complete the missing information. After having filled the ImpactSpace database, an exact match with the Excel function “vlookup” enabled a first comparison between the “investor_name” in ImpactSpace and the one in Crunchbase. Then, also in this case, a manual check has been carried out to understand if the fund was the same but just written slightly differently. The matching results have been reported on the Crunchbase database in the column “social impact IS” which shows a “1” to identify the

social funds. To trace the entire process and analyze the data in a combined way from the two databases, a “union” table has been created.

Finally, the last match identifies 2,474 social funds in the Crunchbase database. Specifically, for each “investor_uuid” of Crunchbase database, if at least one of the three columns (“Social Impact IB”, “Social Impact IS” and “Social Impact IA”) contains a 1, the fund has been considered as social impact (column “social total” equal to 1); otherwise, it has been defined traditional (column “social total” equal to 0).

3.2 Social funds designation in Jobs and People Database

The next step combines the information collected in the final Crunchbase database with already existing databases provided by a professor of the Politecnico of Milano. These databases are Stata files that report information extracted from the Crunchbase website.

Before starting the descriptive statistics, it is important to select and extrapolate only the relevant data in order to create a single database and to identify the greatest number of social funds.

Among these provided files, the most exhausting one in terms of information includes 92,415 observations concerning the Crunchbase identification code of each person (“partner_uuid”), their name (“partner_name”), the univocal code of the organization (“org_uuid”), the name (“org_name”) and the people title (“title”) such as Partner, Investment Director, Board Member, Co-founder, etc. The latter information is then grouped into the following five different macro-categories (“job_type”): Advisor, Board Member, Board Observation, Employee and Executive. Subsequently, the database reports the person's first name (“first_name”), last name (“last_name”) and the gender that could be male, female or not provided (“gender”). Additionally, it provides information regarding the geographical position: the code of the country in which the organization is based according to the one in which the person work (“country_code”), the code of the corresponding state (“state_code”), the region (“region”) and the city (“city”). Then, the next three columns contain data about the job of the primary organization in which the person works. More specifically, the first column shows the univocal code of the company (“featured_job_organization_uuid”), the second the name

("featured_jon_organization_name") and the last the person's role inside the company ("featured_job_title"). Furthermore, a column with a dummy variable "is_current" can assume the value "True" or "False" to indicate whether the person is currently working in that fund and, when available, the starting working date ("started_on") and the ending working date ("ended_on").

The number of observations contained in this database is very high because each person has been reported the information related to the history of his or her jobs and not only to the ones related to the funds. Moreover, there are many duplicates because several people worked or are working in more than one fund.

To figure out which are the social and the traditional funds of this database, it is required to merge it with other databases that provide this information. A rapid check shows that the column "org_uuid" and the column "investor_uuid" (called in this way in all the other files) contain the same information. The only difference is that under the column "org_uuid" are also listed the organizations' univocal code and not only the funds' one. From now on, all the other databases will be compared and matched with this one. The first match has been carried out with a file that contains a list of 39,359 "investor_uuid" and a dummy variable ("d_social") equal to 1 to denote a social fund (otherwise equal to 0). This operation, implemented with the Excel function "vlookup", figures out 5,410 rows with "d_social" equal to 1.

Then, another file with 78,050 observations reports the information regarding the investment round ("inv_uuid", "founding_round_uuid", "funding_round_name", "investor_uuid", "investor_name", "partner_uuid", "partner_name" and "d_social"). Despite the higher number of observations, 70,946 "investor_uuid" and 63,419 "partner_uuid" are duplicates. The latter are probably fewer than the "investor_uuid" because multiple partners work in the same fund and, therefore, people with different "partner_uuid" have the same "investor_uuid". This match, implemented also in this case through the "vlookup" function, shows that 4,777 rows are marked as social.

Moving forward, the next database matched is the one described in the previous paragraph ("Social Funds Designation in Crunchbase Database"). As previously identified, out of 40,217 funds, the social ones are 2,474. After a first match, only 9,341 "org_uuid" on 40,693 univocal values are in common with the "investor_uuid" of Crunchbase database; for this reason, it is necessary to compare it also with ImpactAssets, ImpactBase and ImpactSpace databases. The first match between Crunchbase and the database identifies 6,798 "social

rows”; while, among the other three files, the only one that singles out further social funds is “ImpactSpace”, through which 4,298 rows are marked as social. All these outcomes are reported in a proper column, one for each match. To effectively figure out which funds are social, the same previous procedure has been used. More precisely, for each “org_uuid”, if in at least one of the column there is a 1, the fund has been considered as social impact (column “social total” equal to 1); otherwise, it has been defined as traditional (column “social total” equal to 0). But, considering that the “org_uuid” column includes also organizations that are not funds, the rows, marked as traditional and not matched with the Crunchbase database, have been classified as organizations.

For the female sample, a further check has been manually performed. More precisely, the sections “Financials” and “Investment” of Crunchbase website have been used to better define the nature of the company. Nevertheless, the number of additional funds identified with such a procedure is almost negligible (54 funds out of 5,306 funds). These analyses show that the database, besides the data concerning the funds, includes information regarding 31,102 different organizations. For this purpose, a variable called “inv_or_org” has been created to point out the difference between funds and organizations; the total number of rows marked with “inv” is 32,712 but considering only the univocal values the number drops to 9,457. Also this operation has been carried out with the function “vlookup” of Excel. Furthermore, only for the female population has been manually read on Crunchbase and the official fund website whether those funds, with which they are associated, can be effectively considered as traditional. The funds have been designated as social when they were clearly described with keywords such as “Impact Investing”, “Sustainability”, “Non-profit” or “Clean-Tech”. In this way, further 121 rows out of 6,997 have been marked as social.

Finally, other two columns have been added: the first reports the continent in which the company is located and the second contains a dummy variable that has been set up to identify whether the featured job of each person is in a social, a traditional fund or in an organization. This operation reveals that 8,939 people have their featured job in a traditional fund, 2,635 in social one, 2,305 in an organization and for 1,237 there is not enough information to establish it. The sum of these values is higher than the total number of univocal “partner_uuid”, therefore the same partner is associated with more than one primary organization.

In conclusion, out of 92,415 initial observations, it has been possible to assign the values of 1 to 7,141 rows; all the remaining funds have been considered as non-social and, therefore, traditional. However, there is not enough information to establish if they are Independent VC, Corporate VC, Bank-controlled VC or Governmental VC.

3.3 Data collection

After having designed traditional and social funds, further information has been added to the final database. Specifically, the collection of data is about the industry specialization of the funds; the education of all the women and the men with at least one experience in social funds; whether the fund or the organization has been founded or led by a woman, and, if this is the case, in which industry the company works; and finally, for all the women that have a partner role has been added the information regarding the number of female and male partners that work in that fund.

3.3.1 The industry

To parsimoniously categorize the different impact goals, the social funds have been classified into the following groups: “Agriculture and Food”, “Environment”, “Social”, “Healthcare”, “Education”, “Energy”, “Empower people” and “Impact-tech”. For each impact fund, it has been possible to code its objective in these nine different categories mainly consulting Crunchbase website and, subsequently, their website description. More specifically, to better classify the objectives, keywords about the industry focus, provided in the summary section of the Crunchbase website, have been used.

The category “Social” takes into account all the funds that are miscellaneous focusing on multiple objectives, the ones that do not provide enough information to be classified in one of the other eight categories, the banks and all the single funds that are individually related to one specific objective. For instance, “Stray Dog Capital” is the only VC firm that deals with alternatives to the use of animals in the supply chain. Therefore, instead of creating another category, it has been included among the “Social” funds; “Empower people” refers to that funds with special attention to emerging markets, minority and gender equity. For example “Springboard Enterprises”, whose mission is to accelerate the growth of entrepreneurial companies led by women through access to essential resources and a global

community of experts; then, the category “Impact-tech” relates to the VC firms that deal with fintech, media, virtual reality, technology and communication.

The smallest impact category is “Environment” (1.97%), then “Agriculture and Food” (2.43%), “Empower people” (4.25%), “Education” (4.62%), “Energy” (5.46%), “Healthcare” (9.55%), “Impact-tech” (26.76%) and finally “Social” (44.96%).

For the traditional funds, associated with at least one woman, and for the organization founded or led by women, information regarding the industry target has been added consulting Crunchbase website. In particular, firstly, reading the description and the keywords in the “Details” section and then consulting the heading “Financials” where are listed the last investments made and their fields.

With this procedure has been reported the objectives of the fund or organization and, subsequently, they have been grouped in the following industry subsamples: “Agriculture and Food”, “Information Technology”, “Industrial Technology and Manufacturing”, “Financial Services and Fintech”, “Energy”, “Media and Entertainment”, “E-commerce and Retail”, “Women’s”, “Biotechnology and Healthcare”, “Traditional” and “Education”. The category “Information Technology” includes the objectives “Data, Software and Services”, “IT Infrastructure and Cybersecurity”, “Technology” and “Telecommunications”. These funds or organizations are related to the world of Big Data, SaaS, Analytics, Internet, Cloud computing, Hardware; but also, to Travel and Transportation such as Uber and Hertz. In particular, the objective “Telecommunications” is made up of all telecommunications/telephone companies and internet service. The subsample “Traditional” is formed by all those miscellaneous funds that have a diversified portfolio, operating in more than one field, and by all those for which not enough information is available to categorize them in one of the previous subsamples. The industry “Biotechnology and Healthcare” also covers Medical, Life Science, Hospital, Pharmaceutical fields. In “Industrial Technology and Manufacturing” can be found firms related to Artificial Intelligence, Robotics, Machine Learning, Automotive and all those that focus on machines, plants, components and automation. The category “Financial Services and Fintech” includes all the technology developed to improve traditional financial methods. Furthermore, has been added in this category also firms related to Consulting and Insurance. Then, the “Media and Entertainment” industry includes multiple segments such as Movies/Cinema, Television, Music, Publishing, Radio, Advertising and Gaming. The industry “E-commerce and Retail” mainly refers to the sale or purchase of goods; in

particular, has been specified when they belong to the objective “Lifestyle” which includes Beauty and Fashion. Moreover, also the “Real Estate” segment has been included in this category. And finally, the category “Women’s” addresses all those firms, both funds and organizations, that focus on women empowerment and their start-up to connect them and create new opportunities.

The following percentages show that the majority of the traditional funds are miscellaneous, indeed, 31,80% of the funds belong to the category “Traditional”, then 25,6% to “Information Technology”, 18,64% to “Biotechnology and Healthcare”, 6,51% to “Financial Services and Fintech”, 3,99% to “E-commerce and Retail”, 3,55% to “Media and Entertainment”, 2,96% to “Industrial Technology and Manufacturing”, 2,96% to “Women’s”, 1,63% to “Agriculture and Food”, 1,48% to “Education” and, finally, 0,89% to “Energy”.

3.3.2 Women founded funds and organizations

To understand whether the fund is women-founded, the Crunchbase website has been consulted. Out of 1,331 univocal social “org_uuid”, 90 have been women-founded, 14 women-founded and led, and 8 women-led. Concerning the traditional funds and the organizations, the same research has been conducted only for those funds or organizations associated with at least one female. Therefore, before starting the analysis, the variable “gender” has been set to female. Among the traditional funds on a total of 1,367 funds, 146 have been founded by women, 10 have been founded and led by women and only 9 led by women. As regards the organizations out of 3,493 organizations, 127 are women-founded and led, 334 are women-founded and 40 women-led.

3.3.3 Education

To analyze the background further research has been required. For each of the 1,419 women, at first, have been created eight new columns reporting the name of the university or high school, the country code and the continent in which they have studied; the field such as accounting, economics, biochemistry, law; the type of degree: bachelor, master, MBA (Master of Business Administration), or PhD and the different specializations such as BA (Bachelor of Arts, Humanities and Social Sciences), MML (Master of Law) and many others; and, finally, the years in which they have studied (covering a period of 59 years). This last data may be used to figure out some information about the possible age of each woman. The last two columns show the Crunchbase link of each profile and the notes

(sometimes the current job reported in the file was different from the one specified on LinkedIn). These columns have been manually filled consulting the Crunchbase profile of each woman and then, in case all the necessary information was not available, their LinkedIn.

Subsequently, each new column has been clustered into macro-categories. As regards the fields, there are almost about 500 different areas that have been firstly clustered in 29 different categories: “Management, Engineering”, “Economics & Commerce”, “Technology”, “Business Administration”, “Healthcare”, “Humanistic sciences”, “Physics”, “Chemistry”, “Biology”, “Finance & Entrepreneurship”, “Strategy”, “Entrepreneurship”, “Law”, “Design”, “Political Science & International Relations”, “Marketing”, “Education”, “Energy”, “Finance”, “Government”, “Languages”, “Leadership”, “Management”, “Mathematics”, “Medicine”, “Pharmacy”, “Science”, “Social Science” and “Other”. Then, these macro-categories are further grouped in ten clusters: “Design”, “Engineering”, “International Relations and Political Science”, “Law”, “Literary and Humanistic studies”, “Management and Business”, “Marketing and Communications”, “Medicine and Pharmacy”, “Scientific Studies” and, finally, “Other”. The cluster “Engineering” includes different specializations such as biomedical, management science, chemical, computer, electrical and many others; “Literary and Humanistic Studies” brings together psychology, history, literature, archaeology, philosophy, theatre and sociology degrees; “Management and Business” cluster stands for business, economics, accountancy, finance, entrepreneurship, strategy, business administration and private equity fields; then, “Medicine and Pharmacy” includes many different specializations such as genetics, neuroscience, cardiology, etc.; the cluster “Scientific Studies” refers to math, chemistry, biology, computer science and many other degrees. Lastly, “Other” covers the single fields that are associated with just one person, such as Ruth Foxe Blader that is the only partner who studied criminology or Susanne Wasson that studied agricultural economics.

The second macro-category involves the degree. All the different degrees have been classified inside ten groups: “Bachelor’s degree”, “MBA”, “Master’s degree”, “Jurist Doctor”, “Doctor of Medicine or in Pharmacy”, “PhD”, “PhD or Jurist Doctor plus MBA”, “Executive master” and “Other”. Concerning the “Bachelor’s degree” category, it includes Bachelor of Art, of Sciences, of Business Administration, etc.; “Master’s degree” includes all the different types of masters such as Master of Art, Master of Education, etc. and whenever there is no information about the specialization. The category “PhD or Jurist Doctor plus MBA” has been created because many women decided to attend an MBA after

they have completed their studies in a different field. Then, these results have been further grouped into four types of degrees: “Bachelor”, “Master”, “MBA” and “PhD”.

The last macro-category refers to the years: from 1961 to 1970, then from 1971 to 1980, from 1981 to 1990 and so on, until 2020.

Also for the men associated with social funds, the same procedure has been followed. For each of the 4,250 different male “partner_uuid”, a column concerning the name of the university, the country code, the continent, the degree, and the field have been added. Then, these results have been grouped in the same macro-category created for the women. Also here this information is taken from Crunchbase in the first place and later, in case of missing data, LinkedIn.

3.3.4 Female partners

Finally, the last research added information regarding the number of female and male partners who are working in funds in which there is at least one female partner. To select the interested funds, the variable “gender” has been set to female, “is_current” to True, and the column “title” to Partner (all the different types of partners have been considered, such as General, Venture, Managing, etc.). These data have been found on the Crunchbase website in the section “People” and “Current Team”, but when this information was not available, the official fund website has been used as a reference. More precisely, in the database has been reported the total number of partners and the corresponding number of females and males. The results show that 49 funds have the same number of female and male partners, 107 presents a female majority, and 141 a male majority.

3.4 Missing Data

As commonly occur in almost all research, also in this final database, many variables show missing data, and this could lead to misrepresenting conclusion. To avoid this problem and, not drastically reduce the number of observations, a lot of missing information has been searched and manually added to the database. In particular, most of these data concerned gender and geographical position. Firstly, efforts have been made to complete the column regarding the gender, indeed 516 rows were empty or presented the term “not_provided”. To get this information, Crunchbase and the LinkedIn profile of each partner have been consulted. Then, considering that the social funds are approximately 3,27 % of the total

database, the priority in the research of the missing information has been given to these funds. Almost 700 social funds did not provide any information regarding their geographical position (“country_code”, “country”, “continent”, “state_code”, “region” and “city”). Only the “country_code”, “country” and “continent” columns have been completed with the missing information because the other columns are too specific and will not be used in the subsequent analysis. Indeed, the funds are located in 319 regions and 730 cities, and therefore, the resulting percentage for each different region or city would not be so significant. To complete these empty rows, firstly, has been searched the profile of the fund on Crunchbase, and then, if the VC firm has an international presence or it has offices in different countries, also the LinkedIn profile of the people has been consulted. In case the location was not available on Crunchbase, to get this information, the official fund website has been used.

Finally, all the information regarding the women has been searched. Indeed, considering that the female sample is composed of 1,419 women (9,72%), it is fundamental that all their rows are completed. To this aim for 714 women, have been reported the country in which the fund or the organization is located and the corresponding continent.

4. DESCRIPTIVE STATISTICS

Descriptive statistics allow describing and understanding the features of a specific dataset by giving short summaries about the sample and measures of the data. The analyses that will be carried out are performed on education, investments, people, jobs and companies.

Concerning the background, it includes the name of the university in which they have studied, the university country, the corresponding continent, the field, the type of degree and the years. About the investments are reported the funding round name, the stage and the companies in which the partner has invested, the gender of the partner, if the fund is social or traditional and if the company has been founded and/or led by women. As regards the people, the information concerns their job types and title, their featured job and respective job title, their gender and the name of the funds in which they worked or are currently working (with also the starting and ending dates). As far as the companies are concerned, be them social funds, traditional ones or organizations, the database provides their geographical position (country, continent, state, region, city), their target industry and whether they have been founded and/or led by women.

All the statistics have been carried out on Stata, an integrated software package that allows doing manipulation, visualization, statistics, and automated reporting.

4.1 Education

This first paragraph will examine the background of the partners; in particular, it could be interesting to understand if there is a correspondence between the type of fund (traditional or social) and the chosen study path. The analysis is carried out, firstly, through some explorative statistics, and then, more precise research will consider only the people for whom all the information is available. Therefore, the first results are obtained analyzing also the rows that could present some missing values either in terms of university, field, degree or years.

As far as the female sample is concerned, 1,419 women in the database have studied in 438 different universities. In this regard, 196 rows turn out empty because it has not been possible to find this information. Due to the high number of different universities, there is not a clear predominance of one over the others; however, the most popular are Harvard University (11.61%), Stanford University (8.91%), Columbia University (4.09%), University of California (4.17%), The Wharton School (3.43%), Massachusetts Institute of Technology (1.88%), Yale University (1.39%), Kellogg School of Management (1.87%), The University of Chicago Booth School (1.65%) and, finally, INSEAD (1.31%). Based on the information about the university, it has been possible to derive the data regarding the country and the continent in which the women have studied. The universities are based in 37 different countries: 812 in the USA (66.50%), 122 in the United Kingdom (9.99%), 66 in France (5.41%), 35 in Canada (2.87%), 22 in India (1.80%), 14 in Sweden (1.15%) and 13 in Switzerland and Germany (1,06%). Unsurprisingly, more than half of the universities are located in the USA; the remaining 20 countries account for not much more than 10%. Subsequently, grouping the countries in their respective continent, the following results have been obtained (Figure 2):

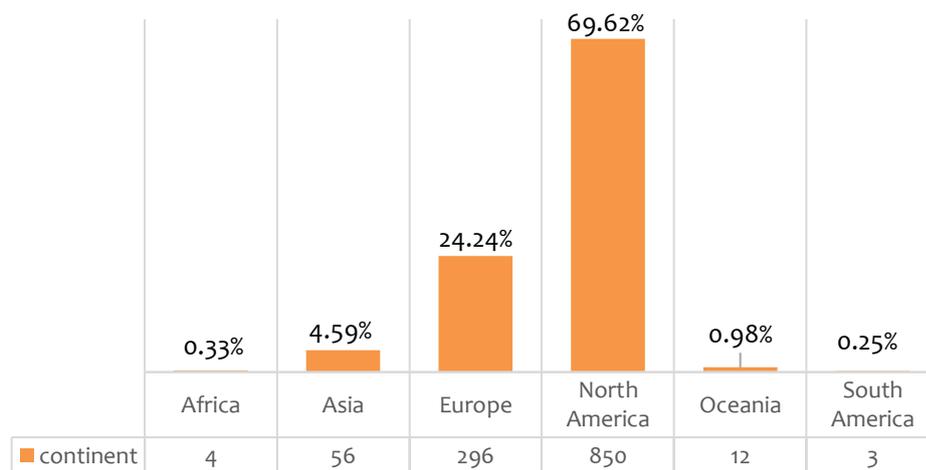


Figure 2 Continent of the university for the female sample

Moving forward, the field of study has to be analyzed and, for this purpose, three distinct levels of aggregation of data have been created: firstly, 514 different fields have been reported just taking the information as shown on Crunchbase or LinkedIn; then, after this

operation, they have been grouped preliminarily in 26 macro-categories and, subsequently, in 10 different wider clusters.

In the order, firstly considering all the 514 different fields, results illustrate that almost 27% of the women studied “Business and Administration”, 5.73% “Finance”, 3.25% “Law”, 3.16% “Economics” and 1.44% “Computer Science” (all the other fields do not reach the 1%). Without any doubt, “Business and Administration” is the most popular field among the women venture capitalists, however, this percentage could be partly influenced by the fact that, when on Crunchbase or LinkedIn was specified that a woman made an MBA, without any details about the field, has been assumed that she has studied “Business and Administration”. Furthermore, it is important to point out that this analysis has been carried out for 1,107 women and not for the entire female population because, during the collection of data, has not always been possible to get this information. Then, considering the macro-categories the percentage of women that studied “Business Administration” is 31.76% of the female sample, the percentage of the ones who studied “Finance” increased to 13.61%, “Management” to 6.17%, “Economics and Commerce” to 7.17%, and “Law” to 4.36%. Additionally, some new categories present more significant percentages such as “Engineering” that reached 5.17%, “Medicine” 4.90%, “Marketing” 3.36%, and “Political Science & International Relations” 3.09%. Finally, in the last step, after a further aggregation of these macro-fields, the following results are obtained (Table 1):

cluster_field_education_female	Freq.	Percent	Cum.
Design	4	0.36	0.36
Engineering	53	4.79	5.15
International Relations and Political S	32	2.89	8.05
Law	52	4.70	12.75
Literary and Humanistic studies	59	5.33	18.08
Management and Business	683	61.75	79.84
Marketing and Communications	35	3.16	83.00
Medicine and Pharmacy (Genetics, Heath	80	7.23	90.24
Other	10	0.90	91.14
Scientific studies (Math, Chemistry, Bi	98	8.86	100.00
Total	1,106	100.00	

Table 1 Field of study of the female sample

As shown in the table above (Table 1), the percentages are in line with the previous classifications and, unsurprisingly, more than half of the women have studied “Management

and Business” while the majority of the remaining women has made “Scientific studies”, “Medicine and Pharmacy” and “Literary and Humanistic studies”

Proceeding with the statistics, the type of degree has been analyzed for 1,130 women, and, considering the information directly as reported on LinkedIn or Crunchbase, there are more than 134 different types of degrees. After having grouped these degrees in macro-categories the following percentages have been obtained: 40.68% of the women have an MBA, 23.46% a Bachelor’s Degree, 18.29% a Master’s Degree, 9.81% a Ph.D., 3.03% is a Jurist Doctor, 1.96% is a JD or have a Ph.D. with a subsequent MBA and 1,34% have an Executive Master; the remaining types of degree together are about 1,71%. Additionally, the category “JD or PhD plus MBA” has been created because a certain number of women own more than one degree and, in particular, they have decided to undertake an MBA after having concluded their study in a different field. Finally, with a further aggregation, the achieved results are shown in the pie-chart below (Figure 3):

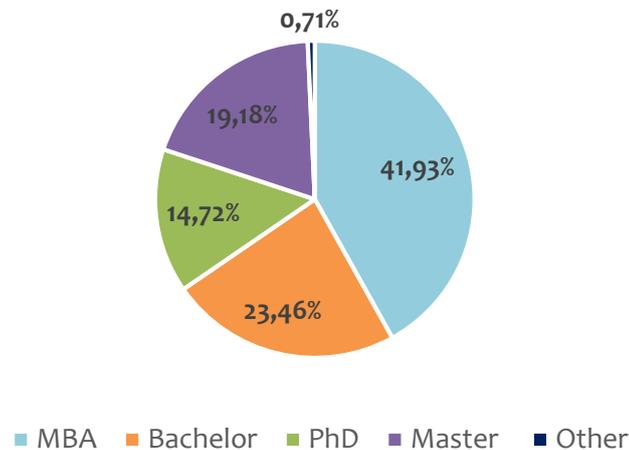


Figure 3 Type of degree for the female sample

To conclude, the last data on education provides information about the years in which women have studied and, for this purpose, have been created some clusters. As shown in the graph below (Figure 4), almost half of the sample has concluded her studies from 2001 to 2010, 28.24% from 1991 to 2000, 13.77% from 1981 to 1990, and finally 11.81% from 2011 to 2020. Through these percentages, it is possible to obtain some forecasts on the average age of the female population. What could be inferred is that most of the sample has an age

between 35-55 years. However, it is important to point out that this data refers only to 864 observations because for the remaining women the information was not publicly available.

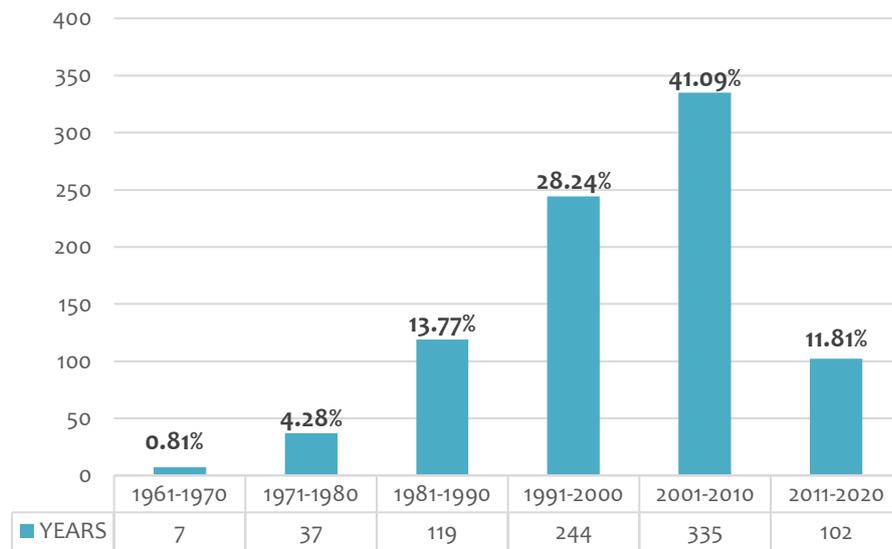


Figure 4 Years in which the female sample has studied

4.1.1 Women background in social and traditional funds

After having completed these explorative statistics, the same data will be used to carry out a new analysis in which are compared the social and the traditional funds. To obtain more precise results, all the rows with at least one missing data are deleted. The main problem deriving from the introduction of the distinction between social and traditional funds is that there are women that are working in both types of VC firms. To overcome this concern two possible solutions are suggested: firstly, to consider only the women that have a partner role, but in doing so the female sample from 1,285 is reduced to 379; secondly, to consider only the featured job in which they are working, in such a way to delete the least possible number of observations (the latest option is analyzed). By dropping the rows with at least one missing value, the sample is reduced to 963 women, of which 132 have their featured job in an organization. Since the focus of the thesis is on the different types of funds, the women associated with organizations will be deleted. This information on the type of fund has been obtained matching this database with the one focalized on people, jobs and companies. For the sake of simplicity, the social funds have been marked as 1, the traditional ones as 0 and the organizations with the wording “org”.

featured_job_org_type	Freq.	Percent	Cum.
0	544	56.49	56.49
1	287	29.80	86.29
org	132	13.71	100.00
Total	963	100.00	

Table 2 Featured job of the female sample

Thus, the final database for which the descriptive statistics will be carried out is composed of 831 observations of which 544 are women that are working in a traditional fund (65.46%) and 287 in a social one (34.54%). Starting from the university, 12.32% of the women that are associated with a traditional fund have attended Harvard University, 8.09% Stanford University, 4.04% Columbia University, 4.23% the University of California, 4.04% The Wharton School; due to the high number of different universities, the other percentages are not so significant. As far as the social funds are concerned, women went to 116 different universities, in particular 16.68% studied at Harvard University, 14.98% at Stanford University, 4.88% at Columbia University, 4.53% at the University of California and, finally, 3.83% at The Wharton School. These percentages demonstrate that there is not a huge difference between social and traditional funds concerning the university; however, it seems that women that studied at Stanford are more inclined to subsequently work in social VC firms.

Moving forward, the next variables examined are the country and the continent of the universities. Women that currently have their featured job in a traditional fund, have studied in 244 distinct universities located in 32 different countries. The percentages regarding this last variable are in line with the previous results, indeed, as far as traditional funds are concerned, 67.46% are based in the USA, 10.29% in the United Kingdom, 6.07% in France and 2.76% in Canada. Analyzing the social funds, the universities are based in 16 different countries. Contrary to the previous scenario, the number of universities in Canada is higher than the one in France (4.53% and 2.09%), while the percentage related to the USA has risen to 77.70% and the one of the United Kingdom has decreased to 6.97%. Therefore, what can be concluded by these results is that women that have studied in France are then more likely to work in traditional funds, while investors that studied in Canada in social ones. Finally, if these data about the geographical position are further aggregated and the analysis, instead of

being on the country, is carried out on the continent, the following results are obtained (Figure 5):

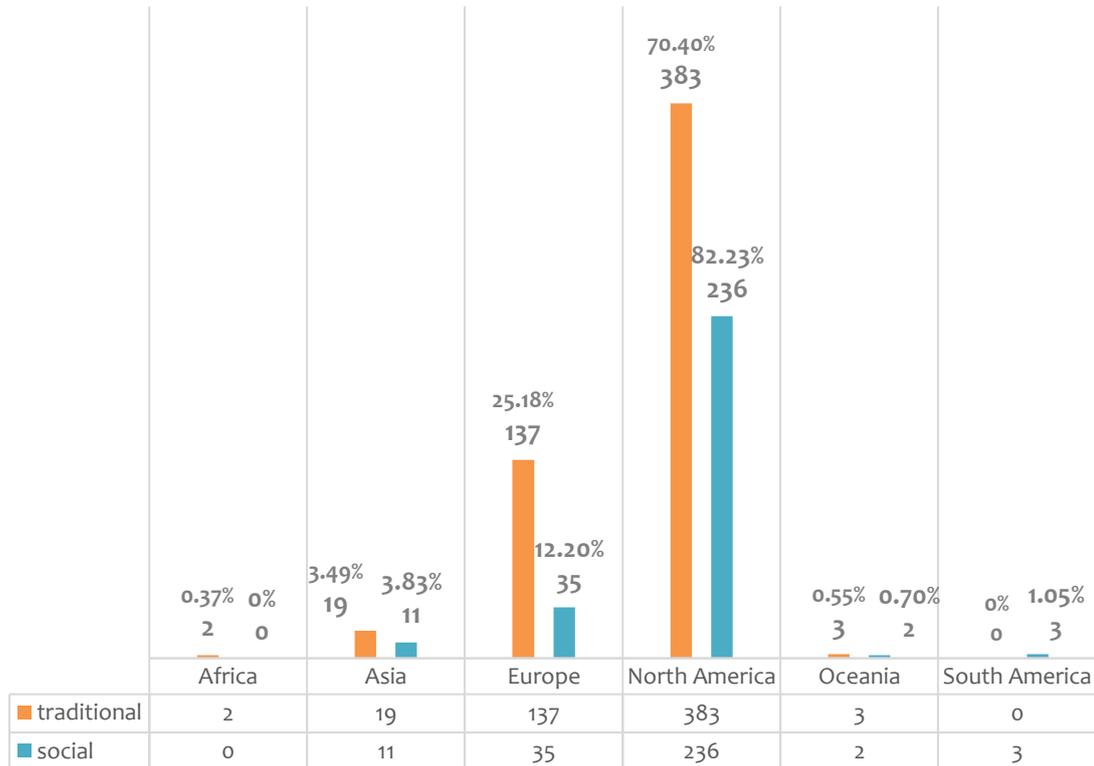


Figure 5 University continent for the female sample, social and traditional funds

As expected, in both social and traditional funds, the majority of the universities are based in North America. In particular, from these results, it would appear that women that studied in North America are more inclined to work in social funds, while the ones that studied in European universities are working in traditional funds. Additionally, as reported in the figure above (Figure 5), none of the women that are working in social funds studied in Africa and none of the ones that are working in traditional funds studied in South America; either way the universities in these continents are less than 2% overall.

Always bearing in mind the type of fund perspective, the next statistics concern the field of study and, also in this case, the analysis is conducted considering the macro-categories and the clusters. Starting from the traditional funds, 35.29% of the women studied “Business Administration”, 13.97% “Finance”, 6.25% “Economics & Commerce”, 6.07% “Medicine”, 5.15% “Management”, 4.60% “Engineering” and 3.86% “Law”. These percentages are not

so far from the social funds' results ("Business Administration" (31.71%) and "Finance" (14.29%)); however, "Political Science & International Relations" has increased up to 5.23% (from 1.84%), "Economics & Commerce" to 10.10% and "Medicine" has decreased to 2.79%. Finally, the fields have been grouped into 10 different broader clusters (Figure 6):

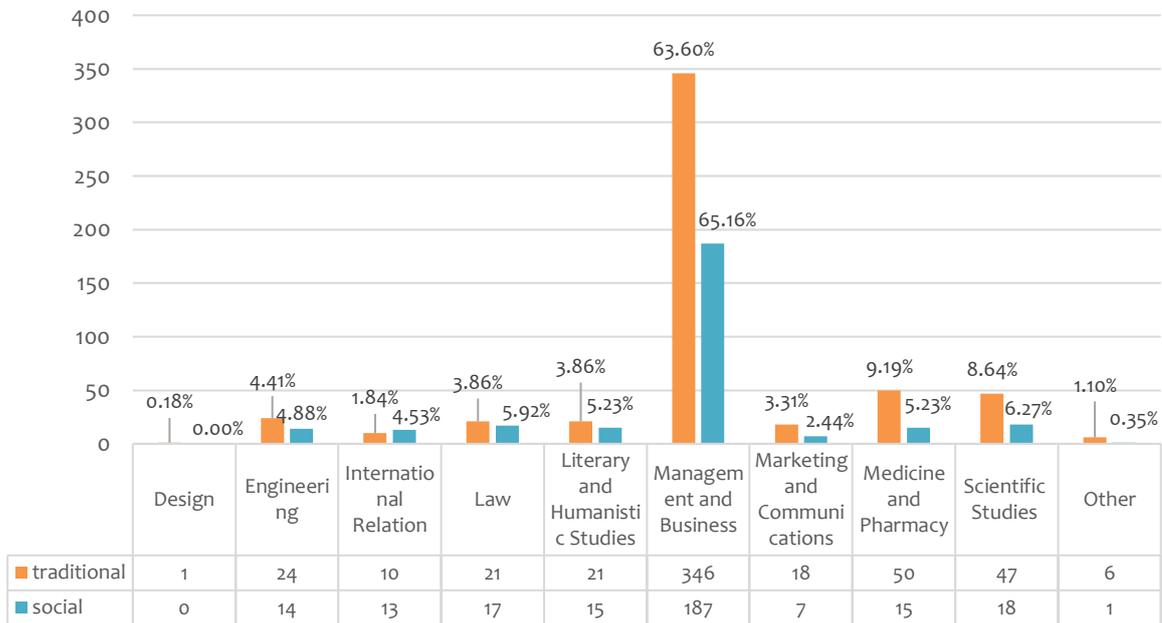


Figure 6 Field of study of the female sample, social and traditional funds

As can be seen from the graph (Figure 6), results are in line with the previous percentages; nevertheless, even if the percentages are almost the same, this last classification points out that women who have made "Literary and Humanistic Studies" would appear more willing to work in social funds, as well as the ones that have studied "International Relations and Political Science" and "Law". Conversely, women that studied "Medicine and Pharmacy" and made "Scientific Studies" would seem more likely to work in traditional funds.

Moving forward, the degree variable has been analyzed: women that are working in traditional funds got 77 different types of degrees, while the ones that are working in social funds 42. To achieve significant results, the analysis will be conducted considering the clusters.

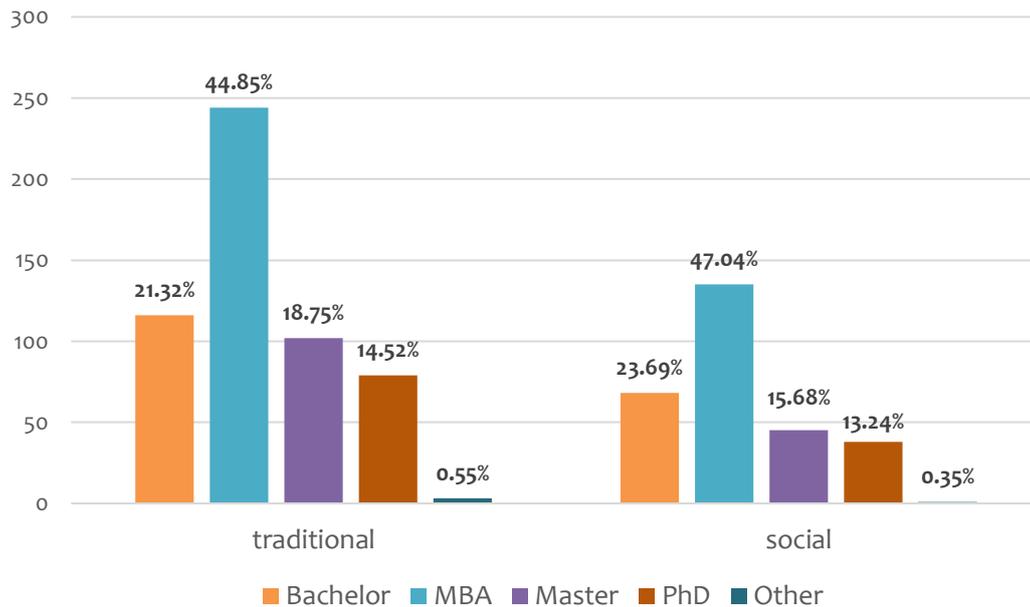


Figure 7 Type of degree for the female sample, social and traditional funds

As can be seen in the graph above (Figure 7), in both the types of funds almost half of the women have an MBA and the percentage is slightly higher for the ones that are working in social funds. By contrast, is lower in the case of Ph.D. and Master.

Finally, the last statistic on the education regards the years; so far, also the rows without any information on the years have been considered, otherwise, due to the high number of missing values, the sample would have decreased drastically. Indeed, it has been possible to collect these data for 411 females that are working in traditional funds and 197 that are working in social ones. As shown in the following figure (Figure 8), women that studied from 1981 to 1990 are 15.82% of the female sample related to traditional funds and 7.11% of the female associated with social VC firms. Additionally, more than half of the women that have their primary job in social funds studied in the years between 2001 and 2010. In conclusion, considering the last 20 years, it would seem that women that are working in social funds are younger than the ones in traditional VC firms (Figure 8).

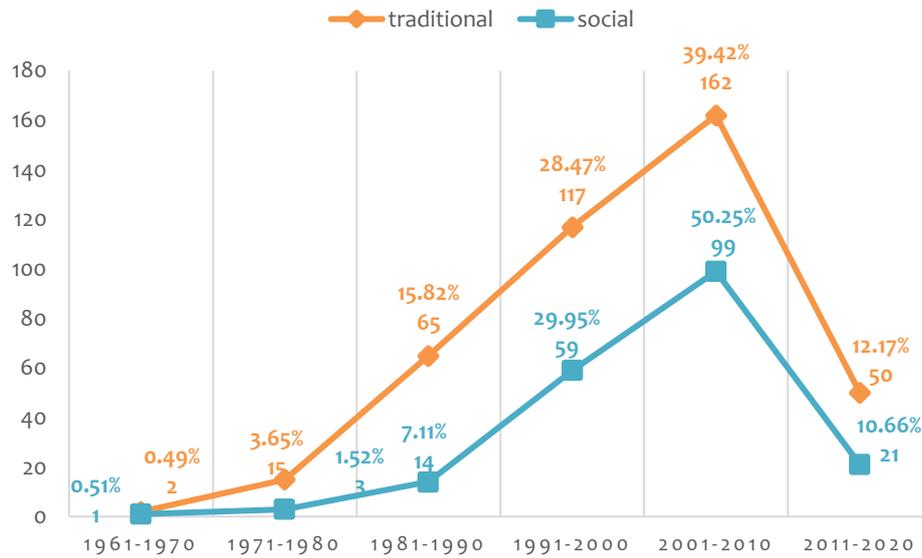


Figure 8 Years in which the female sample has studied, social and traditional funds

4.1.2 Women and men background in social impact funds

For the purpose of the thesis, it could be useful also to make a quick comparison with the background of the male sample. In this regard, the analysis has been carried out considering only the men whose primary job is in a social fund and, in doing so, the male sample is reduced to 1,672 observations. Starting from the universities, men studied in 467 different universities and among the most popular there are Stanford University (11.89%, women 14.98%), Harvard University (11.89%, women 16.68%), The Warthon School (6.46%, women 3.83%), Columbia University (2.57%, women 4.88%), Massachusetts Institute (2.33%, women 2.77%) and Yale University (2.09%, women 2.08%). Then, examining the country and the continent of the university, the following outcomes have been obtained: 77.41% of the men studied in the USA (77.70%), 6.52% in the United Kingdom (women 6.97%), 2.99% in India (women 2.42%), 2.33% in Canada (women 4.53%), and, finally, 2.93% in France (women 2.09%). Consequently, 79.80% of the men studied in North America, 13.57% in Europe and 5.50% in Asia (Africa, Oceania and South America are together a little bit more than 1%). Comparing these results with the ones of women who have their featured job in social funds, there are no significant differences. A slightly lower percentage has been obtained for the women who studied in Asia (3.83%), whereas the opposite can be said for the ones in North America (82.23%). Nevertheless, it would seem there is a higher discrepancy between women (social and traditional) rather than women and men. Proceeding with the analysis, the next variable is the field of studies; also in this case,

due to the high number of different fields, the statistics will be carried on clusters. On this matter the following table shows the results (Table 3):

cluster_field_education_male	Freq.	Percent	Cum.
Design	5	0.30	0.30
Engineering	179	10.71	11.00
International Relations and Political S	56	3.35	14.35
Law	79	4.72	19.08
Literary and Humanistic studies	97	5.80	24.88
Management and Business	893	53.41	78.29
Marketing and Communications	50	2.99	81.28
Medicine and Pharmacy (Genetics, Heath	43	2.57	83.85
Others	3	0.18	84.03
Scientific studies (Math, Chemistry, Bi	267	15.97	100.00
Total	1,672	100.00	

Table 3 Field of study of the male sample with a featured job in a social fund

Comparing these percentages with the ones of the female sample, what can be pointed out is that, on one hand, more men studied “Engineering” (10.71%) and “Scientific studies” (15.97%) than women (respectively 4.88% and 6.27%); on the other hand, more women studied “Management and Business” (65.16%) and “Medicine and Pharmacy” (5.23%) than men (respectively 53.41% and 2.57%). The other fields do not present a substantial gap.

Finally, the last statistic is related to the type of degree: 592 men have a Bachelor’s degree, 634 an MBA, 324 a Master’s degree and 122 a Ph.D. In percentage, 35,41% of the men and 23.69% of the women have a Bachelor, 37.92% and 47.04% an MBA, 19.38% and 15.68% a Master and, finally, 7.30% and 13.23% a Ph.D. (Figure 9). Thus, what can be concluded from these results is that on average women seem schooled than men.

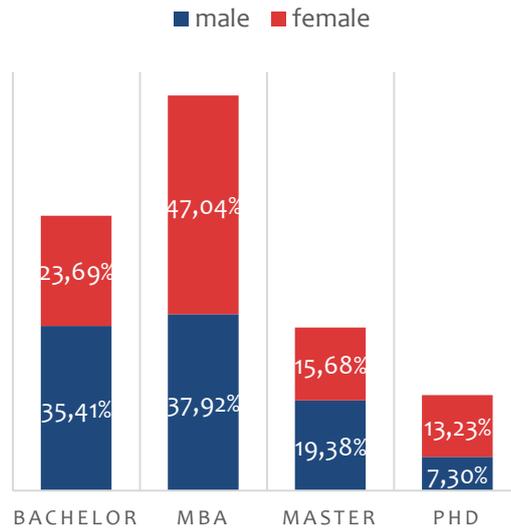


Figure 9 Type of degree, gender perspective

4.2 People and jobs

Also in this section, the following descriptive statistics have been carried out, firstly, making some explorative analyses, considering also the rows in which there are missing data, then a more precise approach will delete these observations.

As a starting point are used the variables gender (female/male) and type of fund (social/traditional) to get a first segmentation of the population. As previously said, the database provides also information about the organizations, therefore, it is important to make this further distinction. The table below (Table 4) reports that more than half of the people are working or worked in an organization. It is important to remind that, for the sake of simplicity, the social funds have been marked as 1, the traditional ones as 0 and the organizations with the wording “org”.

org_type	Freq.	Percent	Cum.
0	25,574	27.67	27.67
1	7,141	7.73	35.40
org	59,700	64.60	100.00
Total	92,415	100.00	

Table 4 Social funds, traditional funds and organizations

As shown in the table (Table 4), considering also the observations with missing values, the total number of rows is 92,415. If the statistics are computed on the funds, 78.17% of the population is working or worked in at least one traditional fund and 21.83% in a social one. Out of 25,574 traditional funds, 8,139 are the ones that have a different identification code (“org_uuid”), therefore, a large portion of the sample is working or worked in the same fund. As regards the social VC firms, on a total of 7,141 funds, the univocal values are only 1,331. The information about the organization code (“org_uuid”) is not available for 912 organizations and 2 traditional funds; thus, also without considering these two rows, results concerning the funds do not change.

By focusing on people, the database is composed of 14,634 different individuals, of them, 11,924 are associated with traditional funds and 4,993 with social ones. This means that 2,283 people are working or worked in both traditional and social VC firms. Additionally, introducing the gender perspective, 13,210 (90.28%) are male and 1,419 (9.72%) are female (for two observations has not been possible to understand the gender). In any case, these percentages already figure out the gender unbalance that characterizes the industry.

Removing the rows for which there is at least one missing data among the variables “org_uuid”, “is_current”, “title”, “job_type”, “gender”, “country_code”, “country”, “continent”, “featured_job_organization_uuid” and “featured_job_title”, the sample decreases to 80,971 observations. More precisely, 914 are the missing values of “org_uuid” and “title”, 912 of the variables “is_current” and “job_type”, 2 of the variable “gender”, 10,363 of the geographical position (“country_code”, “country” and “continent”) and, finally, 1,936 of the “featured_job_organization_uuid” and “featured_job_title”. Although some rows related to the starting and ending dates of the job, the region and the city are empty, they will not be deleted because otherwise the sample would be excessively reduced. Additionally, being very specific information, these data would not lead to any significant results. The following table (Table 5) shows the outcome after having performed this cleaning operation:

org_type	Freq.	Percent	Cum.
0	22,018	27.19	27.19
1	6,992	8.64	35.83
org	51,961	64.17	100.00
Total	80,971	100.00	

Table 5 Social funds, traditional funds and organizations without any missing values

As far as the funds are concerned, the traditional ones are 75.90% of the total, while the social ones 24.10% (considering all the funds with their duplicates). In conclusion, 3,556 are the observations that have been removed associated with the traditional funds, 149 to the social ones and 7,739 to the organizations. If only the univocal values are analyzed, 19.30% are traditional funds, 3.60% social and 77.10% organizations. More precisely, out of 8,378 funds, 1,319 are social (15.74%), while the remaining are traditional (84.26%). Finally, concerning the people, the female sample is decreased to 1,285 women (10.47%) and the male one to 10,989 (89.53%). In conclusion, being the VC firms the focus of the analysis, this cleaning operation deleted around 11% of the rows labeled as funds.

4.2.1 People

In this first part of the statistics can be interesting to consider the whole population, both women and men, then a deeper study will focus only on the female sample. The following graph (Figure 10) shows the number of males and females that are working or worked in at least one social fund, traditional fund or organization:

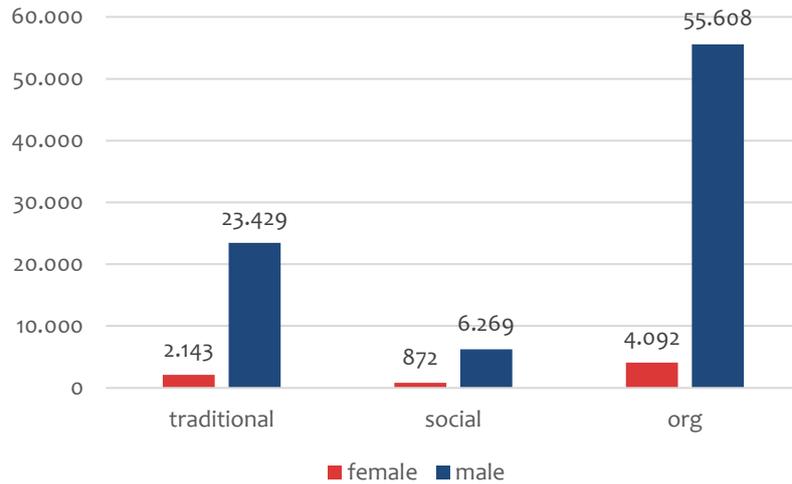


Figure 10 Type of fund or organization, gender perspective

Out of 92,415 companies, the number of people who are working or worked in traditional funds is 25,572, in social one 7,141 and in organizations 59,700. Computing the percentages, 30.15% of women are working or worked in traditional funds, 12.27% in social ones and, consequently, more than half in organizations. As regards the men, 27.46% are associated with at least one traditional fund, while only 7.35% with a social one. Also in this case more than half of the male is working or worked in an organization.

Then, the same procedure is repeated but dropping the rows associated with the organizations (Table 6):

gender	org_type		Total
	0	1	
female	2,143	872	3,015
male	23,429	6,269	29,698
Total	25,572	7,141	32,713

Table 6 Type of fund and gender perspectives

In terms of percentages, 71.08% of the female and 78.89% of the male are associated with a traditional fund, while 28.92% of the female to social and 21.11% of the male to traditional. Furthermore, by computing the percentages on the columns can be obtained a forecast of the gender composition of traditional and social funds. More precisely, 8.38% of the traditional funds are associated with women, while 91.69% with men; concerning the social ones, 12.21% are related to women and consequently, 87.79% to men. These results, according to the literature, show that women are more inclined to work in social funds than men. The

statistics take into consideration that a person can simultaneously work in more than one fund.

Subsequently, the same reasoning is carried out on the cleaned database. In this scenario, the following outcomes are obtained (Table 7):

gender	org_type			Total
	0	1	org	
female	2,103	854	3,933	6,890
male	19,915	6,138	48,028	74,081
Total	22,018	6,992	51,961	80,971

Table 7 Type of fund or organization, gender perspectives without any missing values

The corresponding percentages do not change with respect to the previous analysis in which there are also rows with missing data. Additionally, if only the funds are analyzed the outcomes are shown in the graph below (Figure 11):

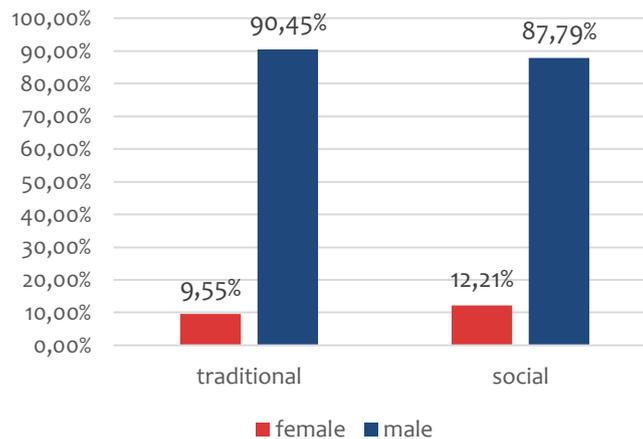


Figure 11 Type of fund and gender perspectives without any missing values

From now on, unless otherwise specified, the database that will be used for the descriptive statistics is the one without any missing data. Considering only the univocal values, there are 12,274 different people of which 11,700 are associated with funds, 4,481 with social one (38.3%) and 10,109 (86.40%) with traditional one. As can be easily understood from these results, 2,316 people are working or worked both in social and traditional VC firms. Regarding the women, those that worked or are working in social funds are 572 (44.51%),

in traditional 1,022 (79.53%) and, finally, the ones associated with organizations are 868 (67.55%). Also in this case can be easily concluded that, by summing these percentages, 1,177 women are working or worked in social, traditional funds and/or organizations. Since the aim of the thesis is extrapolating the differences between traditional and social funds, for the subsequent analysis the organizations will be temporally deleted.

As stated above, considering that the sum of the women that are working or worked in at least one social or traditional fund is 1,594, and the number of univocal female identifier (“partners_uuid”) is 1,229, this implies that there are 365 women associated simultaneously to social and traditional funds. In this regard, it is possible to understand how many women work in just one social fund, how many in two and so on. Indeed, as shown in the following table (Table 8), 383 are the women related only to one social VC firm, while 189 are the ones associated with at least two; specifically, 127 are working or worked in two social funds, 39 in 3, 16 in 4, 6 in 5 and, finally, 1 in 6. The same procedure can be applied to women that have one or more experience in traditional funds. In this scenario, although 3 women worked or are working in 12 different traditional funds, 1 in 11, 3 in 10, etc., more than half of the women are linked only to one or two funds, indeed, 753 women are related to one or two traditional funds, while 269 to at least to three.

<i>copies</i>	<i>observations</i>	<i>surplus</i>
1	383	0
2	254	127
3	117	78
4	64	48
5	30	24
6	6	5

Table 8 Female duplicates in social funds

The same statistics can be carried out for the men. Therefore, considering the univocal values, the men associated with social funds are 4,309 (41.15%), whereas the ones associated with traditional are 9,087 (86.78%). By summing the two contributions 2,925 men have experience both in social and traditional VC firms. Lastly, from a gender perspective, more women are associated with social funds than men; furthermore, the former also appear more inclined to work in both types of funds (29.70% of the female population, while the men are 27.93%).

4.2.2 Current job and work starting date

After this preliminary and more general analysis, the subsequent descriptive statistics are carried out by setting the dummy variable “is_current” to True. The first results are shown in the following table (Table 9):

is_current	Freq.	Percent	Cum.
False	29,892	36.92	36.92
True	51,079	63.08	100.00
Total	80,971	100.00	

Table 9 Current and previous work

Making a more detailed analysis, 65% of women, considering also the duplicates, are currently working in at least one company, be it a fund or an organization; the corresponding percentage for men is 62.87%. As far as only the funds are concerned, the results shift to 12,932 regarding past jobs (44.58%) and 16,078 the current ones (55.42%). Therefore, more people are currently working in organizations than in the past and, consequently, can be deducted that the previous working experience of people is mainly in funds. Additionally, women that are not working anymore in that company are 35.62% of the female sample whereas the men are 37.63%; focusing only on the funds, the difference between gender is almost zero; indeed, the percentages move respectively to 43.62% and 44.37%. As regards the female sample, women that are working in social funds are 524, whereas the one associated with traditional funds is 1,174.

If the research is carried out just considering the univocal values of the “partner_uid”, it is possible to obtain the number of women that are currently working in at least one traditional fund and at least one social fund. Also in this case the sum of the two contributions, respectively 867 and 445, is higher than the number of univocal “partner_uid”. More exactly, 162 women are simultaneously working in both the type of funds, while the corresponding number for men is 189.

Moving forward, to understand if social funds are more open to women than traditional, the following analysis has been performed: on a total of 1,229 women, 36.13% are working in social funds and the remaining in traditional; while out of 10,471 men, 28.35% are linked to social VC firms and, therefore, 71.64% to traditional (Figure 12). According to the literature,

these results show that more women are working in social funds than men, thus, can be inferred that, at least, currently, social funds are more likely to hire women than men.

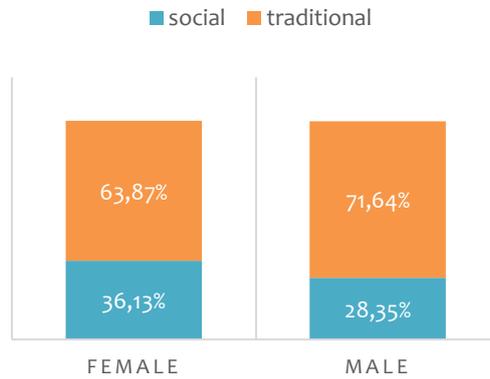


Figure 12 Current job: gender and type of fund perspectives

Moreover, to understand if there has been an increase of social funds and female presence over time, it could be interesting to set the previous variable, “is_current” to False; by doing so it is possible to make a rough forecast of the social funds' trend. In this regard, 250 women are no more working in social funds (43.70%) and 483 in traditional ones (47.26%). Additionally, considering the information about the work starting date, it is possible to create some categories. The information about the starting date is only available for 16,156 observations out of 80,971, thus, the subsequent descriptive statistics will be carried out on a population widely reduced. By referring to the variable “started_on”, the data have been grouped in the following four categories: before 1990, from 1991 to 2000, from 2001 to 2010 and, finally, from 2011 to 2020. Initially, a first analysis is made based on gender and, as illustrated in the graphs below (Figure 13 and Figure 14), the percentage of women is increasing more than the one of men only in the last years (from 2011 to 2020). Thus, what can be inferred is that, in the future, the number of women that will work in social funds may continue to increase.

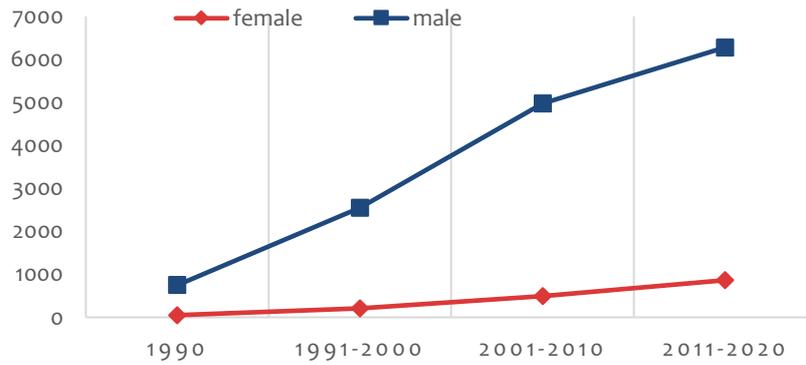


Figure 13 Work starting date, gender perspective

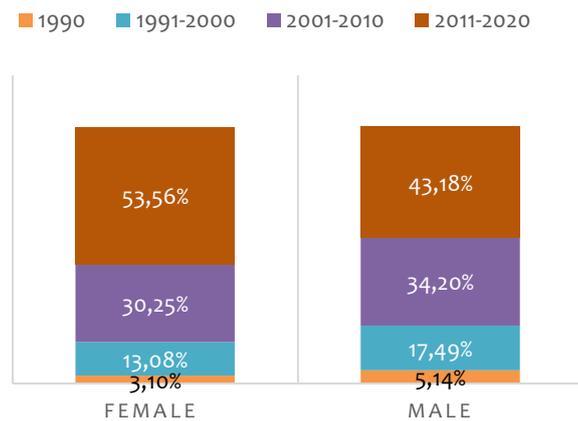


Figure 14 Work starting date, gender perspective in %

Since these results also consider the duplicates, to understand if the number of women is actually increasing and not just the same female is working in more funds, the following percentages have been computed: 47.27% of the women have started to work in the years 2011-2020, while the men are the 41.90%. Being these percentages more similar than the previous ones, it could be inferred that the same woman is just having more experiences in different funds.

Focusing only on the female sample and introducing the distinction between social and traditional funds, the following results are obtained (Figure 15 and Figure 16):

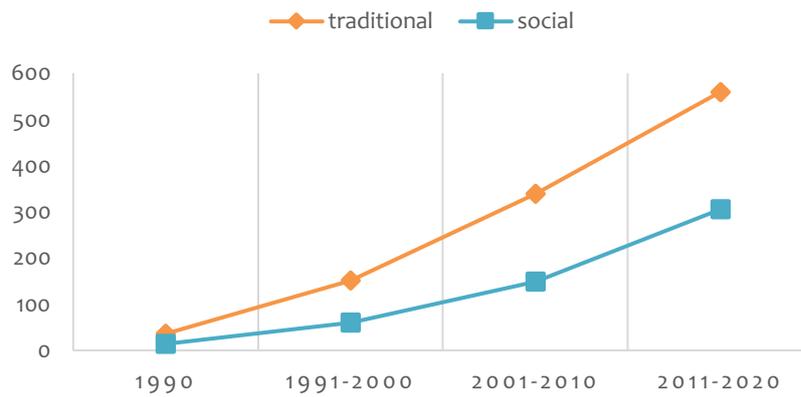


Figure 15 Work starting date of the female sample, type of fund perspective



Figure 16 Work starting date of the female sample, type of fund perspective in %

As can be easily noted looking at the percentages, also in this case, the number of women that have started working in social funds is higher than the one related to traditional only in the last nine years. Besides, more than half of the women in the database belong to the cluster “2011-2020”.

In conclusion, it seems that the female presence in the VC industry is increasing and the growth is quicker in social funds.

4.2.3 Featured job

Always considering the database without any missing values, 12,274 people have their primary job in 7,351 different companies. In the following table (Table 10) the companies are distinguished among traditional funds, social funds and organizations:

featured_jo b_org_type	Freq.	Percent	Cum.
0	4,158	56.56	56.56
1	913	12.42	68.98
org	2,280	31.02	100.00
Total	7,351	100.00	

Table 10 Type of fund or organization of the featured job

What can be highlighted from these results is that, in contrast with the previous scenario in which 64% of the rows were marked as “org”, here, there are more than half the companies that are traditional funds. Also in this case, since the aim of the thesis is focalized on traditional and social funds, for the subsequent analysis the rows associated with organizations will be temporally deleted. After this operation, the following results (Table 11) are obtained:

featured_jo b_org_type	Freq.	Percent	Cum.
0	4,158	82.00	82.00
1	913	18.00	100.00
Total	5,071	100.00	

Table 11 Type of fund of the featured job

Additionally, if also the gender perspective is introduced, as shown in the graph below (Figure 17), the percentage of women that have a featured job in a social fund is higher than the one of men.

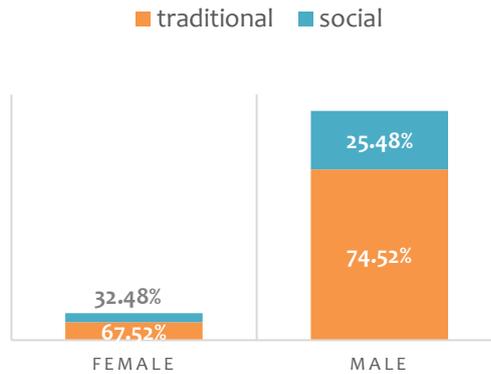


Figure 17 Type of fund of the featured job, gender perspective

Finally, the database provides also information regarding the job type in the primary organization; however, it does not result statistically significant since this variable can assume 2,029 different values. To exploit somehow this information, after having filtered the data and considered only the female sample, the variable is reduced to 359 different job types. However, the roles with the highest percentages are “Partner” (18.49%), “General Partner” (8.64%), “Managing Director”(8.61%), “Managing Partner” (7.62%), “Founder and Managing Partner” (2.84%) and “Founding Partner” (2.66%); the other job types do not reach the 2%.

To conclude this analysis also the distinction between social and traditional funds has been considered. The outcomes point out that women are partners in 16.18% of the traditional funds and 22.14% of social ones, General Partner in 5.87%, and 13.91% respectively, Managing Director in 8.45% and 8.56% and, finally, Managing Partner in 9.14% and 5.07%. Thus, what can be concluded by these results is that, except for the Managing Partner role, women in social funds cover higher positions than in traditional ones (Figure 18).

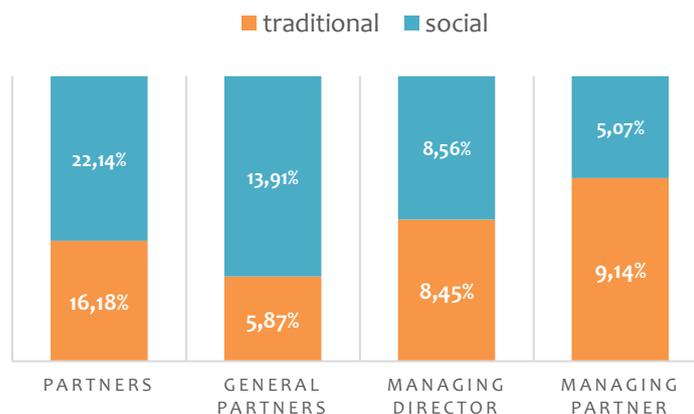


Figure 18 Featured job type in social and traditional funds for the female sample

4.2.4 Title and job type

In this paragraph, the title and job type of each person are analyzed taking into consideration the gender and the type of fund perspectives. The difference between the two categorical variables is that the title includes more specific roles such as Partner (be it Venture, General, Managing, etc.), CEO, Co-founder, Managing director, Principle, President, etc., while the job type classifies all these titles into the category “Executive”. Team Member, Investor, Support Team Leader, Financial Analysts and many other titles are grouped into the “Employees” job type. Bearing in mind that in the database there are 10,873 different types of title, although they are reduced to 1,578 if only the female sample is taken into account, for the descriptive statistics will be analyzed only the variable “job type”. The latter can assume five values: “Executive”, “Employee”, “Board Observation”, “Board Member” and “Advisor”. At this point, the duplicates in terms of “partner_uuid” are not deleted because the same person can have different roles in the same or different funds and organizations. Moreover, in this first analysis, the distinction between current and previous jobs has not been applied.

job_type	Freq.	Percent	Cum.
advisor	5,206	6.43	6.43
board_member	36,958	45.64	52.07
board_observer	3,699	4.57	56.64
employee	9,696	11.97	68.62
executive	25,412	31.38	100.00
Total	80,971	100.00	

Table 12 Job type

As seen in the table (Table 12), the majority of people are board members and executives. But, considering that 89.27% of the board member is working or worked in an organization, to be consistent with the aim of the thesis, the rows associated with organizations are deleted. Moreover, the following results (Figure 19) illustrate the different composition in terms of job type between funds and organizations.

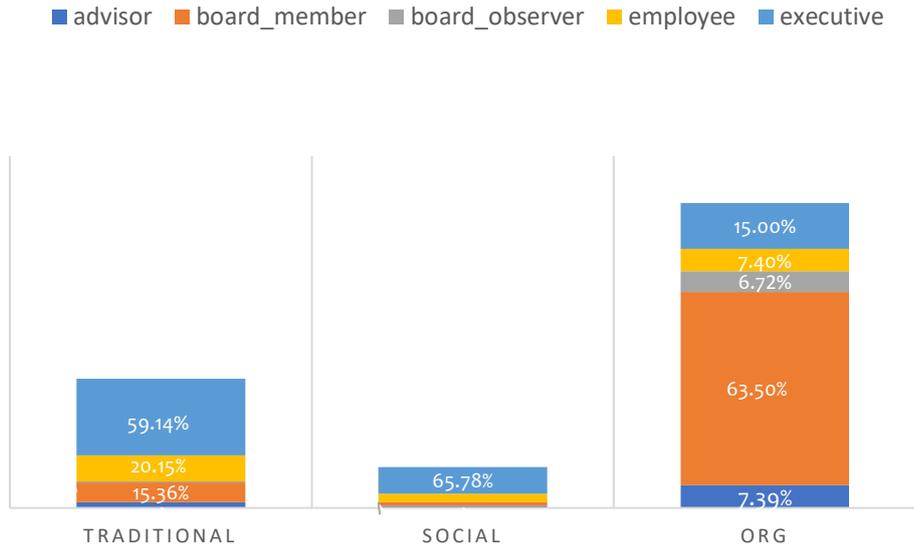


Figure 19 Job type in social, traditional funds and organizations

Dropping the rows associated with the organizations and introducing the gender distinction, the subsequent results are obtained (Figure 20):

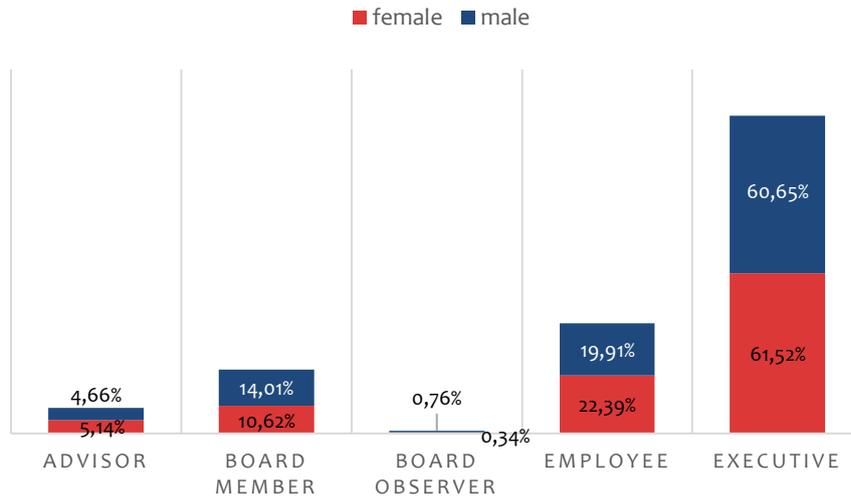


Figure 20 Job type, gender perspective in %

The above percentages show that there is not a huge difference in terms of gender: the majority of people have an executive role; the percentage of female employees is slightly higher than the one of men, while that of the board members is a little below. But, if these computations are performed based on the entire population, executive women are just 6.27%, while men are 54.47% (Figure 21).

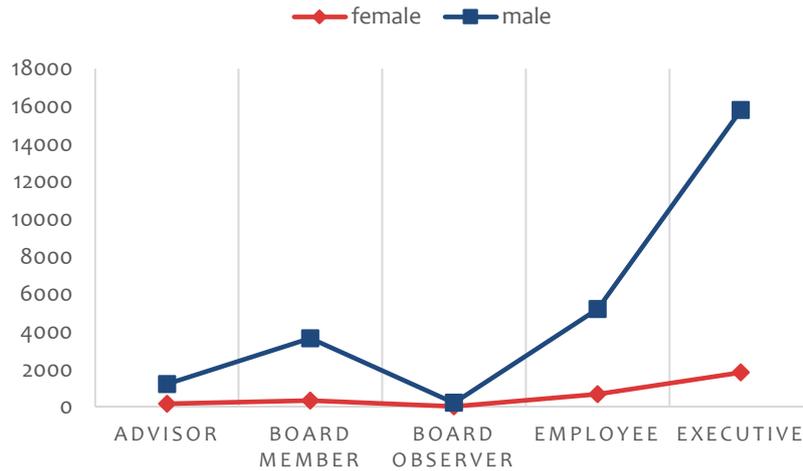


Figure 21 Job type, gender perspective

The next statistic considers only the female sample but with the distinction between social and traditional funds.

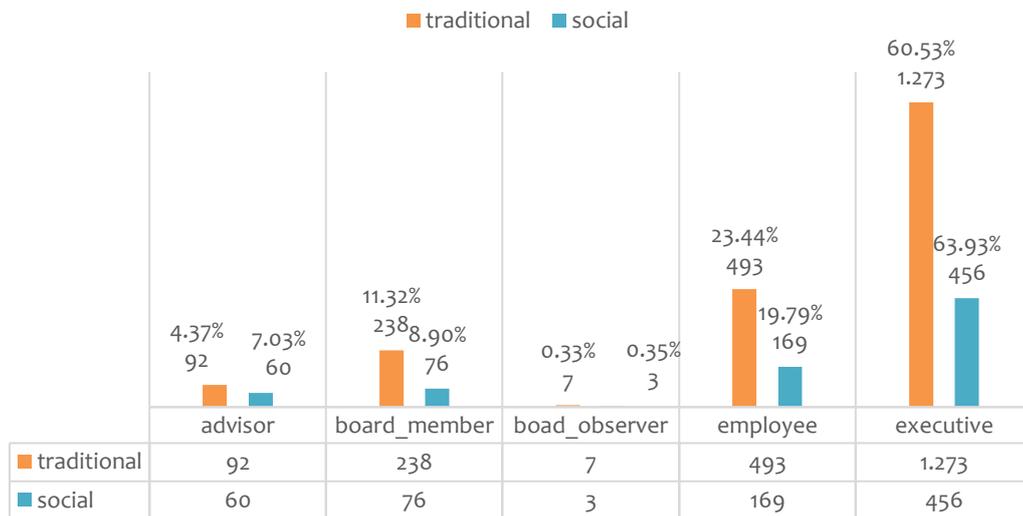


Figure 22 Job type for the female sample, type of fund perspective

As shown in the graph above (Figure 22), more women have executive or advisor roles in social funds than in traditional ones; on the other hand, in the latter, the percentage of women in the positions of employee and board member is higher. Therefore, these results can be considered in line with the previous outcomes: social funds seem to be more open to a female presence in the upper-level management roles.

Finally, to figure out if in the last years the number of women with an executive role has increased, the population has been filtered considering only the current job: the women with an executive role are 65.25% of the female sample, while the men are 67.06% (of the male sample). Thus, in both cases, the percentages are higher than before (61.25% and 60.65%, respectively). Additionally, comparing the results of current and past jobs, it appears that men have made a career more quickly than women and that the employee position drastically decreased for both women and men (growth of 15% of male executives and 9% of women). To complete the analysis according to the previous scenario, the last statistic focuses only on the female sample: women that currently have an executive role in a social fund are 68.51%, while the ones in a traditional VC firm are 63.80%. Comparing these percentages with the ones carried out considering only the past jobs, for both types of funds the women with an executive role are increased, but it would appear that the percentage difference is higher for the social VC firms (7% for women in traditional funds and 12% for the ones in social). Furthermore, women with an employee position are decreased either way; in particular, -21% of the women have this role in traditional funds and -28% in social ones.

4.3 Funds and organizations

The following section depicts some descriptive statistics concerning the funds and the organizations. After having removed the rows with the missing values, the database provides information about 36,630 companies of which 1,319 are social funds (3.60%), 7,070 traditional (19.30%) and the remaining organizations (77.10%). By dropping the observations regarding the organizations, out of 8,378 funds 84.26% are traditional and 15.74% are social.

4.3.1 Industry specialization

As explained in the Methodology section, the information on the industry has been collected for all the social funds, for the traditional associated with at least one woman, and for the organizations founded and/or led by women. Starting from the social VC firms the following percentages have been obtained (Table 13):

industry	Freq.	Percent	Cum.
Agriculture and Food	32	2.43	2.43
Education	61	4.62	7.05
Empower people	56	4.25	11.30
Energy	72	5.46	16.76
Environment	26	1.97	18.73
Healthcare	126	9.55	28.28
Impact-tech	353	26.76	55.04
Social	593	44.96	100.00
Total	1,319	100.00	

Table 13 Industry specialization of the social funds

Then, introducing the gender perspective, it appears that women are more likely than men to work in social funds that invest in “Education” (5.26% and 4.50%), “Empower people”(7.66% and 3.60%), “Energy” (6.22% and 5.32%), “Environment” (2.87% and 1.80%), Healthcare (10.05% and 9.46%) and “Social” (46.89% and 44.59%). On the other hand, more men than women are associated with “Agriculture and Food” (2.52% and 1.91%) and “Impact-tech” (28.20% and 19.14%) industries.

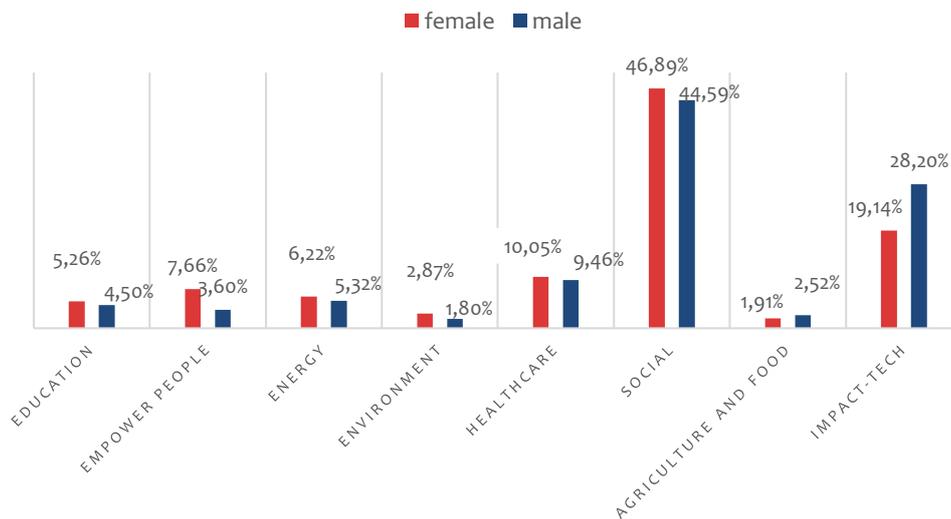


Figure 23 Industry specialization of the social funds, gender perspective

Moving forward, traditional funds are analyzed and compared to social ones. To this aim, the social funds that have been considered are only those associated with at least one woman in the database.

industry	Freq.	Percent	Cum.
Agriculture and Food	7	1.03	1.03
Biotechnology and Healthcare	130	19.06	20.09
E-commerce and Retail	26	3.81	23.90
Education	10	1.47	25.37
Energy	6	0.88	26.25
Financial Services and Fintech	48	7.04	33.28
Industrial Technology and Manufacturing	22	3.23	36.51
Information Technology	153	22.43	58.94
Media and Entertainment	24	3.52	62.46
Traditional	236	34.60	97.07
Women's	20	2.93	100.00
Total	682	100.00	

Table 14 Industry specialization of traditional funds for the female sample

As can be seen from the table (Table 14), the main industries are “Traditional”, “Biotechnology and Healthcare” and “Information Technology”. Furthermore, the main objectives of the industry “Information Technologies” are “Data, Software and Services” (31.69%), “Information Technology and Cybersecurity” (23.94%), “Technology” (30.28%) and “Telecommunications” (10.56%). In the category “Traditional” 36.86% of the funds have been categorized as “Miscellaneous”. In both types of funds the category “Agriculture and Food” represents less than 2% of the total. Moreover, on one hand, traditional funds are investing more than social ones in “Healthcare” companies (19.06% and 10.05%); on the other hand, social funds are funding more companies focused on “Education” (5.26% and 1.47%) and “Energy” (5.46% and 0.88%). The other categories are not directly comparable, because “Empower people” does not only refer to women and “Impact-tech” could be considered as a broader industry which includes “Financial Services and Fintech”, “Industrial Technology and Manufacturing”, “Information Technology” and “Media and Entertainment”. Summing all these contributions, the percentage of traditional funds that invest in this industry is higher than the social one (36.22% and 18.14%). Finally, the last statistic concerns the organization founded and/or led by women (Table 15):

industry	Freq.	Percent	Cum.
Agriculture and Food	30	3.76	3.76
Biotechnology and Healthcare	160	20.08	23.84
E-commerce and Retail	121	15.18	39.02
Education	47	5.90	44.92
Empower people	4	0.50	45.42
Energy	7	0.88	46.30
Financial Services and Fintech	24	3.01	49.31
Impact-tech	4	0.50	49.81
Industrial Technology and Manufacturing	15	1.88	51.69
Information Technology	317	39.77	91.47
Media and Entertainment	38	4.77	96.24
Social	3	0.38	96.61
Traditional	2	0.25	96.86
Women's	25	3.14	100.00
Total	797	100.00	

Table 15 industry specialization of the organizations women-founded and/or led

Since these percentages are in line with the previous ones computed considering the funds, this could imply that women VCs, who are also entrepreneurs, have founded their companies in the same industry in which the fund is investing. Indeed, almost 20% of traditional funds have invested in “Biotechnology and Healthcare” and, here, 20.08% of women founded a company whose industry is “Biotechnology and Healthcare”. Instead, differently from the previous results, “E-commerce and Retail” has increased up to 15.18%, and more than half have as objective “Lifestyle”. Finally, the majority of the companies whose target industry is “Information Technology” focuses on “Data, Software and Services” (82.96%) and “Information Technology and Cybersecurity” (11.36%) objectives.

4.3.2 Country and continent

This paragraph analyzes the variables concerning the geographical position of the funds and organizations, in particular by focusing on the country and the continent. Indeed, due to the high number of different regions and cities, which are respectively 311 and 710, they will not be used in the descriptive statistics. Considering all the companies and, clustering them based on the type (traditional, social or organization) and on the country, the results do not present significant differences. The percentages with a higher gap concern the USA, which is also the country where more than half of the companies are located (62.63% of the traditional funds, 62.40% of the social one and 69.12% of the organizations). Considering only the funds, 6.85% of the traditional and 6.63% of the social are in the United Kingdom, 2.73% and 3.43% in Canada, 2.21% of both types in France, 2.94 % and 1.52% in Germany,

2.07% and 1.22% in China, 2.17% and 4.65% in India, 1.80% and 1.75% in Israel and, finally, 1.40% and 1.45% in Singapore.

Then, further aggregating this information, 65.61% of the traditional funds, 66.82% of the social and 71.59% of the organizations are based in North America, 20.88% of the traditional, 16.55% of the social and 18.66% of the organizations are in Europe and, finally, respectively 11.40%, 13.20% and 7.75% in Asia. These results point out that the funds would seem distributed in a slightly more homogeneous way than the organizations and that the social ones, in relative terms, are more present in Asia and North America than traditional. However, these differences in percentages are minimal and confirm that the great majority of VC firms and organizations are based in North America.

Introducing the gender perspective, and removing the rows associated with organizations, 68.97% of women and 66.75% of men are working in the USA, 7.30% and 7.21% in the United Kingdom, 3.20% and 1.93% in Canada, 3.49% and 1.81% in France, 2.00% and 1.64% in China, 1.16% and 1.13% in India, 1.34% and 1.92% in Israel, 1.13% and 1.37% in Singapore and, finally, 0.91% and 2.76% in Germany. What comes out from these results is that women and men seem to be almost equally distributed in all the countries. Additionally, also at a continental level, there are not great differences: the higher gap is in Asia (7.92% of the women and 10.31% of the men) and North America (71.73% and 69.13%, respectively). It is important to note that these percentages are computed considering the total number of women and the total number of men and that, as shown in the graph below (Figure 24), women are always critically outnumbered by men:

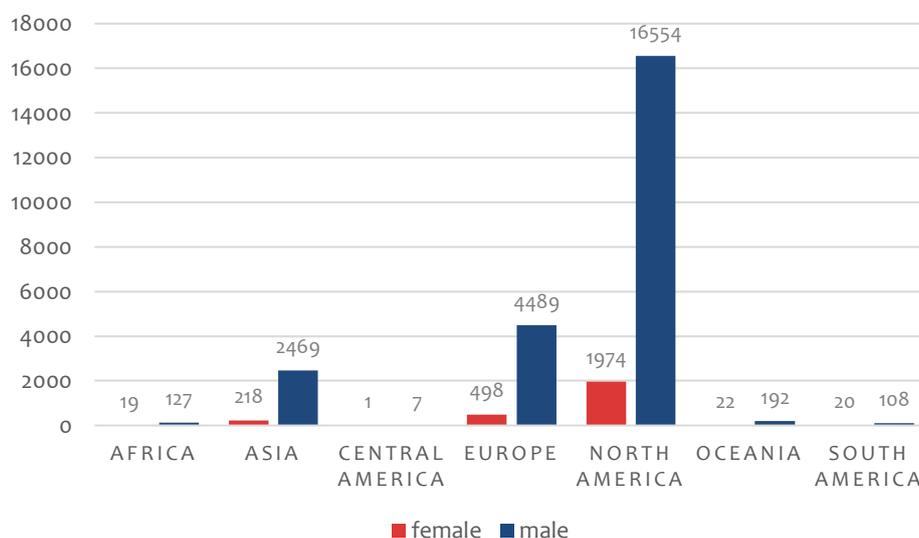


Figure 24 Continent of the fund and gender perspective

To conclude, the last descriptive statistics are carried out only considering the female population. In this regard, introducing again the distinction between social and traditional funds, the following results are obtained: 68.00% of traditional funds and 71,36% of social ones are in the USA, 7.31% and 7.29% in the United Kingdom, 2.10% and 3.52% are in Canada, 2.35% and 1.13% in China, 3.68% and 2.01% in France, 1.02% and 0.63% in Germany, 0.72% and 2.26% in India and, finally, 1.43% and 1.13% in Israel. Although also in this case the difference between social and traditional funds is minimal, these percentages mirror the ones obtained in the paragraph "Women background in social and traditional funds". Finally, grouping the countries into continents: 70.30% of traditional funds and 75.25% of social are located in North America, while respectively 19.58% and 14.45% in Europe.

4.3.3 Partners

In this paragraph, only the rows in which women have a partner role are analyzed. According to the aim of this thesis, particular attention has to be given to this subsample in such a manner that is possible to understand if social impact funds are more open to a female management team than traditional ones (as the management team has been considered only the partner position). Since this specific subsample is composed of only 379 rows, not to further reduce the population, the initial 92,415 rows have been considered. As previously said, this analysis is carried out on the women that in the database currently have a partner role and, therefore, the descriptive statistics will address only the related funds. For this reason, according to the research made on Crunchbase and the funds' website, there were 12 women, among the ones defined as partners in the database, that does not seem to have this role; thus, these rows have been deleted. Additionally, for 48 observations have not been possible to collect information regarding the number of female and male partners. In conclusion, the analysis at issue will be conducted on 296 different partners and 319 funds, of which 281 are different VC firms.

The first outcome shows that 275 females currently have a partner role in just one fund, 19 in 2 funds, and 2 in 3 funds. Instead, considering the variable "org_uuid" 256 women work in different funds. The number of partners ranges from 1 to 50 in big funds, but 82.13% of the VC firms analyzed have less than 8 partners and 56.74% less than 4. Introducing the type of fund perspective, 223 women are associated with traditional funds, 90 with social and 6 with organizations. Since the analysis is focalized only on VC firms, the 6 rows related to

the organizations will be deleted. Moving forward, the database provides 42 different types of partners (most of the time they are just written slightly different) and therefore, it has been necessary to clean up and classify them into some categories. To this aim, the following seven groups have been created: “Founding Partner”, “General Partner”, “Managing Partner”, “Venture Partner”, “Operating Partner”, “Senior Partner” and simply “Partner”. Results are shown in the table below (Table 16):

cluster	Freq.	Percent	Cum.
Founding Partner	44	14.06	14.06
General Partner	70	22.36	36.42
Managing Partner	136	43.45	79.87
Operating Partner	4	1.28	81.15
Partner	29	9.27	90.42
Senior Partner	9	2.88	93.29
Venture Partner	21	6.71	100.00
Total	313	100.00	

Table 16 Different types of partners

As can be seen in the table (Table 16) almost half of the women are Managing Partners. Finally, the number of male and female partners is analyzed also taking into account the type of fund (Table 17):

gender_partner	org_type		Total
	0	1	
equal	34	14	48
f	75	26	101
m	89	37	126
Total	198	77	275

Table 17 Gender majority of the partners, type of fund perspective

On a total of 275 different funds, 17.45% have the same number of male and female partners, 36.73% a female majority and 45.82% a male one. Introducing the distinction between traditional and social funds, in 37.88% of the first the women partners are more than men, in 44.95% the men prevail and in the remaining funds the number of partners is equal. As regards the social funds, 33.76% have a majority of female partners, and 48.05% of males. From these results, it seems that there is not a huge difference between traditional and social

funds and the outcome does not appear in line with the literature. However, it should be necessary also to consider many other factors that could influence the results.

As a matter of fact, it is important to note that there is a great majority of female partners when the funds are small, indeed 59 VC firms are composed only of one partner. However, the previous result is not completely correct because, having set the variable “gender” to female, it is not known how many funds have just 1 male partner; the same happens when there are two partners. In this case, 19 funds have a female majority (and therefore 2 women and 0 men) and 34 funds have an equal number of males and females (1 and 1); for this reason, it makes more sense to consider only the funds in which there are at least three partners. In this case, as can be seen in the following table (Table 18), the number of funds with a female majority is always lower than the number of funds with a male one. In particular, 21 funds have a majority of female partners (12.88 %), 127 of male ones (77.91%) and in 15 funds the number is the same (9.20%).

total_partners	gender_partner			Total
	equal	f	m	
3	0	12	35	47
4	14	4	14	32
5	0	1	14	15
6	0	2	9	11
7	0	1	12	13
8	0	0	7	7
9	0	0	4	4
10	0	0	2	2
11	0	0	2	2
12	1	0	3	4
13	0	1	3	4
14	0	0	4	4
15	0	0	2	2
16	0	0	1	1
17	0	0	2	2
18	0	0	2	2
19	0	0	2	2
20	0	0	1	1
22	0	0	1	1
23	0	0	1	1
24	0	0	3	3
28	0	0	1	1
45	0	0	1	1
50	0	0	1	1
Total	15	21	127	163

Table 18 Total number of partners, gender perspective

If the distinction between social and traditional funds is introduced, out of 115 traditional funds, 14 have a majority of female partners (12.17%), 91 of males (79.13%) and 10 have the same number (8.70%). Conversely, out of 48 social funds, in 7 there are more women than men (14.58%), in 36 more men than women (75.00%) and in 5 there is not a predominance (10.42%) (Figure 25). As expected, these outcomes are more consistent with the previous research and surveys: the VC industry is still dominated by men and social impact funds seem to be slightly more open to a female presence in the management team.

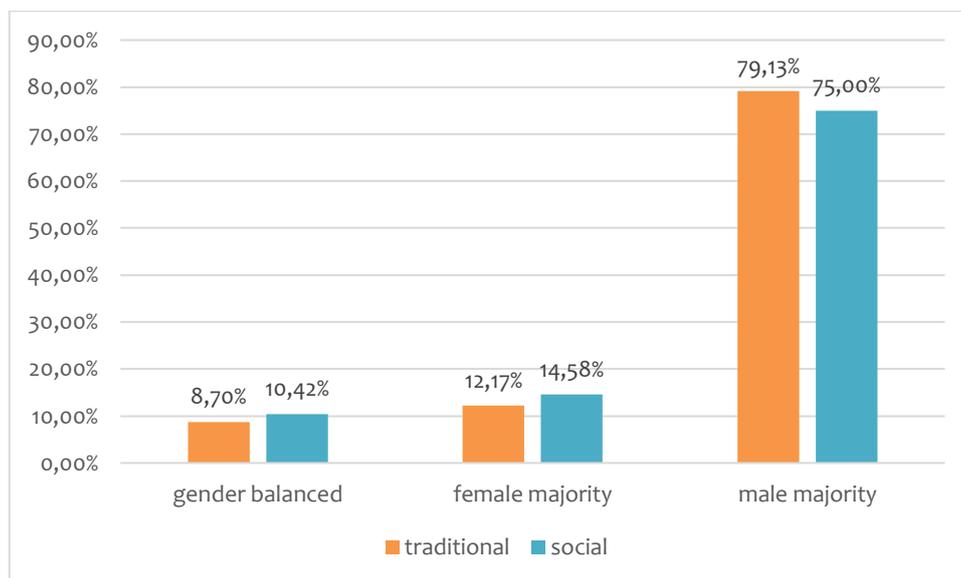


Figure 25 Gender majority, type of fund perspective

4.3.4 Women founded and/or led funds and organizations

The statistics concerning women-founded and/or led funds and organizations will be carried out considering all the social funds independently from the fact that they are associated with female or male; instead, as far as the traditional VC firms and organizations are concerned, this information has been collected setting the variable “gender” to female.

Firstly, considering the social funds out of 1,319 VC firms, 8.27% have been founded or/and led by women, more precisely:

women_founded	Freq.	Percent	Cum.
NOT women founded	1,210	91.74	91.74
women founded	87	6.60	98.33
women founded and led	14	1.06	99.39
women led	8	0.61	100.00
Total	1,319	100.00	

Table 19 Social funds founded and/or led by women

For the subsequent analysis, to better compare social, traditional funds and organizations, the data have been filtered considering only the rows associated with women. In this scenario the following results are obtained (Figure 26 and Figure 27):



Figure 26 Traditional and social funds and organizations women-founded and/or led in %

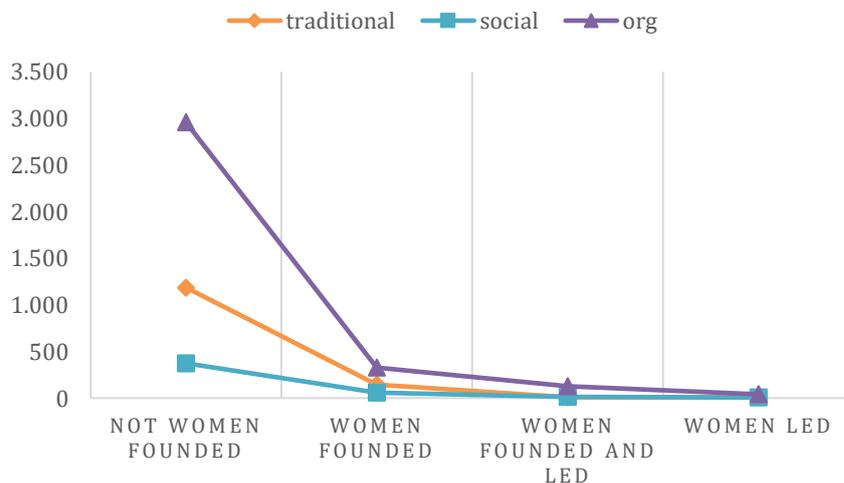


Figure 27 Traditional and social funds and organizations women-founded and/or led

A first point concerns the social funds, indeed, in this scenario, 16.93% of the social VC firms have been founded and/or led by women (while in the previous case were only 8.26%). Therefore, there is a positive relationship between the female presence and women founded fund. Additionally, although the great majority of companies are not founded by women, what comes out from the graph (Figure 26) is that social funds seem to be more likely to be founded and led by women than traditional ones and organizations. These results confirm the previous studies according to which women are more interested in social and impact themes than men.

Moreover, this information about the funds can be combined with the one concerning the number of female and male partners (as previously said, such research has been carried out only for the funds that in the database are associated with at least one female partner). The analysis has been performed to understand if women founded funds have a higher number of female partners than the one founded by men. To this aim, the rows associated with the organizations will be deleted and a new variable “women_founded_led” will include all the funds that have been women-founded, women-led, or women-founded and led. By joining these two variables (“women_founded_led” and “gender_partner”) the sample has decreased drastically. As shown in the graph below (Figure 28), it would seem that in half of the funds founded and/or led by women, the number of female partners is higher than the one of men. This first statistic considers all the funds, also the ones in which there is only one partner that, of necessity, having set the variable gender to “female”, is a woman. Therefore, to obtain a more accurate result, it is better to consider only the funds in which there are at least 3 partners but, in doing so, the sample is further reduced (Figure 29).

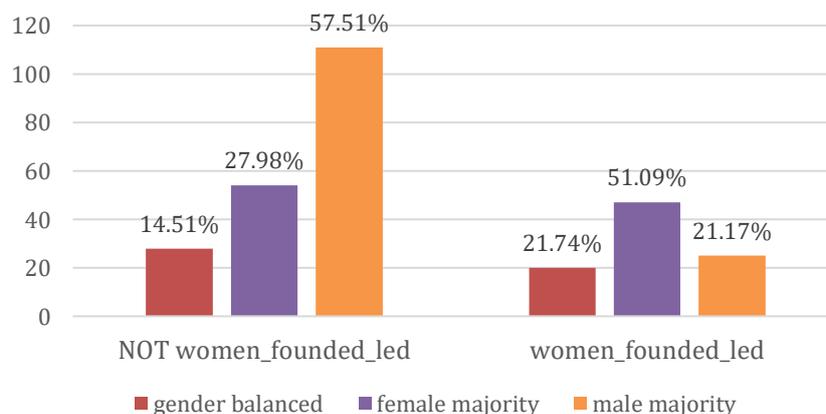


Figure 28 Gender majority of partners in funds founded and/or led by women and by men

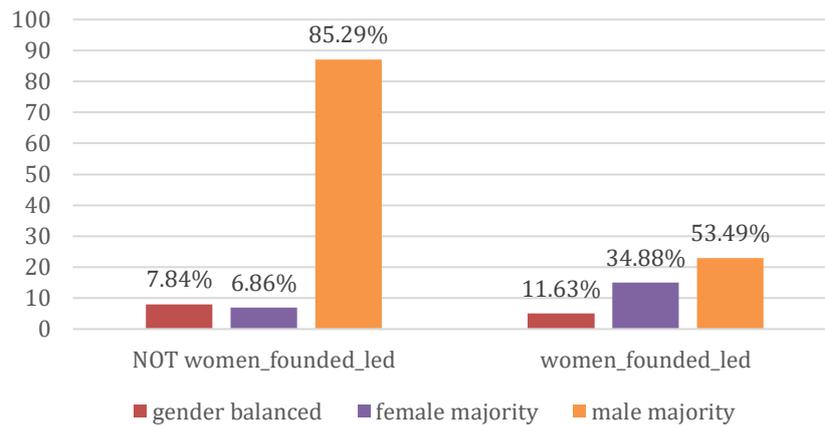


Figure 29 Gender majority of partners in funds, with more than 2 partners, founded and/or led by women and by men

Although the analysis has been carried out on a very limited sample, the results in the last graph (Figure 29) are more realistic and in line with the literature but, at the same time, consistent with the ones found in the previous table. In conclusion, when the funds are not women-founded and/or led, male partners prevail in almost the totality of the funds; whereas, when there is at least one female founder, only half of the VC firms show a male dominance. Furthermore, women founded and/or led funds would appear more gender-balanced than one founded by men.

4.4 Investments

Finally, a deeper focus is addressed to the investments and the partners. As a starting point has been used the database on the investments which provides information on the funding round (the univocal code and the name), the investor name (the code and name of the investment firm), the partner (the code and the name), the gender (female/male) and type of fund (social/traditional). To this database have been manually added four columns: the first allows to know if the organization has been founded and/or led by women, the second contains the same information but as far as the funds are concerned, the third is about the field of the organization and the last is about the job type of the people. More precisely, the information in the first column has been searched on the Crunchbase website for all the female investors associated with both types of funds. As regards the other columns, they

have been completed through the Excel function “vlookup” taking the information from the database on people, jobs and companies (explained in paragraphs 4.2 and 4.3).

Starting with some general statistics, the table below (Table 20) reports that 65.25% of the investments have been carried out by traditional funds, while 34.75% by social ones. It is important to remind that, for the sake of simplicity, the social funds have been marked as 1 and the traditional ones as 0.

<code>fund_type</code>	Freq.	Percent	Cum.
0	50,925	65.25	65.25
1	27,125	34.75	100.00
Total	78,050	100.00	

Table 20 Investments made by social and traditional funds

Considering also the observations with missing values, the total number of rows is 78,050. Out of 50,925 rows associated with traditional funds, 6,374 (87.39%) are the ones that have a different identification code (“investor_uuid”), therefore, a large portion of the sample is working or worked in the same fund. As regards the social VC firms, on a total of 27,125 funds, the univocal values are only 920 (12.61%).

By focusing on people, the database is composed of 14,631 different individuals, of them, 11,957 are associated with traditional funds (81.72%) and 3,276 with social ones (22.38%). This means that 602 people are working or worked in both traditional and social VC firms. Introducing the gender perspective, 12,894 (88.13%) are male and 1,327 (11.87%) are female, for the remaining rows, the information on gender is not provided. Also in this case, these percentages confirm the previous statement and figure out the gender unbalanced that characterizes the industry.

Moving forward, the women that have invested on behalf of social funds are 394, while the ones on behalf of traditional are 984. Thus, considering the total number of women, 29.69% of female partners is associated, at least once, with social VC firms and 74.15% with traditional; 51 women are working or worked in both the types of funds. As regards the male sample, 10,591 are linked to at least one traditional fund, while 2,852 to at least one social VC firm; in percentage 82.13% are related to traditional funds and 22.12% to social, respectively. Also in this case, 549 men have experience in social and traditional fields. Furthermore, if these computations are carried out regarding the total number of social and

traditional partners, 12.02% of people associated with social funds are women, while the ones related to traditional are only 8.22%. Thus, women invest more than men in organizations related to social themes.

Additionally, it is possible to figure out if the women in social VC firms make more investments than the one in traditional, even if, as previously said, some of them have worked for both types of funds: 46.45% of the women in social funds and 52.33% in traditional have made just one investment, 15.99% in social and 15.65% in traditional two investments, then, 26.90% in social and 25.30% in traditional have made from 3 to 10 investments, 5.07% in social and 3.86% in traditional from 11 to 20 and, finally, 5.59% in social and 2.86% in traditional in more than 20 different investments. Therefore, although the results are not so different, what can be concluded is that the same woman in social funds made more investments than the ones that work in traditional.

As far as the job type is concerned, out of 78,050 rows, there are 4,204 missing values. Although in the database the majority of the people are partners, they are classified into 2,519 different categories and the ones with higher percentages are: “Managing Director” (10.46%), “Managing Partner” (9.37%), “Partner” (16.99%), “Principal” (2.21%), “Venture Partner” (2.42%)”. As regards only the female population, also introducing the type of fund perspective: 2.05% is “Director” of traditional funds, 1.82% is “Founder”, 10.05% is “Founder and Managing Partner”, 5.07% is “General Partner”, 4.45% is “General Partner & Founder”, 10.34% is “Managing Director”, 9.47% is “Managing Partner” and 15.42% “Partner”; concerning the social ones, 4.55% is “COO and Fund Manager”, 3.63% “Co-Founder and Partner”, 2.54% “Founder and Managing Partner”, 14.29% “General Partner”, 7.03% “Managing Director”, 24.68% “Partner”, 2.65% “Senior Partner”, 3.25% “Principal” and 3.68% “Managing Partner”.

Moving forward, considering the univocal values of partner and fund, which means that each partner is identified with a different code each time he/she has worked in a different fund, they are 16,507; thus, being the individuals 14,631 it is obvious that many people have experiences in different funds.

As previously explained in the chapter concerning the VC industry, many successful startups raised capital through rounds of external funding. It is common for a company to begin with a seed round and continue with A, B and then C funding rounds. In the database, the different values of the funding round are 46,565 which univocally identifies the stage of the investment and the company in which the venture capitalists have invested. Although there

are 24 different types of funding rounds 90.69% is composed of Venture Round (13.21%), Seed Round (18.40%), Round A (21.95%), Round B (18.02%), Round C (11.11%), Round D (5.60%), and, finally, Private Equity Round (2.40%). As can be noticed from the percentages, and also according to the theory, the investors in the database have mainly invested in Seed Round, Round A and B. Seed Round is usually between \$500,000 and \$2 million, but it may differ, depending on the company; Round A is typically from \$2 million to \$15 million, Round B between \$7 million and \$10 million, Round C on average of \$26 million and for Round D the amount raised and the valuations vary widely, especially because so few startups reach this stage. Finally, a Private Equity Round is a late-stage and less risky round.

Starting with the gender analysis, the results in terms of percentages do not differ from each other; however, the investment round that shows a small difference is the Seed Round. Indeed, 22.32% of women and 18.07% of men have invested in this round. Contrary to expectations, these results show that a higher percentage of women have invested in a riskier round (Seed Round) than men. In this context, a more detailed analysis can be carried out introducing, besides the gender perspective, also the distinction between social and traditional VC firms (Figure 30 and Figure 31).

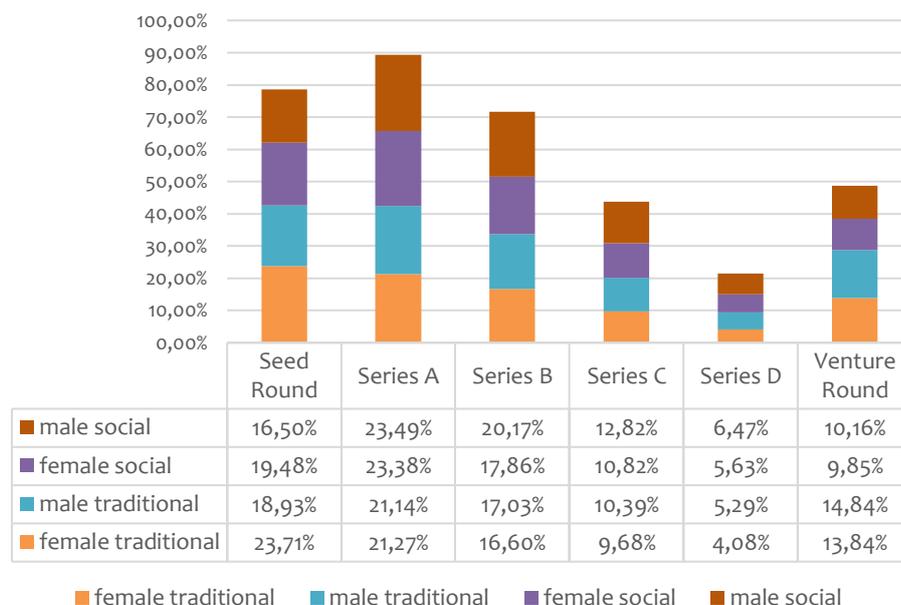


Figure 30 Investment round, type of fund and gender perspectives in %

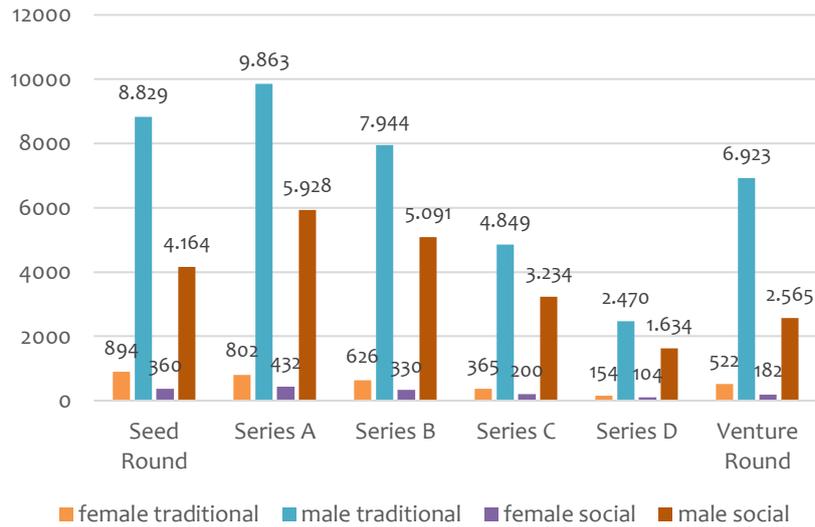


Figure 31 Investment round, type of fund and gender perspectives

As shown in the figures above (Figure 30 and Figure 31) also in these scenarios the percentages do not change; what can be highlighted is that both women and men in traditional funds invest more in Venture Round than those in social funds; instead, while women in social VC firms are more inclined to invest in Series A, Series B, Series C and D than traditional funds, the opposite can be said for men. However, as stated before, these differences are almost negligible.

Furthermore, the database provides also information regarding the organizations in which the funds have invested, in particular, 26,965 different companies have received at least one investment. The information about the field of the organization is derived from the industry specialization of the fund. For this reason, if the fund is considered a miscellaneous one (thus, labeled as “Traditional” or “Social”), the field of the organization is not known. By doing so, the following statistics have been obtained (Table 21 and Table 22):

org_field	Freq.	Percent	Cum.
Agriculture and Food	21	1.71	1.71
Education	61	4.98	6.69
Empower people	61	4.98	11.66
Energy	49	4.00	15.66
Environment	7	0.57	16.23
Healthcare	448	36.54	52.77
Impact-tech	579	47.23	100.00
Total	1,226	100.00	

Table 21 Field of the organization funded by social funds

org_field	Freq.	Percent	Cum.
Agriculture and Food	14	1.03	1.03
Biotechnology and Healthcare	340	25.07	26.11
E-commerce and Retail	59	4.35	30.46
Education	86	6.34	36.80
Energy	18	1.33	38.13
Environment	3	0.22	38.35
Financial Services and Fintech	89	6.56	44.91
Industrial Technology and Manufacturing	33	2.43	47.35
Industrial Technology and Manufacturing	13	0.96	48.30
Information Technology	384	28.32	76.62
Media and Entertainment	317	23.38	100.00
Total	1,356	100.00	

Table 22 Field of the organization funded by traditional funds

These results have been achieved considering a reduced number of organizations and, therefore, could be not entirely accurate. Furthermore, the number of traditional funds is very low because the industry specialization of the fund has been searched only for the funds associated with women (as explained in the Methodology section).

Finally, the last analysis concerns the relation between the organizations and the funds founded and/or led by women. In this regard, it is important to remind that the information on the organizations has been searched only for the female VCs. The wording “NOT” in the table below (Table 23) means that the organization has not been founded and/or led by women.

women_founded_org	Freq.	Percent	Cum.
NOT	2,208	88.85	88.85
women founded	160	6.44	95.29
women founded and led	106	4.27	99.56
women led	11	0.44	100.00
Total	2,485	100.00	

Table 23 Organization founded and/or led by women

As can be seen from the table above (Table 23), the majority of the organizations are not women-founded and/or led; to understand if the female venture capitalists that are working or worked in social funds are more inclined to invest in organizations founded by women than traditional ones, the duplicates in terms of organizations have been reintroduced. Indeed, the same company may have received investments more than once and, at the same time, the same person could have worked in more than one fund. After this operation, the following results have been obtained (Figure 32 and 33):

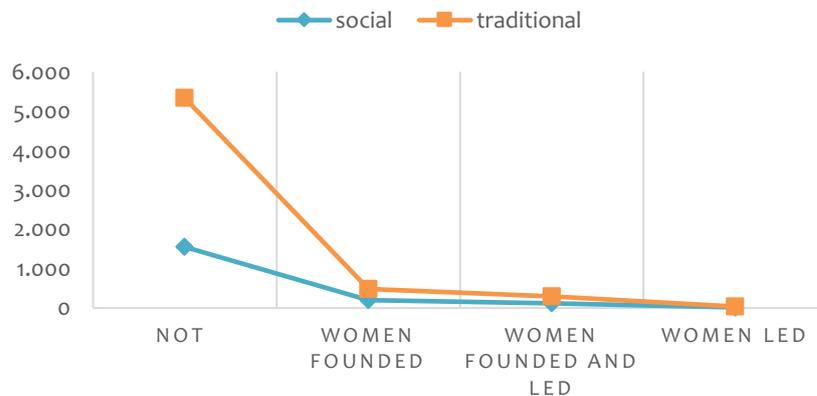


Figure 32 Women founded and/or led organizations funded by social or traditional funds

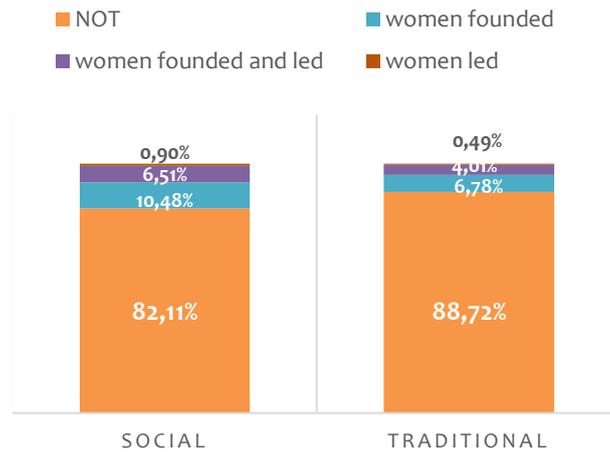


Figure 33 Women founded and/or led organizations funded by social or traditional funds in %

From these outcomes, it appears that women in social funds invest more in organizations founded and/or led by women than the ones in traditional. Indeed, 82.11% of the companies not founded and/or led by women have received funds from female social VCs, while the corresponding percentage of traditional VCs is 88.72%. Therefore, it could be that women tend to found companies that deal with social themes such as sustainability, environment, women empowerment, etc.

Finally, the last statistics show the relation between women founded funds and women founded organizations. To this aim, two new variables called “women_founded_led_funds” and “women_founded_led_org” have been created to include respectively all the funds and all the organizations funded and/or led by women.

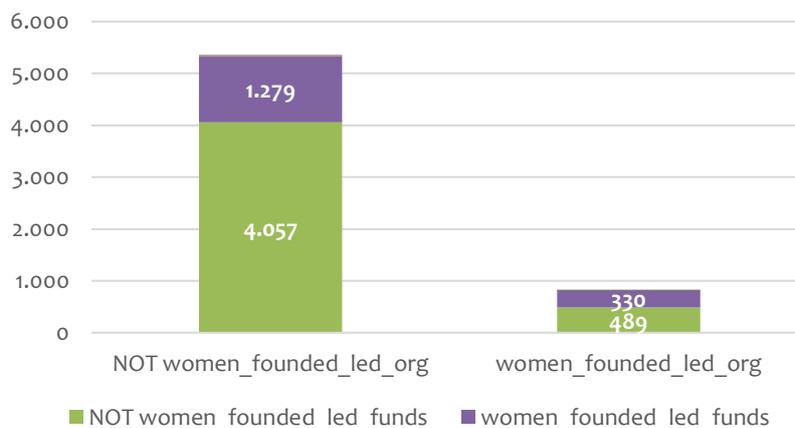


Figure 34 Women-founded and/or led funds and women-founded and/or led organizations

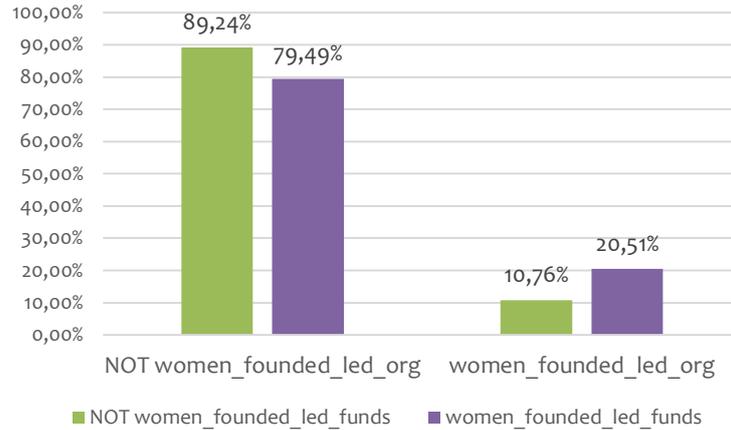


Figure 35 Women-founded and/or led funds and women-founded and/or led organizations in %

As shown in the graphs above (Figure 34 and Figure 35), women founded funds are more likely to invest in women-founded organizations.

To conclude, if the type of fund perspective is introduced, it seems that social women founded funds invest more than traditional in women-founded organizations. However, the latter associated with social funds are 17.89%, while the ones linked to traditional are 11.28%. Thus, 4.40% of the social funds funded by women have invested in female entrepreneurs, while the corresponding percentage for the traditional funds is 2.09%. In the tables below (Tables 24 and Tables 25), 0 means that the “women_founded_led_org” is equal to False, while 1 indicates that the variable is True (the same reasoning applies to the dummy variable “women_founded_led_funds”).

women_founded_led_org	women_founded_led_funds		Total
	0	1	
0	1,162 84.63	389 75.39	1,551 82.11
1	211 15.37	127 24.61	338 17.89
Total	1,373 100.00	516 100.00	1,889 100.00

Table 24 Women-founded and/or led social funds and women-founded and/or led organizations

women_founded_led_organizing	women_founded_led_funds		Total
	0	1	
0	2,893 91.23	890 81.43	3,783 88.72
1	278 8.77	203 18.57	481 11.28
Total	3,171 100.00	1,093 100.00	4,264 100.00

Table 25 Women-founded and/or led traditional funds and women-founded and/or led organizations

4.5 Summary

The results obtained by the descriptive statistics have been summarized in the following paragraph. A brief overview of the funds confirms the gender gap that characterizes this industry and points out how social VC firms have spread in recent years. In this regard, it is important to remind that in the database 90% of the population are men and only 10% are women.

Then, a deeper analysis on the education of each person has been carried out for all the female sample, and subsequently, based on the types of fund and gender perspectives. Overall, most of the women studied in North America (mainly in the US and Canada) and almost a fourth in Europe (mainly in the United Kingdom, France, Sweden, Switzerland and Germany); more than half studied “Management and Business” while the majority of the remaining women has made “Scientific studies” and “Medicine and Pharmacy” and “Literary and Humanistic studies”; additionally, MBA is the most widespread degree. Finally, by clustering the years in which they studied, has been deduced that the female sample age is between 35 and 55 years.

Next, introducing the distinction between social and traditional VC firms, the findings suggest that there is not a huge difference concerning the university; women that studied in Europe turned up to be less likely to work in social funds than those who attended North American universities. As far as the field is concerned, women who made “Literary and Humanistic Studies” appear more willing to work in social funds, as well as those who

studied “International Relations and Political Science” and “Law”. Conversely, the ones that studied “Medicine and Pharmacy” and made “Scientific Studies” are more likely to work in traditional funds. According to the previous results, in both types of VC firms, almost half of the women have an MBA. Moreover, considering the last 20 years, women that are working in social funds are younger than those associated with traditional VC firms.

To conclude the background review, the study has been conducted introducing the gender perspective and considering only the people associated with social funds. What has been found out is that there are no significant differences concerning the university, continent and country. However, a slightly lower percentage in terms of gender has been obtained for the women who studied in Asia. Additionally, more men studied “Engineering” and “Scientific studies” than women, while the latter are more likely to study “Management and Business” and “Medicine and Pharmacy”. Finally, women seem more schooled than men, indeed in percentage, the former has more PhDs than men, while the latter more bachelors.

Subsequently, the focus of the thesis has moved to the people and their jobs. Considering both the current and the featured jobs, more women are working in social funds than men. In the last nine years, the number of females that has started a job in this industry increased more than those of men; however, through a more accurate analysis has been concluded that it is true that the number of women venture capitalists has risen, but it is also true that the same woman made more experiences in different funds than men. Additionally, these outcomes point out that men have made a career more quickly than women.

Then, the object of the study shifted to the female sample and the type of fund perspective. Based on this research, in the last nine years, the venture capitalists that have begun to work in social funds is higher than the one related to traditional firms. Furthermore, women in social funds cover higher positions than the ones in traditional; indeed, the percentage of female general partners is more than twice the one in traditional VC firms and, generally speaking, more women have executive or advisor roles; on the other hand, in the traditional funds the percentage of women in the positions of employee and board member are higher. Finally, although the women that currently have an executive role in a social and traditional fund have gone up compared to the past, the difference in percentage is higher for social VC firms.

Next, the analysis has been addressed to the funds. In this regard, it has been found out that women are more likely than men to work in VC firms whose industry specialization is in

“Education”, “Empower people”, “Energy” and “Environment”. Conversely, more men than women are associated with “Agriculture and Food” and “Impact-tech” industries. These results have been obtained only as far as social funds are concerned. For traditional VC firms, the research has been conducted considering the female sample. Then, comparing the results with the previous ones, the findings suggest that traditional funds are investing more than social in “Healthcare” and “Technology”, while the latter are funding more companies focused on “Education” and “Energy”.

As concerns the geographical position of the VC firms, results do not present significant differences in terms of social and traditional funds. The percentage with a higher number of funds is the USA. Additionally, analyzing only the female sample and introducing the type of fund perspective, although the difference in terms of geographical position is minimal, the results mirror the ones obtained in the paragraph “Women background in social and traditional funds”.

Then, deeper research has been carried out considering only the partners to understand if social impact funds are more open to a female management team than traditional ones. The findings point out that the VC industry is still dominated by men and social impact funds seem to be slightly more open to a female presence in the management team.

Finally, the last outcome concerning the funds shows a positive relationship between female presence and women founded fund. Women have founded more social funds than traditional and, when there is at least one female founder, only half of the VC firms shows a male dominance. On the contrary, in almost the totality of the funds founded and/or led by men most of the partners are male. Additionally, women founded and/or led funds are more gender-balanced than the ones founded by men.

The last part of the thesis is focalized on the investments. The main findings suggest that women invest more than men in organizations related to social impact and, although the results are not so different, the same woman in social funds made more investments than the one in traditional. As far as the investment rounds are concerned, a higher percentage of women have invested in a riskier round (Seed Round) than men. However, the gap in terms of gender and type of funds is almost negligible. To conclude, women founded funds are more likely to invest in women found organizations and, specifically, female venture capitalists that are working in social funds invest more than traditional in female entrepreneurs.

5. DISCUSSION AND CONCLUSION

5.1 Discussion

In this section are discussed the findings concerning the issues arisen from the literature review and the previous research.

The systematic review of the literature related to gender diversity and gender gap within venture capital investment has been used to understand how these biases are present and where they come from. What has been found out is that the current situation derives from men's historical ongoing dominance in a power position and from regulatory, normative, and cognitive institutions that have a gender dimension. Additionally, the expectations of men's and women's professional roles have also influenced the idea about which types of occupations are more appropriate for men and which ones for women. Venture capital is a very male-dominated industry and, although in several countries women have equal rights and can access the same level of education as men, they still have to show themselves to be 'twice as good' as their male counterparts.

According to these statements, through this thesis has been found out that to make a career in the venture capital industry, women need more time and they have to study more than men. First of all, it is important to remind that in the database 90% of the population are men and only 10% are women; thus, these numbers already confirm the existing gender unbalanced that characterizes this industry. Then, starting from the education, the descriptive statistics show that on average women seem more schooled than men. On this point the percentage of women with a Ph.D. is twice one of the men and, consequently, the women that just have a bachelor's degree are less than the men (respectively 23.69% and 35.41%). In addition, the results show that the percentage of men who studied "Engineering" and "Scientific Studies" is double one of women which instead is higher in "Management and Business" and "Medicine and Pharmacy" fields. Thus, the outcomes confirm the previous research based on the idea that scientific and engineering subjects are still considered more masculine studies. As previously said, from the analysis at issue it appeared that men have made a career more quickly than women. Indeed, the percentage of men that currently have

an executive position is higher compared to the past; the same can be said for women but the growth is slower. Furthermore, the percentage of women in the database with an employee role is higher than the one of men. According to a study conducted by LeanIn Org and Mc Kinsey, the main causes of this discrepancy of gender are that women, compared to their male counterparts, have less access to information and constructive criticism, fewer opportunities for professional growth and, finally, that gender is still a negative element for career purposes.

Back to the literature, the number of women both involved in venture capital firms and as recipients of venture capital funding is low. A lack of female-founded and/or led funds is one of many reasons why the funding gap for women continues to be wide. However, despite the significant gender unbalanced, several female-led venture capital funds are helping to bridge the gap. As stated in the literature section, a study conducted by Crunchbase shows that, in 2014 and 2015, the number of female partners in the firm increases when there is a female co-founder. Additionally, there has been an explosive growth of women-led funds up 15x in the last decade. In that direction are also the outcomes that have been obtained from this research. Indeed, the descriptive statistics reveal a positive relationship between the female presence in the management team and women founded funds. When the funds are not female-founded and/or led, male partners prevail in almost the totality of the funds: a male majority has been found in more than 80% of the funds in which there is at least one female partner, whereas a female majority occurs only in less than 7% of the funds. In contrast, when there is at least one female founder, only 50% of the VC firms show a male dominance and the gender gap is lower. Furthermore, this positive relationship between female presence in the management team and women founded funds is also shown from the analysis conducted through the social funds. In this regard, the percentage of social funds founded by women doubled if are only considered those funds which for sure have at least one woman, besides the founder. Additionally, what has been found out from a research conducted by “Women in VC” is that there is more diversity in women-led funds and women partners than anywhere else in the industry. Indeed, 33% of all female founding partners are non-white (with respect to 21% of all VC partners in the US).

According to the literature review, there is clear evidence that women entrepreneurs’ participation and access to resources are different from those of men and that women face more difficulties to raise start-up capital. Research by BCG and MassChallenge pointed out that companies founded or co-founded by women receive on average 935,000\$ in

investments, which is less than half of the average (\$ 2.1 million) received by male entrepreneurs. As already explained, network studies show that people associate with others like themselves and, therefore, if a limited number of women have a partner role in the venture capital industry, women entrepreneurs have less access to capital opportunities. Furthermore, according to Harvard Business Review, male investment is characterized by a preference for businesses run by teams of male founders, while venture capital firms with female partners have more than twice as the chance to invest in women-led businesses (Harvard Business Review, 2019). On this matter, what has been found out in this thesis confirm that women-founded funds are more likely to invest in women-founded organizations. Indeed, the descriptive statistics show that the percentage of female-founded funds that invest in women entrepreneurs is twice that of the men founded and/or led funds. However, it important to bear in mind that 11% of the organizations are women-founded and 15% of the funds considered are female-founded. This analysis, as previously specified, is carried out considering the funds in which there is at least one female investor, thus, taking into account the entire population the percentages could be even lower. Therefore, what can be concluded is that any investment carried out by women founded and/or led funds stands to have a significantly amplified impact on female founders downstream. Indeed, one of the most effective actions to address the wide inequality of this industry is to enable more female funders to make investment decisions and, consequently, female founders to raise funding. Finally, these outcomes can be considered also in line with the ones got by a recent report of All Raise: female funders are two times more likely to invest in start-ups with one female founder, and more than three times more likely to invest in a female CEO.

To conclude, as pointed out several times in this thesis, impact investing is a trend that has spread over the last years also thanks to institutions such as the Global Impact Investing Network or the European Investment Fund (EIF) that are allocating resources in this direction. According to a study conducted by Deloitte (2018), “39% of millennials think that one of the main objectives of business should be to improve society and 33% feel that businesses should aim to protect the environment, while only 24% responded that generating profits should be the main goal”. Additionally, although the growth is largely in interest rather than action, VanderBrug, Managing Director at the Bank of America stated that “Women and millennials are moving from leading in interest to leading in action”. Thus, women and younger investors, besides being more interested in socially responsible and impact investing, have a crucial role in accelerating the development of this ecosystem.

In this regard, what comes out from this research confirms that women are more interested in social than men. A first analysis shows that the percentage of female venture capitalists that are working in social funds is higher than the male one (36.13% vs 28.35%). Additionally, these outcomes can be further verified considering only the featured job of each person. Also in this scenario results are in line with the previous statement. (32.48% vs 25.48%). Furthermore, women are more likely to found social funds than traditional ones. Thus, what could be inferred is that, on average, women show more sensitivity and awareness of these issues than men. These reasonings not only apply for the funds but also for the start-ups and organizations founded by women. Additionally, according to the previous statement, younger investors are more interested in impact investing than older ones. On this point, analyzing the descriptive statistics can be concluded: firstly, that the number of women that has started working in social funds is higher than the one related to traditional only in the last nine years; secondly, that in the last 20 years, women that are working in social funds are younger than the ones in traditional VC firms. Concerning the first proposition, 58% of the female population has started working in social funds from 2011 to 2020, while only 50% of the women associated with traditional funds have begun their job in this time frame. Instead, as far as the second assertion is concerned, it is derived from an accurate analysis of the education. Indeed, based on the years in which the female VCs have conducted their studies, it appears that more than 60% of the female sample who are working or worked in a social fund and about 50% of the same sample associated with traditional funds have studied from 2001 to 2020.

To conclude, according to Chen & Harrison (2019), this willingness towards social funds is demonstrated also on ImpactAsset 50 where 33% of the funds are led by a female and 41% of the senior management team is made up of women.

5.2 Implications and Recommendations

These findings are important because having more women in leadership positions has been demonstrated to have a positive impact on organizations and the economy (Kanze et al., 2018). Kanze et al. (2018) found that having more women in top management leads to “improved firm profitability metrics, managerial task performance, chance of survival, and various stakeholder wealth measures” (Kanze et al., 2018, p. 5). Similarly, Criado Perez (2019) found that women can often be more effective leaders than men, and that diversity in

leadership leads to greater firm performance. Beyond that, senior-level women have a vast and meaningful impact on the company's culture. They are more likely than senior-level men to approve employee-friendly policies and programs and to support racial and gender diversity. More than 50% of senior-level women state they constantly take a public position for gender and racial equity at work, compared with about 40% of senior-level men. Finally, women are more likely to mentor and sponsor other women: 38% of senior-level women currently mentor or sponsor one or more women of color, compared with only 23% of senior-level men. (Women in the Workplace 2020).

Based on previous researches and through this thesis, there are a few actions that could help to make progress on gender diversity. Firstly, it is important to make investors aware of the gender gap and help them realize that investing more in women is good also for the business. It would be useful that the people making hiring decisions understand the importance and benefits of diversity. Furthermore, it would be beneficial to make the processes of hiring more transparent, so that people understand their biases and avoid unintended ones, and to ensure fair promotions. Indeed, as already pointed out many times, also according to a study conducted by McKinsey, for every 100 men promoted to manager only 79 women are promoted for the same position. Additionally, foster an inclusive and respectful culture and make senior leaders and managers champions of diversity are crucial points to enable greater opportunity for women. However, besides the culture and the mindset, it is important to develop concrete policies in this direction. Globally, women's presence and participation in politics are still extremely limited, but this issue goes beyond the focus of this thesis. Simultaneously, also training courses based on the acquisition of new skills are extremely important. In this regard, an example of an education program for women-led funds in the VC industry is Oper8r which provides class education, mentorship, and exposure to top institutional LPs. The program is specifically focused on emerging managers, giving them the tools and training to stand up for an institutional firm. Not less important is to promote content syndication and events to elevate women's voices and shared mission, promoting and co-hosting events for female founders.

Finally, in socially responsible investing a wide range of investors and asset managers have started focalizing their attention on gender diversity, particularly in senior management positions and on boards of directors. Since gender diversity can be considered a key criterion for investors and asset managers who want to heighten their performance against ESG

metrics, promoting the development of more social funds could help to narrow the gender gap across the financial services sector.

5.3 Limitations and Future Research

As with any research, this thesis has limitations. For the systematic review of the literature, it would have been useful to explore more books and articles than those that have been used. Nevertheless, being a relatively new topic, it was difficult to find further notions on the issue. Most of the literature was written in English and contained data for developed countries; however, it may have been useful to explore venture capital funds and gender in developing countries as well. Since the focus of the study was on venture capital investment, for future research it would be interesting to look at other forms of entrepreneurship funding, and how they are affected by the gender gap and impact investing.

In any case, the main limitation of the analysis derives from the database. Indeed, although it has been enriched with many information manually searched on Crunchbase and the website of the fund, the lack of data regarding different aspects such as the financial return or the composition of the management team has partly restricted the analysis. Additionally, many information, due to the huge dimension of the database, has been collected only for the female sample or for social funds. Thus, to make further analysis it would be suitable to collect the data for the entire population. Additionally, although the initial database contains data at a global level, almost the totality is USA funds. Furthermore, it would be worthwhile to find more data on different aspects such as the gender pay gap, or the increased fund returns and exits in that VC firms with a higher number of female partners. These studies could be conducted always maintaining the distinction between social and traditional funds.

Finally, although this thesis addresses only gender diversity, there are many other areas of diversity, such as ethnicity, age, sexual orientation, etc. which are also important, and are likely impacted by biases and stereotypes. Therefore, it would be useful to explore different types of diversity and determine if other groups are underrepresented in this industry and which is their attitude towards impact investing.

5.3.1 Survey

In parallel to the work carried out on the database, it has been thought to a survey that could be used for future research. Surveys have become a tool largely used in the literature, in fact,

through the questionnaire, it may be possible to enrich this study with information that is not publicly available. To understand how to structure it, some previous examples of surveys have been analyzed. In this regard, the questions must cover all the relevant aspects, but at the same time, the larger the size, the lower will be the response rate. Concerning the content of the survey, it has been designated to solve the main issues and contrasting views arisen from previous researches. The first part may ask venture capitalists' personal data, such as their qualifications and their working experience. Then, the questionnaire could be divided into two different parts: if the woman works in a social impact fund or if she works in a traditional venture capital fund. Both parts could present a first section with specialization questions such as the stage, the industry specialization, the geographical position, the focus and the IRR of the fund; then, further questions on the management team composition and the gender gap could be useful to confirm the outcomes obtained from this thesis and to find out further aspects that are still unexplored to a large degree. Some questions could concern their attitude to work with other women inside the fund, their willingness to take a partner role in their career or the wage gap with their male colleagues in the same position.

To this aim, for a possible future survey, has been already created a database reporting the emails of the women associated both with social and traditional funds.

5.3.2 Preliminary regression with a Probit model

It would be valuable for future research to carry out some regression analyses to model and analyze different variables. In this direction, beyond the descriptive statistics, a preliminary regression analysis has been carried out. The hypotheses that have been tested through a Probit model are the following: women founded funds are more likely to invest in women-founded organizations and social funds are more open to a female management team than traditional. The Probit model is a non-linear regression model designed for binary dependent variables and used to study the probability to observe a certain attribute or that a certain event occurs. The variable assumes the value of 1 if the event occurs, of 0 if it does not.

To test the hypothesis that women-founded funds are more likely to invest in women-founded organizations has been created a dependent dummy variable equal to 1 if the company is woman founded and to 0 otherwise. This variable is in function of another dummy variable that establishes if the fund is female-founded and/or led. Then, a series of controls at the company and fund level has been added. More precisely, the following categorical variables have been transformed into dummies: the continent of the fund, the field in which the organization operates and the investment round. For example, as far as the

continent of the fund is concerned, the dummy variable “Africa” is equal to 1 if the fund is based in Africa, equal to 0 otherwise; the same reasoning has been applied for the funds in Asia, North America, Europe, Sud America, Central America and Oceania. As regards the field in which the company operates the following binary variables have been created: “Impact-tech”, “Energy”, “Agriculture and Food”, “Biotechnology and Healthcare”, “E-commerce and Retail”, “Education”, “Empower People”, “Environment”, “Financial Services and Fintech”, “Industrial Technology”, “Women’s” and “Information Technology”. Finally, for the investment rounds, the dummy variables are “Seed Round”, “Series A”, “Pre-Seed”, “Series B”, “Series C”, “Series D” and “Venture Round”. After having described and modified the variables for the regression, it is possible to proceed with the estimation of the model. The number of observations is very small compared to the entire sample because this information was sought only for the funds associated with a woman in the database. From this very preliminary analysis, it is possible to express a judgment on the adaptation of the model with respect to the dependent variable. Firstly, the pseudo-R2 equal to 0.1073 does not have a very high value, and therefore the model may not be perfectly capable of explaining the dependent variable. To understand how the probability of women founded organization varies, it is essential the interpretation of the coefficient. To this aim, the marginal effects have been computed through the appropriate Stata command. Based on the signs and the significance of the estimated coefficients of the explanatory variables, it can be concluded how the probability at issue varies. If the dummy variables take the value of 1, the positive or negative sign defines the increase or decrease of the probability of having an organization founded by women, with all the other conditions preserved. In this regard, if the fund is women founded the probability that it invests in a women-founded organization increases, thus the positive relationship between women founded funds and women founded organizations is confirmed with a p-value of 0.099; additionally, from this preliminary model, it may seem that further analysis should be carried out on the investment round which results particularly significant. As regards the continent, if the funds are in Asia and Europe the probability that they invest in women-founded organizations goes down, while the opposite can be stated for the VC firms based in North America. Finally, the probability of having an organization founded by women decreases if the field of the company is “Agriculture and Food”, “Financial Services and Fintech” or “Industrial Technology”.

As far as the second hypothesis is concerned (social funds are more open to a female management team than traditional), has been created a Probit model with a dummy

dependent variable equal to 1 if the company is woman founded and to 0 otherwise. This variable is in function of another dummy that expresses if the fund is social or not. As control variables have been used the fund's continent, the industry specialization and the gender prevalence of the partners in the fund. Then, all these categorical variables have been transformed into binary ones; as regards the gender prevalence, the following variables have been created: "gender-balanced", which assumes the value of 1 if the number of male partners is equal to the number of female ones and of 0 otherwise; "female majority" that is equal to 1 if the number of female partners is higher than the number of male ones and "male majority" if the opposite occurs. However, this information has been sought only for those funds associated with a female partner. Also in this case, from a very preliminary analysis, the pseudo-R², equal to 0.2069, does not have a very high value, and, thus, the model may not be perfectly capable of explaining the dependent variable. Moreover, also the explicative variables do not appear particularly significant. However, analyzing the signs of the coefficients of the explanatory variables, the probability of having a fund founded by women increases if it is a social impact fund. Therefore, this result is in line with descriptive statistics. Additionally, being positive the sign of the variables "female majority" and "gender-balanced", when they are equal to 1, the probability of having a woman-founded fund increases. Contrary, the probability decreases if there is a partner's male majority and if the number of total partners increases. Furthermore, since the variables related to the continent and the industry specialization of the fund do not appear significant at a level of 5%, they cannot help to explain the dependent variable. Therefore, in the future, it could make more sense to find other variables that may better demonstrate this hypothesis through a regression model.

Again, it is important to remind that this is just a very preliminary study that could be used as a basis for model refining and evolution.

5.4 Conclusion

The purpose of this work was to gain a better understanding of the current role of women, of gender biases and stereotypes in the area of venture capital investments by focusing on the existing differences between traditional and social funds. More and more investors recognize that making money and making a positive impact on the world doesn't have to be mutually exclusive. In this regard, women seem to have a more socially responsible

mindset than men. The study at issue has been carried out starting from a theoretical part on the VC industry and a literature review of academic research on the top management team and the gender gap in finance. Then, an existing database extrapolated from Crunchbase has been enriched with information of different nature to carry out the descriptive statistics.

The results obtained by the analysis have highlighted the gender unbalanced that characterizes VC funds. The findings have also pointed out how social VC firms have been growing at an extremely lively pace in recent years, reaching 16% of the total number of VC firms. Overall, it has been concluded that, in percentage terms, more women than men have at least one experience in social funds and that the latter appear slightly more open to a female management team than traditional ones. Additionally, it was established a positive relationship between the female presence in the management team and women founded funds, but also between women founded funds and the investments in women-founded organizations.

To conclude, in the first place, this study addressed and mainly confirmed the most prominent issues arisen from the literature. However, the majority of past academic research generically examined gender differences in the workplace. On the other hand, this thesis focused on the importance of investigating gender roles extrapolating the main differences in social and traditional funds. Therefore, the study at issue presents innovative insights into the venture capital industry. As to my knowledge, this is the first research that highlights the differences in terms of social and traditional VC firms and, for that reason, it could be used as a reference for future research into this area.

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