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The Impact of Covid-19 on Venture Capital Industry

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Abstract

Evaluation of the impact of Covid-19 on the Venture Capital industry, with a particular focus on the impact the pandemic has had on investment practices. In the thesis the literature prior to Covid-19 is explored: the history of the development of venture capital is retraced, and the best practices used today are described. Through the sending of a questionnaire and through the analysis of the results, in this paper we try to compare the results obtained with the results of the literature. The experimental results are analyzed from a qualitative and quantitative point of view, in particular an attempt was made, where possible, to propose to the reader some causes that could explain the results obtained

The Venture Capital

Since the Second World War, a new actor has participated in U.S. economic development, establishing itself as a financial intermediary for those companies that are struggling to find sufficient economic financing to support their growth, as they are small entities, where uncertainty about the future is high, and where, by its nature, there is a large gap between the knowledge of the entrepreneur and the investor.

The venture capital industry has evolved by adapting to the different needs and problems that a start-up must face in its growth path, which generally change at each stage of the investment process. Specifically, the VC undertakes to finance intrinsically very risky projects, buying equity or equity-linked contracts, becoming a partner but not the owner of the business.

The Origin

American Research and Development (ARD), founded in 1946 by MIT President Karl Compton, Harvard professor General Georges F. Doriot, and local business leaders, was the first company to use investment techniques, capital management, organizational structure and to have a business approach very similar to what would become the venture capital industry at the end of the twentieth century: for these reasons ARD is widely recognized in the academic world as the first venture capital in history, in the current sense of the term. In fact, this small group made high-risk investments in start-up enterprises that were trying to commercialize the technology created during WWII.

We note that there is a close similarity between the pattern of the company's returns and that of the current Venture Capital: in fact, in 26 years of activity of the ARD almost half of the profit derives from a single investment of $70k made in 1957 in DEC (Digital Equipment Company), as the company hit a valuation of $355M a few years later. The ARD was structured as a closed-end fund, whose investors could buy and sell individual shares of the company itself on an exchange. The organizational structure of the capital offered to the company the possibility of investing in illiquid assets, since the system guaranteed a certain and known time frame within which to remunerate investors. All classes of investors were allowed by the Security and Exchange Commission regulation to invest in these shares, given the liquidity of the investment from the perspective of the investor himself, who could trade his shares at any time. As emerges in Liles (1977), individual investors were the most attracted by this business model, while it was considered too risky by institutional investors

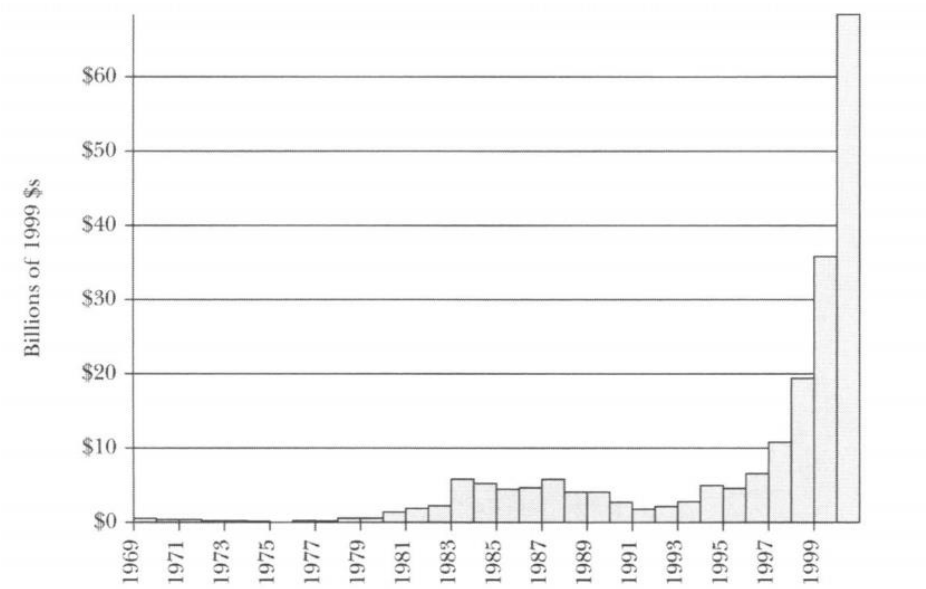
In 1958, Draper, Gaither and Anderson was the first Venture Capital to be structured as a limited partnership. This was a legal form widely used in the post-war period, especially for the development of real estate projects, in which the assets and investors' returns manifested themselves at a certain time, foreseen by the partnership. Unlike closed-end funds, whose life was assumed to be indefinite, within this legal structure, the investor was offered the possibility of investing in the same companies in which the venture capitalists owned their own shares, consequently giving the possibility to choose when and where to realize the capital gain. In the following two decades, we find the gradual establishment of the limited partnership.

Noone and Rubel (1970) describe the introduction of the SBIC program, part of the federal program for the development of the Venture Capital industry, which aimed to counter the

technological development underway in the USSR during the space race. They noted how the excessive number of constraints necessary to obtain generous marching funds or guaranteed loans, discouraged established players, but allowed the birth of new ones, which, however, largely collapsed during the 60s and 70s, often due to fraudulent incidents.

Commitments to Venture Capital Industry increased rapidly in the late 1970s and in the early part of the following decade. Part of this success is due to the interpretation that the U.S. Department of Labor made, in 1979, of its “prudent man” rule, explicitly allowing pension funds to invest in venture capital. In this way, from the day when the interpretation of the "prudent man" rule was clarified, pension funds went from representing 15% of the funds invested to more than half of the total in the 8 years.

Figure 1. Commitments to the Venture Capital Industry (billions of 1999 dollars)



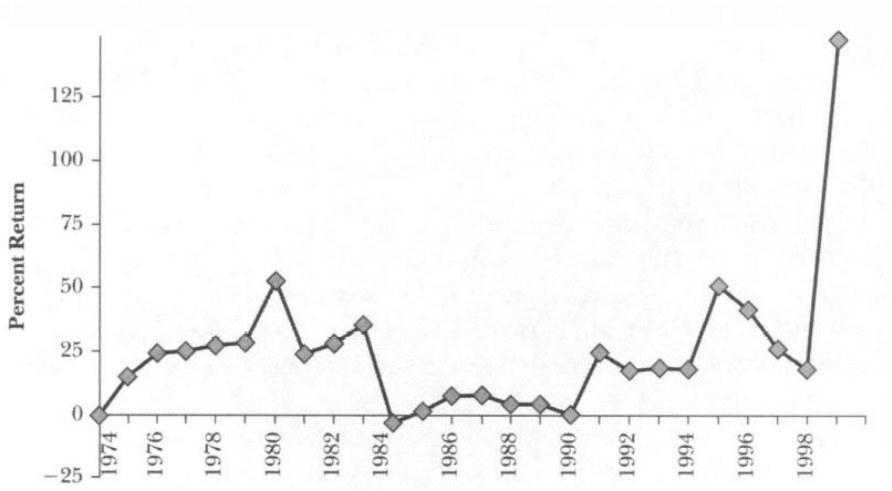
Source: Venture Economics and Asset Alternatives.

Note: Commitments are defined as the amount of money that is committed to US venture capital funds in that year.

From the end of the 60s to the end of the 90s, there was a progressive shift in investments towards the Information Technology Industry, to which almost 60% of investments were destined in 1999, in the same year about 10% was destined to life sciences and medical companies. Many of the successful companies in the High Tech and service industry between the 1980s and 1990s, including Apple Computer, Microsoft, Cisco Systems and Starbucks, were funded by venture capitalists. From a geographical point of view, California is the center of gravity of the new industry, towards which more than a third of the invested capital is

directed, just under a third that destined for Massachusetts, Texas, New York, New Jersey, Colorado, and Pennsylvania and Illinois, combined.

Figure 2. Commitments to the Venture Capital Industry (billions of 1999 dollars)



Note: Returns are net of fees and profit-sharing.

Source: Compiled from Venture Economics data.

In light of the graph, proposed above, we can interpret the trend over time of the commitments to the Venture Capital Industry. In fact, in the first part of the 80s, we can see how the commitments to VC increased by 10 times, going through a momentary decline between 1987 and 1991. The second graph shows how the average return for investors was drastically reduced, according to the interpretation of Gompers and Lerner (2001), this is due to the excessive investment of capital in some industries and to the new players in the business, who, attracted by the high returns of the previous years, proved to be inexperienced. Sahlman and Stevenson (1987) in analyzing the problems of investments in the high-tech sector in the 1980s, use the phrase "too much money chasing too few deals", a phrase that will come used several times in the literature to outline those periods characterized by strong economic growth and strong optimism about the future.

In the last decade of the last century, we are seeing a dramatic increase in the capital invested in VC activities, specifically the literature agrees to attribute this increase to the increase in the average return of the whole industry, this was largely due to the increase in the number of successful IPOs in the market: this instrument, increasingly used in the Anglo-Saxon world, ensured venture capitalists a more profitable exit. In the last decade of the 20th century, the

increase in capital commitment has been in the order of 20 times, most of which fueled by pension funds, private companies and public agencies. In this period, we are witnessing a diversification of the sources of invested capital: the practice of corporates of investing in Venture Capital, whether independent or in corporate venture capital, originates in this period.

This diversification of the investment strategy by the corporate world is accompanied by the push, that has gone through the entire private sector of big companies, in rethinking and restructuring the innovative process, in an attempt to find alternative solutions to the centralization of the R&D process in internal laboratories and departments. Given the successful examples of start-ups born in the 90s with the support of a venture capital, on all eBay and Yahoo !, despite the fewer skills and less availability of money, these small companies managed to anticipate and steal the market from more established companies. This prompted the big corporates to re-interpret the innovative process in a broad sense, finding a possible solution to the problem in the Venture Capital industry.

The literature agrees to affirm that the development of Venture Capital in the 90s is also due to the emergence of new technologies. The main one was the Internet, and its applications. In fact, the most diverse industries tried to interpret and apply these new technologies by challenging the traditional practices of the industry of origin, in order to gain a competitive advantage over their competitors. Since the skills related to these new technologies, perhaps far from the company's expertise, the venture capital industry appeared to them as an enabler of the development of these new technologies, becoming itself a source of competitive advantage. Thus, at the turn of the new millennium, a thriving and proactive ecosystem between big companies and the venture capital world was created, which took shape through the signing of partnerships and joint-ventures for new products and services with a high technological content.

Figure 3. Commitments to the Venture Capital Industry (billions of 1999 dollars)

	1979	*1983*	*1987*	*1991*	*1995*	*1999*[a]
First closing of funds						
Number of funds	27	147	112	34	84	204
Size (billions of 1999 $)	.53	6.01	5.93	1.69	4.60	37.46
Sources of funds						
Private pension funds	31%	26%	27%	25%	38%	9%
Public pension funds	[b]	5%	12%	17%	[b]	9%
Corporations	17%	12%	10%	4%	2%	16%
Individuals	23%	21%	12%	12%	17%	19%
Endowments	10%	8%	10%	24%	22%	15%
Insurance companies/banks	4%	12%	15%	6%	18%	11%
Foreign investors/other	15%	16%	14%	12%	3%	22%
Independent venture partnerships as a share of the total venture pool[c]		68%	78%	80%		

a: In 2000, there were 228 funds raised with total committed capital of $67.7B.

b: Public pension funds are included with private pension funds in these years.

C: It is not available for 1979 and after 1994.

Source: Lerner and Gompers (2000), compiled from the unpublished Venture Economics funds database and various issues of the Venture Capital Journal.

The increase in the average returns of the industry made this new type of investment very attractive for individual investors willing to invest some savings. Thus, although the dominant organizational structure of venture capital still remained that of limited partnerships, we are witnessing a new affirmation of publicly traded venture funds, which allowed small and single investors to participate in the investment, traditionally inaccessible to this class. Mason and Harrison (2000) investigated the reaction of the venture capital industry to the internet bubble in the 90s: the tendency was to fund more mature companies with the objective of lowering the overall risks, investing in safer options given the condition of uncertainty that crossed the market.

Venture Capital Activities

Let us now delve into the current state of academic research on the Venture Capital industry. To better approach this analysis, it is necessary to introduce the concept of the "venture cycle". The activities carried out by a venture capital are in practice cyclical: each venture capital opens its own cycle of activity by collecting the funds to invest and manage from investors; and ends them by giving them back the investment and a return. The activities of venture capitalists who are placed between these two extremes constitute all the added value of the business: Investment screenings and selection, negotiation of the incentives and of the legal agreements, monitoring, assisting the management team and find the exit are the most common functions of venture capital. This type of firm typically is looking to invest in companies which show a hidden outstanding potential with a steep growth curve, the aim of the venture capital is to help the portfolio companies to scale-up, giving a valuable support in terms of strategic decisions, product development, marketing and production (Smith, 2001). Puri and Zarutskie (2010) underline how much scalability and the dimension of the potential market are important factors used by venture capitalists in the screening phase, while profitability is not. A statistic that makes it possible to evaluate the extent of the intervention of venture capitals in company policy is the higher CEOs turnover rate: they use their experience, personal network and reputation to advise the CEO and the top management, especially in employees' selection and in suppliers and customers relationship. This mechanism gains effectiveness thanks to the implementation of the staged capital infusion, in which Venture Capital investment decisions are matched by the most recent information.

Fundraising

The graph (figure 2), previously shown, highlight how the invested capital is very variable from year to year, the academic research has therefore concentrated on researching the causes of this variability. The following paragraph shows the main causes that influence the commitment of venture capital.

Poterba (1987, 1989) underlines the correlation between the capital gains tax rate and the availability of resources dedicated to this class of investments. Indeed, although traditional industry investors are exempt from this taxation, Gompers and Lerner (1998b) conclude that a decrease in surplus-value taxation has a strong effect on the number of venture capitalists in which these investors put their money, even if they are not directly affected by taxation. In

fact, the scholars, cited above, note how the decrease in taxation generates a promoting effect of entrepreneurial activities, encouraging employees to take the path of entrepreneurship, increasing the demand for venture capital.

Black and Gilson (1998) identify in the state of health of the market and in its growth prospects, the prerequisite for facilitating companies to go public, thus effectively increasing the average return of venture capital, attracting new investors. Porter (1992) and Jensen (1993) underline how the success of this form of investment lies in the organizational advantage of the limited partnership: venture capitalists are required to manage relationships with a drastically fewer number of investors, as opposed to a model that has established for large publicly traded companies in the Anglo-Saxon world.

Venture Investing

The investment model of venture capital is based on the acceptance and calculation of the risk taken in the investment. As the typical targets of these investments are young start-ups, the risks supported by investors are primarily linked to the uncertainty surrounding the company's performance in the near future, in fact there is no historical data of the company and, in some cases, of the market itself. Thus, forecasts on business growth and developments become more complicated. Secondly, given the surrounding situation, the problem of information asymmetry strongly emerges, especially in industries with a high technological content, where intangible assets are prevalent and where the calculation and interpretation of company performance itself are complex. Grossman and Hart (1986), and Hart and Moore (1998) highlight how the impossibility of predicting all possible future scenarios and the difficulty in ascertaining the correct use of the invested funds makes it less likely the possibility of reaching an agreement between the parties, also given the difficulty in reaching a legal contract shared by both. As anticipated, the above-described risks appear particularly difficult to limit companies whose success is largely dependent on the technology of the product or service.

Another crucial node in the relationship between investor and entrepreneur is the management of situations in which the private interest of the entrepreneur exceeds the interest of the shareholders. Start-ups, by their very nature, tend to prefer high-risk and high-return strategies, as they fully benefit from the success of their business and are able to limit the effects of failure. Venture capitalists implement a series of practices and strategies to bridge this gap as much as possible. The monitoring activity includes: participation of some venture capitalists in the board of directors of the target company, syndicating investments, formal

and informal meetings with representatives of the target company, auditing and ad hoc compensation schemes which often include a payment of executives in shares of the start-up itself. Sahlman (1990) stresses that the most effective control practice is that of staged capital infusion, limiting the negative effects of the entrepreneur's actions through an increase in the frequency of investments, and therefore the frequency of start-up evaluations of its accounts and its business plan execution. As the company matures, these conflicts tend to fade, as the objectives of the two parties converge on an exit favorable to both. Gompers (1995) highlights that the added value brought by venture capitalists largely lies in the selection and monitoring of the investments made, and he underlines how this added value is considerably higher in an embryonic or early-stage company stage, where the information asymmetry is greater. In accordance with the above considerations, it appears that the amount of money invested in the company increases with the size of the company, both because the need for capital increases during its life-cycle, and because the number of rounds decreases with the establishing of the start-up itself, when tangible assets tend to become more consistent. Lerner (1994) states that with the emergence of the venture capital industry itself, the trend towards consolidation of the whole industry passes through syndicating investments practice, allowing venture capitalists to invest in more entities, with the same total investment, diversifying de facto the specific risk linked to the single round.

The intervention of venture capitalists in the management of their investments also takes shape through the presence of the firm in the bords of directors. Lerner (1995), continuing the studies of Fama and Jensen (1983), affirms that the presence on the board is greater when the need for supervision of activities and operations is higher. Baker and Gompers (2000) investigate the payment scheme put in place, in order to bring the interests of top managers and investors closer together, in particular through equity payments. In fact, it emerges in the two scholars that on average VC-backed company top managers have a higher percentage of their salary on variable base respect to other top managers. The remuneration of the entrepreneur is often largely based on company performance, whereby their percentage of ownership increases or earns.

Venture Capital Investments

Being the raison d'etre of a Venture Capital to provide its limited partners with the promised economic return, the ultimate goal of the business is to transform the investments made into cash, and to find the best possible exit that allows to transform the equity positions into money.

It is widely recognized and proven in the academic field that on average the most profitable exit for venture capitalists is the IPO.

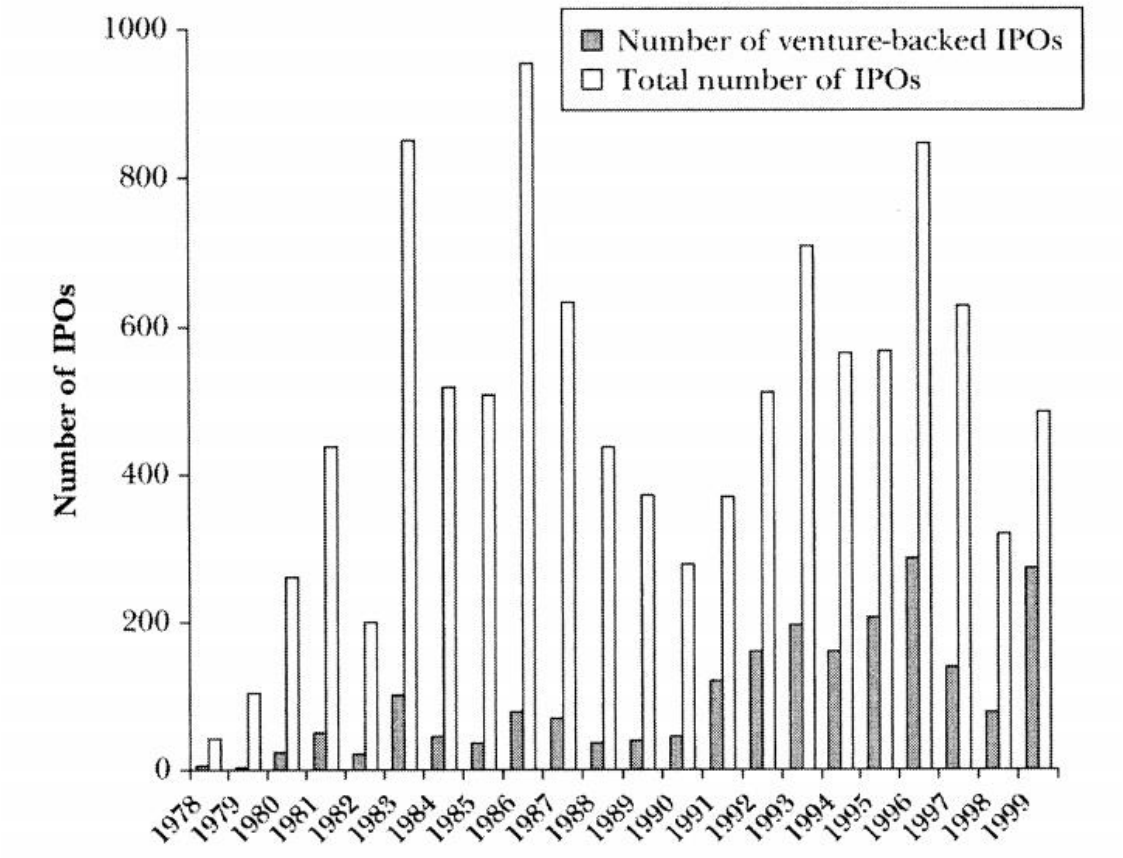


Figure 3: Number of Venture-backed IPOs and Total Number of IPOs by Year in the US.

Source: Sources: Barry (1990), Ritter (1998) Gompers and Lerner (2000).

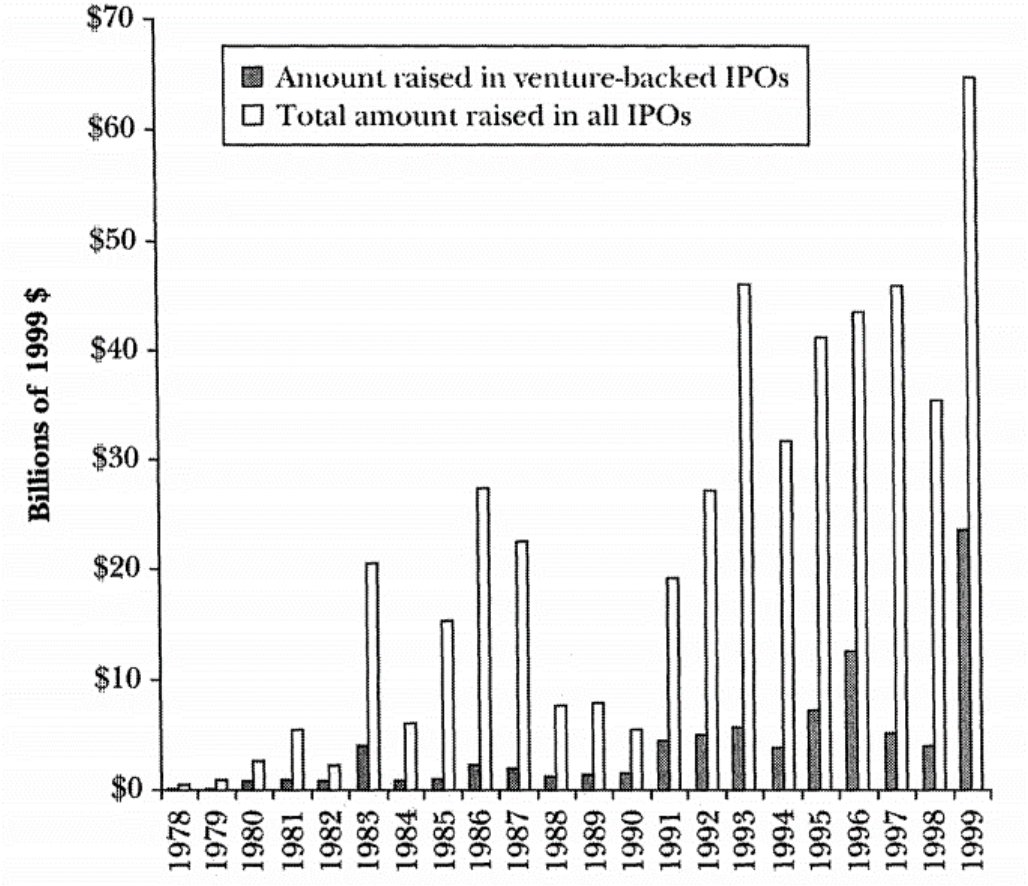


Figure 4:: Dollar Volume of venture-backed IPOs and AM IPOs By Year in the US.

Source: Sources: Barry (1990), Ritter (1998) Gompers and Lerner (2000).

The two graphs show the development of IPOs activities, with particular reference to venture-backed IPOs. We note a curious phenomenon: although the percentage of venture-backed IPOs increases from 10% to 56% from the 1980s to 1999, the portion of capital, obtained from venture-backed IPOs compared to the total remains almost constant, passing over the same period from 17% to 20%. Barry, Muscardella, Peavy and Vetsuypens (1990), state that venture-backed companies that want to go public do not tend to generate profits yet, however on average the effect of the first day of listing is less positive than counterparties not supported by venture capitalists. This phenomenon is interpreted by the authors as evidence that the market appreciates and recognizes the value of the support of venture capitalists, as the market itself does not require significant discounts at the time of the IPO, given the presence of venture capital as guarantors of the quality of the listed company.

The tendency of venture capitalists to maintain most of their equity position after the day of the IPO, contributing to this phenomenon, as if to guarantee the actual value of the shares

offered to the public. Megginson and Weiss (1991) arrive at the same conclusions, noting that underpricing phenomena are rarer in venture-backed IPOs.

The main factor that induces venture capitalists to prefer an exit in the form of an IPO, as written by Lerner (1994b), is the option to choose the moment to exit the investment, taking advantage of moments in which the market is particularly favorable to this type of operation, even if the degree of flexibility largely depends on the size and health of the venture capital itself. Gompers (1996) analyses this dynamic, noting the tendency of younger venture capitalists to seek an exit first through an IPO, compared to older competitors. Brav and Gompers (2000) investigate the issue, stating that the common practice required by the investment banks involved in the operation is to ask insiders not to change their positions for a period of about 6 months. Metrick and Yasuda (2010), analyzing a large sample of funds between 1993 and 2006, found out that on average a Venture Capital fund has 24 companies in the portfolio, with a median of 20, and it is managed by 5 partners, with a median of 4.

Venture Capital Future Research

Risks and Returns

The main reason why the limited partners identify Venture Capital as an effective alternative investment to the stock market, is given by the fact that these investors believe that their investment in Venture Capital is not correlated with the trend of the public market, making it a valid solution for diversify the investment portfolio.

VC Internationalization

Historically, Venture Capital was born and developed in the U.S., remaining an almost exclusive investment class of the American world for a long time. Jeng and Wells (2000) show that in 1996 the size of the Venture Capital industry in America was about 3 times larger than the top 20 economies in the world together, and among these about 70% of the activities are concentrated in Canada, Israel and Holland, which are nations that historically maintain a strong link with the U.S. economy. Black and Gilson (1998) argue that this industry has found a more favorable ecosystem in America given the development of the IPOs market, which as previously discussed remains today the most profitable and most favorable exit on average for Venture Capitalists. Economic policy has also had a great impact in its development, in fact, unlike the Anglo-Saxon world, in Europe we can observe a proliferation of regulatory limitations in the financial world, in order to avoid too risky investments and limit the risk of fraudulent episodes. About this topic, Veda (2004) underlined the importance of both venture capitals and banks in building a fertile ecosystem to provide investments in the real economy. In particular, an interpretation of these two actors is suggested according to which, given the specific competencies, Venture Capital is focus on higher risk, but potentially higher growth and higher profitable companies, where the variability of returns is accepted.

The Real Impact of Venture Capital

It is a common belief that Venture Capital is to be attributed great merits for the economic development of the US, especially in the high-tech sector. Through a series of questionnaires dedicated to Silicon Valley Venture Capitalists, Hellmann and Puri (2000) noted the contribution of Venture Capitalists in significantly reducing time-to-market for highly

innovative and technological products. A series of academic researches shows how the actual value of the capital invested by Venture Capital is higher than the value of the money spent by the companies in their own R&D, Kortum and Lerner (2000) try to quantify this difference using the number of patents generated by a company as a proxy of the company's innovative power, stating that the number of patents derived from capital invested by a Venture Capitalist is on average 3 times higher than that invested in internal R&D; therefore, although the capital invested in Venture Capital was less than 3% of the capital invested in R&D in the 1980s, this produced about 10% of industrial innovations in the same period; of the same opinion are Dapkus and Kriaucioniene (2008), who wrote: “Study and developments in business were seen as a key tool for economy upgrade and national competitiveness achieved through the development of high value added”. Lerner (2001) delves further into this issue, coming to identify 4 factors that are impacted by venture capital: innovation, economy, firms and geography. Economy enjoys the formation of new jobs, firms receive additional capital that facilitates the development of their business plan, meanwhile the regional geography is influenced by the creation of fertile and physical ecosystem in which we find an interplay between venture capitalist and entrepreneurs. In the wake of these considerations, we can insert the pioneering claims of Florida and Kenney (1988), who observed how Venture Capital accelerates business and economic development, acting as a catalyst for entrepreneurs and technical personnel; with the passage of time, the role of venture capital was not only to contribute to the formation of new innovative processes, but also assumed the role of technological gatekeeper in the ecosystem.

Venture Capital Investment Process

The venture capitalist's investing procedure is explained in this chapter. Numerous studies (Hoffman, 1972; Wells, 1974; Dorsey, 1977; Tyebjee and Bruno, 1984; Silver, 1985; Hall and Hofer, 1993; Van Osnabrugge, 2000; and Robinson, 2000) on this topic used a process perspective to characterize the venture capitalist's investing activity. According to the study of the current literature, all writers provided models outlining the three critical stages that Venture Capitalists do throughout their investing process: pre-deal, deal, and post-deal. The segmentation of each significant stage into sub-segments varies somewhat across models, depending on the degree of detail.

The primary reference used in this research is Tyebjee and Bruno's (1984) model of venture capitalist investing activity, where the procedure is described as a five-step sequential process. (1) Deal origination, which encompasses the process by which deals are considered as potential investment prospects; (2) Deal screening, which entails defining some parameters that narrow the initial pool of potential investment prospects to a manageable set of potential deals for further examination; (3) Deal evaluation, which is the process through which a potential venture's perceived risk and anticipated return are assessed; (4) Transaction structuring, which is the process of negotiating with the prospective investee to structure the deal and its contract conditions in the event that the deal assessment results in a positive conclusion; (5) Post-investment operations, which include all efforts undertaken by the venture capitalist to help the investee with hiring key executives and making strategic management choices.

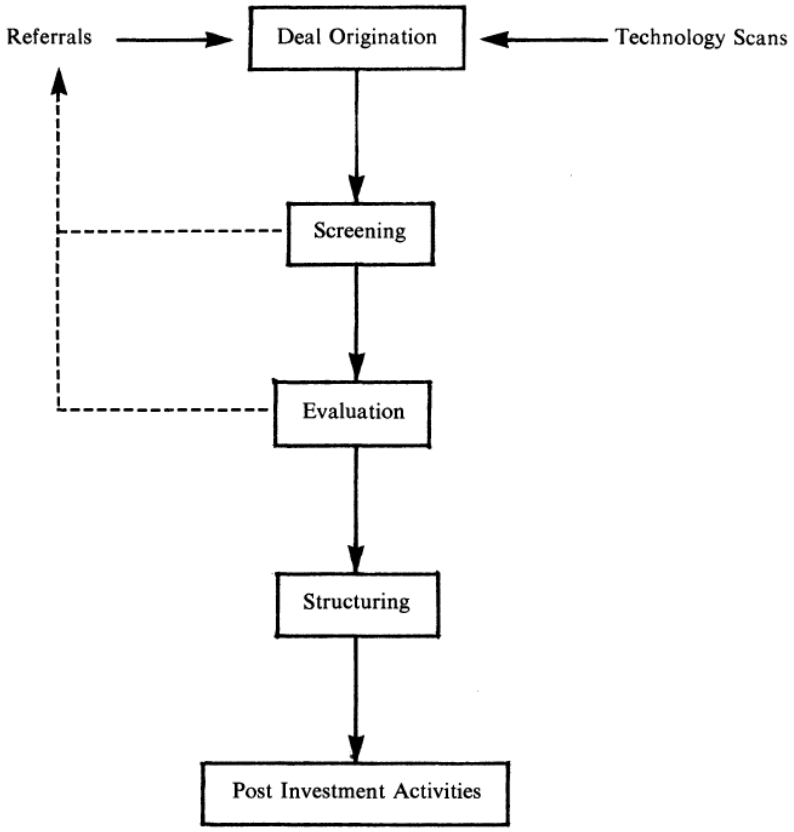


Figure 5: Decision Process Model of Venture Capitalist Investment Activity - Tyebjee and Bruno (1984)

Each stage of the Investment Process as described by Tyebjee and Bruno (1984) is examined in more detail in the following paragraphs, along with the major results from the existing research on the topic. The distinguishing characteristics of each stage are to be understood as typical investing methods used by Venture Capitalists in the pre-Covid-19 period.

Deal Origination/ Deal Sourcing.

The process of identification and development of potential investment opportunities is called in literature Deal Origination, and it is considered a significant predictor of success for venture capitalists and their portfolio companies. According to Srensen (2007), the combination of deal origination and deal screening, is a greater generator of returns (60%) for venture capital firms than post-investment activity (40 percent). Investors identify investment opportunities via a variety of different sources: according to Tyebjee and Bruno (1984),

transactions are generated via three channels. (1) Cold calls from entrepreneurs, (2) referrals, and (3) active searches. One in four of their sample, transactions were initiated through cold calls initiated by entrepreneurs seeking direct contact with investors. The majority of the transactions (65 percent) were initiated via a referral process: referrals came mostly from the venture capital community (33 percent), personal networks and prior investees (40 percent), banks (10 percent), and investment brokers (17 percent). The remaining 10% of cases included venture capitalists who originated transactions via active searches. Investors continuously pay attention to the surroundings in order to identify new investment opportunities through their informal network and attendance at key meetings and major conferences.

Gompers, Gornall, Kaplan, and Strebulaev (2019) performed a similar study with a large sample of 446 respondents. According to their results, transactions are mostly found via venture capitalists' professional networks (over 30 percent of cases). Then, almost 30% of transactions are created proactively; other sources include recommendations from other investors (20%) and referrals from the business world (8 percent). Surprisingly, just 10% of transactions came from entrepreneurs making cold calls, and very few agreements originated from quantitative sourcing, a process that includes analysing data from many sources to identify investment possibilities with the potential for significant returns. A surprising finding of this research is that VCs source opportunities differently depending on their stage: late-stage venture capitalists are more likely to self-generate transactions than early-stage investors. Indeed, the latter are more inclined to engage in transactions that arise as a result of spontaneous calls from entrepreneurs or are recommended by portfolio firms (Gompers, Gornall, Kaplan and Strebulaev, 2019).

Deal Screening/ Selection.

The VC collects a reasonably high number of prospective investment possibilities during the Deal Origination stage. According to Wells (1974), the average number of investment possibilities received by a venture capitalist in a year is 450 - much more than a venture capitalist can finance, but also completely evaluate and assess. Consequently, investors must filter the investment possibilities that have come to their notice down to a manageable group of prospective transactions for further, deeper and more complex evaluation: this is referred to as Deal Screening.

Numerous studies have attempted to analyze the criteria used by venture capitalists to reduce hundreds of prospective possibilities to a manageable number. According to Tyebjee and

Bruno (1984), the screening process of venture capitalists is based on four main criteria: (1) the fund's size and investment strategy, (2) the venture's technology and market sector, (3) the venture's geographic location, and (4) the venture's geographic location.

Concerning the first criteria (1), they state that the investment policy's lower limit is necessary because the VC's staff cannot afford to spread its portfolio across a large number of small deals, as managing each deal, regardless of its size, requires a significant amount of effort and time from the VC's staff. The upper limit of the investment policy is more flexible than the lower limit because it is determined by the diversification strategy of ventures that the VC wishes to implement; additionally, VCs may choose to invest in larger deals in order to attract participation from other venture capital funds. In practice, when the same capital is invested, attention is paid to forecasting the amount of capital that each investment could potentially require, in order to correctly plan the availability of money for every specific case, and also on the basis of this criterion, Deal Screening usually takes place.

(2) The venture's technology and market industry. Tyebjee and Bruno (1984) discovered that over 60% of respondents to their poll of 46 venture capitalists utilized this screening criteria. This is reasonable since when a venture capitalist invests in a business, he or she is betting on the future of a specific technology or industry. As a result, it is not expected that the investor is expert about the technology and/or market in which the venture is investing. This means that a venture capital firm would have the tendency to focus on a few technologies and/or markets, because of the fund's inability to acquire adequate knowledge across a wide number of technologies and/or industries. Tyebjee and Bruno (1984) also examined, in separate research covering 90 transactions, the preferences of venture capitalists in terms of the technologies and market areas they invest in: according to their findings, venture capitalists usually opt for emerging technologies sectors rather than mature ones (more than 75% of the time), industrial markets are generally preferred to consumer markets (90 percent of the time for the former and just 10% for the latter), and product markets over service markets.

(3) The venture's geographic location. Tyebjee and Bruno (1984) discovered that 19% of VCs surveyed utilized geographic factors to evaluate prospective investment candidates. This criterion is justified by the fact that venture capitalists already know that it will most likely be needed to meet with the venture's management team on a frequent basis; as a result, they prefer investments located in a defined region within a reasonable distance. Simultaneously, VC portfolios companies show this regional specialization as a consequence of entrepreneurs'

propensity to seek financing near to the venture's location, owing to their better network in the area.

(4) Financing stage. Tyebjee and Bruno (1984) indicate that this screening criteria was utilized by almost half of the 46 venture capitalists they questioned. They also examined, in another research including 90 transactions, venture capitalists' preferences respect to the target stage: almost half of the deals (45.6 percent) were for start-ups, 22.2 percent were for first round expansion, and 21 percent were for second round expansion.

The number of studies, concerning the approach and criteria used by Venture Capitalists in evaluating the value of a start-up from the perspective of a potential investor, demonstrate how much this research field is matter of interest in academic research. Starting from the consideration that the ability to evaluate the actual potential of a start-up constitutes one of the main sources of competitive advantage for the players of this industry, Riquelme & Rickards (1992) and Shepherd & Zacharakis (2002) have identified 3 main reasons to explain this trend: first, funds are interested in knowing what valuation criteria are used by their competitors to improve their investment portfolio, thanks to the aggregate view provided by the literature. Second, the knowledge of the evaluation criteria helps entrepreneurs to preliminarily evaluate their ideas and projects before actual feedback from the market. Third, these criteria are interpreted as success factors and sources of competitive advantage by the start-ups themselves, which therefore tend to invest their initial resources considering these criteria. The academic research highlights how the criteria set to evaluate the value of the start-up team find a strong practical application (Silva, 2004; Díaz de León & Guild, 2003).

The table below shows the top 3 evaluation criteria by rank of the main studies conducted in the last 40 years on this research field. It is noted that the variety of responses is heterogeneous, although these can be traced back to four main categories: criteria relating to (1) expected financial returns, (2) the market and industry, (3) the start-up management team, and (4) the product / service and business model. More specifically, the criteria related to the start-up team represent almost 50% of all the criteria mentioned, in more than 35% of cases the importance of the team is mentioned at least twice in the top 3, and in just under 70% of cases a criterion relating to this category is indicated as the most important factor. If the category is extended to "entrepreneur and management team", then we find that in 85% of the cases under examination, the element most taken into consideration when evaluating new projects is related to this category. Bygrave (1997) refers as a popular saying in the VC industry: Venture

Capitalists prefer to invest "in a grade A team with a grade B idea than in a grade B team with a grade A idea".

Author(s)	*Sample*	*Method*	*Evaluation criteria by rank*
Shepherd (1999)	66 VCs	Conjoint experiment (personal/mail)	(1) Industry-related competence (2) Educational capability (3) Competitive rivalry
Shrader, Steier, McDougall,and Oviatt (1997)	214 new ventures with IPO	Interviews, publicly available documents	(1) Technical education (2) New venture experience (3) Focus strategy
Bachher and Guild (1996)	40 VCs	Personal interviews	(1) General characteristics of the entrepreneur (2) Target market (3) Offering (product/service)
Muzyka et al. (1996)	73 VCs	Personal, standardized interviews	(1) Leadership potential of lead entrepreneur (2) Leadership potential of management team (3) Recognized industry expertise in team
Dixon (1991)	30 VCs	Personal interviews	(1) Managerial experience in the sector (2) Market sector (3) Marketing skills of management team
Rea (1989)	18 VCs	Mail survey	(1) Market (2) Product (3) Team credibility
Robinson (1987)	53 VCs	Mail survey	(1) Personal motivation (2) Organizational/managerial skills (3) Executive/managerial experience
Goslin and Barge (1986)	30 VCs	Mail survey	(1) Management experience (2) Marketing experience (3) Complementary skills in team
MacMillan et al. (1985)	102 VCs	Mail survey	(1) Capability for sustained intense effort (2) Familiarity with the target market (3) Expected rate of return
Tyebjee and Bruno (1981)	46 VCs	Phone interviews	(1) Management skills and history (2) Market size/growth (3) Rate of return
Johnson (1979)	49 VCs	Mail survey	(1) Management (2) Policy/strategy (3) Financial criteria
Poindexter (1976)	97 VCs	Mail survey	(1) Quality of management (2) Expected rate of return (3) Expected risk
Wells (1974)	8 VCs	Personal interviews	(1) Management commitment (2) Product (3) Market

Table 2: Literature Review of the Evaluation criteria

Beyond this general information, several studies have tried to correlate the different valuation criteria used by VCs with the type of investment or the specific characteristics of the fund. Carter and Van Auken (1994) suggest that the type of investment greatly influences the elements taken into consideration in the choice, in fact, the mere fact that the investment is early or late stage changes the return / risk profile of the project itself. Elango et al. (1995) discuss the evaluation criteria relating to the market and the product, highlighting how the specific criteria vary depending on the type of project. More recently, Pintado et al. (2007) demonstrated the correlation between the type of capital managed by the fund and the tendency to invest in high-tech projects, specifically the trend observed is that managing public capital increases the probability to invest in high-tech products.

The academic research offers a variety of explanations for why venture capitalists prioritize the jokey (management team) above the horse (product, technology, or business strategy) when screening investments.

Gompers, Gornall, Kaplan, and Strebulaev (2019) surveyed 558 respondents to understand which are the most critical criteria that venture capitalists consider when evaluating potential transactions. According to their results, 47% of VCs ranked the management team (jokey) as the most significant element. Instead, just 36% of Venture Capitalists rated business-focused aspects (horse) as the most significant element: 13% rated product as the most important criterion, 10% assessed business model as the most important factor, 8% rated market, and 6% industry. Additionally, fit with the fund was found to be a significant element: 14% of Venture Capitalists ranked it as the most essential aspect.

Additionally, the findings of this research reveal some surprising variance among respondent clusters (Gompers, Gornall, Kaplan and Strebulaev, 2019). The management team (jokey) was shown to be more important for early-stage funds, while late-stage funds tended to place a higher premium on business-focused variables (horse) throughout the screening process. Healthcare investors, as well as IT investors, saw the horse as more essential than the jokey. This is explained by the greater emphasis placed on intellectual property and non-human assets in healthcare companies than on the IT business. Finally, the results of our survey corroborated Gompers et al. (2016), demonstrating that late-stage funds, like private equity funds, prioritize business-related variables and value.

Deal Evaluation

The next stage in the Venture Capital Investment Process is deal evaluation: after narrowing the pool of initial investment possibilities to a manageable set, Venture capitalists must determine the value of a business before making an investment decision. This section will summarize the major results from past research on how venture capitalists evaluate enterprises. According to economic theories, a prospective investment should be evaluated using a DCF or NPV analysis based on the venture's management team's business strategy and business plan. While most venture capitalists do an evaluation of the perceived risk and anticipated return of the new investment, few codify the study into a calculation. Rather than that, the assessment process is mostly a subjective evaluation of the investment opportunity using a multi-dimensional set of criteria. Tyebjee and Bruno (1984) modeled the venture capitalists' investment decision-making process in three stages: (1) Evaluation, (2) Risk-Reward Assessment, and (3) Decision.

(1) Evaluation. According to their research, venture capitalists evaluate investment prospects based on five key features: a) Market Attractiveness, which is measured on the basis of market need, size, future growth, and accessibility; b) Product Differentiation, which includes the entrepreneur's capacity to create a great product that discourages competition and generates a high profit margin; and c) Managerial Capabilities, which refers to a broad range of characteristics that venture capitalists take into account. d) Environmental Threat Resistance, which refers to the venture's capacity to endure external threats such as the entry of new competitors, changing economic environment, or drastic and unexpected technological changes; e) Cash-Out Potential, a metric indicating the feasibility of liquidating or cashing out the investment at the right time, to maximize the profits or minimizing the losses.

(2) Risk-Reward Assessment. Tyebjee and Bruno (1984) established a correlation between these important features and Venture Capitalists' assessment of Expected Return and Risk, using a linear regression model. They discovered that Market Attractiveness had the greatest impact on expected return, followed by Product Differentiation. Rather than that, Managerial skills have the greatest influence on lowering the riskiness of a new transaction, followed by Resistance to Environmental dangers. Cash-Out Potential does not seem to have an effect on either perceived risk or expected return.

(3) Decision. The last stage is to decide whether to invest in the enterprise or not: this choice is made by weighing perceived risk and reward as estimated in the preceding phase. Venture

capitalists are risk averse and profit-driven and are prepared to take on significant risks if they are offset by the possibility of huge gains.

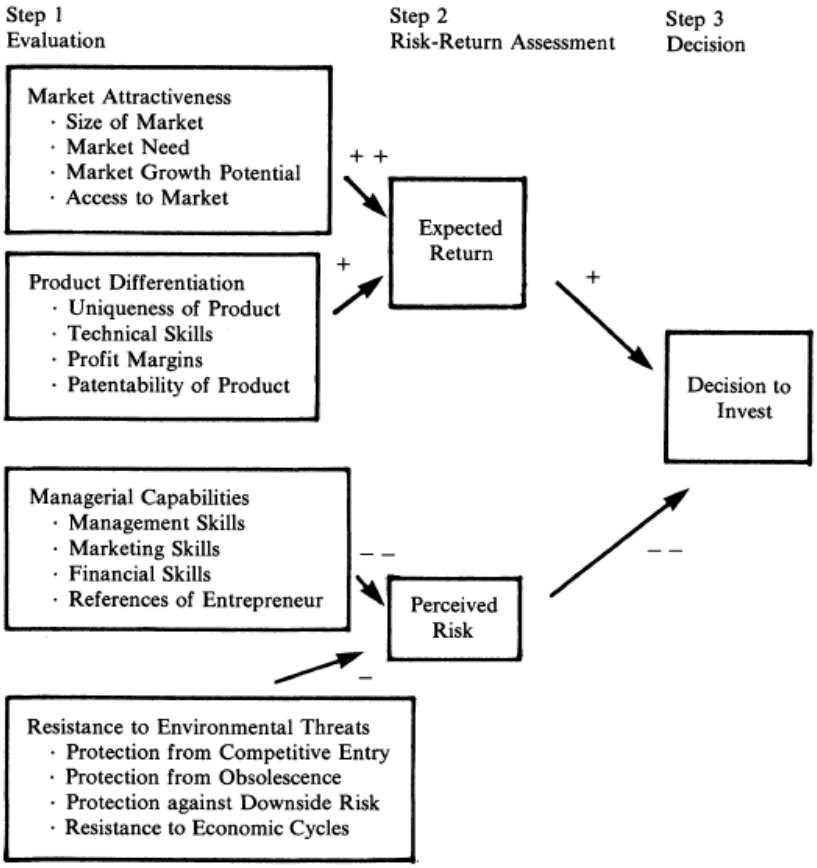


FIGURE 2. Venture Capital Investment Decision Process.*

Figure 6: Venture Capital Investment Decision Process (Tyebjee and Bruno - 1984)

Gompers, Gornall, Kaplan, and Strebulaev (2019) conducted a survey of with a sample of 346 respondents to determine which valuation techniques are the most utilized by venture capitalists. Contrary to what corporate finance theory indicates, just 22% of respondents use NPVs techniques. Rather than that, the most used techniques are Multiples of Invested Capital (63 percent) and Internal Rate of Return (IRR), utilised by 42 percent of the sample. Not unexpectedly, 9% of the sample indicated that they do not use any assessment technique when evaluating investment opportunities. This is especially the case for early-stage venture capitalists: In particular, early-stage and smaller Venture Capital funds, and IT venture capitalists all confirmed that they often make gut judgments. This is explained by the fact that early-stage investors often face a lack of historical data of previous performance and a high degree of uncertainty regarding future cash flows.

Gompers, Gornall, Kaplan, and Strebulaev (2019) observed that the average Multiple of Invested Capital expected by venture capital firms in the sample is 5.5, with a preference for early-stage and small venture capital firms to require higher multiples than late-stage and larger venture capital firms. The similar trend holds true for required IRR: although the average required IRR is 31%, the findings indicate that late-stage and bigger venture capital firms have lower IRR expectations than early-stage and smaller firms. According to the authors of the study, this behaviour could be explained by the fact that early-stage venture capitalists demand higher IRRs because of the increased risk of failure associated with their investments, facing capital constraints.

Gompers, Gornall, Kaplan, and Strebulaev (2019) also examined whether VCs predict cash flows in order to utilize assessment measures such as NPV, IRR, or multiples and, if yes, what is the average forecasting time. Their results indicate that 20% of venture capitalists in the sample do not estimate the venture's cash flows: once again, the greatest disparity in behavior is seen between early-stage and late-stage VCs, with the former group exhibiting the highest incidence of non-forecasting. This behavior is coherent with the absence of previous information about start-up companies, which forces investors to make qualitative judgments. On the other side, it was discovered that the median forecasting duration for those who do predict is three to four years.

When evaluating a transaction, venture capitalists do not focus only on financial measurements, but they also examine a variety of other variables that contribute substantially in determining the value of a venture. According to Gompers, Gornall, Kaplan, and Strebulaev (2019), the most significant aspect considered by venture capitalists is exit considerations (46%), followed by considerations regarding similar businesses (29 percent). The third most significant reason (18%) is desired ownership, and competitive pressure from other investors was indicated as the most important element in just 3% of cases. Regarding the latter aspect, notable distinctions are observed between IT venture capitalists, who reported placing a higher premium on competitive pressure, and healthcare investors, implying that investments in IT take place in a context where there is greater competition than in healthcare industry. Another noteworthy finding is the difference in behaviour between late-stage venture capitalists, who reportedly place a higher premium on exit considerations, and early-stage investors, who prioritize desired ownership.

Finally, after examining the techniques used by venture capitalists to value deals, it is useful to examine the degree to which, on average, portfolio firms fulfil the predictions made by

venture capitalists when deciding whether to invest. According to Gompers, Gornall, Kaplan, and Strebulaev (2019), less than 30% of their portfolio firms achieve their financial forecasts. Still, due to the increased volatility, the largest difference is between early-stage venture capitalists who reveal that their portfolio companies are less likely to meet estimates (26 percent of them on average are able to) and late-stage venture capitalists who disclose that their portfolio firms are more likely to meet projections (33 percent).

Deal Structuring

Once the Venture Capitalist has decided if the prospective investment option is acceptable during the deal evaluation stage, the deal can only be completed if the Venture Capital and the entrepreneur reach an agreement on certain key terms of the transaction: this is referred to as deal structuring. To begin, the agreement sets the deal's price: this is the equity stake in the company that the entrepreneur would sell to the venture capital firm in return for the money (Golden, 1981). Contract terms also describe the nature of the financing, including whether it will be staged or not, as well as the usage of convertible securities. Additionally, the joint agreement contains protective covenants designed to avoid future agency issues between the founder and the VC.

Gompers, Gornall, Kaplan, and Strebulaev (2019) examined the contract conditions that venture capitalists often negotiate with entrepreneurs and their negotiation flexibility. The authors surveyed 524 venture capitalists and focused on the following terms and conditions: (1) cash-flow rights (investment amount, stake in ownership, dividends, anti-dilution protection, option pool, and valuation); (2) control rights (board control, prorata rights); (3) liquidation rights (liquidation preferences, participation rights, and redemption rights). The findings indicate that venture capitalists are not generally very flexible to the terms of the contract. Dividends were the only options they are flexible on. This finding reaffirms the critical role of contract structuring for venture capitalists: the conditions agreed enable the development of value-maximizing contracts.

Post Investment activities

Once the transaction is concluded, the VC's position shifts from potential buyer to collaborator. Indeed, VCs are actively engaged in the management and assistance of portfolio

firms, whether via official participation on the board of directors or indirect influence in the market or among suppliers and creditors. The degree and frequency of the venture capitalist's participation in the venture's business varies, but typically, a venture capitalist is reluctant to manage day-to-day operations (Tyebjee and Bruno, 1984). Prior studies examined the role of venture capitalists in hiring important executives and establishing the board of directors (Lerner, 1995); Hellmann and Puri (2002) discovered that venture capitalists are critical to the venture's professionalization. Gompers, Gornall, Kaplan, and Strebulaev (2019) conducted a survey of 444 venture capital firms to identify the types of value-adding initiatives that venture capital firms offer to portfolio startups. 87 percent of the tested Venture Capitalists stated that they offer strategic guidance, 72 percent stated that they assist portfolio firms in connecting with other potential investors in subsequent rounds (this is especially true for early-stage Venture capital firms), 69 percent explained that they assist companies in connecting with customers, 65 percent indicated that they provide also operational guidance, and 46 percent of the sample stated that they provide both.

EXIT

The exit represents for the VC the moment in which the potential gain of the invested capital is realized. It is clear how important this moment is within the life-cycle of an investment fund, and how many efforts are made to make the surrounding conditions the best possible to get the most value from this delicate operation.

The investment exit and the realization of the expected profit is a prerogative of the VC: the investment is made with a view to exit after 4-7 years. Since start-ups generally do not generate profits in the first years of life, the exit turns out to be the only place where the gain is made. This operation also has important repercussions on the position and activity of the entrepreneur, who remains a relevant player in this operation as well

Sahlman (1990) and, subsequently, Gompers and Lerner (1999) identify the two main exit routes as the trade sale (or acquisition ') and the initial public offering (IPO), especially given the higher expected return from the operation. There are other exit routes, including "secondary sales" (sale of the position of the VC in favour of a new investor, although the position of the entrepreneur does not change), "write-offs" (liquidation of the asset) and "buybacks "(The position of the VC is repurchased by the entrepreneur of the start-up). These solutions remain secondary to the extent that, as highlighted by Cumming and MacIntosh

(2003) and Hege et al. (2003), the expected profit decreases significantly. As proof of this, several studies, including Gompers (1995), Cochrane (2005), Cumming and MacIntosh (2003), report that the higher the valuation of the company, the greater the probability that it will be listed on the stock exchange during the exit.

Regardless of the type of exit, the timing of the operation is of considerable importance. In fact, it falls within the competence of the VC to be able to manage and balance it: on the one hand, the costs increase to allow a robust development of the start-up and to maintain its financial position (due to ongoing and illiquidity), on the other hand a longer duration of the investment aims to increase the added value brought by the activities of the VCs. Black and Gilson (1998) show that the same time to exit is a factor of considerable importance in the evaluation of an investment by the VC, and also represents a clear measure of performance by the VCs (Wang and Wang, 2012).

The decision on the exact time to exit should be made when the marginal cost of maintaining the investment and the marginal added value coincide; however, these two quantities vary widely in the duration of the investment. Cumming and Johan (2010) show how marginal value added and marginal costs are considerably higher in the initial stages of the start-up's development, decreasing as it grows; In fact, strategic decisions have a greater impact as the life of the company is short, and the costs associated with product development, especially in the technological field, must be fully supported by the investor in the early stages.

The growing internalization of the Venture Capital industry has focused attention on the study of domestic and cross-border investments. This phenomenon was analyzed by Aizenman and Kendall (2012), who testified how cross-border participation in VC and private equity deals increased from 15% to more than 40% from the 1990s to 2007. Schertler and Tykvová (2011) report that around 30% of the capital invested by VCs is destined for cross-border investments. This type of investment is characterized by higher costs than the domestic ones, since the monitoring and transaction costs are, by their very nature, higher in these conditions, it follows that the optimal time for the exit should therefore be shorter. This was not demonstrated from the academic literature, some argue that cross-border investing is linked to the search for a premium investment, whose margin value must be higher to bear the higher costs of the investment, others argue that the cause of the increase in cross-border investments is due to the saturation of the internal market. In any case, critics agrees in stating that at present it cannot be said with certainty whether the fact that an investment is cross-border or domestic significantly affects the exit, both in its type and in its timing.

There are macroeconomic factors that have a significant impact on exit. The developed public capital markets facilitate the profit making of VCs, the more developed these markets are, the more window of opportunity there are for IPOs to make the most of the surrounding conditions (Black and Gilson, 1998). In fact, it has been shown that generally in the financial field higher valuations of the financial market are associated with greater activity of IPOs and M&A volumes (Shleifer and Vishny, 2003). Again Black and Gilson (1998) show that the average time to exit is two thirds shorter in the US than in any other country in the world, and the main reason for this is the liquidity of the market and an efficient bureaucratic system.

Since there are more possible exit strategies but only two are the most favourable to VCs, there is a tendency to prepare pre-planned exit strategies to exit the investment through an IPO or an acquisition, and although this strategy is not present in the contract with the entrepreneur, this influences how the contracts themselves are written. Cumming & Johan (2008) confirmed this practice in 30% of the VCs interviewed, although at the time of signing the contract, the Venture Capitalists did not have a clear idea whether to favour an IPO or an acquisition. The consequences of this practice are different: pre-planned acquisitions have a 10% higher than average probability of making use of different veto rights (i.e. asset purchases, over asset sales ...) and different control rights (CEO replacement, right of first refusal at sale…) of 5% higher than average.

Comparing the two main exits, the IPO is the most desired operation by VCs, as this shows a greater opportunity in terms of upside potential. As analysed by Black and Gilson (1998), this solution turns out to be a compromise gladly accepted by the founder of the start-up, as new investors have an interest in keeping the company's CEO himself; contrary to what usually happens in the case of an acquisition, where the buyer tends to include the target company within a strategic project, in which often the entrepreneur is seen as an element of resistance. The entrepreneur tends to be opposed to an exit for acquisition, therefore the advantage of the VCs is evident in pre-planning an exit for acquisition, through a series of contractual control rights.

It is worth mentioning that it has been noted by Cumming and MacIntosh (2003), that starting from the 90’ there has been a slow but steady growth of the "secondary sales" market, this type of transaction is defined by the two scholars as an operation in which “... only the shares of VC are sold to third parties; the entrepreneur and other investors will keep their investments”. The secondary market is an unquoted equity market where the opportunity to quickly sell equity positions arises. This market, which has developed in recent years, both in

terms of volumes and numbers, allows VCs to divest their assets in a simple and fast way. The increase in the capital invested in VC has favoured the emergence of new financial players who have specialized as "secondary" buyers, proving to be willing to purchase equity investments in funds stakes, or even complete VC portfolios. This practice is also appreciated by LPs of VC funds, as it tends to decrease the risk related to the illiquidity of the investment, allowing the VCs to concentrate on the companies with greater and more promising potential, without having to worry about managing less profitable investments. The development of this market is followed with great interest by scholars, as the possibility of carrying out this operation aims to change the relationship between LPs and VCs, this possibility gives the opportunity to VCs to generate adequate returns at the time of exit, being this relationship - theoretically - totally illiquid, by leveraging its ability to generate value over time and making this value emerge in exits via IPO or trade sale.

Research Methods

Introduction

The purpose of this section is to get a better understanding of what venture capitalists do and, possibly, why they are successful by assessing the effect of Covid-19 on their practices (particularly, deal evaluation and exit strategy) and portfolio companies.

We do it by polling over 320 venture capitalists and inquiring about how they make investment and portfolio choices. We provide comprehensive information on how venture capitalists evaluate and manage transactions and post-investment activities, as well as how they organize their venture capital companies. We explicitly ask our respondents whether these activities or the factors based on which they make decisions have been impacted by Covid-19.

We aim to assess the effect of Covid-19 on the activities of venture capitalists because of the critical role that this industry plays in the global financial ecosystem: for more than three decades, venture capital has been a significant source of funding for enterprises. Companies backed by venture capital, such as Microsoft, Facebook, Apple, Google, Amazon, and Starbucks, have had a significant effect on the US and worldwide economies. Kaplan and Lerner (2010) estimate that roughly one-half of all true IPOs are VC-backed even though fewer than one quarter of 1% of companies receive venture financing. As a result, determining whether there are and what are the new trends in terms of investment means obtaining information four to seven years in advance to determine whether or not there will be and what will be the new macroeconomic trends. Additionally, we think that the volatility introduced by Covid-19 and the new criticalities of the global economy may highlight these tendencies even more, since among the industries and businesses in which Venture Capitalists invest today are those that are likely to drive the economy of the future.

To begin, we collected general information on our respondents and the companies for which they work. We also gathered data on their geography, industry, fund typology and size, and stage of investment in order to cluster our respondents into manageable groups based on this information.

Second, we examine how venture capitalists find prospective investments: a process known as deal flow generation. The venture capitalists' network is essential to this process. Venture capital companies refer to the "investment funnel" as the process by which prospects are narrowed down to a manageable number of potential deals. We examine where venture

capitalists find investment ideas, how they screen them, and if they were affected by the Covid-19 epidemic and to what extent.

Thirdly, we look at how venture capitalists choose their investments. Kaplanand and Stromberg (2004) describe and analyse the process by which venture capitalists select investments: they confirm previous survey findings that venture capitalists consider market attractiveness, strategy, technology, product or service, customer adoption, competition, deal terms, and the quality and experience of the management team. Kaplan, Sensoy, and Stromberg (2009) propose a "jockey vs. horse" paradigm for examining which variables remain consistent throughout the course of a successful venture capital investment. The entrepreneurial team is referred to as the "jockey," while the strategy and business model are referred to as the "horse." We ask venture capitalists if they place a higher premium on the jockey or the horse in their investment strategies, both before and after the breakout of Covid-19.

Fourth, we investigate the methods and principles that venture capitalists use to value businesses. Graham and Harvey (2001) observe that chief financial officers of big businesses often do discounted cash flow (DCF) studies to assess investment possibilities. By contrast, Gompers et al. discover that private equity investors seldom utilize DCF, preferring instead to use internal rate of return (IRR) or multiple of invested capital. Given this distinction, we examine whether VCs use the widely established DCF technique or a different one. Then, we ask them to assess the effect of Covid-19 on the typology of metrics they apply.

Fifth, we inquire about how venture capitalists draft contracts and arrange investments. VC contracts guarantee that both the entrepreneur and investors benefit when the entrepreneur performs successfully. However, little is known about which of these criteria are more significant to venture capitalists and how they make trade-offs between them. In our poll, we question venture capitalists about their preferred investment conditions and their willingness to bargain. We want to determine if the growing volatility in the market is being offset by an increase in contractual rights.

Sixth, we look at how venture capitalists manage and add value to their portfolio firms after their investments. Improved governance and diligent monitoring contribute to the additional value. This often includes replacing founders who are incapable of expanding their businesses. Baker and Gompers (2003), for example, find that about one-third of VC-backed firms maintain a founder as CEO at the time of IPO. In this study, we go further into these problems by asking venture capitalists to explain in detail how they provide value.

Seventh, we investigate about the exit routes of venture capitalists. Brav and Gompers (1997) examine the role and significance of venture capitalists in the performance of initial public offerings. Srensen (2007) attempts to determine the proportion of venture capital returns that are driven by deal sourcing and investment selection respect to value-added activities performed after the investment: he finds that both matter, approximately 60/40. As a result, we further investigate this problem by directly contacting venture capitalists to assess the proportional significance of deal sourcing, deal selection, and post-investment activities in generating value in their investments. Additionally, we question the venture capitalists what selection criteria were most critical to the final success of their investments and if their decisions were influenced by Covid-19.

Although the questionnaire, which was developed and created in collaboration with the Boureau of Entrepreneurial Finance's research team, covers all of the subjects listed above, the purpose of this study is to report on the analyses and findings made in the following areas: (1) investment evaluations; and (2) exit strategies. The respondents', companies', and funds' general data were considered, both to contextualize the presentation of the study and, more importantly, to establish the clusters around which the subsequent analysis was conducted.

Our survey respondents represent 244 distinct venture capital companies, and all the results are presented by firm. We have eight cases where we have more than one respondent from the same VC: in these cases, we have chosen to keep only one respondent per firm, based on the following criteria: (1) overall consistency of the response, (2) appropriate completion time, and (3) the seniority of the Venture Capitalists.

Now, we'll quickly discuss the survey's format and, in the first place, some findings. We questioned venture capitalists about their companies' internal organizational structures. The average venture capital company, we interviewed, is modest: with less than 11 workers and an average portfolio of 40 firms.

Deal evaluation and post-investment activities were selected as the phases of the investment funnel whose required efforts increased the most due to covid, about 45% of VCs put more efforts on them. Exit strategies and deal origination were seen as more effort-consuming by 32% of our respondents, and the least impacted are deal screening and deal structuring with about 25%.

Additionally, we notice that, regardless of the stage of the investment funnel, on average, more effort is spent on each activity as the fund's size grows and the investing stage matures.

Few venture capitalists assess their investments using discounted cash flow or net present value methods. The most often utilized measure is the multiple of sales/EBITDA (58 percent), followed by cash-on-cash return (48 percent) and internal rate of return (45 percent). These results are in contrast with those of Gompers and Kaplan (2016), who found that the sales/EBITDA multiple was not among the top three most often utilized measures. We highlight that covid-19 has a negligible effect on this assessment.

VCs generally responded that they provide a broad range of post-investment services to their portfolio firms, and we asked respondents to rate the importance of the following typical value-added practices on a scale from 0 to 5 (0 = not applicable; 1 = not important at all; 5 = extremely important): provide strategic guidance (4.2); connect enterprises with prospective investors (4.0); connect organizations with prospective customers, suppliers, or strategic partners (3.8); assist businesses in hiring managers (3.7); assist enterprises in hiring board members (3.6); provide operational guidance to the organization (3.6); assist companies in hiring staff (2.7). The scenario after Covid is quite similar to the previous one; notable is that, as a result of Covid-19's impact, we see an average rise of 0.25 points in each of the top three variables.

Concerning the various exit strategies, as anticipated, the favoured ones were and continue to be trade sales and initial public offerings, as Gompers and Kaplan confirm (2016).

Methodology

Design

In this section, we describe the research design of our survey.

This research is close in spirit to the survey on the Venture Capital industry by Gompers and Kaplan (2016). In fact, this paper was used as reference in designing our survey and as reference to compare and evaluate our results. We believe we share the spirit with which Gompers and Kaplan have conducted their work, to "… seek to better understand what venture capitalists (VCs) do and, potentially, why they have been successful". We have been guided by the same purpose in investigating the impact of Covid-19 on the VC industry, in terms of best practises and portfolio management.

Prior to the design of the questionnaire, we carried out a research work by collecting the surveys proposed by various academic researchers, institutional agencies, and consulting firms on the main topics discussed in the Venture Capital industry. This deepening has allowed us, on the one hand, to acquire a specific vocabulary necessary to ask the questions to the VCs in a precise, concise way without misunderstanding; on the other hand, this research has allowed us to correctly identify the possible answers to the questions of interest, in order not to condition our results with biases related to ambiguous questions or incomplete answers. We tried to use a lexicon that was as close as possible to the world of Venture Capital, avoiding falling into the use of an academic language, which could have appeared obscure to our respondents. To verify this and to ensure that the information requested in the survey was accessible to the VCs or in line with their actual knowledge, we contacted a VC who made himself available to provide us with constant feedbacks during the design and development of the questionnaire.

As soon as the draft version was written, we forwarded the questionnaire to three different Venture Capitalists and to some professors and researchers of the Politecnico di Torino and Politecnico di Milano, who have research experience in this area; obtained the feedbacks from them, we made several changes to the questionnaire: in particular we took care to reduce the different typologies of questions, trying to bring together different questions on the same format, both from a graphic and procedural perspective; we have decreased the total number of questions to decrease the time required for its compilation; finally, we reorganized the survey structure by following the classic division of the investment funnel: Deal Origination

and Selection, Investment Valuation, Deal Structuring, Post-Investment Activities and Exit Strategies. Before sending our report again, we re-designed the survey on Qualtrics, taking advantage of the features and types of questions that the software itself offers, following the structure and form of the previously designed survey. After that, we contact other VCs and other researchers of the Politecnico di Torino and Politecnico di Milano to obtain new feedbacks. This time the changes made have been much less and have allowed us to refine the vocabulary used.

In parallel with the design of the questionnaire, we worked on the composition of the mailing list: we obtained a database from Crunchbase, containing a list (name, surname, company) of about 11000 VCs, we started a manual search of email contacts and we have reached about 2000 contacts. In a second step, we used a database from Prequin, which contains just over 50,000 contacts of professionals from the Private Equity world, belonging to about 7,200 companies, of which 3861 Venture Capitalists and the remaining Private Equity, for a total of 38,000 different investment funds. We therefore matched and merged the two documents to obtain our final database.

We believe we can assume this database as representative of the entire VC industry, as (1) the number of VCs present is very high, (2) all the top 10 VC firms for asset under management are present, (3) it is present a sufficient representation of all the continents of the world, although the contacts present are mainly North American and European. However, we raise a critical issue: the sample from which we started tends to occupy high-level positions within the fund our respondents work for, this could introduce a bias in our final assessments. However, we believe that the bias introduced is of little relevance as the greater the seniority within the company, and the greater we believe to be the awareness and accuracy of the answers received, furthermore it is in the objectives of our research to identify the impact Covid-19 on best practices; therefore, the higher average seniority of our respondents helps the emergence of these evidence.

Aware of the limitations of the starting database, we have structured our survey in such a way as to resolve potential critical issues at the origin. In the first instance, we only contacted those individuals who were described on the Prequin database as Venture Capitalists. To make sure we only interview the target respondents we asked them directly if they currently work for a Venture Capital fund, if not, the survey is designed to instantly end. Out of a total of 356 responses received, 65 (18%) were eliminated as the respondent identified himself as active exclusively in Private Equity, a term explicitly used in a broad sense (including angel investors, family offices…). Of the remaining 291, 28 work on behalf of a captive venture

capital vehicle (e.g. corporate VC, bank-affiliated VC, governmental VC), the remainder classified their company as institutional or independent Venture Capital.

Thanks to this double check, we feel confident in saying that the professionals interviewed are actually Venture Capitalists. A second potential critical issue to discuss is whether our sample of respondents is representative of the industry: in this regard, considering the starting sample representative of the industry - for the reasons mentioned above - we believe that the respondents are also. The last critical issue we encountered is due to the time it took to send several waves of emails to obtain a statistically significant and consistent number of responses: the responses analysed in this study range from May 17, 2021 to July 27, 2021. We believe this to be a potential critical issue as the perception of the impact of Covid-19 could vary depending on the time in which the questionnaire is filled out. However, we evaluate this temporal bias as a minor issue, given that in that period in most of the world the epidemic was under control and the spread of the virus remained at a moderate and constant speed.

Although the questionnaire was not anonymous, all responses were treated as totally confidential, and therefore the data will only be shown in aggregate form. To incentivize the completion of the questionnaire, we offered respondents the opportunity to receive the results of our research once it is completed.

Our response rate, calculated at the Venture Capital firm level, is 5.38% We consider this result sufficient and satisfactory as it is in line with the response rate obtained in the Gompers and Kaplan study (2016) from the NVCA (7%) and VentureSource (4%) databases, which we believe in the spirit similar to our research.

The questionnaire consists of 49 questions, and the average time to complete is between 15 and 25 minutes, with a median of 18 minutes. This testifies the seriousness with which the interviewees responded.

Summary Statistics

Survey data cleaning

This section summarizes the findings of our study and describes the subsamples used in our analysis. As stated earlier, we received a total of 356 responses. Since the focus of our research is the impact of Covid-19 on the Venture Capital industry, we filtered the answers we received by asking the interviewee directly if he currently works for a Venture Capital fund, if not, through a shortcut, the digital questionnaire ends automatically. With this filter we eliminated 65 respondents from our sample. We then manually performed a "consistency test" to verify that all the answers obtained had been compiled with commitment and seriousness: of the 291 answers examined, 23 were found to be inconsistent. To carry out this check we verified that in the questions in which it was asked to enter the degree of importance of a certain factor, the answers were not totally random or that they did not follow pre-established patterns in order to speed up the completion of the survey; secondly, we took into consideration the completion time of the questionnaire, discarding those respondents who took less than 6 minutes to complete the questionnaire (three respondents). Finally, we also judged inconsistent those VCs that completed less than 82% of the questions proposed, as we took this fact as a sign of the little efforts reserved for the survey. All the information collected and the analyses carried out are done at the Venture Capital firm level. There were only 8 cases in which we received multiple responses from the same firm, in this case we kept the response that appeared to us more consistent, following the criteria previously mentioned. We began our analysis with a sample of 268 responses.

Cluster Description

All the results are presented in aggregate form and the outcomes are described with respect to the totality of the responses received and with respect to each cluster we have analysed. The reader is pointed out that all the clusters we built were created based on the information collected in the survey regarding the situation before the Covid-19 outbreak. In the spirit of the academic research of the last decade, we have divided our respondents into 5 different clusters. (1) Based on the stage: we asked if the VCs usually target a certain stage of the companies, if this is exclusively seed or early stage, these are clustered as "early-stage investors" (132), in case they answer only late stages or growth equity, these are included in

the “late-stage investors” cluster (63). (2) We group the Venture Capitalists with respect to the industry they use to investing in, we have created the IT (8) and Healthcare (32) clusters, looking only for people investing in that industry. We are aware that this cluster is not statistically significant. However, we preferred to present the data relating to these groups, integrating where relevant the information relating to all those who at least invest in one of these businesses. (3) We directly asked them whether the fund for which they work can be considered a social impact fund (72) or whether can be defined as traditional (172). (4) We have subdivided our respondents according to the size of the fund; in fact, after asking them directly for the approximate total committed capital of their fund, we calculated the median, dividing the Venture Capital firms in "small" (130) and “big” (114) ones with respect to this value. (5) Finally, we decided to describe our sample of responses also based on "Geography", questioning where they usually invest the committed capital. This aspect is relevant to us in order to find correlations between the answers given in the questionnaire and the different impact that Covid-19 had in the world, in terms of spread, mortality and restrictive measures imposed. We have organized this cluster around North America, Europe and the Rest of the World, including only those people who only usually invest in that particular region. Here we show in table 3 of the total number of firms that we have included in the clusters described above.

Clustering summary
(1st row: N, 2nd row: %)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Pharma	Social	Tradizional	Small	Big	UE	USA	Rest
244	132	63	8	32	72	172	130	114	86	47	48
100,00%	54,10%	25,82%	3,28%	13,11%	29,51%	70,49%	53,28%	46,72%	35,25%	19,26%	19,67%

Table 3: Clustering summary

Given the relevance in the subsequent analysis, we decide to show in detail the composition of the “Stage” cluster. From the table (4), shown below, you can immediately see the tendency of "small" funds to prefer investments in seed or early stage, this is an expected result, as already stated by the previous literature; in fact, given their size, these funds structurally bear a business risk that is on average higher than those of larger funds, and consequently, this expected volatility of their return translates into higher expected returns than the industry average, for this reason they prefer investments in seed or early stages, because they are typically seen as a source greater potential profits. Secondly, the data collected shows the tendency of VCs with a European focus to prefer investments in "late-stages" more than their American counterparts, this trend could be due to the socio-cultural diversity between the

continental European and the American world, including the different propensity for risk. Another reason could be the different level of development that the ecosystem of start-ups in the US and Europe has reached: in fact, in the old continent we have a proliferation of small start-ups that tend to encounter more difficulties in the scale-up phase. From a quick comparison between the top and bottom of the same table, we note how the influence of Covid-19 is minimal on the trends described above.

C.5 C.6 - Specialization on Stage
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	H	Social	Trad,	Small	Big	EU	NA	Rest
Before Covid-19												
Total Stages	13	0	0	0	4	3	10	3	10	1	1	1
	5,33%	0,00%	0,00%	0,00%	12,50%	4,17%	5,81%	2,31%	8,77%	1,16%	2,13%	2,08%
Seed Stage	112	102	0	4	15	30	82	74	38	43	30	16
	45,90%	77,27%	0,00%	50,00%	46,88%	41,67%	47,67%	56,92%	33,33%	50,00%	63,83%	33,33%
Early Stage	137	101	0	6	20	40	97	82	55	50	28	29
	56,15%	76,52%	0,00%	75,00%	62,50%	55,56%	56,40%	63,08%	48,25%	58,14%	59,57%	60,42%
Mid Stage	63	0	29	3	10	20	43	29	34	18	9	18
	25,82%	0,00%	46,03%	37,50%	31,25%	27,78%	25,00%	22,31%	29,82%	20,93%	19,15%	37,50%
Late Stage	66	0	56	3	7	23	43	20	46	26	8	14
	27,05%	0,00%	88,89%	37,50%	21,88%	31,94%	25,00%	15,38%	40,35%	30,23%	17,02%	29,17%
Total	244	132	63	8	32	72	172	130	114	86	47	48
After Covid-19												
Total Stages	14	0	1	0	4	3	11	3	11	1	1	1
	5,74%	0,00%	1,59%	0,00%	12,50%	4,17%	6,40%	2,31%	9,65%	1,16%	2,13%	2,08%
Seed Stage	109	101	0	3	14	27	82	71	38	41	29	15
	44,67%	76,52%	0,00%	37,50%	43,75%	37,50%	47,67%	54,62%	33,33%	47,67%	61,70%	31,25%
Early Stage	143	105	4	6	22	42	101	84	59	51	29	30
	58,61%	79,55%	6,35%	75,00%	68,75%	58,33%	58,72%	64,62%	51,75%	59,30%	61,70%	62,50%
Mid Stage	71	8	30	3	12	25	46	34	37	21	11	21
	29,10%	6,06%	47,62%	37,50%	37,50%	34,72%	26,74%	26,15%	32,46%	24,42%	23,40%	43,75%
Late Stage	65	0	54	3	7	23	42	21	44	27	7	15
	26,64%	0,00%	85,71%	37,50%	21,88%	31,94%	24,42%	16,15%	38,60%	31,40%	14,89%	31,25%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 4: Specialization on Stage

Data Analysis

Now we briefly discuss the composition of our sample. The average age of the VCs questioned is 49 years (see table 5), specifically we note a higher average (54) in North America, followed by a stronger variance (15.39); we also note that the average Venture Capitalist in a social impact fund is 5 years younger than the average working in a traditional fund (46 and 51 respectively).

A.3 - Age

(1st row: mean, 2nd row: variance, 3rd row: observations)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
49	49	52	58	52	46	51	48	51	48	54	48
11,63	12,48	9,57	6,35	13,23	11,28	11,59	10,83	12,42	10,21	15,39	10,29
187	104	51	5	28	56	131	100	87	72	27	39

Table 5: Age

The data collected are in line with the personal data of studies similar to ours, this reassures us about the consistency of our sample and its representative power. Looking at the sample from the perspective of gender difference (see table 6), we find that the female representation is just over 15%, although this percentage rises to 25% if we concentrate our attention only on social impact funds, and they are almost 35% in funds specialized in investments in the Healthcare world.

A.4 - Gender

(1st row: N, 2nd row: %)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
193	101	52	7	20	53	140	100	93	68	32	40
79,10%	76,52%	82,54%	87,50%	62,50%	73,61%	81,40%	76,92%	81,58%	79,07%	68,09%	83,33%
41	24	0	1	11	18	23	25	16	16	12	7
16,80%	18,18%	14,29%	12,50%	34,38%	25,00%	13,37%	19,23%	14,04%	18,60%	25,53%	14,58%

Table 6: Gender

From a geographical point of view, there is a gender gap among VCs that invest exclusively in NA in terms of lower employed staff, compared to funds that do not typically invest in EU or North America (respectively, 25% versus about 16%). As regards the number of people working in the fund's management team (see table 7), we have an average value of 11 with an important variance greater than 21.

B.3 - Number of people working in the fund managing team

(1st row: mean, 2nd row: variance, 3rd row: observations)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Health	Social	Tradizional	Small	Big	UE	NA	Rest
11	11	14	9	13	9	12	10	13	11	7	10
21,37	26,86	15,24	8,09	6,99	8,26	24,86	26,77	12,62	13,47	5,32	8,41
244	132	63	32	8	72	172	130	114	86	47	48

Table 7: Fund management team

The average fund committed capital of the Venture Capital firms analysed is equal to 240M$ (see table 8), although we note relevant differences by concentrating on the various clusters individually: on average, the funds that invest in late stages are almost four times larger than the VC firms that invest in early-stages (respectively 483M $ versus 124M $); this difference could have its roots in the fact that generally greater investment capital is required by a company already started in order to scale-up rapidly.

B.5 - Fund committed capital

(1st row: mean, 2nd row: variance, 3rd row: observations)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
240	124	483	218	200	170	269	47	460	245	184	96
542,29	168,33	961,14	154,62	218,17	366,45	599,33	28,42	734,61	506,85	204,01	112,08
244	132	63	8	32	72	172	130	114	86	47	48

Table 8: Fund committed capital

However, it should be emphasized that the variance associated with late-stage investors committed capital is much greater than the variance of the average capital invested by early-stage investors, this could suggest that the average is not a real representation of the market because it is extremely conditioned by a few funds with a gigantic invested capital. Surprisingly, the average committed capital of companies that invest exclusively in Europe is greater than those that invest only in North America. This result can be explained by the increasingly growing phenomenon, especially in the US, of internalization of the Venture Capital industry, fuelled by the increase of capital destined for this type of investment - attracted by high expected returns and by the lack of premium investments in the same region. The data in the table 9 represents the average number of companies in the portfolio of the Venture Capital funds: on average each fund has around 41 companies in its portfolio, although it is immediately evident that companies that invest exclusively in one sector, which is this IT or Healthcare, have significantly fewer holdings (on average 17 and 12 respectively);

this data does not surprise us, as it is reasonable to expect that a high specialization of a VC firm in a given industry mechanically limits the number of potential investments and forces the company itself, in an attempt to achieve the expected return, to specialize in technologies niche, whose evaluation and management is a complicated matter for generalist Venture Capitalists; given, therefore, the business niches in which they generally invest, we believe that these require higher efforts both from a financial and a managerial point of view, this could explain the reason for such a small number of companies in the portfolio. Secondly, we highlight that early-stage VCs manage a portfolio on average 3 times larger than that of late-stage VCs (respectively, 47 versus 15), although, as noted above, the late-stage investment funds are on average 4 times larger.

B.6 - Number of portfolio companies of your fund
(1st row: mean, 2nd row: variance, 3rd row: observations)

Total	Stage		Industry		VC typology		Size		Geography		
	Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
41	47	15	17	12	41	42	39	45	32	45	17
186,82	228,12	14,84	15,10	6,75	127,92	205,94	229,31	121,59	112,25	114,50	15,80
239	130	61	8	31	68	171	128	111	83	47	47

Table 9: Portfolio companies

Now we analyse, from a general perspective, the impact that the outbreak of the pandemic has on the investment strategies usually used by Venture Capitalists : the 55% of the respondents say they do not change their strategies, the little more than 40% say they have done it moderately, and only 4% say they have significantly changed their approach to investing. The cluster that shows more variability within it is that of "Geography", here the VCs that do not usually invest in either North America or Europe report a significant average change in their investment practices, that is four times higher than that of usual European-focused investors, and double higher than North American investors. We believe that the different impact of Covid-19, in terms of spread, hospital pressure, mortality and the government restrictive measures applied by region, has had a considerable impact on investment strategies.

C.1 - Impact on investment strategies
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Not at Total	133	71	33	6	22	36	97	69	64	52	27	19
	54,51%	53,79%	52,38%	75%	68,75%	50%	56,40%	53,08%	56,14%	60,47%	57,45%	39,58%
Moderately	100	52	29	2	9	30	70	52	48	31	18	24
	40,98%	39,39%	46,03%	25%	28,13%	41,67%	40,70%	40%	42,11%	36,05%	38,30%	50%
Significantly	10	8	1	0	0	6	4	8	2	2	2	5
	4,10%	6,06%	1,59%	0%	0%	8,33%	2,33%	6,15%	1,75%	2,33%	4,26%	10,42%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 10: Investment strategies

Before investigating each stage of the "deal funnel", we asked our respondents to evaluate the impact that the Covid-19 has had on each of these stages in terms of time, effort required, and complexity compared to the situation prior to Covid-19. The questions are asked in closed and it is asked to the respondents to make a qualitative evaluation.

Considering the whole “deal funnel”, the data shows that on average for just over half of the respondents (54%) there was no change, for 31% there was a moderate or significant increase in effort, while 15% say this decreased with the spread of virus. Deal Evaluation (see table 14) and Post-Investment Activities (see table 16) are the two phases that show a higher average increase in the required commitment (about 44%), followed by Exit (see table 17) and Deal Sourcing, about 32%, (see table 12), Deal Screening (27%, see table 13) and Deal Structuring (22%, see table 15).

To better visualize the results, it is reported the information obtained on each stage of the “deal funnel” in a single table, omitting the information on clusters. Furthermore, in the right part of the table, the reader can see the ranking of the activities that have undergone a greater increase in efforts, as well as the ranking of the activities that have seen a decrease in the efforts required. The rankings are obtained by grouping the answers together by increasing and decreasing efforts, without considering the difference between “moderate” and “significant”.

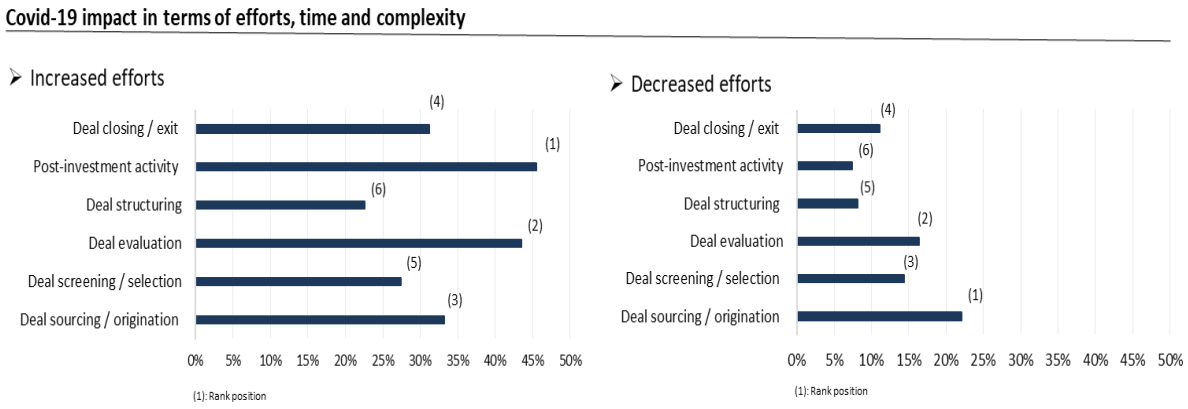


Table 11: Efforts dedicated to the different phases of investment funnel

Unexpectedly, it is observed that both Deal Evaluation and Deal Origination appear among the top 3 both for the increase and for the decrease of the efforts required. These conflicting results can be interpreted as a sign that Covid-19 has brought enormous uncertainty on the market, and it has put the VCs in such difficulty that they react in opposite ways. The only comment can be made is that Covid has had a significant impact on these two practices, but it cannot be evaluated more in details.

The results regarding post-investment activities are easy to interpret: it is the stage that have been impacted the most in terms of effort and time required. This thesis is supported by the fact that it ranks first for increased efforts and last place for decrease in efforts.

Deal Structuring is the practice on which there has been the least impacts, since it is the one with the highest "no change" rate. Finally, both Deal Screening and the Exit Strategies seem to need more efforts from the VCs, as the percentage of people who think that the effort required has increased is more than double that of those who say the opposite.

If we compare the data among the various clusters we note that, with the exception of Deal Sourcing - where no particular correlation is noted -, in all the other activities we observe that generally the VCs that typically target a region other than North American or European have noticed an increase in the efforts required, this does not surprise us given the heterogeneous impact that Covid-19 has had in different parts of the world, generating different restrictions based on individual governments. Secondly, we want to highlight that social funds on average need to allocate more efforts on these activities than their traditional counterpart, because of Covid-19. A particular case is that represented by the Deal Evaluation: here we observe a clear difference between early and late-stage investors, in fact, the latter declare that they have perceived on average a significant increase in 14.3% of cases, more than double compared to

the former (6.8%), considering all the phases of the "deal funnel"; and 57% of late-stage investors say they find it more difficult to evaluate, compared to just 37% of early-investors. We believe that this gap can be linked to the fact that late-stage investors are the cluster that on average uses the most financial metrics in valuations, and they are also the cluster that has made the most adjustments in cash flow projections, almost 10% more compared to the average of the interviewees. At the same time, we also note that in performing the same activity the "big" funds are in more difficulty than the "small" ones (respectively, 49% and 28% declare that more effort is needed in the evaluation stage).

C.3 - Impact on Deal Origination
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Significantly decreased	9	3	5	0	2	3	6	4	5	3	2	2
	3,69%	2,27%	7,94%	0%	6,25%	4,17%	3,49%	3,08%	4,39%	3,49%	4,26%	4,17%
Moderately decreased	45	26	9	1	6	8	37	23	22	18	9	7
	18,44%	19,70%	14,29%	12,50%	18,75%	11,11%	21,51%	17,69%	19,30%	20,93%	19,15%	14,58%
No change	109	61	27	3	14	34	75	58	51	43	21	18
	44,67%	46,21%	42,86%	37,50%	43,75%	47,22%	43,60%	44,62%	44,74%	50%	44,68%	37,50%
Moderately increased	61	30	19	4	8	21	40	35	26	18	12	16
	25%	22,73%	30,16%	50%	25%	29,17%	23,26%	26,92%	22,81%	20,93%	25,53%	33,33%
Significantly increased	20	12	3	0	2	6	14	10	10	4	3	5
	8,20%	9,09%	4,76%	0%	6,25%	8,33%	8,14%	7,69%	8,77%	4,65%	6,38%	10,42%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 12: Impact on Deal Origination

C.3 - Impact on Deal Screening
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Significantly decreased	6	4	1	0	0	2	4	4	2	1	2	2
	2,46%	3,03%	1,59%	0%	0%	2,78%	2,33%	3,08%	1,75%	1,16%	4,26%	4,17%
Moderately decreased	29	15	9	0	0	8	21	9	20	11	6	2
	11,89%	11,36%	14,29%	0%	0%	11,11%	12,21%	6,92%	17,54%	12,79%	12,77%	4,17%
No change	142	79	34	5	24	36	106	81	61	55	28	24
	58,20%	59,85%	53,97%	62,50%	75%	50%	61,63%	62,31%	53,51%	63,95%	59,57%	50%
Moderately increased	51	24	16	3	6	20	31	24	27	16	8	14
	20,90%	18,18%	25,40%	37,50%	18,75%	27,78%	18,02%	18,46%	23,68%	18,60%	17,02%	29,17%
Significantly increased	16	10	3	0	2	6	10	12	4	3	3	6
	6,56%	7,58%	4,76%	0%	6,25%	8,33%	5,81%	9,23%	3,51%	3,49%	6,38%	12,50%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 13: Impact on Deal Screening

C.3 - Impact on Deal Evaluation
(1st row: N, 2nd row: %)

Impact	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Significantly decreased	7	3	3	0	0	3	4	3	4	2	1	2
	2,87%	2,27%	4,76%	0%	0%	4,17%	2,33%	2,31%	3,51%	2,33%	2,13%	4,17%
Moderately decreased	33	24	4	1	2	10	23	18	15	11	8	5
	13,52%	18,18%	6,35%	12,50%	6,25%	13,89%	13,37%	13,85%	13,16%	12,79%	17,02%	10,42%
No change	98	55	20	4	20	22	76	59	39	43	20	15
	40,16%	41,67%	31,75%	50%	62,50%	30,56%	44,19%	45,38%	34,21%	50%	42,55%	31,25%
Moderately increased	80	41	27	2	7	28	52	37	43	26	13	16
	32,79%	31,06%	42,86%	25%	21,88%	38,89%	30,23%	28,46%	37,72%	30,23%	27,66%	33,33%
Significantly increased	26	9	9	1	3	9	17	13	13	4	5	10
	10,66%	6,82%	14,29%	12,50%	9,38%	12,50%	9,88%	10%	11,40%	4,65%	10,64%	20,83%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 14: Impact on Deal Evaluation

C.3 - Impact on Deal Structuring
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Significantly decreased	3	1	1	0	0	2	1	2	1	1	0	2
	1,23%	0,76%	1,59%	0,00%	0,00%	2,78%	0,58%	1,54%	0,88%	1,16%	0,00%	4,17%
Moderately decreased	17	10	3	1	1	3	14	9	8	6	4	1
	6,97%	7,58%	4,76%	12,50%	3,13%	4,17%	8,14%	6,92%	7,02%	6,98%	8,51%	2,08%
No change	169	93	44	6	22	44	125	90	79	62	32	33
	69,26%	70,45%	69,84%	75,00%	68,75%	61,11%	72,67%	69,23%	69,30%	72,09%	68,09%	68,75%
Moderately increased	44	23	14	1	8	19	25	21	23	14	10	10
	18,03%	17,42%	22,22%	12,50%	25,00%	26,39%	14,53%	16,15%	20,18%	16,28%	21,28%	20,83%
Significantly increased	11	5	1	0	1	4	7	8	3	3	1	2
	4,51%	3,79%	1,59%	0,00%	3,13%	5,56%	4,07%	6,15%	2,63%	3,49%	2,13%	4,17%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 15: Impact on Deal Structuring

C.3 - Impact on Post Investment activities
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	H	Social	Trad,	Small	Big	EU	NA	Rest
Significantly decreased	3	2	0	0	1	1	2	2	1	1	0	2
	1,23%	1,52%	0,00%	0,00%	3,13%	1,39%	1,16%	1,54%	0,88%	1,16%	0,00%	4,17%
Moderately decreased	15	9	2	0	2	6	9	7	8	6	1	0
	6,15%	6,82%	3,17%	0,00%	6,25%	8,33%	5,23%	5,38%	7,02%	6,98%	2,13%	0,00%
No change	115	66	26	2	21	27	88	64	51	47	24	15
	47,13%	50,00%	41,27%	25,00%	65,63%	37,50%	51,16%	49,23%	44,74%	54,65%	51,06%	31,25%
Moderately increased	81	43	22	5	5	26	55	41	40	28	15	24
	33,20%	32,58%	34,92%	62,50%	15,63%	36,11%	31,98%	31,54%	35,09%	32,56%	31,91%	50,00%
Significantly increased	30	12	13	1	3	12	18	16	14	4	7	7
	12,30%	9,09%	20,63%	12,50%	9,38%	16,67%	10,47%	12,31%	12,28%	4,65%	14,89%	14,58%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 16: Impact on Post Investment activities

C.3 - Impact on Exit
(1st row: N, 2nd row: %)

	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	H	Social	Trad,	Small	Big	EU	NA	Rest
Significantly decreased	4	1	1	0	0	2	2	3	1	1	0	2
	1,64%	0,76%	1,59%	0,00%	0,00%	2,78%	1,16%	2,31%	0,88%	1,16%	0,00%	4,17%
Moderately decreased	23	9	4	0	5	5	18	11	12	7	5	2
	9,43%	6,82%	6,35%	0,00%	15,63%	6,94%	10,47%	8,46%	10,53%	8,14%	10,64%	4,17%
No change	141	80	35	5	18	36	105	74	67	52	31	22
	57,79%	60,61%	55,56%	62,50%	56,25%	50,00%	61,05%	56,92%	58,77%	60,47%	65,96%	45,83%
Moderately increased	58	33	18	3	6	21	37	32	26	19	11	15
	23,77%	25,00%	28,57%	37,50%	18,75%	29,17%	21,51%	24,62%	22,81%	22,09%	23,40%	31,25%
Significantly increased	18	9	5	0	3	8	10	10	8	7	0	7
	7,38%	6,82%	7,94%	0,00%	9,38%	11,11%	5,81%	7,69%	7,02%	8,14%	0,00%	14,58%
Total	244	132	63	8	32	72	172	130	114	86	47	48

Table 17: Impact on Exit

In particular, we want to highlight the results with regard to deal evaluation activities as they are of greater interest than the other results obtained. Here, it is noted a marked difference between the extra-efforts perceived by early-stage (38%) and late-stage investors (57%) as well as the difference between traditional (40%) and social impact funds (51%). As we are about to see, the late-stage investors, compared to the early ones, use standard financial metrics much more frequently to assess the health of a company, and the uncertainty introduced by the covid has made this task more difficult, making these methods less effective as the uncertainty caused by the disease prevents and / or severely limits the assumptions that make quantitative evaluation methods applicable. The difference is even more marked from a geographical point of view: we can see that investors specialized in regions outside North America and the EU recorded a 20% greater increase in efforts respect to the other two geographical clusters (respectively, 54% against 35% and 38%). This could be interpreted as an evidence of the different impact that the virus has had in the world and the various control policies implemented by the local governments.

C.3 - Impact on Deal Evaluation
(1st row: N, 2nd row: %)

Impact	Total	Stage		Industry		Type of VC		Fund size		Geography		
		Early	Late	IT	Health	Social	Trad	Small	Big	EU	NA	Rest
Significantly decreased	7	3	3	0	0	3	4	3	4	2	1	2
	2,87%	2,27%	4,76%	0%	0%	4,17%	2,33%	2,31%	3,51%	2,33%	2,13%	4,17%
Moderately decreased	33	24	4	1	2	10	23	18	15	11	8	5
	13,52%	18,18%	6,35%	12,50%	6,25%	13,89%	13,37%	13,85%	13,16%	12,79%	17,02%	10,42%
No change	98	55	20	4	20	22	76	59	39	43	20	15
	40,16%	41,67%	31,75%	50%	62,50%	30,56%	44,19%	45,38%	34,21%	50%	42,55%	31,25%
Moderately increased	80	41	27	2	7	28	52	37	43	26	13	16
	32,79%	31,06%	42,86%	25%	21,88%	38,89%	30,23%	28,46%	37,72%	30,23%	27,66%	33,33%
Significantly increased	26	9	9	1	3	9	17	13	13	4	5	10
	10,66%	6,82%	14,29%	12,50%	9,38%	12,50%	9,88%	10%	11,40%	4,65%	10,64%	20,83%
Total	244	132	63	8	32	72	172	130	114	86	47	48
Pre-Covid Averga Increase	43,45%	37,88%	57,15%	37,50%	31,26%	51,39%	40,11%	38,46%	49,12%	34,88%	38,30%	54,16%
Pre-Covid Averga Decrease	16,39%	20,45%	11,11%	12,50%	6,25%	18,06%	15,70%	16,16%	16,67%	15,12%	19,15%	14,59%

Table 18: Impact on Deal Evaluation

DEAL EVALUATION

Considering the preliminary results regarding the deal evaluation of particular interest, in this section of the report we examine in more detail the financial metrics used both pre- and post-Covid. According to economic theories, a prospective investment should be evaluated using a DCF or NPV analysis based on the venture's management team's business strategy and business plan. Although the academic literature tells us that most venture capitalists do an evaluation of the perceived risk and anticipated return of the new investment, few codify the study into a calculation.

We asked the interviewees what financial metrics were used before the outbreak of Covid, and those used afterwards (see table 19). If we look at the general results without considering the clusters, we see 3 metrics clearly emerge on the others: Multiple-of-sales/EBITDA, Cash-on-Cash Multiple and IRR. In fact, before Covid-19, these 3 techniques are used on average by half of the interviewees, instead the fourth most used metric (NPV) is used only by 16% of the VCs reached. Given this clear difference in the use of the proposed metrics, it is considered useful to analyse in an aggregate way the variation in the use of the top 3 metrics with respect to the different clusters and with respect to the pre- and post- Covid scenario, by assuming implicitly that the use of these 3 metrics is approximately representative of the use of financial metrics.

Analysing cluster by cluster the results respect to the sum of the top 3 metrics, it is noted that the difference between early-stage investors (39%) and late-stage investors (70%) is remarkable: the last ones use these metrics much more frequently. In particular, it is evident the difference in the use of multiple cash-on-cash and IRR, suggested by the literature as the most used. On the early investors side, this difference is due both to the use of other metrics and to the non-use of these. These results are expected. In fact, using these metrics for a start-up without financial documentation or history is nearly impossible, otherwise they become useful tools when you have historical data on the company and on the sector in which it operates. It is observed that there are no impacts due to Covid with respect to any cluster, although there are also substantial differences between social impact funds and traditional, between small and big ones, and with respect to the geographical region.

C.14 - Financial metrics used in pre COVID-19 scenario and post COVID-19 scenario
(1st row: N, 2nd row: %)

		Total	Stage		Industry		VC typology		Size		Geography		
			Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Before Covid-	None	29	25***	1***	0**	5**	9	20	19	10	12	8	3*
		11,89%	18,94%	1,59%	0,00%	15,63%	12,50%	11,63%	14,62%	8,77%	13,95%	17,02%	62,50%
	Multiple of Sale	142	63***	52***	5	12	45	97	72	70	47	20	33
		58,20%	47,73%	82,00%	62,50%	37,50%	62,50%	56,40%	55,38%	61,40%	54,65%	42,55%	68,75%
	Cash-on-cash M	117	48***	40***	4	15	35	82	53**	64**	45	21	20
		47,95%	36,36%	63,49%	50,00%	46,88%	48,61%	47,67%	40,77%	56,14%	52,33%	44,68%	41,67%
	Hurdle Rate	24	10	8	0*	3*	8	16	10	14	6	4	5
		9,84%	7,58%	12,70%	0,00%	9,38%	11,11%	9,30%	7,69%	12,28%	6,98%	8,51%	10,42%
	IRR	112	45***	42***	4	15	42**	70**	60	52	28***	20	28***
		45,90%	34,00%	66,67%	50,00%	46,88%	ù	40,70%	46,15%	45,61%	32,56%	42,55%	58,33%
	NPV	39	16	11	1	8	9	30	21	18	12	2**	7
		15,98%	12,12%	17,46%	12,50%	25,00%	12,50%	17,44%	16,15%	15,79%	13,95%	4,43%	14,58%
	Other	40	28**	6**	3	5	14	26	22	18	16	8	7
		16,39%	21,21%	9,52%	37,50%	15,63%	19,44%	15,12%	16,92%	15,79%	18,60%	17,02%	14,58%
After Covid-19													
	None	29	25***	1***	0**	5**	9	20	19	10	12	8	3
		11,89%	18,94%	1,59%	0,00%	15,63%	12,50%	11,63%	14,62%	8,77%	13,95%	17,02%	6,25%
	Multiple of Sale	143	63***	52***	5	12	47	96	72	71	47	21*	32*
		58,61%	47,73%	82,54%	62,50%	37,50%	65,28%	55,81%	55,38%	62,28%	54,65%	44,68%	66,67%
	Cash-on-cash M	120	49***	41***	4	15	37	83	54**	66**	45	21	22
		49,18%	37,12%	65,08%	50,00%	46,88%	51,39%	48,26%	41,54%	57,89%	52,33%	44,68%	45,83%
	Hurdle Rate	25	11	8	0*	3*	8**	17**	11	14	6	4	6
		10,25%	8,33%	12,70%	0,00%	9,38%	11,11%	9,88%	8,46%	12,28%	6,98%	8,51%	12,50%
	IRR	111	43***	44***	4	15	41	70	57	54	30*	20	26*
		45,49%	32,58%	69,84%	50,00%	46,88%	56,94%	40,70%	43,85%	47,37%	34,88%	42,55%	54,17%
	NPV	41	17**	12**	1	8	10	31	23	18	12	2**	8
		16,80%	12,88%	19,05%	12,50%	25,00%	13,89%	18,02%	17,69%	15,79%	13,95%	4,26%	16,67%
	Other	43	29**	6**	3	5	15	28	24	19	16	8	9
		17,62%	21,97%	9,52%	37,50%	15,63%	20,83%	16,28%	18,46%	16,67%	18,60%	17,02%	18,75%

Table 19: Financial metrics frequency

We deepen the topic by asking the impact that Covid-19 has had on the fund's target IRR (see table 20), the question is proposed in a closed form and ranges of IRR values have been provided to be selected. This simplified structure was thought to encourage its completion, as we felt that not all respondents were willing to provide the exact data or did not know how to provide it with such precision.

Looking at the results, it is clear that the mode value in both the pre- and post-Covid-19 scenario is the target IRR between 20% and 29%, an option that was selected by just over half of our respondents in both scenarios and that makes it by far the most popular option. In the lower part of the table, the percentage of interviewees who declared that they have a target IRR higher than the mode value identified is shown.

This operation was repeated for each cluster, so the difference between the percentage of respondents reporting a target IRR higher than the mode value of each cluster compared to the general percentage is also reported, in other words the probability that each cluster's target IRR is above the mode value is compared to the probability of the entire sample being above the mode. Using this perspective, we note remarkable differences regarding the target IRR across the different clusters. Early-stage investors show a significantly higher target than late-

stage investors: this difference could be due to the fact that, by definition, early-investors have to support a higher risks associated with their investments, and, consequently, they require a higher return on investment. It is observed a similar difference between social and traditional funds, but here it is probably due to the different objectives that the two types of funds have.

It is interesting to note how Covid-19 “has taken extremes to extremes”: those clusters who had an above-average target IRR tend to have it even more above average, those who instead had a lower-than-average target IRR tend to have it even lower. Despite the fact that, in absolute terms, there is a general decrease in the IRR target (i.e., more pessimistic people are even more pessimistic than optimists are even more optimistic), as you can see in the difference line, but if we think in relative terms to the average this extremization emerges.

Probably the cause of this tendency is the different perception of risk: those who are risk-adverse and do not want to bear this risk, they worsen their predictions, those who are risk-lover, instead, prefer to bear a greater risk maintaining or increasing the target IRR, exploiting the uncertainty generated by the pandemic as an opportunity to find and manage new investments

In the bottom line of the same table, the same calculation including, this time, also the percentage of the mode value, is reported to check the consistency of the result, and similar results are obtained.

C.15;C1.7 - What is the target IRR of your fund in pre Covid-19 and post Covid-19 scenario?
(1st row: N, 2nd row: %)

	Total	Stage		Industry		VC typology		Size		Geography		
		Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Before Covid-19												
<10%	3	2	1	0	0	2	1	3*	0*	3*	0*	0*
	1,23%	1,52%	1,59%	0,00%	0,00%	2,78%	0,58%	2,31%	0,00%	3,49%	0,00%	0,00%
10-19%	26	11	8	0*	3*	13**	13**	9**	17**	9	5	6
	10,66%	8,33%	12,70%	0,00%	9,38%	18,06%	7,56%	6,92%	14,91%	10,47%	10,64%	12,50%
20-29%	124	63*	39*	3	20	35	89	65	59	43	25	25
	50,82%	47,73%	61,90%	37,50%	62,50%	48,61%	51,74%	50,00%	51,75%	50,00%	53,19%	52,08%
30-39%	53	31	11	3	4	13	40	29	24	15	11	14
	21,72%	23,48%	17,46%	37,50%	12,50%	18,06%	23,26%	22,31%	21,05%	17,44%	23,40%	29,17%
40-49%	12	6	2	1	0	2	10	8	4	5	2	1
	4,92%	4,55%	3,17%	12,50%	0,00%	2,78%	5,81%	6,15%	3,51%	5,81%	4,26%	2,08%
>50%	12	9	1	0	2	2	10	7	5	3	3	1
	4,92%	6,82%	1,59%	0,00%	6,25%	2,78%	5,81%	5,38%	4,39%	3,49%	6,38%	2,08%
N/A	14	10	1	1	3	5	9	9	5	8	1	1
	5,74%	7,58%	1,59%	12,50%	9,38%	6,94%	5,23%	6,92%	4,39%	9,30%	2,13%	2,08%
After Covid-19												
<10%	2	1	0	0	0	2	0	1	1	2	0	0
	0,82%	0,76%	0,00%	0,00%	0,00%	2,78%	0,00%	0,77%	0,88%	2,33%	0,00%	0,00%
10-19%	32	15	10	1	3	16**	16**	12*	20*	10	6	9
	13,11%	11,36%	15,87%	12,50%	9,38%	22,22%	9,30%	9,23%	17,54%	11,63%	12,77%	18,75%
20-29%	123	60***	41***	3	20	33	90	68	55	42	24	23
	50,41%	45,45%	65,08%	37,50%	62,50%	45,83%	52,33%	52,31%	48,25%	48,84%	51,06%	47,92%
30-39%	46	29**	6**	2	4	11	35	25	21	14	11	12
	18,85%	21,97%	9,52%	25,00%	12,50%	15,28%	20,35%	19,23%	18,42%	16,28%	23,40%	25,00%
40-49%	12	6	3	1	0	2	10	6	6	4	1	2
	4,92%	4,55%	4,76%	12,50%	0,00%	2,78%	5,81%	4,62%	5,26%	4,65%	2,13%	4,17%
>50%	13	10**	1**	0	2	1	12	8	5	4	4	1
	5,33%	7,58%	1,59%	0,00%	6,25%	1,39%	6,98%	6,15%	4,39%	4,65%	8,51%	2,08%
N/A	16	11	2	1	3	7	9	10	6	10	1	1
	6,56%	8,33%	3,17%	12,50%	9,38%	9,72%	5,23%	7,69%	5,26%	11,63%	2,13%	2,08%

Table 20: Target IRR

For reasons of consistency, the very same reasoning in analysing the target Cash-on-Cash Multiple. We ask our respondents to indicate the target Cash-on-Cash Multiple, the question is proposed in a closed form and ranges of CoC Multiple values have been provided to be selected. Analysing the results, it is evident that also in this case the mode value clearly emerges in both the scenarios. The option 2-3% is selected 23% of the time, while the second most selected option is chosen 16% of the time. The top 3 most selected answers accounts for 54% of the cases in the pre-Covid-19 scenario, and this statistic does not vary significantly in the post-pandemic scenario. In the right part of the table, the percentage of interviewees who declared that they have a target CoC multiple higher than the mode value is shown.

The calculations are repeated for each cluster, so the difference between the percentage of respondents indicating a target CoC multiple higher than the mode value of each cluster compared to the general percentage is also shown.

It is relevant to note again how Covid-19 “has taken extremes to extremes”: those clusters who have an above-average target CoC Multiple tend to have it even more above average, those who instead had a lower-than-average target CoC Multiple tend to have it even lower.

This tendency can be observed in the Stage cluster, as well as in the fund typology, size and geographic cluster. As expected, the results obtained are in line with the results of the analysis of the target IRR. In particular, it is worth noting that the difference between early-stage investors and late-stage investors is even more marked: In the pre-pandemic scenario, the former has the probability to select a CoC Multiple value greater than the mode of 78% (+13% respect to the value of the sample), while the second has a probability of 35% of selecting a value larger than the mode (-30% respect to the value of the sample). These tendencies are even more marked in the post-Covid-19 scenario, testifying again an extremization of extremes.

C.22 - In pre and post Covid-19 scenario, what is your usual target gross multiple or cash-on-cash multiple for an investment? (1st row: N, 2nd row: %)

	Total	Stage		Industry		VC typology		Size		Geography		
		Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Before Covid-19												
<2%	1	0	1	0	0	1	0	0	1	0	0	1
	0,41%	0,00%	1,59%	0,00%	0,00%	1,39%	0,00%	0,00%	0,88%	0,00%	0,00%	2,08%
2-3%	29	7***	18***	0*	3	12	17	14	15	14	3*	7
	11,89%	5,30%	28,57%	0,00%	9,38%	16,67%	9,88%	10,77%	13,16%	16,28%	6,38%	14,58%
3-4%	54	21***	22***	2	11	17	37	28	26	22	9	11
	22,13%	15,91%	34,92%	25,00%	34,38%	23,61%	21,51%	21,54%	22,81%	25,58%	19,15%	22,92%
4-5%	40	19	10	0***	8***	15	25	24	16	11	6	11
	16,39%	14,39%	15,87%	0,00%	25,00%	20,83%	14,53%	18,46%	14,04%	12,79%	12,77%	22,92%
5-6%	38	22	8	1	4	16*	22*	22	16	11	8	6
	15,57%	16,67%	12,70%	12,50%	12,50%	22,22%	12,79%	16,92%	14,04%	12,79%	17,02%	12,50%
6-7%	13	8***	0***	2	2	0***	13***	8	5	3	7**	1*
	5,33%	6,06%	0,00%	25,00%	6,25%	0,00%	7,56%	6,15%	4,39%	3,49%	14,89%	2,08%
7-8%	10	6	2	2	0	2	8	4	6	2	3	2
	4,10%	4,55%	3,17%	25,00%	0,00%	2,78%	4,65%	3,08%	5,26%	2,33%	6,38%	4,17%
8-9%	4	4***	0***	0	0	3	1	1	3	0**	0**	4**
	1,64%	3,03%	0,00%	0,00%	0,00%	4,17%	0,58%	0,77%	2,63%	0,00%	0,00%	8,33%
9-10%	17	12**	1**	0*	3	2**	15**	8	9	5	4	2
	6,97%	9,09%	1,59%	0,00%	9,38%	2,78%	8,72%	6,15%	7,89%	5,81%	8,51%	4,17%
>10%	37	32***	1***	1	1	4***	33***	20	17	17*	7	3**
	15,16%	24,24%	1,59%	12,50%	3,13%	5,56%	19,19%	15,38%	14,91%	19,77%	14,89%	6,25%
After Covid-19												
<2%	2	1	1	0	0	1	1	1	1	0	1	1
	0,82%	0,76%	1,59%	0,00%	0,00%	1,39%	0,58%	0,77%	0,88%	0,00%	2,13%	2,08%
2-3%	31	8***	21***	0**	4**	11	20	17	14	16	2***	8
	12,70%	6,06%	33,33%	0,00%	12,50%	15,28%	11,63%	13,08%	12,28%	18,60%	4,26%	16,67%
3-4%	53	16***	22***	2	10	20	33	24	29	20	6*	12
	21,72%	12,12%	34,92%	25,00%	31,25%	27,78%	19,19%	18,46%	25,44%	23,26%	12,77%	25,00%
4-5%	42	21	10	0**	7**	17	25	26	16	9**	11	10
	17,21%	15,91%	15,87%	0,00%	21,88%	23,61%	14,53%	20,00%	14,04%	10,47%	23,40%	20,83%
5-6%	31	21*	5*	1	5	11	20	19	12	11	5	6
	12,70%	15,91%	7,94%	12,50%	15,63%	15,28%	11,63%	14,62%	10,53%	12,79%	10,64%	12,50%
6-7%	15	8	2	3	2	2*	13*	8	7	4	7**	0***
	6,15%	6,06%	3,17%	37,50%	6,25%	2,78%	7,56%	6,15%	6,14%	4,65%	14,89%	0,00%
7-8%	7	5**	0**	1	0	1	6	4	3	2	2	2
	2,87%	3,79%	0,00%	12,50%	0,00%	1,39%	3,49%	3,08%	2,63%	2,33%	4,26%	4,17%
8-9%	5	4**	0**	0	0	2	3	1	4	1	1	3
	2,05%	3,03%	0,00%	0,00%	0,00%	2,78%	1,74%	0,77%	3,51%	1,16%	2,13%	6,25%
9-10%	18	13***	1***	0*	3*	2**	16**	8	10	5	4	2
	7,38%	9,85%	1,59%	0,00%	9,38%	2,78%	9,30%	6,15%	8,77%	5,81%	8,51%	4,17%
>10%	39	34***	1***	1	1	5***	34***	21	18	17	8	4**
	15,98%	25,76%	1,59%	12,50%	3,13%	6,94%	19,77%	16,15%	15,79%	19,77%	17,02%	8,33%

	Total	Stage		Industry		VC typology		Size		Geography		
		Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Average IRR above mode												
Pre-Covid	65,16%	78,03%	34,92%	75,00%	56,26%	58,34%	68,02%	66,91%	63,16%	56,98%	74,46%	60,42%
		12,87%	-30,24%	9,84%	-8,90%	-6,82%	2,86%	1,75%	-2,00%	-8,18%	9,30%	-4,74%
Post-Covid	64,34%	80,31%	30,16%	75,00%	56,27%	55,56%	68,02%	66,92%	61,41%	56,98%	80,85%	56,25%
		15,97%	-34,18%	10,66%	-8,07%	-8,78%	3,68%	2,58%	-2,93%	-7,36%	16,51%	-8,09%
Difference	-0,82%	2,28%	-4,76%	0,00%	0,01%	-2,78%	0,00%	0,01%	-1,75%	0,00%	6,39%	-4,17%
Average IRR equal or above mode												
Pre-Covid	87,29%	93,94%	69,84%	100,00%	90,64%	81,95%	89,53%	88,45%	85,97%	82,56%	93,61%	83,34%
		6,65%	-17,45%	12,71%	3,35%	-5,34%	2,24%	1,16%	-1,32%	-4,73%	6,32%	-3,95%
Post-Covid	86,06%	92,43%	65,08%	100,00%	87,52%	83,34%	87,21%	85,38%	86,85%	80,24%	93,62%	81,25%
		6,37%	-20,98%	13,94%	1,46%	-2,72%	1,15%	-0,68%	0,79%	-5,82%	7,56%	-4,81%
Difference	-1,23%	-1,51%	-4,76%	0,00%	-3,12%	1,39%	-2,32%	-3,07%	0,88%	-2,32%	0,01%	-2,09%

Table 21: Target multiple or cash-on-cash

We focus our attention on the post-investment activities, in particular we focus on the impact that covid has had on the valuations of their investments. The question proposed is in closed form, and the suggested answers range from -60% to +60% at regular intervals of 10%.

Generally speaking, we can observe that more VCs declare that their investments valuations get worse due to the pandemic compared to those who say their valuations have improved, even if the mode value is the zero-impact option, and, generally, we can observe that the answers selected are not very dispersed but they are near the mode value. Going into detail, we notice how a difference emerges between early-stage investors and late-stage investors: the former report negatively impacted valuations in the 40% of the cases, while the second in the 33% of the cases, respectively they report a positive impact in 22% and 33% of the cases. This gap could be attributed to the fact that start-ups, and SMEs in general, have suffered the most from this crisis, as by their nature they are generally companies that do not generate profit and that rely entirely on the external investment to develop their products. Another factor that could have contributed to this phenomenon is the postponement of the release of products on the market and the impossibility of finding a favourable exit strategy due to the general market condition, from the VCs perspective, this could have caused an increasing in the investment maintaining cost and a decrease in the assessments made. An exception is represented by the social impact funds, that recorded more positive impacts on their evaluations than negative. This difference could be explained by the fact that with the spread of Covid-19, and the subsequent increase in social inequalities and the general increase in poverty, the pandemic has highlighted and shown the social value of these companies, increasing their evaluation on the spot. Big size funds appear to be more in difficult than the small ones, this could be due to the slowness of large organizations in reacting effectively to rapid and unexpected phenomena, slowing down their corrective actions.

To deepen the topic, we asked what kind of adjustments they made, reporting the most used adjustments suggested by the literature. By far the most widely used adjustment is in the cash flow projection. This is something that is definitely not surprising, as the first effect of Covid-19 was the imbalance between supply and demand. This adjustment was much more used by late-stage investors than early, more used by social funds than traditional, and from a geographical point of view it is used more by those who target a region that is not in the EU or NA. These results are extremely consistent with what was previously analysed, in fact the VCs that have made more use of the adjustment of the cash flow projections are the same that have noticed a more significant increase in efforts, also in terms of time required and

complexity, in deal evaluation. Moreover late-stage investors, compared to the early ones, are more likely to use financial metrics in the evaluation phase.

C.19 - Covid-19 impact on investment valuations. (1st row: N, 2nd row: %)

	Total	Stage		Industry		VC typology		Size		Geography		
		Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
>50%	1	0	0	0	0	0	1	1	0	0	0	0
	0,41%	0,00%	0,00%	0,00%	0,00%	0,00%	0,58%	0,77%	0,00%	0,00%	0,00%	0,00%
>40%	1	0	0	0	1	0	1	1	0	0	0	0
	0,41%	0,00%	0,00%	0,00%	3,13%	0,00%	0,58%	0,77%	0,00%	0,00%	0,00%	0,00%
>30%	5	4**	0**	0	0	2	3	2	3	1	1	3
	2,05%	3,03%	0,00%	0,00%	0,00%	2,78%	1,74%	1,54%	2,63%	1,16%	2,13%	6,25%
>20%	24	10	8	0*	3*	11	13	15	9	5**	7	10*
	9,84%	7,58%	12,70%	0,00%	9,38%	15,28%	7,56%	11,54%	7,89%	5,81%	14,89%	20,83%
>10%	31	15	12	0**	5**	12	19	15	16	14*	0***	7
	12,70%	11,36%	19,05%	0,00%	15,63%	16,67%	11,05%	11,54%	14,04%	16,28%	0,00%	14,58%
0	89	50	22	2	16	24	65	53*	36*	35***	20	11**
	36,48%	37,88%	34,92%	25,00%	50,00%	33,33%	37,79%	40,77%	31,58%	40,70%	42,55%	22,92%
>-10%	20	12	4	2	2	5	15	10	10	7	5	4
	8,20%	9,09%	6,35%	25,00%	6,25%	6,94%	8,72%	7,69%	8,77%	8,14%	10,64%	8,33%
>-20%	36	24*	6*	0**	4**	8	28	19	17	12	7	5*
	14,75%	18,18%	9,52%	0,00%	12,50%	11,11%	16,28%	14,62%	14,91%	13,95%	14,89%	10,42%
>-30%	20	10	7	4**	1**	7	13	9	11	7	4	7
	8,20%	7,58%	11,11%	50,00%	3,13%	9,72%	7,56%	6,92%	9,65%	8,14%	8,51%	14,58%
>-40%	5	2	1	0	0	1	4	1	4	2	1	0*
	2,05%	1,52%	1,59%	0,00%	0,00%	1,39%	2,33%	0,77%	3,51%	2,33%	2,13%	0,00%
>-50%	8	4	3	0	0	1	7	3	5	1	1	1
	3,28%	3,03%	4,76%	0,00%	0,00%	1,39%	4,07%	2,31%	4,39%	1,16%	2,13%	2,08%
>-60%	4	1	0	0	0	1	3	1	3	2	1	0*
	1,64%	0,76%	0,00%	0,00%	0,00%	1,39%	1,74%	0,77%	2,63%	2,33%	2,13%	0,00%

Table 22: Investment valuation impact

C.20 - After Covid-19, what type of adjustements, if any, are made for valuations? (1st row: N, 2nd row: %)

	Total	Stage		Industry		VC typology		Size		Geography		
		Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Adjustment in cash flow projections	114	55	34	3	8	44***	70	64	50	40	10***	32***
	46,72%	41,67%	53,97%	37,50%	25,00%	61,11%	40,70%	49,23%	43,86%	46,51%	21,28%	66,67%
Adjustment in the allocation of a higher cost of capital	25	13	8	1	4	10	15	19**	6	7	4	9*
	10,25%	9,85%	12,70%	12,50%	12,50%	13,89%	8,72%	14,62%	5,26%	8,14%	8,51%	18,75%
Adjustment related to the difficulty in finding financial resources	59	33	14	1	10	22	37	36	23	19	7**	22***
	24,18%	25,00%	22,22%	12,50%	31,25%	30,56%	21,51%	27,69%	20,18%	22,09%	14,89%	45,83%
No adjustment	98	56	22	5	15	24	74	48	50	38	27***	8***
	40,16%	42,42%	34,92%	62,50%	46,88%	33,33%	43,02%	36,92%	43,86%	44,19%	57,45%	16,67%
Other	23	13	5	1	4	7	16	8*	15	6	5	3
	9,43%	9,85%	7,94%	12,50%	12,50%	9,72%	9,30%	6,15%	13,16%	6,98%	10,64%	6,25%

Table 23: Adjustments frequency

In the questionnaire, it was asked the VCs to assess the importance of the main value-added activities, proposed by the literature, in the two different scenarios. The most considered value-added activity is offering to companies strategic guidance, followed by connecting people to investor and by connecting the company customers, suppliers or partners. The top 2 practices remain the same after Covid-19, even if the gap between is coming closer because the activity of connecting companies with potential investors gains in importance. Remarkable is the fact that helping companies to find financial resources is a factor that takes on much more importance in the second scenario, respect to connect people with suppliers, customers of potential partners. On average, all value-added activities have gained in importance, this underlines the critical role of VCs in helping companies across the board when they face difficulties. This fact indicates how Covid-19 has put companies in difficulty from many different points of view. The activity that remains by far the least considered in terms of value added was and remains helping companies to hire employees.

C,27 - Pre and post Covid-19, assess the importance of the following value-added activities,
(1st row: mean, 2nd row: variance, 3rd row: observations)

		Total	Stage		Industry		VC typology		Size		Geography		
			Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Before Covid-	Provide help to companies in hiring	2,596	2,739**	2,31**	2,833	2,69	2,574	2,605	2,602	2,59	2,6	2,537	2,575
		1,13	1,16	1,08	0,41	1,11	1,22	1,09	1,18	1,07	1,00	1,38	1,13
		213	115	58	6	29	61	152	113	100	75	41	40
	Provide help to companies in hiring	3,55	3,48	3,55	4,17	3,97	3,53	3,56	3,46	3,65	3,51	3,43	3,64
		1,13	1,10	1,24	0,75	0,96	1,08	1,15	1,18	1,07	1,14	1,31	1,09
		228	120	62	6	30	66	162	121	107	82	42	45
	Provide help to companies in hiring	3,56	3,48	3,72	3,333*	4,367*	3,45	3,60	3,50	3,62	3,68	3,43	3,42
		1,29	1,29	1,37	1,21	0,85	1,36	1,26	1,27	1,31	1,30	1,33	1,42
		221	118	57	6	30	65	156	117	104	80	42	43
	Provide operational guidance	3,29	3,26	3,44	3,50	3,67	3,25	3,31	3,28	3,31	3,17	3,69	3,38
		1,14	1,10	1,18	1,38	1,12	1,11	1,16	1,15	1,14	1,08	1,20	1,19
		230	121	62	6	30	67	163	122	108	82	42	45
	Provide strategic guidance	4,23	4,19	4,32	4,17	4,57	4,19	4,24	4,21	4,25	4,32	4,40	4,24
		0,93	0,91	0,92	1,33	0,63	1,09	0,87	0,96	0,91	0,80	0,90	0,98
		231	122	62	6	30	67	164	123	108	82	43	45
	Connect companies with potential	3,81	3,80	3,86	3,50	3,97	3,93	3,76	3,89	3,73	3,61	3,77	3,82
		1,00	1,06	1,04	0,84	0,85	0,94	1,02	0,96	1,04	0,94	1,15	0,91
		231	122	62	6	30	68	163	122	109	82	43	45
	Connect companies with potential	3,91	4,146***	3,21***	3,83	4,37	3,667**	4,006**	3,95	3,85	3,84	4,02	3,587*
		1,16	0,91	1,37	1,17	0,67	1,31	1,08	1,11	1,22	1,24	1,11	1,31
		233	123	62	6	30	69	164	124	109	82	44	46
	Help companies to reach	3,78	3,66	3,94	4,00	3,97	3,66	3,83	3,75	3,82	3,82	3,65	3,67
		0,97	1,06	0,85	0,89	0,85	0,91	0,99	0,99	0,94	0,95	1,23	0,83
		229	121	62	6	30	68	161	121	108	81	43	45
After Covid-19													
	Provide help to companies in hiring	2,75	2,86**	2,491**	2,83	2,83	2,77	2,75	2,79	2,72	2,69	2,80	2,73
		1,22	1,20	1,30	0,41	1,26	1,35	1,17	1,27	1,16	1,05	1,49	1,32
		211	114	57	6	29	60	151	112	99	74	40	40
	Provide help to companies in hiring	3,69	3,60	3,69	4,17	4,00	3,72	3,67	3,59	3,79	3,62	3,69	3,76
		1,14	1,12	1,29	0,75	0,95	1,13	1,15	1,16	1,11	1,11	1,39	1,15
		229	121	62	6	30	67	162	122	107	82	42	45
	Provide help to companies in hiring	3,62	3,487**	3,807***	3,333*	4,433*	3,60	3,63	3,56	3,69	3,70	3,45	3,48
		1,30	1,33	1,30	1,21	0,77	1,33	1,29	1,30	1,30	1,30	1,37	1,42
		222	119	57	6	30	65	157	118	104	80	42	44
	Provide operational guidance	3,56	3,51	3,69	3,50	3,90	3,66	3,52	3,53	3,59	3,38	3,95	3,73
		1,20	1,21	1,17	1,38	1,21	1,11	1,23	1,20	1,20	1,23	1,15	1,20
		230	121	62	6	30	67	163	122	108	82	42	45
	Provide strategic guidance	4,45	4,42	4,50	4,17	4,77	4,51	4,43	4,42	4,48	4,44	4,49	4,62
		0,79	0,77	0,81	1,33	0,50	0,89	0,75	0,80	0,79	0,72	0,88	0,68
		231	122	62	6	30	67	164	123	108	82	43	45
	Connect companies with potential	3,96	3,95	3,97	3,50	4,10	4,206**	3,859**	4,074**	3,835**	3,68	3,81	4,2*
		1,01	1,08	1,07	0,84	0,92	0,94	1,03	0,92	1,10	1,01	1,14	0,94
		231	122	62	6	30	68	163	122	109	82	43	45
	Connect companies with potential	4,22	4,42	3,54	4,00	4,60	4,14	4,26	4,31	4,12	4,14	4,21	4,16
		1,00	0,81	1,28	0,89	0,56	1,09	0,96	0,89	1,11	1,10	1,03	1,02
		228	123	59	6	30	66	162	121	107	80	44	43
	Help companies to reach	4,05	3,901**	4,21**	4,17	4,17	3,99	4,08	3,99	4,11	4,11	3,79	4,09
		0,97	1,10	0,75	0,75	0,79	0,94	0,99	1,04	0,90	0,91	1,28	0,87
		229	121	62	6	30	68	161	121	108	81	43	45

Table 24: Importance of the value-adding activites

To evaluate the impacts on the different exit strategies, in the survey it is asked to the VCs to assess the frequency with which they experienced the main exit routes in both the scenarios.

The data form the questionnaire suggest that the pandemic has increased the average frequency with which exits are used across all clusters. At first glance, this result could appear unexpected, since the exit represents for the VCs the only moment in which the gains are realized, consequently, VCs invest much energies in finding the exact strategy to exit and the most favorable market conditions to increase the valuation of their investments.

However these data must be interpreted taking into account that the health of the portfolio companies has been compromised by Covid-19, and the first reaction of the VCs may have been to get rid of the investments deemed too damaged as quickly as possible to focus on developing promising and not excessively compromised start-ups. Secondly, in the first half of 2021 many of the exit operations scheduled for the previous year took place.

To evaluate the results in terms of exit routes strategy, in table 25, the exit routes are divided into two categories, according to previous literature research: the top tier exits (sale to industrial player, sale to Private Equity and IPO) and second tier exits (management buyout and write-offs). As expected, the top tier exits are experienced with much more frequency respect to the second ties ones, since they are generally more profitable and more favourable to Venture Capitalists in general. Also in this case no differences are observed between different clusters, and the covid has had a fair impact on all clusters by slightly increasing the frequency of use of these exits.

Slight differences can be noted in experiencing the top tier exit routes between small and big funds (in relative terms, small funds tend to lean more towards second tier exit routes), however this diversity is maintained in both scenarios and is likely to be a structural difference, as large funds tends to prefer more, in particular, the IPO exit, because with their reputation and their size they can influence the market in positively welcoming VC-backed companies launched on the public market.

C,28 - Assess the frequency with which you experienced the following exit routes, in pre and post Covid-19 scenario, (1st row: mean, 2nd row: variance, 3rd row: observations)

		Total	Stage		Industry		VC typology		Size		Geography		
			Early	Late	IT	Helth	Social	Tradizional	Small	Big	UE	NA	Rest
Before Covid-	IPO	2,533	2,37	2,49	2,8	3,077	2,667	2,488	2,187***	2,809***	2,29	2,548	2,593
		1,2	1,112	1,244	0,837	1,055	1,223	1,194	1,159	1,167	1,092	1,15	1,394
		169	81	49	5	26	42	127	75	94	62	31	27
	Sale to an ind p	3,956	3,841*	4,175*	4	4,185	3,929	3,967	3,922	3,99	4,028	3,897	4
		1,037	1,117	0,869	0,632	0,786	0,97	1,064	1,105	0,97	0,872	1,119	1,162
		102	72	39	104	206	107	57	150	56	38	27	6
	Sale to PE	2,82	2,56***	3,315***	3	2,429	2,88	2,797	2,64*	2,989*	2,794	2,5	3,2
		1,26	1,222	1,226	0,894	1,287	1,256	1,266	1,29	1,214	1,253	1,218	1,375
		183	91	54	6	21	50	133	89	94	68	32	30
	Management b	1,901	1,803	2,125	1,5	1,533	2,15*	1,811*	1,972	1,835	2,103	1,565**	2,16
		1,094	1,103	1,16	0,548	0,834	1,145	1,066	1,222	0,966	1,15	0,788	1,344
		151	71	48	6	15	40	111	72	79	58	23	25
	Write off	1,994	2,284***	1,515***	1,8	2,043	1,95	2,008	2,09	1,905	2,254*	1,882	1,808
		1,018	1,078	0,87	1,095	0,878	1,085	1	1,107	0,926	1,168	0,808	0,939
		162	95	33	5	23	40	122	78	84	59	34	26
After Covid-19													
	IPO	2,9	2,78	2,837	2,8	3,37	3,07	2,843	2,618**	3,128**	2,635	2,719	3,154
		1,304	1,305	1,328	0,837	1,245	1,242	1,324	1,395	1,184	1,235	1,301	1,515
		170	82	49	5	27	43	127	76	94	63	32	26
	Sale to an ind p	3,99	3,864**	4,211**	4	4,179	4	3,987	3,942	4,038	4,055	3,829	4,105
		1,033	1,145	0,861	0,632	0,983	1,052	1,029	1,139	0,919	0,941	1,116	1,11
		209	110	57	6	28	57	152	104	105	73	41	38
	Sale to PE	3	2,707***	3,407***	3,167	2,182	3,058	2,977	2,833*	3,158*	2,928	2,781	3,323
		1,323	1,263	1,281	1,169	1,296	1,349	1,317	1,376	1,257	1,287	1,408	1,376
		185	92	54	6	22	52	133	90	95	69	32	31
	Management b	2,02	1,819*	2,255*	1,5	1,467	2,19	1,954	2,014	2,026	2,19	1,783	2,08
		1,201	1,13	1,31	0,548	0,834	1,33	1,147	1,233	1,177	1,221	1,204	1,382
		150	72	47	6	15	42	108	74	76	58	23	25
	Write off	2,127	2,4***	1,667***	2	1,957	2,372	2,041	2,235	2,024	2,356	1,818**	2,241
		1,124	1,198	0,99	1,155	1,065	1,254	1,067	1,207	1,035	1,214	0,983	1,185
		166	95	33	4	23	43	123	81	85	59	33	29

Table 25: Exit routes frequency

		Total	Stage		Industry		VC typology		Size		Geography		
			Early	Late	IT	Helth	Social	Trad.	Small	Big	UE	NA	Rest
Average frequency	Pre Covid-19	2,64	2,57	2,72	2,62	2,65	2,72	2,61	2,56	2,71	2,69	2,48	2,75
			-0,07	0,08	-0,02	0,01	0,07	-0,03	-0,08	0,06	0,05	-0,16	0,11
	Post Covid-19	2,81	2,71	2,88	2,69	2,63	2,94	2,76	2,73	2,87	2,83	2,59	2,98
			-0,09	0,07	-0,11	-0,18	0,13	-0,05	-0,08	0,07	0,03	-0,22	0,17
	Differenze	0,17	0,14	0,15	0,07	-0,02	0,22	0,15	0,17	0,17	0,14	0,11	0,23
Average top tier frequency	Pre Covid-19	3,1	2,92	3,33	3,27	3,23	3,16	3,08	2,92	3,26	3,04	2,98	3,26
			-0,18	0,4	-0,06	-0,04	-0,07	-0,07	-0,17	0,35	-0,23	-0,06	0,28
	Post Covid-19	3,3	3,12	3,49	3,32	3,24	3,38	3,27	3,13	3,44	3,21	3,11	3,53
			-0,18	0,19	0,03	-0,05	0,08	-0,03	-0,17	0,14	-0,09	-0,19	0,23
	Differenze	0,19	0,19	0,16	0,06	0,01	0,22	0,19	0,21	0,18	0,17	0,13	0,26
Average second tier frequency	Pre Covid-19	1,95	2,04	1,82	1,65	1,79	2,05	1,91	2,03	1,87	2,18	1,72	1,98
			0,1	-0,13	-0,3	-0,16	0,1	-0,04	0,08	-0,08	0,23	-0,22	0,04
	Post Covid-19	2,07	2,11	1,96	1,75	1,71	2,28	2	2,12	2,03	2,27	1,8	2,16
			0,04	-0,11	-0,32	-0,36	0,21	-0,08	0,05	-0,05	0,2	-0,27	0,09
	Differenze	0,13	0,07	0,14	0,1	-0,08	0,23	0,09	0,09	0,16	0,09	0,08	0,18

Table 26: Analysis of the exit routes frequency

Conclusions

The purpose of this thesis is to get a better understanding of what venture capitalists do and, possibly, why they have been successful. We surveyed 268 institutional venture capitalists to ascertain their decision-making processes.

The paper offers two significant contributions: to begin, our findings contribute to the body of knowledge on the nature and relative importance of the stages of the deal funnel. While deal sourcing, deal selection, and post-investment value addition all contribute to value creation, deal selection is seen as the most essential. Additionally, particularly in terms of transaction selection is the VCs' interest in the management team. When it comes to investing, venture capitalists prioritize the management team above business-related qualities such as product and technology. These phenomena are not impacted by Covid-19, according to our survey.

Additionally, they place a higher premium on the people than on the company when it comes to the final success or failure of their investments. As a result of the study, it is concluded that VCs prefer the jockey perspective of venture capital investment over the horse view. Second, we find little evidence that venture capitalists use the net present value or discounted cash flow methods taught in business schools and advocated by academic finance, and we highlighted how the Covid-19 has made it more difficult to evaluate portfolio companies, especially in the cash-flow projections estimates.

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Appendix

SURVEY

VENTURE CAPITAL AND INVESTMENT PRACTICES AT COVID-19 TIME

A0 **SECTION A: PERSONAL INFORMATION**

A1 Name and surname

_____

A2 Preferential e-mail address

_____

A3 Year of birth *(optional)*

▼

A4 Gender *(optional)*

- ○ Male
- ○ Female
- ○ Prefer not to say
- ○ Other

A5 Nationality *(Optional)*

▼

A6 Where are you based?

▼

A7 Do you currently work on behalf of either an Institutional (Independent) venture capital fund or a Captive venture capital vehicle (es. Corporate venture capital, Bank-affiliated venture capital, Governmental venture capital)?

Select 1 answer only.

- ○ Yes, Institutional (Independent) venture capital
- ○ Yes, Captive venture capital vehicle (e.g. corporate VC, bank-affiliated VC, governmental VC)
- ○ No

A8 Who do you invest on behalf of? Choose the one that applies the most.

- ○ Private Equity fund
- ○ Fund of fund
- ○ Family office
- ○ I am an individual Angel Investor
- ○ Other _____

B1 What is the name of the Venture Capital fund you work for?

_____

B2 What is your job title?

Select 1 answer only.

- ○ Managing Partner
- ○ General Partner
- ○ Senior Partner
- ○ Partner / Venture Partner
- ○ Principal / Associate
- ○ Other _____

B3 How many people work, including you, in the managing team of the VC fund you work for (with roles: partners, associates, venture partners)?

_____

B4 What is your fund's vintage year?

_____

B5 What is the approximate total committed capital of your fund?

Please provide your answer in millions of dollars (M$).

_____

B6 How many companies, approximately, do you have in your fund's portfolio?

_____

B7 Can your fund be defined as a social impact venture capital fund (i.e. a fund that deliberately invests in businesses that are expected to generate economic, environmental and social value)?

Select 1 answer only.

- ○ Yes
- ○ No

B8 Does your fund have a

Select 1 answer only.

- ○ Cross-border investment focus
- ○ Domestic investment focus
- ○ Both

B9 Who are the most relevant limited partners of your fund?

Select all that apply.

- ☐ Banks
- ☐ Corporate investors
- ☐ Governments and other public bodies
- ☐ Individuals
- ☐ Insurance companies
- ☐ Investment funds (FoF)
- ☐ Pension funds
- ☐ Other _____

B10 Do you work on behalf of?

Select 1 answer only.

- ○ a Bank-controlled venture capital fund
- ○ a Governmental venture capital fund
- ○ a Corporate venture capital fund

B11 In what industries does your parent corporation operate?

Select all that apply.

- ☐ Telecommunications, IT Infrastructure and Cybersecurity
- ☐ Internet & Mobile services
- ☐ Data, Software & services
- ☐ Media and Entertainment
- ☐ Semiconductors
- ☐ Industrial Technology and Manufacturing
- ☐ Electronics/instrumentation
- ☐ Retailing/distribution
- ☐ Consumer Products and Services
- ☐ Healthcare
- ☐ Energy and Environment
- ☐ Biotechnology
- ☐ Chemicals and Pharmaceuticals
- ☐ Microfinance/Insurance & Financial Services
- ☐ Fintech
- ☐ Agriculture
- ☐ Education
- ☐ Other _____

C0 **SECTION C – INVESTMENT PRACTICES AND COVID CRISIS**
Please answer the following questions in reference to the context AFTER the COVID-19 outbreak.

VC INVESTMENT PROCESS

C1 **After** the COVID-19 outbreak, has your VC fund modified its investment strategies?

Select 1 answer only.

- ○ Not at all
- ○ Moderately
- ○ Significantly

C2 **After** the COVID-19 outbreak, has the overall time required to complete a deal changed?

Select 1 answer only.

- ○ Yes, it increased
- ○ Yes, it decreased
- ○ No, it did not change

C3 Is there any stage of the deal funnel that has been remarkably impacted **after** the COVID-19 outbreak (in terms of time/effort required/complexity, etc)? Please select, for each stage, if the overall effort required is increased / remained unchanged / decreased.

	Significantly decreased	Moderately decreased	No change	Moderately increased	Significantly increased
Deal sourcing / origination	○	○	○	○	○
Deal screening / selection	○	○	○	○	○
Due diligence (evaluation)	○	○	○	○	○
Deal structuring	○	○	○	○	○
Post-investment activity (monitoring, support, follow-ons)	○	○	○	○	○
Deal closing / exit	○	○	○	○	○

C4 **After** the COVID-19 outbreak, has your VC fund reduced cross-border venture capital investment in favour of a more domestic focus?

Select 1 answer only.

- ○ Yes
- ○ No
- ○ Not applicable

C5 **Before** COVID-19 outbreak, what stage of company did you use to target?

Select all that apply.

- [ ] All stages
- [ ] Seed Stage
- [ ] Early Stage
- [ ] Mid Stage
- [ ] Late Stage / Growth Equity

C6 **After** COVID-19 outbreak, what stage do you currently target?

Select all that apply.

- [ ] All stages
- [ ] Seed Stage
- [ ] Early Stage
- [ ] Mid Stage
- [ ] Late Stage / Growth Equity

C7 **Before** COVID-19 outbreak, what industries did you use to target?

Select all that apply.

- [ ] I did not use to target a particular industry
- [ ] Telecommunications, IT Infrastructure and Cybersecurity
- [ ] Internet & Mobile services
- [ ] Data, Software & services
- [ ] Media and Entertainment
- [ ] Semiconductors
- [ ] Industrial Technology and Manufacturing
- [ ] Electronics/instrumentation
- [ ] Retailing/distribution
- [ ] Consumer Products and Services
- [ ] Healthcare
- [ ] Energy and Environment
- [ ] Biotechnology
- [ ] Chemicals and Pharmaceuticals
- [ ] Microfinance/Insurance & Financial Services
- [ ] Fintech
- [ ] Agriculture
- [ ] Education
- [ ] Other

C8 **After** COVID-19 outbreak, what industries do you currently target?

Select all that apply.

- [ ] I don't target a particular industry
- [ ] Telecommunications, IT Infrastructure and Cybersecurity
- [ ] Internet & Mobile services
- [ ] Data, Software & services
- [ ] Media and Entertainment
- [ ] Semiconductors
- [ ] Industrial Technology and Manufacturing

- [ ] Electronics/instrumentation
- [ ] Retailing/distribution
- [ ] Consumer Products and Services
- [ ] Healthcare
- [ ] Energy and Environment
- [ ] Biotechnology
- [ ] Chemicals and Pharmaceuticals
- [ ] Microfinance/Insurance & Financial Services
- [ ] Fintech
- [ ] Agriculture
- [ ] Education
- [ ] Other _____

C9 **Before** COVID-19 outbreak, what geographies did you use to target?

Select all that apply.

- [ ] I did not use to target a particular area
- [ ] Europe
- [ ] North America
- [ ] Central and South America
- [ ] Asia
- [ ] Africa
- [ ] Oceania

C10 **After** COVID-19 outbreak, what geographies do you currently target?

Select all that apply.

- [ ] I don't target a particular area
- [ ] Europe
- [ ] North America
- [ ] Central and South America
- [ ] Asia
- [ ] Africa
- [ ] Oceania

C11.0 **DEAL ORIGINATION AND SELECTION**

C11 Here are presented the main sources through which deals are usually generated. Please assign a value from 1 to 5 (0 = not applicable) to each of the following factors according to their relevance for you in the **pre** COVID-19 scenario and in the **post** COVID-19 scenario**.**

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5

Management	○	○	○	○	○	○	○	○	○	○	○	○
Limited Partners	○	○	○	○	○	○	○	○	○	○	○	○
Other VC firms or angels	○	○	○	○	○	○	○	○	○	○	○	○
Accelerators / Incubators / Technology Parks	○	○	○	○	○	○	○	○	○	○	○	○
Portfolio companies	○	○	○	○	○	○	○	○	○	○	○	○
Proactive self-generation	○	○	○	○	○	○	○	○	○	○	○	○
Quantitative sourcing	○	○	○	○	○	○	○	○	○	○	○	○
VC professional network	○	○	○	○	○	○	○	○	○	○	○	○
Controlling corporation or bank	○	○	○	○	○	○	○	○	○	○	○	○
Governmental body	○	○	○	○	○	○	○	○	○	○	○	○

C12 Please assign a value from 1 to 5 (0 = not applicable) to each of the following factors according to their relevance in deciding whether to invest, in the **pre** COVID-19 scenario and in the **post** COVID-19 scenario**.**

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5
Ability of your fund to add value	○	○	○	○	○	○	○	○	○	○	○	○
Business model / competitive position	○	○	○	○	○	○	○	○	○	○	○	○
Gut feel (e.g. personal instinct)	○	○	○	○	○	○	○	○	○	○	○	○
Fit with fund	○	○	○	○	○	○	○	○	○	○	○	○
Industry	○	○	○	○	○	○	○	○	○	○	○	○
Favourable economic environment	○	○	○	○	○	○	○	○	○	○	○	○
Total addressable market	○	○	○	○	○	○	○	○	○	○	○	○
Innovative and scalable product / technology	○	○	○	○	○	○	○	○	○	○	○	○
Public financial incentives	○	○	○	○	○	○	○	○	○	○	○	○
Venture's management team	○	○	○	○	○	○	○	○	○	○	○	○

C13 Compared to the pre COVID-19 period, which is now the likelihood that you will make a "gut decision" (based on intuition and gut feelings) to invest when meeting a company's management team for the first time?

Select one answer only.

- ○ More likely
- ○ Less likely
- ○ Not changed

C14.0 **VALUATION**

C14 Which financial metrics, if any, did you use to analyze investments in the pre COVID-19 scenario? And which ones have you been using in the post COVID-19 scenario?

Select all that apply.

	Financial metrics						
	None	Multiple of sales / EBITDA	Cash-on-cash multiple	Hurdle rate	IRR	NPV	Other
Pre COVID-19 outbreak	☐	☐	☐	☐	☐	☐	☐
Post COVID-19 outbreak	☐	☐	☐	☐	☐	☐	☐

C15 **Before** COVID-19 outbreak, what was, usually, your target IRR for your fund?

Select one answer only.

- ○ 0-9%
- ○ 10-19%
- ○ 20-29%
- ○ 30-39%
- ○ 40-49%
- ○ >50%
- ○ Not available

C16 **Before** COVID-19 outbreak, did you target:

Select one answer only.

- ○ risk-adjusted, market rates of return
- ○ below-market-rate returns
- ○ below-market-rate returns that are closer to market-rate
- ○ returns that are closer to capital preservation

C17 **After** COVID-19 outbreak, did you change your target IRR for your fund? What is your current target IRR for your fund?

Select one answer only.

- ○
- ○ 10-19%
- ○ 20-29%
- ○ 30-39%
- ○ 40-49%
- ○ >50%
- ○ Not available

C18 The following table lists the main factors evaluated when deciding what valuation to offer a company. Please assign a value from 1 to 5 (0 = not applicable) to each factor for both the **pre** Covid-19 scenario and the **post** Covid-19 scenario.

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre Covid-19 outbreak						Post Covid-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5
Competitive pressure from other VCs	○	○	○	○	○	○	○	○	○	○	○	○
Anticipated exit of the company	○	○	○	○	○	○	○	○	○	○	○	○
Valuation of comparable investments	○	○	○	○	○	○	○	○	○	○	○	○
Desired ownership fraction	○	○	○	○	○	○	○	○	○	○	○	○

C19 How did COVID-19 impact your valuations of investments?

Select one answer only.

- ○ > + 60%
- ○ + 50%
- ○ + 40%
- ○ + 30%
- ○ + 20%
- ○ + 10%
- ○ 0%
- ○ - 10%
- ○ - 20%
- ○ - 30%
- ○ - 40%
- ○ - 50%
- ○ < - 60%

C20 After COVID-19 outbreak, what kind of adjustments, if any, are made for valuations?

Select all that apply.

- ☐ Adjustments in cash flow projections
- ☐ Adjustments in the allocation of a higher cost of capital
- ☐ Adjustments related to the difficulty in finding financial resources
- ☐ No adjustments
- ☐ Other _____

C21 **After** COVID-19 outbreak, for which kind of companies have you been making more relevant adjustments in valuations?

Select one answer only.

- ○ Embryonic companies (i.e. companies at a very early stage in their development that experience significant growth that exceeds the growth rate in the economy)
- ○ More mature companies (i.e. companies well established in their industry that grow at the rate of the economy at large)
- ○ Both
- ○ None

C22 What is your usual target gross multiple or cash-on-cash multiple for an investment? Please provide one answer only for both **pre** COVID-19 scenario and **post** COVID-19 scenario.

	Multiple									
	< 2x	2-3 x	3-4 x	4-5 x	5-6x	6-7 x	7-8 x	8-9 x	9-10 x	> 10 x
Pre Covid-19 outbreak	○	○	○	○	○	○	○	○	○	○
Post Covid-19 outbreak	○	○	○	○	○	○	○	○	○	○

C23.0 **DEAL STRUCTURING**

C23 The following factors characterize the deal structuring. Which of these items were mostly affected by the COVID-19 outbreak (in terms of time/effort required/complexity, etc)?

Select all that apply.

- ☐ Not affected
- ☐ Review with partners and investment committee
- ☐ Due diligence
- ☐ Preparation of term sheets and negotiation of contractual terms
- ☐ Other _____

C24 In the following table are listed the main contractual features for investments. Please assign a value from 1 to 5 (0 = not applicable) to each contractual feature according to its relevance for your investments in the **pre** COVID-19 scenario and in the **post** COVID-19 scenario.

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5
Antidilution protection	○	○	○	○	○	○	○	○	○	○	○	○
Board rights	○	○	○	○	○	○	○	○	○	○	○	○
Dividends	○	○	○	○	○	○	○	○	○	○	○	○
Investment amount	○	○	○	○	○	○	○	○	○	○	○	○
Liquidation preference	○	○	○	○	○	○	○	○	○	○	○	○
Option pool	○	○	○	○	○	○	○	○	○	○	○	○
Ownership stake	○	○	○	○	○	○	○	○	○	○	○	○
Participation	○	○	○	○	○	○	○	○	○	○	○	○
Pro rata rights	○	○	○	○	○	○	○	○	○	○	○	○
Redemption rights	○	○	○	○	○	○	○	○	○	○	○	○
Valuation	○	○	○	○	○	○	○	○	○	○	○	○
Vesting provision	○	○	○	○	○	○	○	○	○	○	○	○
(Residual) Cash flow rights	○	○	○	○	○	○	○	○	○	○	○	○

C25 Do you think COVID-19 impact on venture capital has shifted negotiation towards either venture capitalists or entrepreneurs?

Select one answer only.

- ○ Yes, venture capitalists gained negotiation power over entrepreneurs
- ○ Yes, entrepreneurs gained negotiation power over venture capitalists
- ○ No shifts in negotiation power

C26.0 **POST INVESTMENT AND EXIT**

C26 On average, how frequently do you actively interact with the management of your portfolio's companies? Please provide your answers by selecting one answer only for both scenarios, **pre** COVID-19 outbreak and **post** COVID-19 outbreak.

	Frequency						
	Never	Less than once a month	Once a month	2-3 times a month	Once a week	Multiple times a week	Every day
Pre COVID-19 outbreak	○	○	○	○	○	○	○
Post COVID-19 outbreak	○	○	○	○	○	○	○

C27 In the following table are listed some of the most relevant value-added activities for portfolio's companies. Please assign a value from 1 to 5 (0 = not applicable) to each activity according to how frequently you undertake them for the companies in your portfolio for both scenarios, **pre** COVID-19 outbreak and **post** COVID-19 outbreak.
(0 = not applicable, 1 = never, ..., 5 = very frequent)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5

Provide help to companies in hiring employees	○	○	○	○	○	○	○	○	○	○	○	○	
Provide help to companies in hiring managers	○	○	○	○	○	○	○	○	○	○	○	○	
Provide help to companies in hiring board members	○	○	○	○	○	○	○	○	○	○	○	○	
Provide operational guidance	○	○	○	○	○	○	○	○	○	○	○	○	
Provide strategic guidance	○	○	○	○	○	○	○	○	○	○	○	○	
Connect companies with potential customers, suppliers, or strategic partners	○	○	○	○	○	○	○	○	○	○	○	○	
Connect companies with potential investors	○	○	○	○	○	○	○	○	○	○	○	○	
Help companies to reach additional financial resources	○	○	○	○	○	○	○	○	○	○	○	○	

C28 In the following table are listed some types of exit. Please assign a value from 1 to 5 (0 = not applicable) to each activity according to the frequency with which you experienced them for both the pre COVID-19 scenario and post COVID -19 scenario.

(0 = not applicable, 1 = never, ..., 5 = very frequent)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5

IPO	○	○	○	○	○	○	○	○	○	○	○	○
Sale to an industrial player	○	○	○	○	○	○	○	○	○	○	○	○
Sale to private equity	○	○	○	○	○	○	○	○	○	○	○	○
Management buyout	○	○	○	○	○	○	○	○	○	○	○	○
Write off	○	○	○	○	○	○	○	○	○	○	○	○

C29 Has COVID-19 impacted your exit decisions in terms of time? Have you decided to postpone some exits that were pre-scheduled?

Select one answer only.

- ○ Yes
- ○ No

C30.0 **SYNDICATION (last section)**

C30 Approximately, what percentage of your investments are syndicated? Please provide your answers for both scenarios, **pre** COVID-19 outbreak and **post** COVID-19 outbreak.

- ○ % of syndicated investments pre COVID-19 outbreak _____
- ○ % of syndicated investments post COVID-19 outbreak _____

C31 In the following table are listed the most important factors based on which you usually choose to syndicate a round. Please assign a value from 1 to 5 (0 = not applicable) to each of the following factors according to the importance they have for your decisions for both scenarios, **pre** COVID-19 outbreak and **post** COVID-19 outbreak.

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5
Capital constraints	○	○	○	○	○	○	○	○	○	○	○	○
Complementary expertise/access to valuable resources	○	○	○	○	○	○	○	○	○	○	○	○
Desire to be invited to future rounds (more opportunities)	○	○	○	○	○	○	○	○	○	○	○	○
Desire to increase reputation	○	○	○	○	○	○	○	○	○	○	○	○
Gain a platform for organizational learning	○	○	○	○	○	○	○	○	○	○	○	○
Risk sharing	○	○	○	○	○	○	○	○	○	○	○	○
Increase deal flow	○	○	○	○	○	○	○	○	○	○	○	○
Improve negotiation power and reduce agency costs with entrepreneurs	○	○	○	○	○	○	○	○	○	○	○	○
Better manage investment targets where uncertainty dominates	○	○	○	○	○	○	○	○	○	○	○	○

C32 In the following table are listed the most important factors based on which you usually choose a syndicate partner or coinvestor. Please assign a value from 1 to 5 (0 = not applicable) to each of the following factors according to the importance they have for your decisions for both scenarios, **pre** COVID-19 outbreak and **post** COVID-19 outbreak.

(0 = not applicable, 1 = low importance, ..., 5 = high importance)

	Pre COVID-19 outbreak						Post COVID-19 outbreak					
	0	1	2	3	4	5	0	1	2	3	4	5
Capital availability / size	○	○	○	○	○	○	○	○	○	○	○	○
Geographic location	○	○	○	○	○	○	○	○	○	○	○	○
Industry sector expertise	○	○	○	○	○	○	○	○	○	○	○	○
Mutual social connection	○	○	○	○	○	○	○	○	○	○	○	○
Past successes together	○	○	○	○	○	○	○	○	○	○	○	○
Reputation	○	○	○	○	○	○	○	○	○	○	○	○
Track record of partner	○	○	○	○	○	○	○	○	○	○	○	○

C33 **After** COVID-19 outbreak, what is the impact of Covid-19 on the existing companies in your portfolio? Please assign a percentage to each of the three categories presented below, making sure that the total sum must equal 100%.

% of companies POSITIVELY AFFECTED or UNAFFECTED: _____

% of companies NEGATIVELY AFFECTED but not in critical condition: _____

% of companies SEVERELY NEGATIVELY AFFECTED or in critical condition: _____

Total : _____