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The impact of Corporate Venture Capital managers' human capital on the entrepreneurial ventures selection and exit performance

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Abstract (English)

This work analyses the role of human capital in Corporate Venture Capital (CVC) decision-making, with a focus on the influence of managers' academic and professional backgrounds on startup selection and financial performance of investments. The research is based on an original dataset constructed from the profiles of more than 1,100 managers active in 77 CVCs globally, supplemented with data on investments and exits between 2017 and 2023. The empirical investigation, conducted through linear regression models, shows that managers' sector experience and technical skills are correlated with a higher probability of selecting startups in consistent sectors. This effect is particularly evident in high-tech contexts. In contrast, no robust correlations emerge between individual skills and the probability of successful exits, suggesting that other systemic factors may have a greater influence. The analysis is complemented by qualitative insights, which allow us to critically interpret the results and propose useful reflections for building more effective CVC teams aligned with companies' strategic objectives.

Keywords: CVC, Human capital, Exit, Selection

Abstract (Italiano)

Questo lavoro analizza il ruolo del capitale umano nel processo decisionale dei Corporate Venture Capital (CVC), con particolare attenzione all'influenza che il background accademico e professionale dei manager esercita sulla selezione delle startup e sulla performance finanziaria degli investimenti. La ricerca si basa su un dataset originale costruito a partire dai profili di oltre 1.100 manager attivi in 77 CVC a livello globale, integrato con i dati relativi agli investimenti e alle uscite tra il 2017 e il 2023. L'indagine empirica, condotta attraverso modelli di regressione lineare, mostra che l'esperienza settoriale e le competenze tecniche dei manager sono correlate a una maggiore probabilità di selezionare startup in settori coerenti. Questo effetto è particolarmente evidente nei contesti high-tech. Al contrario, non emergono correlazioni solide tra le competenze individuali e la probabilità di exit di successo, suggerendo che altri fattori sistemici possano avere un'influenza maggiore. L'analisi è completata da approfondimenti qualitativi, che permettono di interpretare criticamente i risultati e di proporre riflessioni utili per la costruzione di team di CVC più efficaci e allineati con gli obiettivi strategici delle aziende.

Parole chiave: CVC, Capitale umano, Exit, Selezione

Introduction

In recent years, corporate venture capital (CVC) has established itself as a strategic lever for companies that want to access innovation developed outside their organizational perimeter. While existing studies have highlighted the importance of strategic coherence between investments and the parent company's objectives (Chesbrough, 2002), there is still much to understand about the role that individual characteristics of CVC managers play in guiding such decisions. While prior work acknowledges individuals conceptually in relationship to partnership success, their observable characteristics are rarely examined empirically (for an exception, see Balachandran 2024). These themes cannot be overlooked because strategic decisions, e.g. whether to enter a partnership, with whom, and under what conditions, are made by individuals. Traditionally, venture capital literature has focused on independent venture capital (IVC) investment criteria, identifying factors such as industry sector, startup stage, and growth potential. However, CVCs operate in a different context: their objectives include technological synergies, organizational learning, and competitive advantages for the parent company, in addition to financial returns (Dushnitsky & Lenox, 2006; Hellman, 2002). This dual objective makes the decision-making process even more complex and sensitive to the subjective characteristics of those who lead it. Despite the growing interest in CVC, studies have often focused on aggregate data at the fund or company level, neglecting the micro level, i.e. the specificities of individual managers who make crucial decisions on which ventures to finance and how to manage their path to exit. Some research suggest that the industry background, entrepreneurial or managerial experience and education of decision makers can strongly influence not only their risk appetite and evaluation ability, but also the quality of the selected investments and their evolution over time (Gompers et al, 2009). In fact, we know that people's perceptions, experiences, and relational histories shape how opportunities and risks are interpreted and acted upon (Felin & Foss, 2005; Kaplan, 2008; Felin et al., 2015). Starting from these premises, this study aims to investigate "*how the human capital of corporate venture capital managers affects both investment selection and exit performance*".

To conduct the research, the employment and academic backgrounds of the management team members of the 77 largest corporate venture capital firms globally were analyzed, identifying a total of 1,101 individuals. Official company websites and personal Linkedin profiles were used to obtain this information. In order to proceed with the analysis, it was necessary to aggregate the data at the CVC level, thus developing competence variables indicating the percentage of managers with specific backgrounds. These variables were subsequently integrated with PitchBook data on investments made over the period 2017-2023, to analyze the dynamics of the startup selection

process, and with Orbis M&A data on ventures that reached an exit, in order to assess the impact of the human capital of the management team on the probability of investment success.

In order to assess the empirical correlation, econometric models were used, in particular a series of linear regressions. Two macro-analyses were carried out, each consisting of several regressions: the first investigated the impact of managerial skills on the investment selection process, the second analysed their influence on exit performance. The independent variables relating to human capital remained constant in both analyses, as did the control variables. What varied were the dependent variables: in the first analysis, the amount of investments in the different industries was considered (expressed in monetary value, number of investments and percentage incidence); in the second, the percentage of venture exits with respect to total investments made.

The empirical data highlight in particular how CVC managers' human capital significantly affects the identification phase of target startups, rather than the final results of exits. One of the main results concerns the impact of sector-specific skills: when CVC managers have technical training or previous work experience in specific industrial fields, the probability of investing in those same sectors is higher. This link has been evident in the cases of Healthcare, IT and Artificial Intelligence, fields characterized by a high technological content, in which in-depth knowledge seems to facilitate the understanding of the operational context and promote better alignment with the strategies of the parent company. On the other hand, it is observed that less relevant backgrounds, such as exclusively commercial ones, tend to reduce the propensity to invest in high-tech sectors, thus confirming the relevance of the coherence between skills and target sector. Another interesting finding concerns emerging sectors, such as AI, in which formalized academic training is still not widespread among professionals in the sector. In such contexts, technical work experiences seem to assume a greater weight in guiding investment decisions, partly compensating for the lack of consolidated educational paths. However, this effect emerged in a statistically significant way only when considering the volumes of invested capital, and not the frequency of investments, thus indicating a selective and non-generalized impact. In any case, it should be emphasized that these results, based on correlations observed in the sample, cannot be interpreted as evidence of a causal link. With regard to exit performance, the analysis did not reveal solid associations between the technical or economic-financial skills of managers and the probability of successful exit through IPO or M&A. Only in the case of acquisition operations (M&A) did a positive correlation, albeit weak, emerge with the presence of financial skills. This result, however, is not sufficient to formulate definitive conclusions. Such evidence suggests that, in the context of CVCs, where strategic goals often prevail over purely financial ones, traditional performance metrics may not be adequate to fully capture the contribution of human capital. Alternative indicators, such as the

production of patents or technological integration between startups and their parent company, could offer a more faithful representation of the actual impact generated.

Through the results introduced, this thesis work aims to expand existing literature on the factors that influence the selection processes and the performance of startups funded by Corporate Venture Capital. The study is part of the research line that investigates the impact of human capital on the outcomes of investments in innovation, filling a significant gap in the literature: most existing studies limit themselves to analyzing the CVC as an organizational unit, neglecting the individual characteristics of its decision makers. This research instead proposes a change of perspective, focusing on the profiles of individual managers and demonstrating how skills, especially if acquired through specific training or direct experience, are related to investment choices. This micro-organizational point of view broadens the field of analysis and invites us to consider managerial human capital not only as something that belongs to the company, but also as a factor that influences and explains investment choices. In terms of policies, the results suggest the opportunity to promote hybrid training paths that combine STEM skills and managerial skills, especially in emerging sectors where consolidated academic structures are still lacking. In particular, if there were the will to direct the innovative drive of a country in certain directions, just think of AI. Furthermore, there is a need to develop tools for evaluating the impact of CVC investments on society that are not limited to financial metrics such as exits, but also take into account strategic results, such as technological integration with the corporate or patent production. Finally, from an operational point of view, the evidence collected offers concrete indications for both CVCs and startups: the former should select profiles with particular attention to their background, which should be consistent with the technological and industrial objectives pursued; the latter, instead, can read the composition of the CVC team as a relevant signal of the ability to offer strategic value beyond capital.

This thesis is structured as follows. After the introduction, Chapter 2 is dedicated to an in-depth literature review. It will start from the fundamental definitions, and then retrace the main academic contributions and empirical evidence regarding venture capital. The section will conclude with the presentation of the most common classifications of venture capital typologies, thus naturally introducing the specific focus on corporate venture capital (CVC). Given the centrality of the latter in the work, an entire subsection of the review will be reserved for the analysis of CVC, addressing the main theoretical and empirical issues related to it. To complete the picture and address all the relevant dimensions, the last part of the chapter will instead focus on the topic of human capital, with particular attention to the studies that relate it to the venture capital sector. Chapter 3 will focus on the identification of the research gap, on the formulation of the research question and on its articulation into testable hypotheses. Chapter 4 will be dedicated to the methodology. In it, the

research approach adopted will be presented, the dataset introduced and the data construction process illustrated, accompanied by a descriptive analysis of the sample. In a second part of the chapter, the specification of the econometric model will be presented in detail, with a description of the main variables included in the analysis. Chapter 5 will report the results of the regressions, accompanied by robustness tests aimed at evaluating their solidity, and will be followed by a comparative discussion with the evidence emerged in the previous literature. Chapter 6, entitled Perspectives from the Field, will enrich the quantitative analysis with qualitative evidence, collected through interviews with professionals working in the CVC sector. This will allow to validate or question the results obtained, based on the direct experience of operators in the sector. Finally, Chapter 7 will conclude the thesis with a summary of the main results, a reflection on the theoretical and practical contributions, the identification of the limits of the study and the proposal of possible future developments of the research.

Literature review

2.1 Venture Capital

This section will introduce the Venture Capital (VC) phenomenon and its role in financing innovation. At first, the activity and the scope will be described, then it will come to its pivotal phases with a focus on the investment one. Indeed, it is at this stage that the selection effect, the focus of this work, can be analyzed. Finally, the classification of the types of investors that, according to the scientific literature to date, fall into this category will be reported, in order to arrive at the identification of Corporate Venture Capital (CVC).

2.1.1 Venture Capital business model

The term Venture Capital (VC) refers to independent and professionally managed funds that capture financial resources from wealthy individuals and professional investors for subsequent investments in privately held companies, usually in exchange for equity (Gompers & Lerner, 2001). Target companies are typically early stage, so there is often a high-risk situation and significant growth prospects, with sectors that are most of the time technology and innovation-driven (Lerner & Nanda, 2020; Sahlman, 1990). The business model envisages a period of support, which is not limited to the financial one. In fact, what most differentiates a pure financier such as a commercial bank from a venture capitalist is that the latter also offers strategic, operational, and network-based backing to start-ups (Puri & Zarutskie, 2012). After this timespan the fund aims at liquidating equity stakes through an exit (e.g. Initial Public Offerings or trade sales) with the objective of optimizing financial outcomes. At this point, the capital gain obtained through the sale at a significantly higher price than the purchase one, is divided between the compensation of fund managers (or General Partners) and the return for investors (or Limited Partners) (Gompers & Lerner, 2001; Cumming et al.2005).

2.1.2 Venture Capital role in the funds' market

VC is nowadays one of the alternatives available to companies that find themselves short of liquidity to cover the so-called 'funding gap'. Companies have the possibility of selecting between different options at different times and this choice can impact strongly on performances and growth potential (Drover et al., 2017). However, is necessary to underline how scientific literature identified

that different lenders typically provide better support in different stages of company development (Berger & Udell 1998).

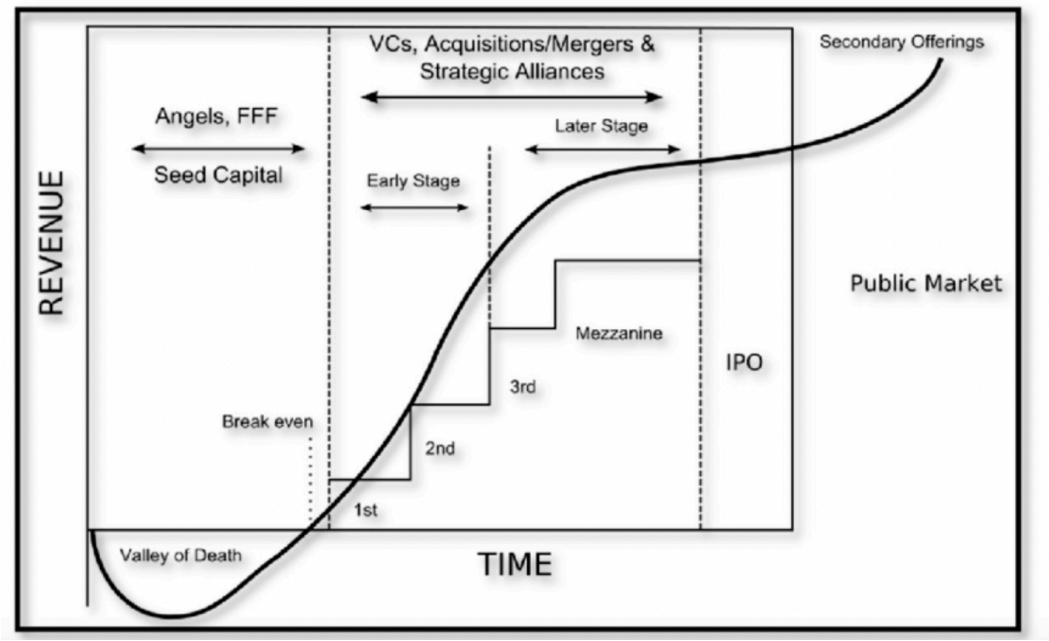

Fig.1 Entrepreneurial firm financing stages, Cardullo 1999

But why does it turn out that venture capital funds are optimal in the case of young and high-risk innovative companies (Bertoni et al., 2016)? The high level of risk makes these companies unsuitable for traditional financial intermediaries, who have no possibility to analyze track records and include collaterals in contracts (Ueda, 2004). Personal channels and business angels often lack volume. Furthemore innovative tools such as crowdfunding do not provide coaching by highly skilled management professionals. In short, VC is a great compromise between financial availability and potential growth drivers, including: strategic support, access to networks and mentorship (Chan et al., 2016; Gompers & Lerner, 2001; Hsu, 2006).

2.1.3 Venture Capital impact on the ventures

The scientific literature has produced many studies concerning empirical analyses of the performance of companies supported by venture capitalists. It turns out that VC backed start-ups have a higher probability of survive in the first 5 years of life, of having a future acquisition and that they grow larger in terms of both sales and employment than twin non-VC-backed firms. The main drawback, instead, is of being less profitable (Puri & Zarutskie 2012). Has been also found, after the

investment, positive effect on the Total Factor Productivity (Chemmanur et al., 2011) that is a proxy of economical efficiency and on innovation (Hellmann & Puri, 2000). To conclude the impact is relevant also on managerial professionalization, with business executives, stock option plans and professional contracts (Hellmann & Puri, 2000) that touch specific peaks in high-tech startups (Colombo & Grilli, 2013).

2.1.4 Key stages of the Venture Capital process

The Venture Capital Investment Cycle consists of several key stages that together make possible the profitability and sustainability of this business model. Clearly, this can only begin once fundraising has been completed, which can be considered, together with the bureaucracy required to settle the fund, the starting point (Cumming et al.2005). While different papers break down this process variously, among the most cited and commonly accepted is the model of Gompers et al. (2020), which identifies six macro phases.

The process starts with the "Sourcing" phase: potential investment opportunities are searched mainly via referrals, networks and scouting. There is, of course, also the possibility for the VC to open up to voluntary applications, increasing the flow of opportunities. Gompers' study results show that around 30% of deals come from personal and professional contacts, while a further 20% are generated by referrals from other investors. These data highlight the crucial importance of personal and professional networking in the investment sourcing process by VCs. Other studies go into even more detail, identifying referrals from renowned professionals (e.g. Consultants or Investment bankers) as the preferred instrument (Shane and Cable, 2002).

At this point, it is possible to move on to the 'Screening & Initial Evaluation' phase, in which VCs filter out opportunities according to pre-defined investment criteria. The first evaluation is often limited to a brief exchange via an elevator pitch that allows an initial slice of proposals to be eliminated. Those who pass this step will have to provide more information and therefore non-disclosure agreements are often signed. This progressive selection allows fund managers to reduce the information asymmetry (Akerlof, 1970) and results in a very strict process that allows minor percentages of applicants to proceed (Petty and Gruber, 2011). The criteria used for the selection can be divided into four broad categories: business opportunity (e.g. scalability and attractiveness of business model, strategy and technology), entrepreneurial team (e.g. managerial and entrepreneurial capabilities and completeness of the entrepreneurial team), terms of the investment and exit opportunities (Kaplan & Stromberg, 2001). Empirical evidences suggest that early-stage investors prioritize human capital information over business information for their evaluation (Bernstein et al., 2017; Gomper et al., 2020).

The third phase identified by Gompers is 'Due Diligence'. From this moment on, a significant amount of resources, especially time, begin to be devoted to the acquisition of detailed information on the venture. Once again, an attempt is made to reduce the information asymmetry between the entrepreneur and the VC with impacts on the investment risk. Generally, this phase addresses three main information components: legal, technical and business (De Cleyn & Braet, 2007). These have the task of respectively: avoid legal troubles or litigation risks (e.g. patent infringement or pending procedures), assess the feasibility, scalability, and risks associated with a startup's technology and understand if the entrepreneur's estimates about revenues and costs are affordable. The biggest problems in performing this analysis stem from the lack of financial history and the high levels of uncertainty in product-market fit and regulatory factors. That's why investors should combine the usage of expert networks and independent assessments (De Cleyn & Braet, 2007). The process concludes with the drafting of the due diligence report, which will be the basis and primary source of information for the next steps, including the valuation (Manigart el al., 1997).

At this point the fourth phase is reached, it's the time for the investment decision and deal structuring. Once the General Partners have taken their position on the investment, the details of the deal have to be worked out. The most important issues are the pricing, financing plan, decision-making power and exit prospects (Kaplan & Strömberg, 2003). Arrangements that often it's possible to find in these contracts involve staging, whereby money is provided to portfolio companies in successive rounds rather than in one lump sum (Tyebjee & Bruno, 1984) , with the aim of reducing agency costs (Cumming, 2006). Similarly common are syndications (i.e. composition of several VC investors, with one acting as the lead) and covenants, namely specific terms and conditions designed to protect the interests of investors, manage risks, and ensure that the startup behaves in a way that aligns with the investor's expectations (Kaplan & Strömberg, 2003).

The last step before the exit, following Gompers (2020), is the post-investment one. As mentioned above, VCs do much more than provide financial capital: they also contribute to operational support, governance and strategic guidance. The level of involvement depends by the startup's needs and level of development, together with industry dynamics (De Clercq & Manigart, 2006). Two macro-categories of activities are outlined in the literature by De Clercq & Manigart (2006): risk management and growth-oriented support. With regard to the former, VC performs financial oversight by tracking key performance indicators (KPIs). Moreover, it establishes specific contractual rights (e.g. anti-dilution clauses and veto power) and representation on the board to influence key decisions and enable the start-up to stay on track. As for the second macro category, VCs do mentorship by advising entrepreneurs at pivotal stages and, at the same time, they introduce potential clients, partners, and follow-on investors (Pratch, 2005) and help in hiring professional executives. It is precisely at this stage that conflicts between the actors most often arise, with

tensions over control of the company, over or under VC involvement and pressure from investors to exit (Ţurcan, 2008; Gompers 1996).

Reached this point, the process is concluded by finding and selecting an exit. This last phase is critical as it determines the return on investment for Venture Capitalists and has a strong impact on the future of the startup. This is the reason why exit clauses, which play a crucial role in mitigating conflicts, are often planned in the initial contract (Smith, 2005). There are several exit possibilities, but the most common are initial public offerings (IPOs), mergers and acquisitions (M&As), secondary sales, buybacks and write-offs (Smith, 2005). In many cases, exit strategies are outlined at the time of investment. Cumming and Johan (2008) found that VCs often engage in preplanned exit strategies, in particular through IPOs or acquisitions. There are a number of factors that are analyzed before making an exit, such as start-up's financial health, the industry landscape and the state of financial markets. In particular, timing with regard to the state of the markets is crucial. For instance, research shows that VCs are more likely to sell their portfolio companies public shares during bullish market conditions, as this increases the likelihood of a successful IPO (Tykvovà, 2003). A final piece of interesting evidence concerns the greater likelihood of attempting IPOs in the case of strong financial performance, whereas weaker-performing firms often seek acquisition as an alternative exit route (Espenlaub et al. , 2010).

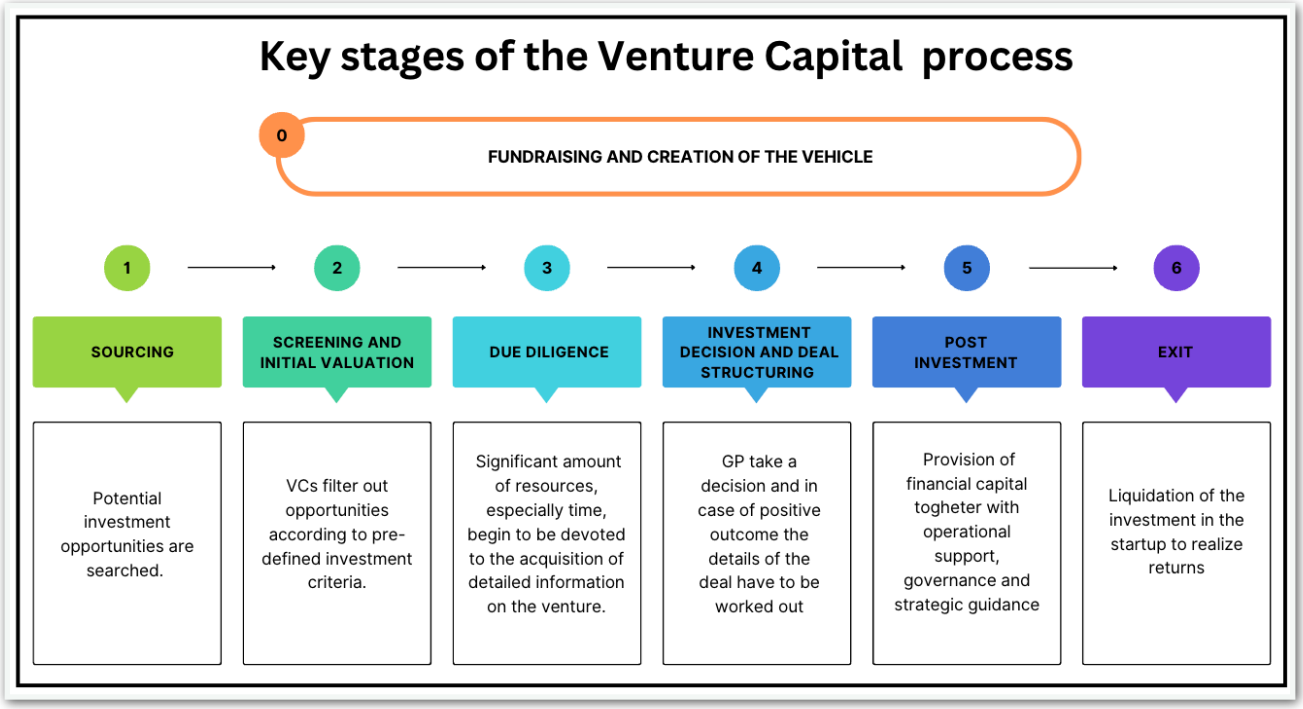

Fig.2 Key stages of the Venture Capital process, author elaboration

2.1.5 Types of Venture Capital Investors

Venture capital investors can be distinguished according to different dimensions, between the most used in literature: size, investment experience, cross-border investment activity and governance. The last in the list is the most relevant to this thesis project, addressing the issue of the existence and nature of the parent company and allowing the identification of Corporate Venture Capital (Da Rin et al. ,2011; Dimov & Gedajlovic 2009). The different categories diverge in the intensity of financial objectives, the type of strategic objectives and the ability to mobilize resources and capabilities leverageble by the portfolio's entrepreneurial firms. Clearly, this also impacts the results of the start-ups backed and the portfolio's structure(Luukkonen, 2008; Croce et al. 2015).

Following this classification, the best known and earliest form of VC, is the Independent Venture Capital (IVC). The term refers to private entities that invest in start-ups without affiliations to banks, corporations or governments. Typically these funds are formed by managers as General Partners (GPs) within a limited partnership structure and money providers (rich individuals and institutional investors) assuming the position of limited partners (Sahlman, 1990). They have a close advisor relationship with their portfolio companies, power, influence and a great understanding of the commercialization process (Pahnke, Katila, & Eisenhardt, 2015). The objective is a financial one, thus often referable to return on investment (ROI) and internal rate of return (IRR) targets. To reach these goals the IVC take an active role in helping the new venture succeed, recruiting executives, interacting frequently and recommending the company to potential partners, investors and trade allies (Hellmann & Puri, 2000; Hsu, 2006; De Clercq & Manigart 2006; Chan et al., 2016). Although participation in IVC is canonically very active, studies have shown that companies with partners with previous entrepreneurial experience are particularly so (L. Bottazzi, Rin, & Hellmann, 2008). For what concern investment preferences, these investors predominantly focus in early-stage ventures within high-tech sectors. They exhibit a high propensity for syndication and cross-border investments, leveraging extensive networks to mitigate risks (Bertoni et al., 2015). In conclusion, empirical evidence shows that they tend not to prefer founding or otherwise very small companies and that they have a predilection to invest in areas of business expertise such as ICT services (Bertoni et al., 2019).

At this point it is possible to enter the category of non-independent venture capital. These firms are typically subsidiaries, units or vehicles of larger organizations and their investment strategies are aligned with the strategic objectives of their parent companies. The latter plays a central role, providing funds and substantially influencing the selection and administration of investment (Dushnitsky, 2012). These types of venture capital can be associated with a wide variety of entities,

but there are four main macro-categories: bank affiliated (BVC), governmental (GVC), non-financial corporations affiliated (CVC) and university affiliated (UVC) (Giessing & Croce, 2023).

Beginning with the latter, it's necessary to say that in the recent years universities have increasingly adopted initiatives that promote collaboration with industry and society, the so called 'third mission' of knowledge transfer in "Venture Capital Enters Academia: An Analysis of University-Managed Funds" by Croce, Grilli, & Murtinu (2013). These institutions have started to promote these interactions through various technology transfer mechanisms, such as incubators, science parks and university-industry partnerships (Croce et al., 2013). Among these kind of projects, university venture capital (UVC) proves to be the most direct and proactive approach, being direct universities' contribution (or co-investment) in the capital of start-ups. The main objective of these funds is to invest in promising companies whose technologies are in line with the academic expertise of the university's researchers and students, trying to achieve synergies (Magomedova et al. 2023).

Governmental Venture Capital (GVC) funds aim to support New Technology-Based Firms (NTBFs) that have difficulty accessing financial support, in many cases because they are overlooked by other types of venture capital (Colombo et. al. 2014). Although the resolution of these market failure cases is intended to generate a positive impact on efficiency and economic growth, government intervention in this kind of activity is a controversial issue, in particular due to the use of public money and the limits observed in the results (Colombo et. al. 2014; Suchard et al.2021). However, it is incorrect to confine the analysis to financial results, as GVCs have other social and political objectives. The activity is the basis for the generation of jobs, technological hubs and innovation ecosystems, thus a way to invest in the growth of the local economy and the well-being of citizens (Lerner 2009). Among the most relevant research results on the performance of these funds we have the analysis of Lerner (2002), who identifies as the best strategy to be implemented in order to achieve successful results, a partnership (and not competition) with private VC funds. These hypotheses have been widely confirmed by subsequent studies (Brander et al., 2010; Grilli & Murtinu, 2014). Finally, as regards preferences on the characteristics of startups, it appears that investments predominantly involve domestic and very young companies belonging to high-tech manufacturing industries (Bertoni et al., 2019).

The term bank-affiliated venture capitalists (BVCs) refers to venture capital funds that are affiliated with (or sponsored by) financial institutions, so that have to possibility to leverage a bank's financial resources, industry expertise and networks to invest in high-potential startups. This branch is quite recent and can certainly have further room for development (Granz, 2021). Compared to the other typologies seen previously, the focus is on companies that are more advanced in development. Also preference regards sectors with high levels of financial leverage, with the strategic objective of

stimulate the growth of the bank's market for debt provision (Hellmann et al 2008; Da Rin et al. 2011). One last interesting piece of information concerns a peculiar advantage for supported entrepreneurs. BVC-backed ventures have a higher likelihood of securing debt financing from banks, often at more favorable interest rates, compared to non-BVC-backed firms. This advantage is particularly pronounced for companies with low default risk (Hellmann et al., 2008).

2.2 Corporate Venture Capital

In this section, the key points of the scientific literature regarding corporate venture capital (CVC) will be analyzed in detail. Initially, the definition and role of this activity will be introduced and then the two main categories of possible objectives will be distinguished: financial and strategic. The following paragraphs will cover governance models with a particular focus on the autonomy concept and business unit structures. Finally, will be reported the results obtained in research on the performance of CVC backed startups and the potential risks for the actors involved in the process. A final insight will be given on recent trends and emerging areas.

2.2.1 Definition and strategic role of Corporate Venture Capital

The CVC envisages minority equity investments by consolidated non-financial companies in private business ventures (Chesbrough, 2002 ; Dushnitsky, 2012). Compared to traditional independent venture capital, the intensity of the financial objectives is typically reduced to leave room for more strategic elements (Dushnitsky & Lenox, 2006; Dushnitsky, 2012; Chesbrough, 2002). The parent company provides capabilities, business contacts and resources, including a certain amount of funds. The other side of the coin, however, is that compared to funds unrelated to other entities, it is necessary to maintain internal consistency, an issue that becomes crucial in the case of CVC managers' salaries, which must be aligned with those of other business units (Dushnitsky and Lenox, 2006).

This activity is particularly interesting for companies with a good reputation (Basu et al., 2011), significant financial resources and absorptive capacity. Even more so, if the company operates in a dynamic environment with intense competition, high technology obsolescence rate and weak intellectual property protection systems (Dushnitsky & Lenox, 2005a; Basu et al., 2011). Overall, this activity can add a lot of value, generating ecosystems for innovation production, expanding markets and delivering financial returns. A value that is shared between several actors, among which the main ones are obviously the incumbent that generates the service, the backed startups and

society (Schildt & Maula, 2005; Dushnitsky; 2012). However, CVC relationships can also hinder innovation, particularly when there are ties with competitors and consequent fear of leakage of information constituting competitive advantage (Cox Pahnke et al. 2015).

2.2.2 Historical evolution of Corporate Venture Capital

CVC developed its foundations in the USA around mid-1960s, following the success of the first independent venture capital companies established in the 40s. Within 10 years, the phenomenon spread like wildfire and by the early 1970s, one in four Fortune 500 companies had developed such programmes (Gompers & Lerner, 2001). In 1973, however, the market for new public offerings collapsed and remained in distress until the early 1980s, when a reduction in capital gains taxes was proposed by the US government. In this period, technology makes significant progress with personal computers, which generate important investment opportunities and bring back a hot market for public offerings. The peak of monetary volumes (around 2 billions) related to CVC is reached in 1986, then, with the stock market crisis of 1987 it is possible to notice a significant reduction, up to 2/3 of the market (Gompers & Lerner, 2001). In the 1990s, a third major wave of CVC can be identified (Chesbrough, 2002), driven by economic growth and the introduction of open innovation (Elmquist et al., 2009). A further important push was obviously given by the birth of the Internet, which would inflate investments until the famous dotcom bubble around 2000 (Ljungqvist & Wilhelm, 2003). With the burst in 2001, many companies went bankrupt and CVC portfolios suffered huge economic damages (Dushnitsky & Lenox, 2006). In the post-crisis period, the recovery was rapid and lasted until 2008 when the stock market crash linked to the subprime crisis led to a new collapse in investments. By 2011, investment had already surpassed the 2007 peak.
Over the past decade, activity has not been limited to the United States and Europe but has also taken hold in China, leading to further increases in volumes. Interest has been driven by the speed of technological innovation, which is reaching exponential levels and in particular by inventions such as smartphones and social media. Furthermore, the low level of interest rates helped to reach a peak in 2021. Since then, significant increases in rates and other macroeconomic and geopolitical factors have contributed to a slow decline in investments. To date the market see an official volume of 112 billions (Silicon Valley Bank, 2025).

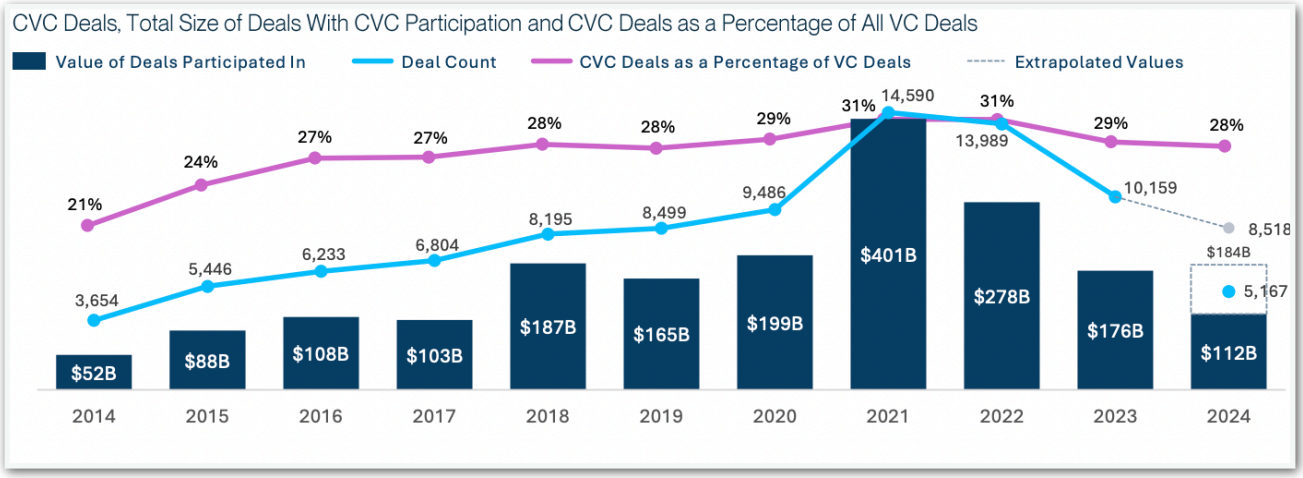

Fig.3 Total size of deals with CVC participation and CVC deals as a % of all VC deals, state of CVC 2024, Silicon Valley Bank

2.2.3 Strategic intent and financial return in Corporate Venture Capital investments

As mentioned in the first paragraph of the section, the two big families of objectives when it comes to CVC are the strategic and the financial. Starting with the former, it is not difficult to find in the scientific research several results of corporate venture capital units that can be traced back to it. Incumbents struggle to innovate internally at the speed of small players (Freeman & Engel , 2007) and by investing in the latter, corporations can stay ahead of technological shifts and integrate new knowledge into their own operations. This process is called 'technology scouting' (Keil, 2004; Dushnitsky, 2012) and allows companies to access external innovation while avoiding the high time spending and risks of developing technologies in-house. It is no coincidence that big companies push this kind of activity in conjunction with periods of deteriorations of internal innovation (Ma, 2019).

Large firms can use CVC to explore and gain a foothold in new markets, be them industries or geographic regions. This strategy for market expansion allows to obtain expertise, networks and market access from start-ups, instead of building internal capabilities from scratch. The typical result is a reduction of risk and an accelerated expansion (Weiblen & Chesbrough, 2015).

A third interesting point concerns strengthening corporate core competencies through start-up partnerships. Indeed, by investing in companies that provide services complementary to one's own, it is possible to enhance your existing strengths (Dushnitsky and Lenox, 2006). This allows you to remain competitive without changing your core business.

Another relevant perspective, is given by McGrath & Nerkar (2004) with the real option reasoning (ROR). Although the theory recalls financial concepts such as the option one, it is easy to identify the strategic value for an investing company. CVC investments give corporations the option (but not

the obligation) to later acquire, integrate or scale promising technologies. The gradual purchase of small stakes in start-ups to keep future opportunities open is less binding than heavy internal investments in capex.

Also, quite simply, CVC is a way to do open innovation, harnessing external expertise and ideas rather than just one's own R&D department (Chesbrough & Tucci, 2004). Another unit that can benefit from the activity is the M&A one, in fact it allows to identify and evaluate promising start-ups, improving the expected results of acquisitions (Benson and Ziedonis, 2009). Not to mention that even in the event of absence of takeover, it is not at all uncommon to create business alliances (Benson and Ziedonis, 2009)

The various results listed so far in this section can be classified according to the metrics proposed by Schildt and Maula (2005). We talk about explorative learning if the search is for knowledge and technologies that go beyond the company's current domain. Instead of exploitative learning, if the focus is on refining, optimizing and enhancing existing knowledge, processes and technologies. Exploitation-oriented units survive longer because of more certain outcomes and shorter time horizons, which are better characteristics for demonstrate immediate financial impact (Hill and Birkinshaw, 2008).

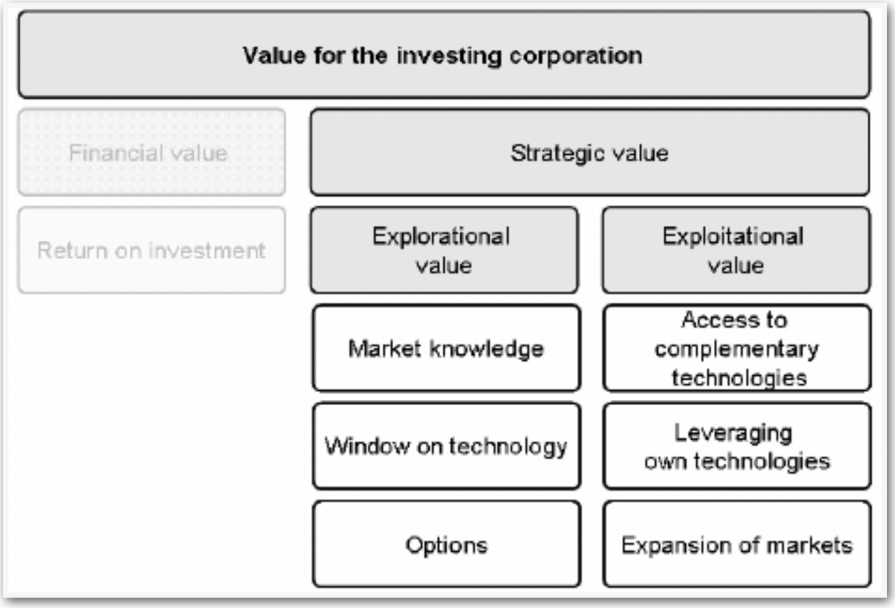

Fig.4 Strategic Value of CVC for the Investing Corporation, Napp & Minshall (2009)

Finally, it must be remembered that the success of strategic results depends heavily on corporate choices regarding the approach to CVC activity. Empirical evidence demonstrates the benefits of autonomy with respect to the parent company and of syndication with external investors (Hill et al. 2009).

At this point, it is possible to move on to the financial goals, which most closely associate this activity with traditional independent venture capital funds (Chesbrough, 2002). There are two main purposes expressed in the literature when it comes to financial objectives: monetary return and diversification. For what concerns the first, CVCs are highly effective at identifying promising ventures, thanks to their expert personnel with deep market and technological expertise. Moreover they can offer complementary resources and capabilities to startups (Gompers & Lerner, 2001)., increasing venture's chances of success and ultimately leading to great financial returns (Dushnitsky & Lenox, 2006). As mentioned above, however, there are typically trade-offs with respect to strategic objectives, which very rarely involve investments in companies also optimizing the financial return. Nevertheless, some CVCs use ROI as their main key performance indicator, acting in a similar way to IVCs (Gompers & Lerner, 2001), also if statistically they obtain less profitable results (Chemmanur et al., 2014). Diversification, on the other hand, is a slightly more sophisticated objective, not always considerated in the literature. Consistently with portfolio theory, CVC can act as a hedge against technological and market changes, reducing financial risk. Investing in start-ups operating in emerging sectors helps the parent company diversify its wallet and reduce the risks associated with technological obsolescence (Chemmanur et al., 2014).

2.2.4 Governance structures and degree of autonomy in Corporate Venture Capital units

There are four main governance models that corporations use to structure their CVC investments and they vary in term of financial commitment, strategic alignment and autonomy. We are talking about: direct investment of an appointed business unit, a wholly owned CVC subsidiary, acting as LP in an IVC fund and dedicated co-managed funds (Dushnitsky; 2012). Independence brings advantages such as the ease of attracting IVCs for syndication, a lowered risk of misappropriation for ventures and easier incentive design for managers (Chesbrough, 2002). Moreover empirical studies have also highlighted that CVC units with greater structural autonomy tend to achieve superior innovation outcomes and financial returns, particularly in rapidly evolving sectors where flexibility and responsiveness are key (Hill et al., 2009; Keil, 2004). At the same time, however, being loosely linked makes it more difficult for the parent company to absorb knowledge from the venture and exploit synergies (Chesbrough, 2002).

Type	Wholly owned subsidiary	Direct investment	LP	Dedicated fund
Definition	CVC structure is a separate independent organizational structure	CVC structure is incorporated within the mother company	CVC structure is owned by the company but managed by a VC	CVC structure is owned by a VC who reports to the corporate mother
Example	Sumitomo Life invested in the VC Anthemis investments in insurtech-focused ventures	Investis Group directly invested in the startup Batmaid to take minority shares	Novartis Venture Fund is an independent external company held by Novartis	La Mobilière appointed the VC Marcau Partners to manage its fund: Lightbird
Pros	• Full autonomy • High strategic results • Signal commitment of the company to startups • High financial results	• High knowledge flow • Internal capabilities needed	• Fast • High financial returns • Easy setup	• Full autonomy • High financial returns • Easy setup
Cons	• High capital resources • High human resources • High capabilities needed • Strong buy-in from the corporate mother executives necessary	• Low autonomy • Slow • Low-risk taking	• Low strategic returns • Low knowledge flow • Partner dependency/Potential governance issues • Less stable	• Low strategic returns • No knowledge flow

Tab.1 Characteristics of CVC vehicle type, Fusion Partners (2023)

It is possible to distinguish the topic of autonomy along two dimensions and an increase in both can provide the benefits expressed above (Hill et al., 2009). These two dimensions are vertical autonomy, so operational independence from the corporate parent executives to which CVC unit reports and horizontal autonomy, that refers to freedom from influential managers within the corporate parent's other divisions or departments (Hill et al., 2009). These considerations naturally tie in with the concepts of Endoisomorphism and Exoisomorphism (Souitaris & Zerbinati, 2012). CVC units can be aligned and closely related to the parent company, proposing a mechanistic structure that is centralized, hierarchical and standardized (Endoisomorphism). Or they can organise themselves into organic structures that are flexible and fluid, mimicking VC firms (Exoisomorphism). This view envisages a strict classification, but other scholars do not see such clear-cut distinctions. Very famous is the view of Miller (1996), who sees many grey scales and dynamic systems of interdependencies that evolve over time. Another criticism of the rigidity of the classification is that of Biniari (2015), who points out that the resource richness of the external environment significantly affects the relationship between the parent company and its VC programme, leading to the emergence of unique or hybrid venturing logics. In line with this more dynamic perspectives, some researchers pointed out how governance models are not fixed but can shift as corporate priorities change as well as CVC units evolve in legitimacy and scope (Zhang, 2021).

To conclude, it is necessary to emphasize how the organizational structure also influences the advantages for the start-ups. If the unit enjoys greater autonomy, the exchange of knowledge will be

faster but some of the value of the incumbent's internal network will be lost, limiting access to a narrower set of expertise (Balachandran & Eklund, 2024).
In any case, investment strategies, structures and governance must be analyzed together, not in isolation, to gain a complete understanding (Meyer et al.,1993).

2.2.5 The influence of Corporate Venture Capital on the development of backed startups

Typical CVC investment targets are young and non-public ventures (Urbano et al., 2022), operating in highly competitive and technology-obsolescent markets (P. Gompers & Lerner, 2001). Are common an absence of positive cash flows and high levels of information asymmetry, given the lack of public disclosure. Moreover, there is often a shortage of tangible assets on the balance sheet (e.g. property, plants and equipment).
So far, we have discussed the possible advantages for the investing company, but ventures backed can also boast strategic and financial achievements (Maula, 2001; Maula, 2007). These results can also be better than the ones obtained by the collaboration with IVC, thanks to the usage of specialized knowledge and the reduction of time constraints (Bertoni et al., 2013). First of all, it must be emphasized that knowledge transfer is bi-directional, benefiting both actors (Maula, 2001). The entrepreneur can then benefit from a series of resources (e.g. access to corporate labs
and beta sites) and the incumbents' network of contacts: partners, customers and suppliers (Dushnitsky & Lenox, 2006; Maula, 2001). There also appears to be an important boost in terms of innovation, with an even higher patenting outcome than IVC-backed companies (Chemmanur et al., 2014; Colombo& Shafi, 2016). Of interest are the analyses concerning performance during initial public offerings (IPOs) and acquisitions. The results suggest that start-ups supported by CVC often achieve higher valuations and better performance in these exit events than those without CVC support (Ivanov & Xie, 2010) and also than the ones guided by independent funds (Benkraiem et al.,2023). Overall, it has also been found that the positive effects are enhanced by the strategic fit between the start-up and the investing corporation, with related products and services (Park & Steensma, 2012). Further advantages for these small companies relate to the great push statistically received towards internationalization (Park & LiPuma, 2020) and the positive signalling effect towards third parties and capital markets (Kelley & Spinelli, 2001). A final interesting factor concerns tolerance to failure, which is higher in CVCs than in IVCs and is the main cause of prosperity in innovation (Chemmanur et al., 2014). However, the individual value of the entrepreneur should not be overlooked. In fact, although one can generally benefit from the above, prior experience in established firms in the same industry are better at securing advantages (Balachandran, 2024). With a further improvement in informal knowledge flows in the case of

experience at the same firm investing in the start-up (Balachandran, 2024). The professional background of the managers working in the CVC must also be considered, in fact they actively modify practices, affecting the results, considering their experience (Dokko & Gaba, 2012).

2.2.6 Challenges and risks in CVC investments

Although many advantages have been listed in the previous paragraphs, there are challenges and dangers for both corporations and start-ups. Starting to assess the situation of the incumbent launching the CVC programme, a first major issue is the unintentional strengthening of potential competitors (Dushnitsky & Shaver, 2009). Indeed, start-ups may later partner with competitors or even become competitors themselves, leading to the diffusion of valuable innovations beyond the corporate investor's control (Keil et al., 2008). Another issue is the one of internal resistance (Keil et al., 2008). It is not uncommon that conflicts emerge between CVC units and core business divisions. The causes can be varied, but are often different strategic priorities, fear of cannibalisation, budget conflicts and competition for resources (Chesbrough, 2002; Keil et al., 2008; Jeon & Maula, 2022). Large companies that engage in this activity also take reputational risks. Multiple business failures can create considerable image damage, not to mention that weak governance in the start-up may expose the corporation to unpleasant situations from a legal, ethical or compliance perspective (Maula et al., 2009). It must also be considered that, albeit to a lesser degree than in IVC, even in CVC we often find demand for quick returns which contradicts the longer timelines of venture investments and can lead to complicated situations (Dushnitsky & Lenox, 2006). In particular, this disfavours exploration investments, which struggle to justify their usefulness through short-term financial returns (Jeon & Maula, 2022). Finally, absorption and integration challenges should be mentioned. Companies may struggle to extract added value from innovation, technology or knowledge from CVC investments. Without a structure of strong internal mechanisms valuable insights may not turn into competitive advantage (Wadhwa & Kotha, 2006).
As far as start-ups are concerned, the literature identifies the following main risks. First, the influence of the large corporation can limit the venture's decision-making process. This loss of independence can lead away from the original vision and irreversibly damage the corporate strategy (Weiblen & Chesbrough, 2015). Secondly, it is possible to identify the problem of exit constraints. Companies may find it difficult to go public or be acquired due to specific clauses in CVC contracts or due to non-alignment in objectives (Ivanov & Xie, 2010). But the biggest risk, which has also generated a whole strand of literature, is the so-called ‘swim with the sharks’ theme. The central concept is the one of knowledge misappropiation (Sears et al., 2020). The most interesting investors are those in the same industry as the venture, but clearly they are also the most dangerous. It is in

fact no coincidence that on CVC deals there is a significant influence of the level of legal intellectual property protection (Dushnitsky & Shaver, 2009; Colombo and Shafi, 2016). However, the researchers found two other effective methods to protect entrepreneurs beside the legal one. They can postpone the CVC link to a later stage, when knowledge protection is easier (e.g. companies are in possession of a patent or have had time to build a customer base)(Katila et al., 2008) or they can be supported by a prominent CVC occupying a central position in the syndication network, achieving a sort of social defense (Hallen et al., 2014).

2.2.7 Recent trends & emerging academic debates in the field of Corporate Venture Capital

CVC research is far from having no more secrets and is evolving along with the world around it, with major trends in our economy reflected in the latest literature. Among these trends are, of course, sustainability and corporate social responsibility. Recent studies have analyzed the ESG outcomes of companies with CVC units and found that these programmes can have an important positive impact on them (Battisti et al., 2022). Furthermore, companies can use the investment in young ventures associated with environmental and social issues to enhance their reputation (Battisti et al., 2022). New technologies have also entered the academic debate, with big data and artificial intelligence playing a role in CVC decision-making. These tools will inevitably impact the market, influencing venture capitalists' decisions in a number of ways, such as recognising firms with high chances of success or that best align with corporate objectives (Toumia & Zouari, 2024). There is also no shortage of studies concerning the focus of investments in modern areas of interest. For example, the great interest of CVCs in the deep tech sector (Siota et al., 2021; Yokoi, 2025) or in the clean energy one (Kolte et al., 2023). Finally, a significant attention has been captured by a rather innovative branch, concerning the analysis of human capital in the CVC sector. The focus of the research is most often on the characteristics of the managers of the venture capital units. For example has been analyzed how their background can influence the innovative activities of their parent companies, with reference to both explorative and eploitative learning (Bendig et al., 2024). Or again, how the team's past experience can impact the performance of backed start-ups by influencing the success rate (Dimov & Shepherd, 2005). In general, it has been understood how limiting ourselves to a firm-level vision can lead to superficial results, which can be significantly improved through a higher level of granularity, considering single individuals and therefore obtaining a more multifaceted picture. The aim of increasing the level of detail is clearly to find confirmations of the more macroscopic analysis but in some cases even to find acknowledgement to questions that are still unanswered.

This thesis work intends to be part of the latter field of literature, which is in strong development but still with many details in the shadows.

2.3 Human Capital

In this section, the concept of human capital will be defined, with particular reference to the meaning of the term in academia. Next, its relevance in the investment world will be analyzed, with a focus on the CVC niche. The aim is to arrive thus, at previous relevant research correlating education or work experience with patterns in investment choices. Field that the present thesis work aspires to enrich.

2.3.1 Description of the concept of human capital and recent notable developments

The term human capital refers to that stock of skills, knowledge, abilities and other attributes possessed by an individual that contribute to his or her ability to produce economic value (Schultz, 1961). It can be seen as an asset in which individuals as well as societies can invest, mainly through education and training, to improve productivity, earnings, and overall economic growth (Becker, 1964; Mincer, 1974). An early philosophical root of the concept can be traced to Adam Smith's book: "An Inquiry into the Nature and Causes of the Wealth of Nations", written in 1776. In fact, it is here that we find the first reflections regarding how training and skills acquisition can increase the productive capacity of the worker. Another great figure who cannot be excluded when discussing the topic is Amartya Sen, whose contributions also won him a Nobel Prize in economics. He introduced the so-called "capability approach," which revolutionized the way human development is identified and measured. Rather than focusing solely on economic productivity and profit generation, as traditional human capital theories tend to, the focus is in parallel also brought to development as an expansion of individuals' capabilities. The latter term refers to real freedoms and opportunities to lead the kind of lives they have reason to value, including access to health care, education, political freedom and social inclusion. Following his vision, enhancing human capital should not only be seen as a means to achieve greater economic production, but as a way to empower individuals to achieve well-being and autonomy in society (Sen, 1997).

Finally, as far as recent implications are concerned, in the 21st century this field remains very active and attractive in the literature, with the concept of human capital constantly evolving. Researchers increasingly identify new elements as critical factors in shaping individual and national economic performance.

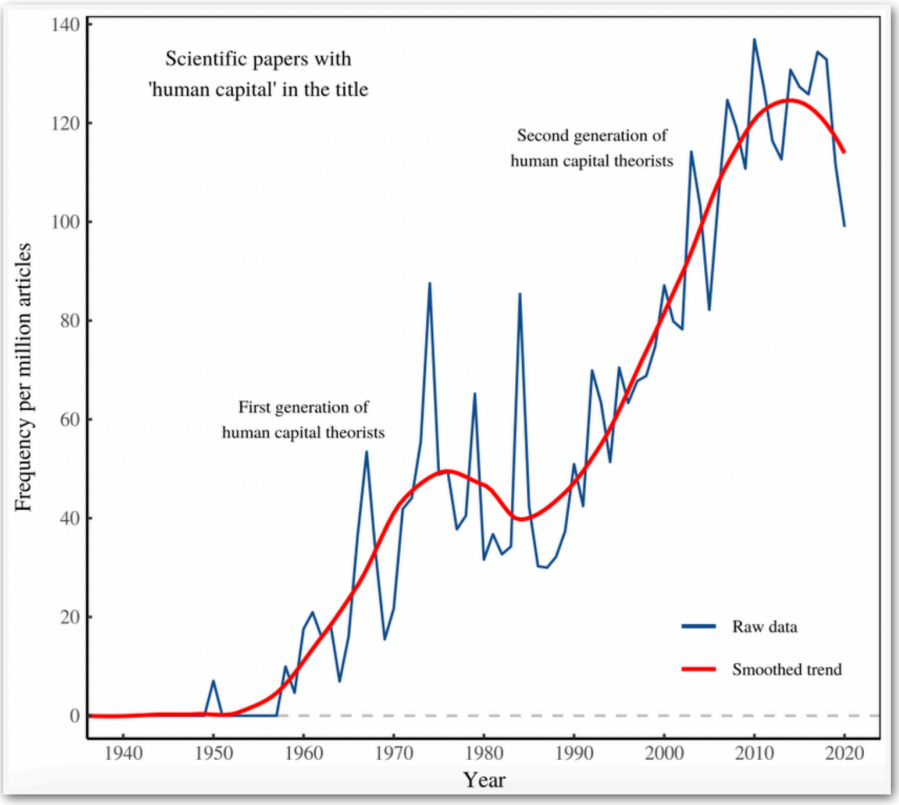

Fig.5 The frequency of the term "human capital" in the titles of scientific papers, Fix (2021)

Regarding this, a relevant discovery is made by Hanushek and Woessmann (2012), who found that cognitive skills measured through international standards (e.g., PISA), are more correlated with long-term economic growth than simple past metrics such as years of schooling. Hinting that the quality of human capital is a more powerful driver than quantity. To complete the picture of recent relevant development, it is necessary to mention how it has been identified in child development, including the acquisition of non-cognitive skills, a large impact in later outcomes (Heckman & Mosso, 2014). Suggesting early interventions over remedial efforts later in life. And, finally, all the line of research about how recent technological developments have changed the labor market, increasing the demand for adaptable, tech-savvy human capital, with a need for ongoing reskilling and lifelong learning (Brynjolfsson & McAfee, 2014).

2.3.2 Human capital effects on Corporate Venture Capital

A growing body of research is being generated regarding how human capital inside a firm plays a pivotal role in the formation and performance of CVC units. In particular, for the development of this research work, the main interest is on the background of managers working in the venture

capital units and not just any employees in the company. When we talk about human capital and in particular with reference to these professionals, we are referring concretely to a multidimensional construct, comprising at least three interrelated components: education, work experience and social network (Davidsson & Honig, 2003; Florin et al., 2003; Unger et al., 2011). As for the former, we refer mainly to the acquisition of theoretical knowledge that can be recognized by institutions and the world of work (Becker, 1964). With relevant examples in: formal education (from primary degree to PhD), professional certifications and technical training. The term work experience, on the other hand, refers to practical knowledge and skills gained through employment and professional roles over the course of time (Marvel et al. 2016). Examples that immediately spring to mind here are industry-specific experience, entrepreneurial one or functional expertise. To conclude, when we talk about social networks (or "social capital"), we refer to the connections, relationships and social interactions that provide privileged access to information, support and opportunities (Coleman, 1988; Adler & Kwon, 2002). The latter concept characterizes the human capital of a professional, but in the case in Venture Capital it is also a foundational part of the services offered alongside financial support, as mentioned in the previous chapter dedicated in this literature review. This set of resources, therefore, should not be considered a static attribute but rather a dynamic tool that shapes not only the individual's career trajectory, but also the strategic behavior and adaptability of venture capital structures within rapidly evolving markets.

As anticipated earlier, the impact of the background of CVC managers in the selection of ventures is focal center of this paper and among the most relevant scientific findings already achieved in academia, several stand out in this specific field. Evidence was found that the past experiences of CVC managers influence the variety of investment practices in the units. In fact, if the past career is more varied there is a tendency to have a broader range of investment practices, suggesting more flexibility and adaptation in the strategy (Hill & Birkinshaw, 2014). Another interesting relationship was found between the human capital of managers and the patenting rate. Indeed, it seems that these professionals act as an informal filter between the startup and the company, also influencing innovation strategies with their background, thus having an impact on the ventures selection as well as exploratory and exploitative patenting activities (Bendig at al. 2024). Further, Liu's (2022) study is interesting. The focus here is on the influence of unit members' human factors (including experience, education, passion, and gender) on reducing uncertainty in investment choices, primarily through an impact in the evaluation process. To conclude, there is one last study that is very much related to the objectives of this master thesis. Ryu, Bae and Brush (2024), addressed the issue of the tendency of CVCs to select particular industries under certain conditions. In particular, the study refers to how there is an inverted U-shaped relationship between a firm's capabilities in a specific domain and its likelihood of investing in ventures within that same domain. However, it

refers to generic capabilities and not to specific human capital of the unit managers, the element under analysis in this paper. It will be the subject of subsequent chapters to assess whether even considering the world of human capital there is an influence on the preferred investment industries.

Theoretical framework

The primary objective of this paper is to enrich the current scientific literature that investigates the relationship between human capital and corporate venture capital (CVC) investment strategies. Specifically, it focuses on analyzing how the prior knowledge, professional background, and experiential assets of CVC managers influence the nature and direction of investment decisions. This chapter lays out the theoretical framework for the research, identifying underexplored areas and gaps in the current literature, which represent opportunities for scholarly advancement. Downstream of this, the research question was formulated, serving as the conceptual anchor for the formulation of the study's hypotheses and the subsequent empirical investigation.

3.1 Gaps in the literature and thesis contribution

As it emerged in the literature review section, a considerable body of research has focused on the selection process and exit performance of venture capital programs. This focus reflects the strategic relevance of these two phases. The selection one, functions as a critical interface, enabling successful investments that generate value for both ventures and their corporate investors (Cumming & Johan, 2008). Conversely, a successful exit represents the ultimate realization of value and the completion of the investment cycle, serving as a measurable outcome of the venture's growth and viability (Giot & Schwienbacher, 2007). However, it is important to note that most of the research has been conducted through the study of Independent Venture Capital (IVC), and its findings cannot be directly generalized to Corporate Venture Capital. This is because, in both phases mentioned above, the influence of the strategic objectives of the parent companies is predominant, often relegating purely financial goals to the background (Dushnitsky & Lenox, 2006; Dushnitsky, 2012). In fact, typically the individual parent companies have areas of interest in terms of industry and geography, which have an influence on the selection process (Basu et al., 2011) and, at the same time, patenting and innovation purposes that significantly influence the exit timing. An even more relevant gap in the literature concerns the lack of analysis at a granularity level equal to the individual manager. The studies regarding the CVC world are predominantly based on aggregated data at fund-level, making it impossible to understand some detailed dynamics. Although the existing literature has provided significant contributions on CVCs' sectoral preferences, highlighting, for example, the interest in initial investments in software and technology firms (Dushnitsky & Lenox, 2005), the role of CVC managers' human capital background in influencing their investment selection decisions remains little explored. Human capital has often been treated as

a background variable, rather than as a central explanatory factor. Precisely for this reason, the vast majority of studies have adopted a quantitative approach based on the statistical analysis of historical data regarding investments, often avoiding approaches with qualitative components that analyze stories of complex and heterogeneous individual career paths. In light of the growing strategic importance of CVCs as tools for innovation and corporate competitiveness, understanding the internal mechanisms that influence their investment decisions is not only academically relevant but also practically urgent. CVC managers, who operate at the intersection of entrepreneurship, innovation, and corporate strategy, play a pivotal role in shaping investment outcomes. Yet, their individual influence has been largely overlooked in existing research. This thesis aims to address this gap by investigating the role of human capital in influencing both venture selection and exit success.

Specifically, the study focuses on the following background factors:

– Academic training

– Work experience prior to joining the CVC's parent company

– Roles previously held in other business units of the same parent company

In conclusion of what has been discussed in this subsection, it is possible to define the main focus of this work and therefore the research question as follows:

Research Question

> *How does the human capital of CVC managers influence both the selection of ventures and their exit performances?*

3.2 Hypothesis formulation

In the following paragraph, the hypotheses formulated to answer the research question will be presented. Specifically, two main hypotheses, each further divided into two sub-hypotheses, have

been developed to clearly and distinctly address the topics of investment selection and exit performance. The first one actually aims to examine whether the presence of sector expertise in the CVC fund influences or not the choice to invest in startups operating in certain industries. The second one focuses on the influence of the aforementioned sector expertise on the probability of reaching an exit after the investment, whether it is an acquisition or an Initial Public Offering. For each of the two, the analysis will be carried out by evaluating the three subcomponents of skills acquisition defined in the previous paragraph. The impact of academic education, work experiences outside the parent, and experiences inside it will then be evaluated.

3.2.1 First hypothesis

The human capital of CVC managers, with particular reference to industry-specific expertise, is widely considered a critical factor in influencing investment decisions. Previous research has shown that the background knowledge and experience of investors can act as a lens through which they evaluate opportunities, perceive risk, and assess the correct strategic alignment of ventures with corporate goals (Dimov & Shepherd, 2005; Sapienza et al., 1996). In the specific context of corporate venture capital, this effect may have even greater relevance, as managers are expected to reconcile both financial and strategic motivations when selecting startups for investment (Dushnitsky & Lenox, 2005; Gompers & Lerner, 2000). Industry expertise may be gained from either academic or professional backgrounds. On the academic side, degrees in technical disciplines, finance, social sciences, or even humanities can provide foundational knowledge that shapes a manager's cognitive framework (Castanias & Helfat, 2001). From a professional point of view, instead, experiences in technical roles, commercial functions, or financial positions within a specific sector can enhance a manager's ability to understand a venture's potential, anticipate market dynamics, and, as a consequence, may have a strong influence on the venture selection process (Gompers et al., 2009). The aforementioned alignment between a manager's expertise and the startup's domain can lead to more confident decision-making and a higher likelihood of investment, particularly in industries characterized by high complexity or regulatory barriers (Basu et al., 2011; Katila et al., 2008). Moreover, the match of expertise between CVC managers and target ventures may reduce information asymmetries and foster better evaluation of technological potential or business models (Narayanan et al., 2009). This is particularly relevant in sectors like AI, relatively new and full of overvaluations, where both technical depth and cross-disciplinary understanding (e.g., ethics, data governance) are essential to assessing venture viability. Similarly, in the healthcare one, where sector-specific regulatory knowledge or clinical insight can significantly influence screening and selection processes. And even for IT, which is more mature as a venture

investment area, in which, however, a nuanced understanding of infrastructure, cybersecurity, or software scaling can give expert investors an edge.

Considering these arguments, it is reasonable to expect that the presence of sector-specific expertise, whether acquired academically or professionally, affects the likelihood that a CVC manager, and consequently the fund, will invest in startups operating in a specific industry. Moreover, it is also assumed that in sectors that still do not have a consolidated academic path specifically for training skills (e.g. AI), the competences learned in the workplaces assume a greater influence.

Concluding, based on the arguments mentioned above, hypotheses 1.a and 1.b are as follows:

Hypothesis 1a

When CVC managers possess expertise valuable in a certain sector , the likelihood of investing in startups operating in that industry increases.

Hypothesis 1b

In the absence of consolidated academic paths to develop skills related to a sector, work experiences assume a greater influence in investment decisions

3.2.2 Second hypothesis

The human capital of CVC managers is not relevant only for the investment selection process but may also play a decisive role in shaping post-investment outcomes, particularly the likelihood of successful exits, including IPOs, acquisitions, or strategic mergers. In the literature, it is evident that within the Corporate Venture Capital sector, where investments must reconcile strategic objectives with financial returns, the ability of managers to guide ventures toward successful exit outcomes represents a critical factor in maximizing both corporate value and the impact of innovation (Narayanan et al., 2009; Gompers et al., 2009). Prior research has emphasized that managerial capabilities, such as strategic insight, industry navigation, and resource orchestration, are often rooted in individual experience and educational formation (Becker, 1964; Castanias & Helfat, 2001). From an academic point of view, a great example is advanced education in finance,

management, or STEM fields, that may equip managers with analytical tools and theoretical frameworks that enhance their ability to evaluate growth trajectories, manage risk, and understand the timing and mechanics of exit processes (Sapienza et al., 1996). By the professional perspective, instead, hands-on experience in deal-making, market scaling, or business development within corporate environments may further develop the intuition and pattern recognition needed to drive ventures to successful outcomes (Hellman & Puri, 2000). Moreover, CVC managers with relevant expertise may be better positioned to identify inflection points (i.e. a time of significant change in situation), align venture milestones with broader corporate strategies, and leverage internal networks or external partnerships, that can heavily facilitate exits.

If we search for industry specific examples, high-stakes sectors like healthcare or artificial intelligence, where regulatory hurdles or technological maturity often dictate exit feasibility, have papers dedicated that demonstrate even better how having domain-specific knowledge can be a strong enabler of success (Katila et al., 2008; Basu et al., 2011).

Another great example of useful skill is the understanding of capital markets and M&A processes, typically acquired through professional finance roles, that likely influence the timing and structure of exits.

Taken together, these elements suggest that the educational and professional background of CVC managers is not only a determinant of which ventures are selected, but also a predictor of how successfully those ventures will reach a liquidity event. What remains to be seen is which specific types of skills and which learning moment have the greatest impact on the probability of success in obtaining exits. By disentangling the relative impact of the different kind of competencies and the different learning moments, this research aims to contribute to a more nuanced understanding of which facets of human capital are most instrumental in driving venture success within CVC portfolios

Concluding, based on the arguments mentioned above, hypotheses 2.a and 2.b are as follows:

Hypothesis 2a

CVC managers possessing financial and economic expertise, acquired through academic education or professional experience, are more likely to lead ventures to successful exits, due to their enhanced understanding of capital markets and M&A dynamics.

Hypothesis 2b

Technical skills of CVC managers, acquired through academic training or professional experience, enhance the likelihood of venture exits, as they enable more accurate assessments of technological potential and deeper understanding of industry dynamics.

Methods

4.1 Research approach

This section is dedicated to introducing the chapter on methods. The aim is to offer a medium-to-high-level overview of the research approach, providing the necessary context for the reader to better understand the more detailed descriptions of the datasets and the econometric models that follow. After identifying the research question and the hypotheses, it was mandatory to select the most suitable scientific tool to achieve the results. The literature has largely supported the decision, indicating econometric regression as a highly effective instrument for analyzing the correlation between variables, particularly in the economic field (Sykes, 1993; Panait & Marinescu, 2016). In particular, regression permit us to quantify the relationship between a dependent variable and one or more independent variables, allowing us to estimate the strength and direction of these relationships. This approach is fully consistent with the objectives of this research. In fact, by employing a set of proxies for the human capital of CVC managers as independent variables, and using as dependent variables the exit performance of funded ventures in one case, and the selection decisions made by CVCs in the other, the analysis will enable a structured response to the research question. To ensure greater completeness and robustness to the analysis, especially considering that through econometric regressions it's possible to verify correlation but not causality in the strict sense, the study was integrated with a qualitative validation through direct comparison with professionals operating in the Corporate Venture Capital sector, with many years of experience in the field. These experts were presented with the summary of the results obtained from the econometric analysis, asking them to offer a critical and interpretative reading based on their own operational experience. This approach allowed to enrich the research with a practical and contextual perspective, contributing to a more articulated understanding of the results. In conclusion, the adopted approach integrates quantitative evidence based on empirical data with qualitative contributions, offering a more complete and realistic vision of the phenomenon analyzed. In the following paragraphs, the quantitative and methodological aspects of the analysis will be explored in order to ensure a more accurate understanding of the research process adopted. The considerations and qualitative contributions offered by experts in the field will instead be the subject of a dedicated chapter, placed after the presentation and discussion of the results obtained.

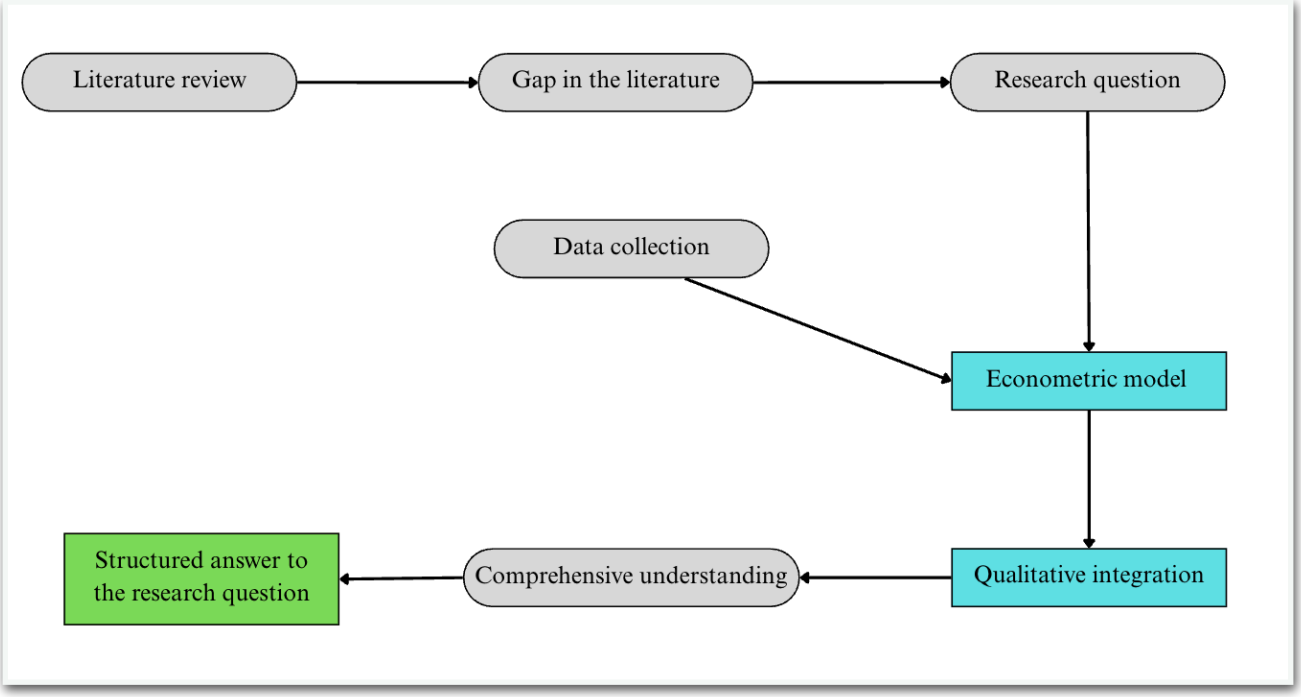

Fig.6 Flowchart summarizing the research approach adopted, author elaboration

4.2 Data collection and analysis

This section is dedicated to the presentation and description of the dataset used for the empirical analysis conducted in this study. The aim is to provide the reader with a clear and detailed understanding of the information base on which the econometric tests related to the hypotheses formulated in the previous chapter are based. In a first phase, the analyzed sample will be briefly described, with reference to the size, the observation time period, and the external sources of the data not collected manually. A specific section dedicated to the description of the variables used in the model will follow: the dependent variables, the independent variables, and the control variables, necessary to take into account potential confounding factors, will be distinguished. In particular, this part will necessarily be divided into two subsections, considering the different variables taken into account to test the two hypotheses exposed in the previous chapter. The section will conclude with a paragraph dedicated to the descriptive analysis of the dataset. Tables and infographics will be presented to provide an overview of the main characteristics of the CVC managers and startups involved in the sample. This last part will allow to observe the distributions of academic and professional skills, as well as further relevant information such as the sectoral distribution of startups and the frequency of exit operations. Furthermore, it is in this paragraph that the process of transformation and normalization of raw data into analytically usable variables in the econometric model, the so-called operationalization, will be illustrated in detail. Particular attention will be paid

to the explanation of the proxy variables used to capture the academic and professional skills of managers, as well as to the definition of the outcomes considered to measure the success of ventures (such as investments made or exits obtained through IPOs or acquisitions). Overall, this section aims to ensure methodological transparency and empirical solidity, providing the reader with all the elements necessary to evaluate the robustness of the analyses that will follow.

4.2.1 Sample

The analysis at the heart of this paper is based on a dataset containing information on investments made by 77 CVC investors worldwide, all subsidiaries of their respective parent companies. All this is functional to the focus on the role of the CVC manager, a professional figure that allows to connect the two entities involved in the deal: corporate parent and start-up venture. As deeply analyzed in the literature (e.g. Moritz et al. 2022), this professional acts in the role of key decision-maker, with an intermediary function. With regard to the various components of the database, all information on CVC deals performed worldwide by the top CVC investors (defined as those responsible for approximately 80% of the world's investments) during the period 2017-2022 was first obtained from Pitchbook. A single cleaning operation was carried out to remove the so-called BVCs from the database (see section 2.1.4: Types of Venture Capital Investors). In fact, Pitchbook classifies some programmes belonging to this category as CVCs, but as the literature shows, we are often talking about different strategic objectives, with particular reference to the growth of demand for banking services (Hellmann et al. 2008; Da Rin et al. 2011). On the other hand, our focus is on corporate companies that have strategic objectives related to access to new technologies and the development of innovation, with programme approaches that can only be quite different. In order to complete the information for our analysis, it was necessary to collect the specifications regarding the human capital of the managers operating in the various CVCs. Unfortunately, no public data were found in this case, so it was necessary to manually collect professional experience and education from Linkedin profiles and personal or company websites. This process resulted in a cleaned and definitive pool of 5385 deals and 1101 managers across 77 CVC firms. In addition to this process, has been necessary collect a final set of information to develop the investigation about the likelihood of venture exits. For this purpose, exit-related information was retrieved for the same ventures involved in the deals of the first analysis. Specifically, Orbis M&A data were used to identify which of these ventures underwent a successful exit during or after the investment of a CVC. As said before, this additional data allowed for the construction of the second and exit-focused econometric models.

4.2.2 First model variables

Dependent variables:

In order to analyze CVC investments in detail and from different angles, multiple regressions were run with different dependent variables. Specifically, we are talking about 12 variables, combinations of industries and observation points. The industries taken into consideration are mainly Healthcare and IT, which are by far the most relevant in the CVC sector, making up approximately 70% of the deals reported by the Pitchbook's database. In addition, the AI category was also analyzed, containing all the ventures that propose a business model based on this tool, whether they are part of the IT category or not. Finally, in order to obtain further information, a fictitious category was created that includes companies in the IT sector excluding those specialized in artificial intelligence, useful for comparative analysis. Three different analysis perspectives were used for each of these four sectors, resulting in the above-mentioned 12 variables. The points of observation concern

1) The number of investments of individual CVC funds in the sector

2) The percentage of CVC investments in the sector out of total investments

3) The cumulative value of money spent on investments in the sector by the individual CVC

Independent variables:

To draw conclusions related to the research question, it was necessary to create a set of independent variables that could effectively map the human capital present in CVC funds. In order to do this, a basket of 10 variables was used, comprising three key aspects of the human capital of CVC managers: education, work experience prior to joining the parent company and skills developed in the parent company prior to joining CVC. All variables have the same structure, with a value of 0 if there are no competences in the CVC, 1 if competences are present but limited and 2 if they are present and important (for more details please refer to the section 4.2.4). Specifically, 4 variables concern competences derived from university education, in the categories: technical, financial, social sciences and humanities & arts. A further 3 relate to technical, business or financial skills derived from experience in other companies. And the last 3 concern technical, commercial or financial competences derived from roles held in the parent. Through this set, it was possible to identify precisely which competences and whether the timing of their acquisition affects the investment choices of CVC managers.

Control variables:

A series of control variables were included in all analyses. In particular, reference is made to information concerning both the CVC parent companies and the individual CVC funds. Specifically, the variables related to the parent companies include the geographical region of the headquarters and the industry to which the firm belongs. The former encompasses three dummy variables representing the main continents where the CVC has its headquarters and is utilized to control for country-specific factors that may impact the selection choices of corporate venture capitalists. The latter comprises eight dummy variables related to the primary industries in which the parent company operates, controlling for industry-specific factors that might influence CVC investment decisions. As regards the specific information of the CVCs, the years of activity of the funds will be verified and, again, the geographical location, in this case relating to the headquarters of the CVC. This is with the understanding that the geographic distance with the ventures can be of decisive influence in the selection process (Mazza & Shuwaikh, 2024)

4.2.3 Second model variables

Dependent variables:

In order to adopt a more complete perspective in this case too, three different regressions were conducted, each with a different dependent variable. The objective of the analysis, however, remains that of evaluating the impact of CVC managers' human capital on the probability of exit of ventures. The investigation was therefore divided into two phases: in the first, the cases of acquisition and Initial Public Offering (IPO) are analyzed separately; in the second, all exit operations are considered as a whole, including both categories. In detail, to fully capture the effect of human capital, the three dependent variables adopted assume percentage values, representing the ratio between the number of deals concluded with the respective exit operations and the total number of investments made by CVCs in the reference period 2017–2022.

Independent and control variables:

As regards the independent and control variables of this analysis, we can refer to those of the previous model since the same ones were used. In fact, even in this case we want to verify the

correlation with human capital, which must necessarily be the protagonist in the independent variables pool.

4.2.4 Descriptive statistic

As explained above, this paragraph is dedicated to ensuring that the reader has the opportunity to delve deeper into the clear and detailed understanding of the information base on which the econometric tests are based. For ease of understanding, the information regarding the three macro areas to which the data belong has been distinguished, this is the reason why it will be possible to find sub-paragraphs dedicated to

1) Human capital of CVC management
2) CVC deals
3) Exit performances

***Human capital of CVC management**:*

This part of the thesis presents the details about the characteristics of CVC managers. Information from LinkedIn profiles and company websites has been added to the database, focusing on the largest CVCs, where the number of investments serves as a proxy for company size. Overall, a total of 206 corporate venture capitals surveyed has been reached, of which 77 have no missing data. Only the latter were taken into account for the analysis, as they allow for a more robust and consistent dataset. This resulted in a database with information on 1101 managers. The variables available for each individual are the ones presented in the following table.

VARIABLE	DESCRIPTION
Fund name	CVC fund's name (e.g. Intel Capital)
Name	Manager's name and surname (e.g. Eric King)
Country	Geographical region of working activity (e.g. Israel)
Simplified role in the CVC	Simplified current role (e.g. Managing director)
Year of recruitment	Year joined the fund (e.g. 2018)
Previous experience in the company	Worked previously at the parent company? (e.g. yes)
Previous role in the company	Last role in the parent company (e.g. Senior manager)
Category of the previous role	Categorical variable: technical, financial or commercial
Years in previous role	Years for which the individual held the position in the parent (e.g. 3)

VARIABLE	DESCRIPTION
Previous VC experience	Does the manager have prior experience in VC? (e.g. no)
Name VC firm	Name of the VC firm (if applicable) (e.g. JVP)
Previous role VC experience	Role at the prior VC firm (e.g. Investment director)
Industry previous VC experience	VC specialization industry (e.g. energy)
Years previous VC experience	Years for which the individual held the position in the VC (e.g. 5)
Company name 1	Last firm he worked for before joining the company (e.g. Boeing)
Company type 1	Type of company: corporate, startup, etc.
Company role 1	Role held in the last company (e.g. CEO)
Industry company 1	Industry sector of the last company (e.g. Finance)
Years company 1	Years for which the individual held the position in the last company (e.g. 4)
Company name 2	Penultimate firm he worked for before joining the company (e.g. J.P. Morgan)
Company type 2	Type of company: corporate, startup, etc.
Role company 2	Role held in the penultimate company
Industry company 2	Industry sector of penultimate company (e.g. Law)
Years company 2	Years for which the individual held the position in the penultimate (e.g. 1)
Generic work experience category	Categorical variable: technical, financial or commercial
University name bachelor's degree	Name of university where they obtained a bachelor's degree (e.g. Stanford)
Bachelor's degree subject	Subject studied during their bachelor's (e.g. math)
University name master's degree	Name of university where they obtained a master's degree (e.g. MIT)
Subject of study master's degree	Subject studied during their master's (e.g. engineering)
MBA	Whether they hold an MBA degree (e.g. yes)
MBA university	Institution where they earned their MBA (e.g. Yale)
PhD	Whether they hold a PhD (e.g. no)
PhD university	Institution where they earned their PhD (e.g. Caltech)
PhD subject	Subject studied during their PhD program(e.g. Physics)
Education general category	Categorical variable: technical, financial, social sciences, humanities and arts

VARIABLE	DESCRIPTION
Still present	Whether they are still working at the CVC fund (e.g. no)
CVC abandonment moment	Date on when they left the fund, if any (e.g. dec 2023)

Tab.2 Variables characterizing CVC managers, author elaboration

Of these, those relevant and therefore used for the analysis are those related to the concept of human capital (see section 2.3). It is possible to identify two macro categories among these variables, the first includes all information linked to education, while the second which relates to professional experience.

Education-related variables

University name bachelor's degree

Managers of Corporate Venture Capital groups tend to come from a bachelor in a small number of elite universities, with a clear concentration in the United States. Harvard, Berkeley and Stanford not only dominate numerically, but also reflect the importance of academic networks and the university brand in the CVC world. The presence of Asian universities such as Waseda and Seoul National University is indicative of growing venture capital activity in the global east as well, but the decision-making core remains anchored in U.S. universities.

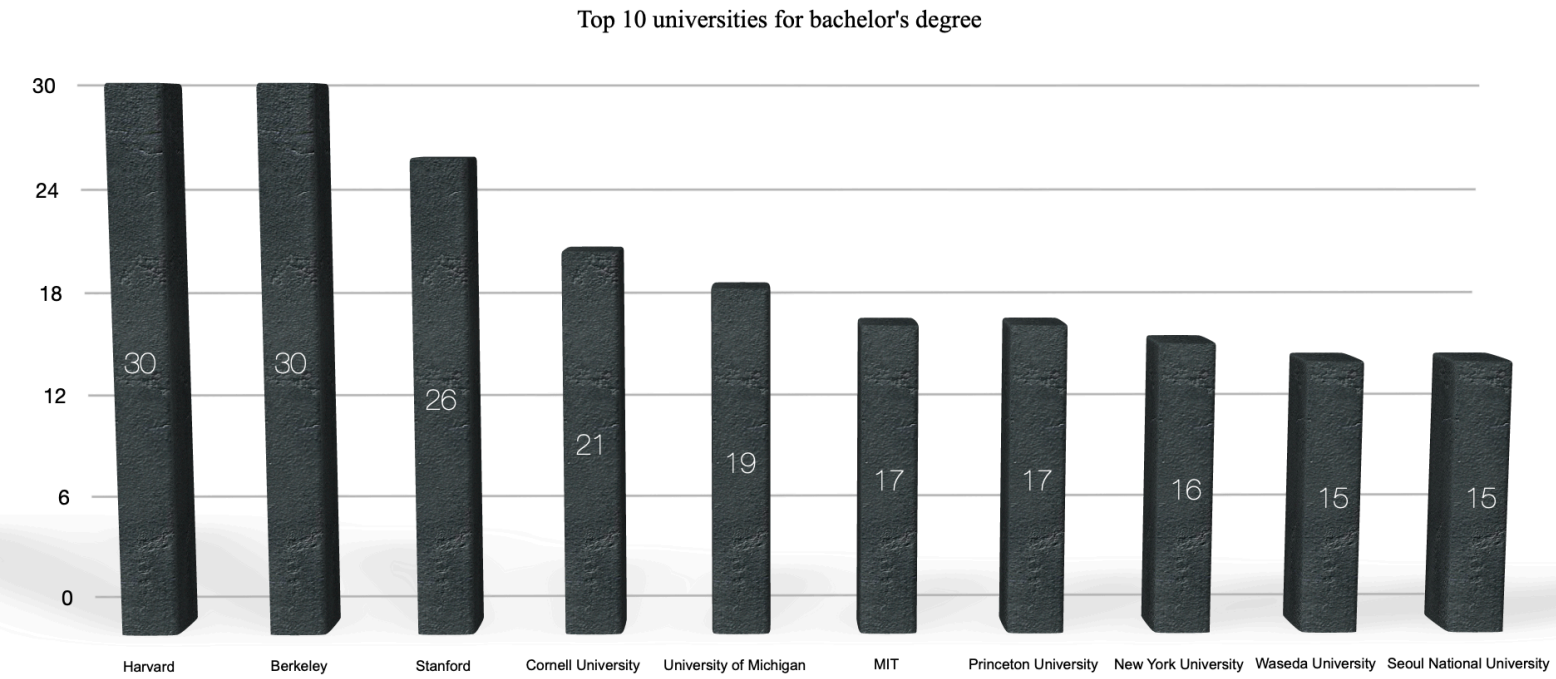

Fig.7 10 universities where the largest number of CVC managers pursued bachelor's, author elaboration

University name master's degree

While U.S. universities clearly dominate in the bachelor's pathways, with a strong presence of Harvard, Berkeley and Stanford, in master's education there is more internationalization, with European universities such as LSE, UCL, Cambridge and Oxford gaining relevant positions.

This shift suggests that many managers are choosing to complete their education in academic settings other than where they started, probably to enrich their international profile or to gain access to graduate programs with global recognition. In addition, the smaller number of representatives per university in the master's program indicates greater dispersion in choices, in contrast to the concentration seen in bachelor's degrees.

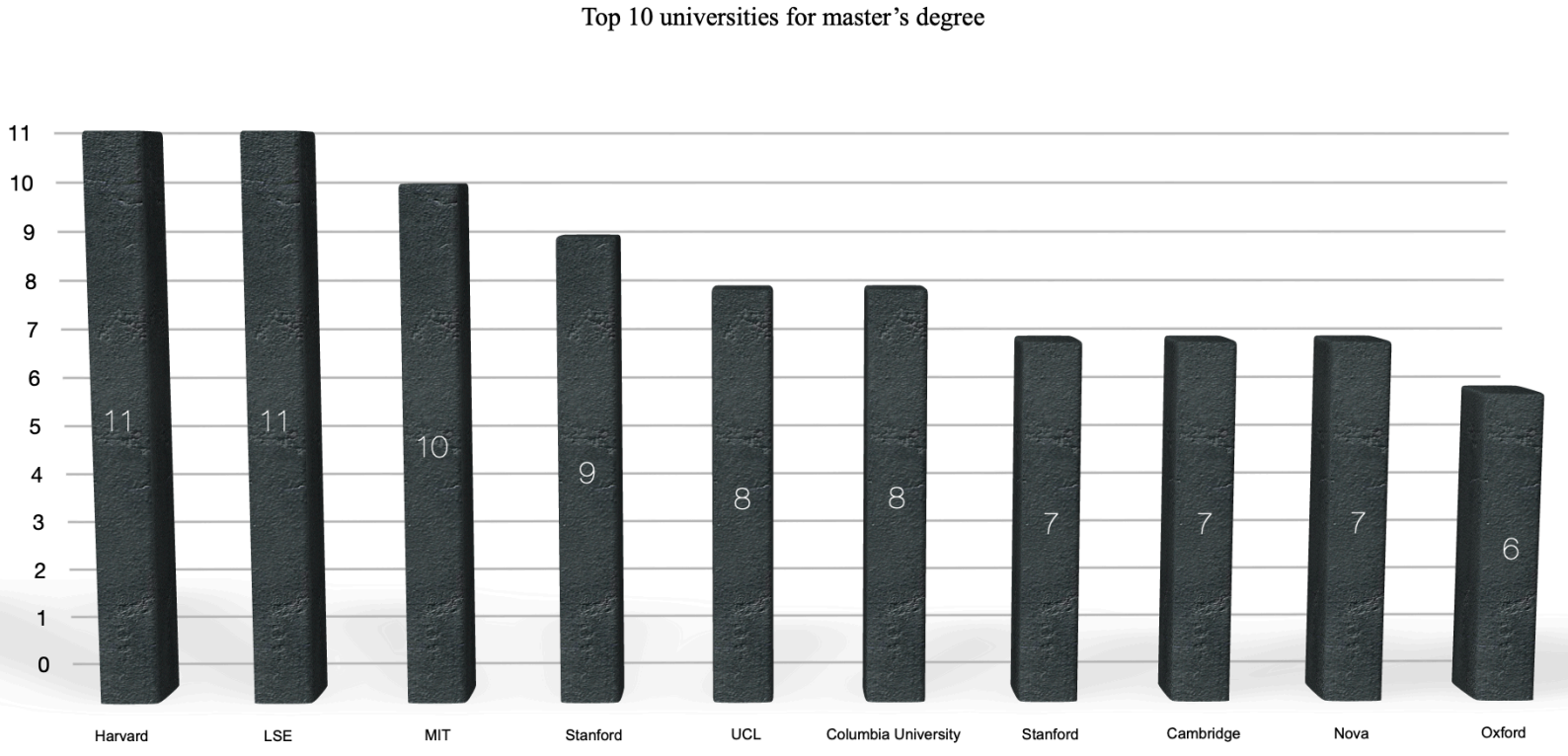

Fig.8 10 universities where the largest number of CVC managers pursued master's, author elaboration

MBA & MBA university

It is possible to identify a strong concentration of MBAs among CVC managers coming from a limited number of business schools, with Wharton, Harvard and Chicago Booth predominating. This distribution reflects a high degree of homogeneity in the educational backgrounds of those choosing an MBA, suggesting a standardisation in managerial selection criteria. Nevertheless, the

overall figure that only 34.2% of managers hold an MBA indicates that the degree, while a valued asset, is not a prerequisite for accessing positions in the CVC world. This leaves room for profiles with alternative experience, suggesting a valorization of professional diversity in this sector.

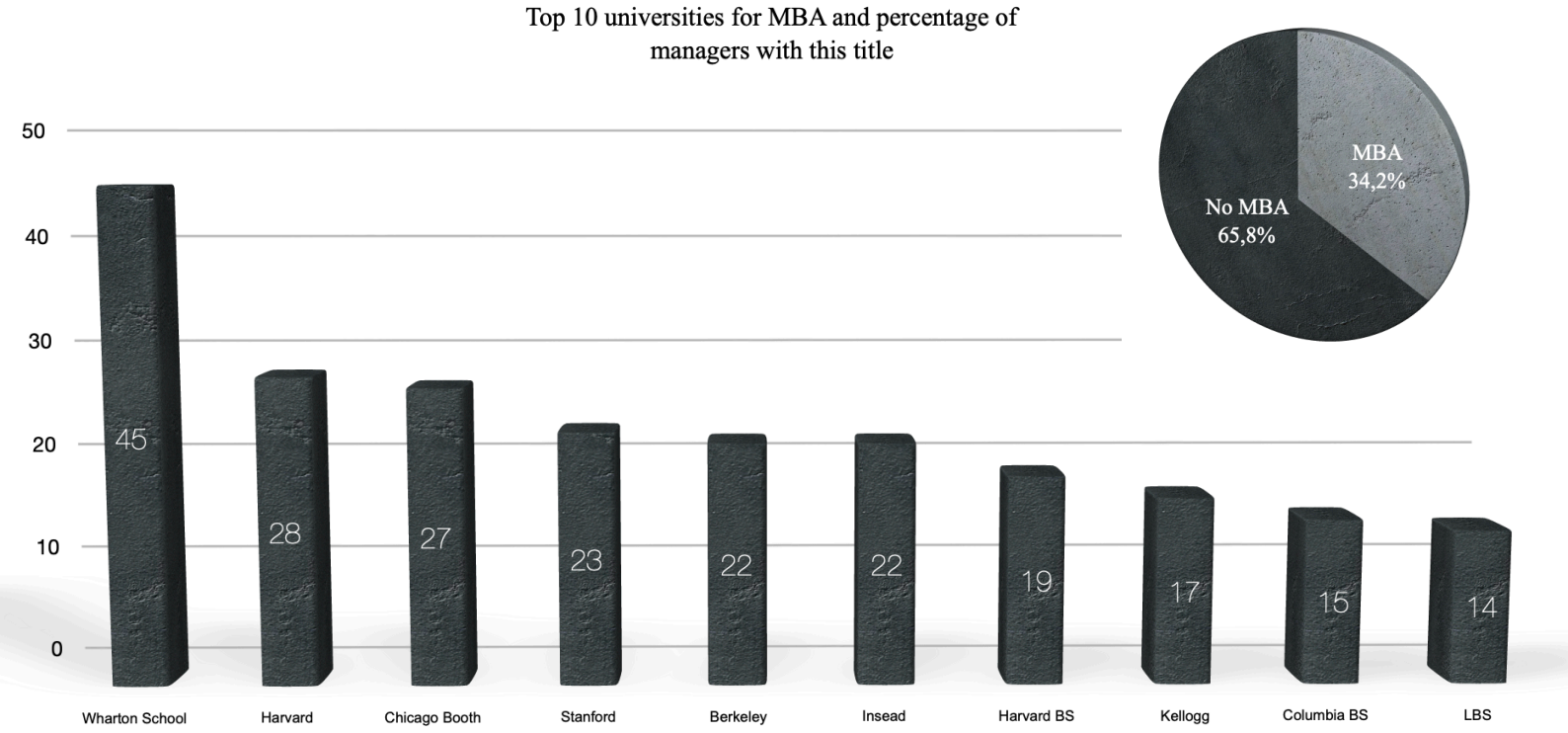

Fig.9 10 universities where the largest number of CVC managers pursued MBA and percentage of managers with this title , author elaboration

PhD & PhD university

The data in the database show that only a minority (11%) of the managers active in CVCs hold a PhD, suggesting that a doctorate is not a prioritized credential for roles in this field. The universities of origin of PhDs are however prestigious and internationally distributed, with Harvard, UCL and Cambridge among the most frequent. Geographical and institutional heterogeneity reflects a certain openness of the sector to advanced academic paths, albeit not widespread. The clear prevalence of profiles without doctorates, however, signals a preference for alternative educational and professional paths, probably more oriented towards management or financial practice. The latter statement derives mainly from a comparison between the percentage of workers with an MBA and those with a PhD.

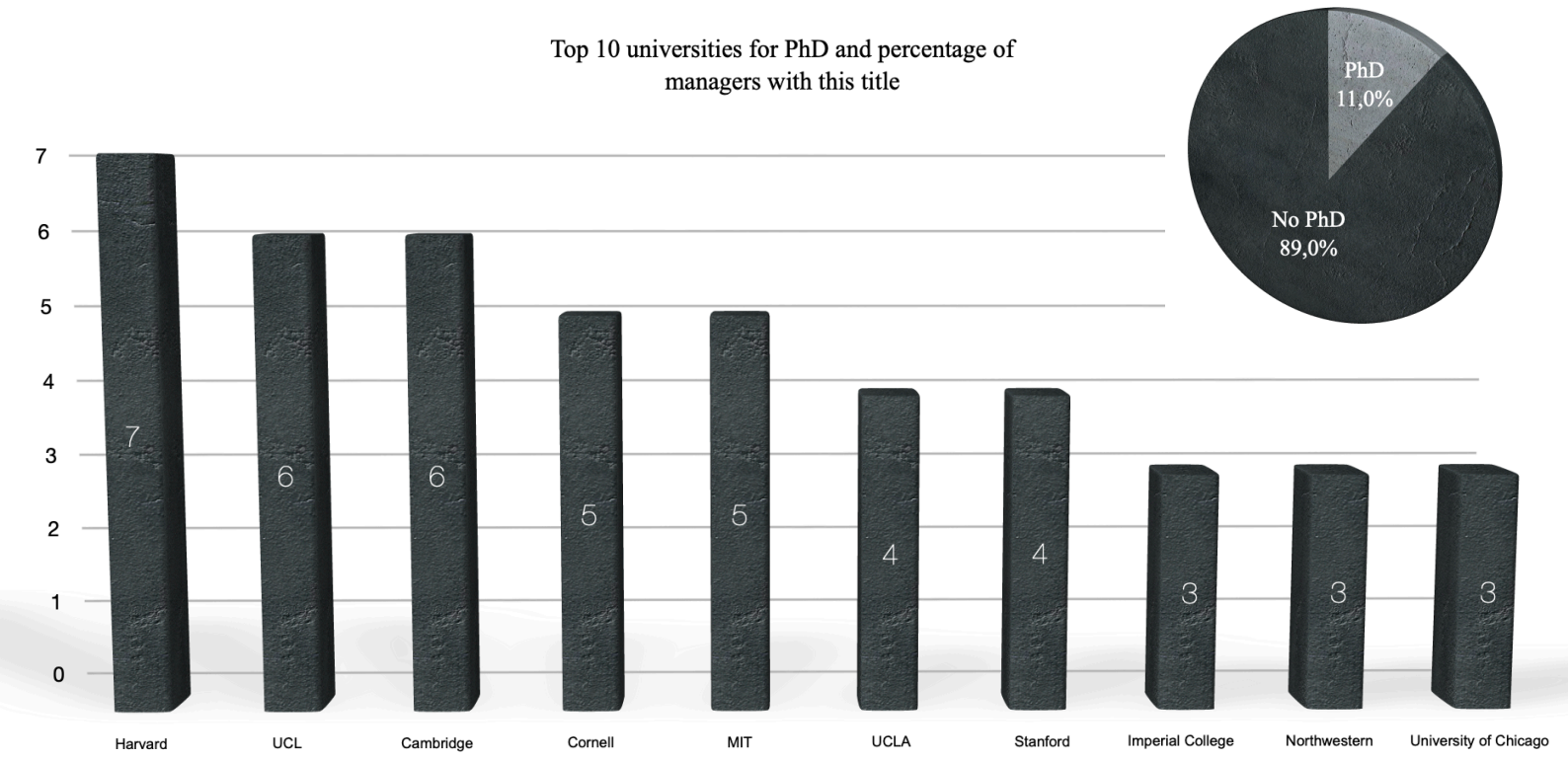

Fig.10 10 universities where the largest number of CVC managers pursued PhD and percentage of managers with this title, author elaboration

Bachelor's degree subject

The data on faculty choices during the bachelor's degree show a clear predominance of economic-business paths among CVC workers, with Economics, Business Administration and Finance together covering over 60 per cent of choices in the top 10. This figure confirms the importance of management and finance skills in the Corporate Venture Capital sector. The smaller presence of STEM degrees, although relevant, suggests that the technical component is considered relatively ancillary to economic-strategic analysis skills. The even lower occurrences in pure legal and scientific fields indicate a low orientation towards specialized profiles not directly linked to business logic. To conclude, it is necessary to emphasize the complete absence in the top 10 of humanities and arts-related disciplines. This picture confirms a clear preference for profiles with business-oriented skills, to the detriment of more humanistic or creative educational approaches.

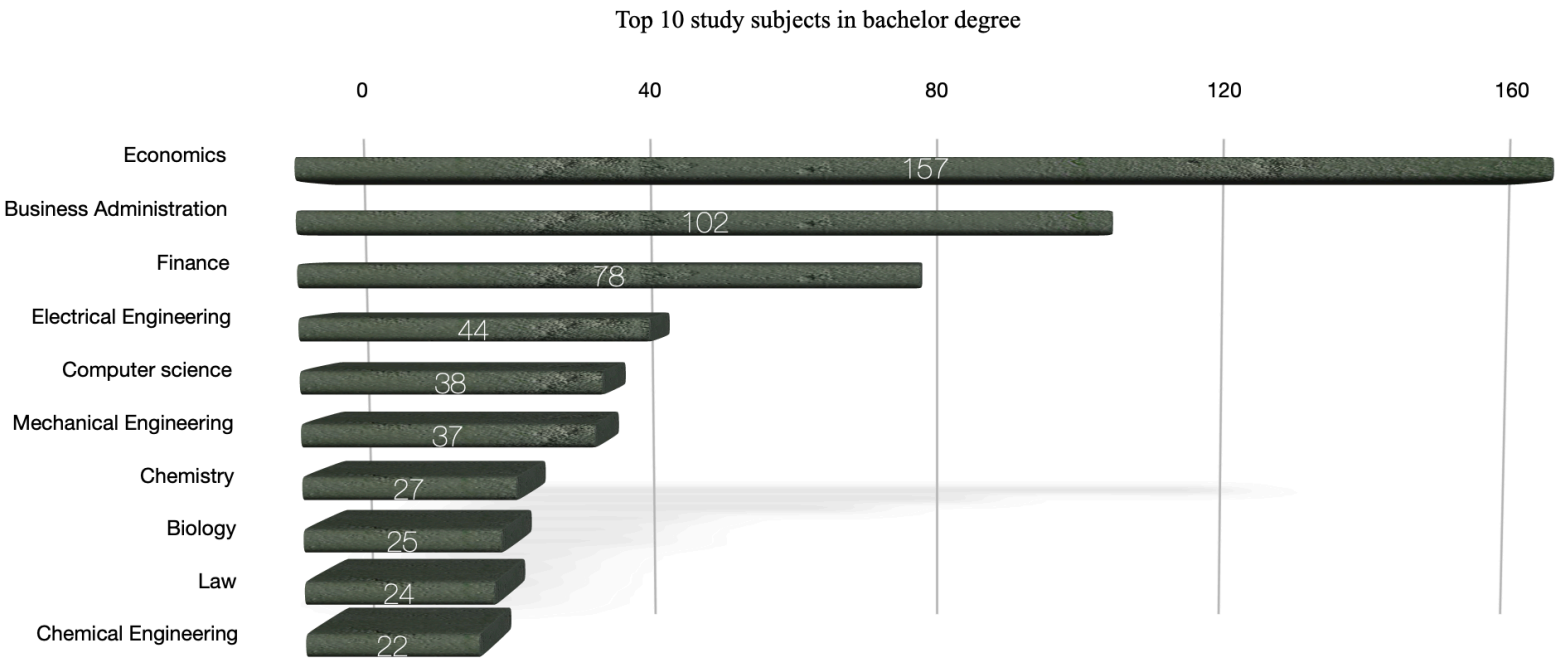

Fig.11 10 most studied subjects by CVC managers during the bachelor degree, author elaboration

Subject of study master's degree

The choices of CVC workers for the master's degree show a more heterogeneous distribution than for the bachelor's degree. Although finance is the dominant discipline (46 units), gathering three-year graduates in finance and economics, new areas emerge such as law (23) and medicine (19), which were absent or marginal in the bachelor course. The most interesting fact, therefore, is the increase in educational variety, with greater relevance also touching technical-scientific disciplines such as Computer Science and Electrical Engineering. Compared to the bachelor's degree, where Economics and Business Administration clearly dominated, the master's degree seems to be a moment of specialization or broadening of skills. A rebalancing between economics and technical-legal training is also noticeable, suggesting that in the CVC the master's degree is often used to integrate core competences with transversal or sectoral skills. Obviously, it is possible to note from these data the confirmation of the lower number of holders of this category of degree compared to the bachelor's degree.

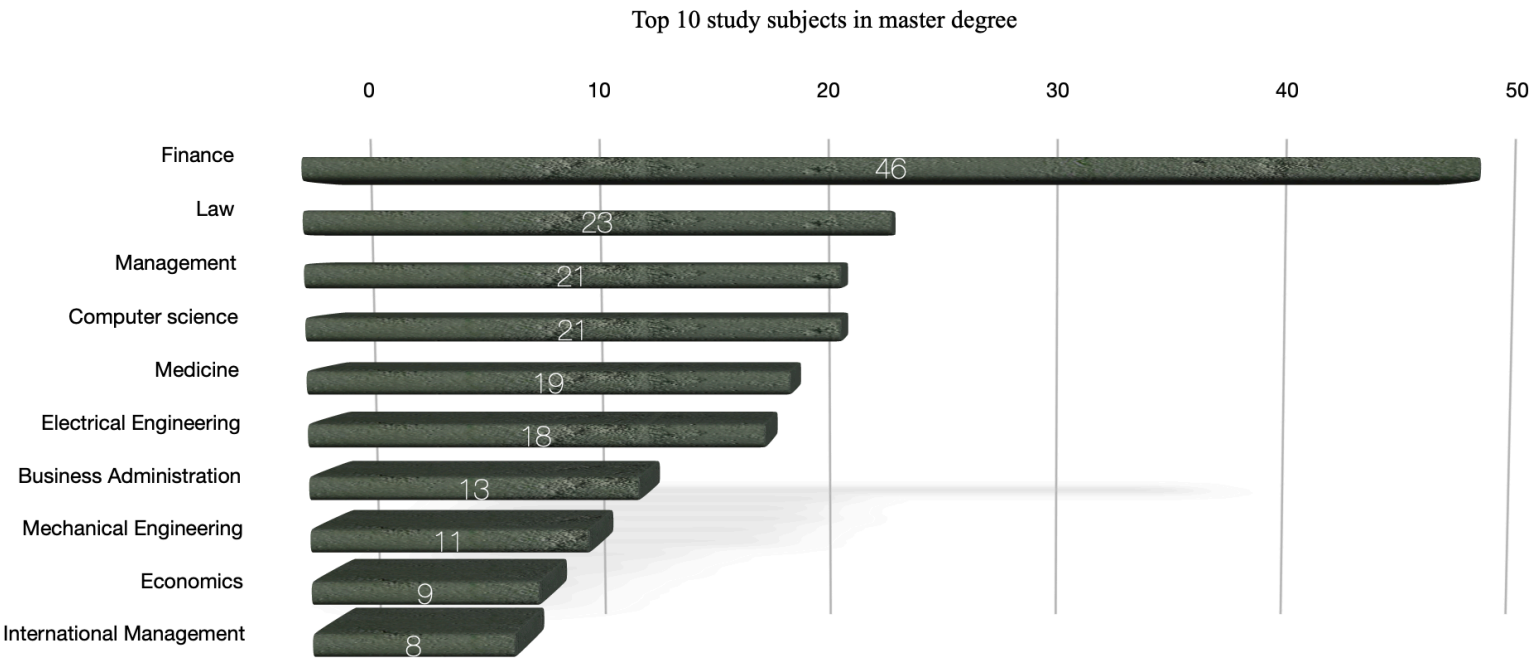

Fig.12 10 most studied subjects by CVC managers during the master degree, author elaboration

PhD subject

The PhD subjects chosen by CVC workers show a strong orientation toward basic and applied science disciplines, with Chemistry clearly in first place (13 choices), followed by Neuroscience and Biochemistry (both at 10). Unlike the bachelor's and master's degrees, which are dominated by economics, finance and management, the PhD seems to represent a time of deep technical specialization. The presence of disciplines such as Physics, Electrical Engineering and Molecular Biology reflects a need for advanced skills in technical R&D processes, typical of Corporate Venture Capital target companies, especially in the deep tech and life sciences sectors. It is interesting to note the almost total absence of economic-managerial areas and the marginal role of Law (3 choices), which in the master's program had a significant weight instead. This suggests that profiles with doctorates tend to contribute more as scientific or technological experts within CVC teams, allowing the integration of hard skills with the more business-oriented ones possessed by other members. it is reasonable to think that many CVC workers with doctorates in scientific disciplines entered the field not as a direct outcome of a path oriented from the beginning to venture capital, but rather as technical experts attracted or recruited later for their deep knowledge in technology-intensive sectors.

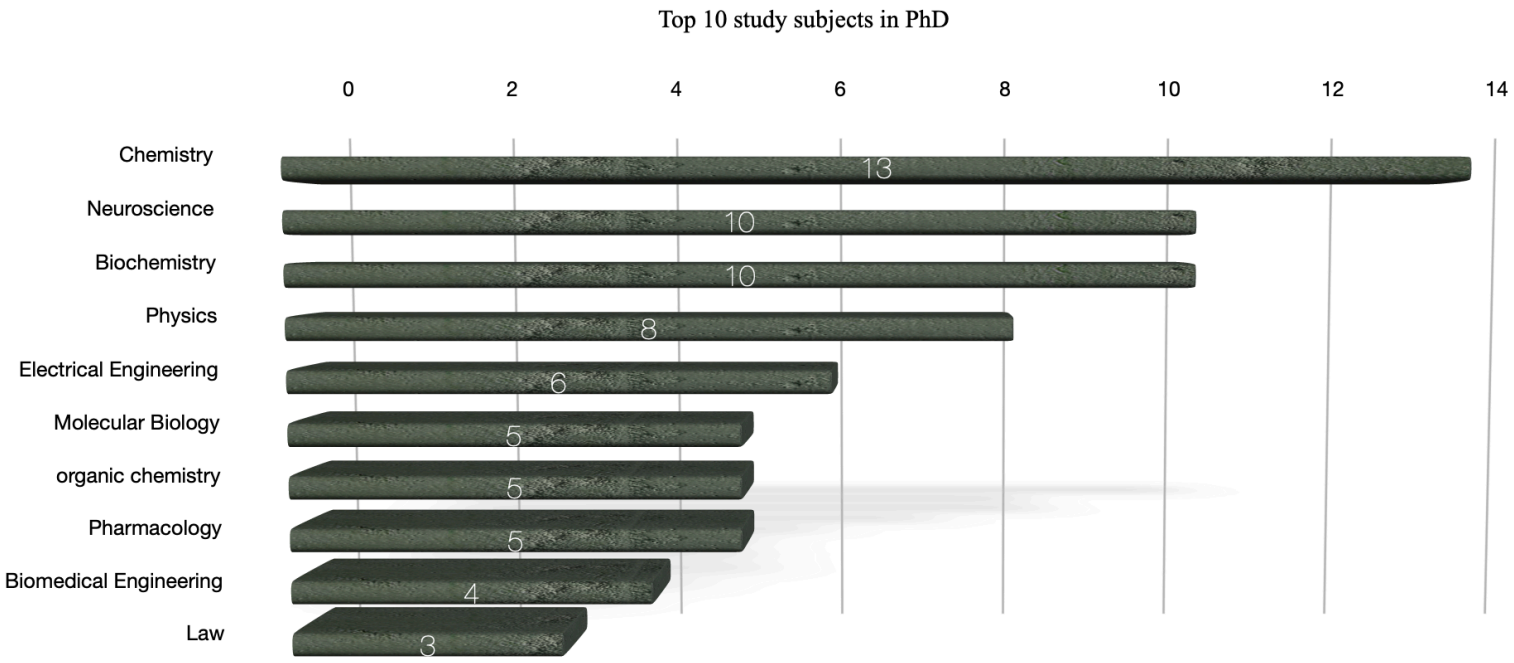

Fig.13 10 most studied subjects by CVC managers during the PhD, author elaboration

Education general category

In order to be able to answer the research question, it was decided to create a categorical variable that could be the right compromise between relevance and synthesis. Through the information on bachelor's, master's and PhD degrees, it was possible to define a single summary variable for each manager, which defined to which of the four macro-categories of education: technical, financial, social sciences, humanities and arts (or hybrids of them), the individual's academic background belonged. The decision to identify these four groups is a direct consequence of the need to be able to include every possible faculty listed in the database within the classification. The financial category was not merged with the economic one, and therefore the social sciences, because it was considered to be of particular relevance in the CVC world and therefore to be isolated in the analysis.

The individual courses of study were grouped according to the scheme that follows, in which it is possible to see the association between the 10 groups of the International Standard

Classification Of Education (UNESCO Institute for Statistics, 2015), typically used in scientific literature, and the 4 macro categories.

TECHNICAL

05 Natural sciences, mathematics and statistics

07 Engineering, manufacturing and construction

10 Health & welfare

06 Information and Communication Technologies (ICTs)

08 Agriculture, forestry, fisheries and veterinary

HUMANITIES AND ARTS

02 Humanities and arts

SOCIAL SCIENCES

01 Education

04 Business, administration and law (excl. Finance)

03 Social sciences, journalism and information

09 Services

FINANCIAL

04 Business, administration and law (just Finance)

At first, the educational history of each individual was analyzed by means of a keyword search, allowing for a first, not pure but well-automated classification. To do this, was designed the command in fig.13, applicable on the Excel database. At this stage, the categories Humanities and Arts and Social Sciences were merged into one called Commercial. After this initial operation, each line was checked, and if there was an error in the automatic process, edited manually. It was while doing this operation that the commercial category was divided. During this process, the problem of mixed careers arose, i.e. managers with part of the route belonging to one category and another to a different one (e.g. bachelor degree in mechanical engineering and master of science in Finance). At first it was thought to override the entry at each more advanced level of education (e.g. bachelor of science in mechanical engineering and master degree in Finance --> Finance). But in order to answer the research question, which aims to find a relationship between skills and investment

choices, it was simplistic as well as misleading for the analysis. Therefore, it was decided to also create mixed categories, to consider individuals with skills in different fields.


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Fig.14 Function for an automatic first categorization of the background of CVC managers, author elaboration

At the end of this process, a single summary variable of the academic pathway was obtained for each CVC worker in the database, which will be crucial for the econometric analysis that will be described in the following chapters. Below the infographic on what emerged regarding this parameter.

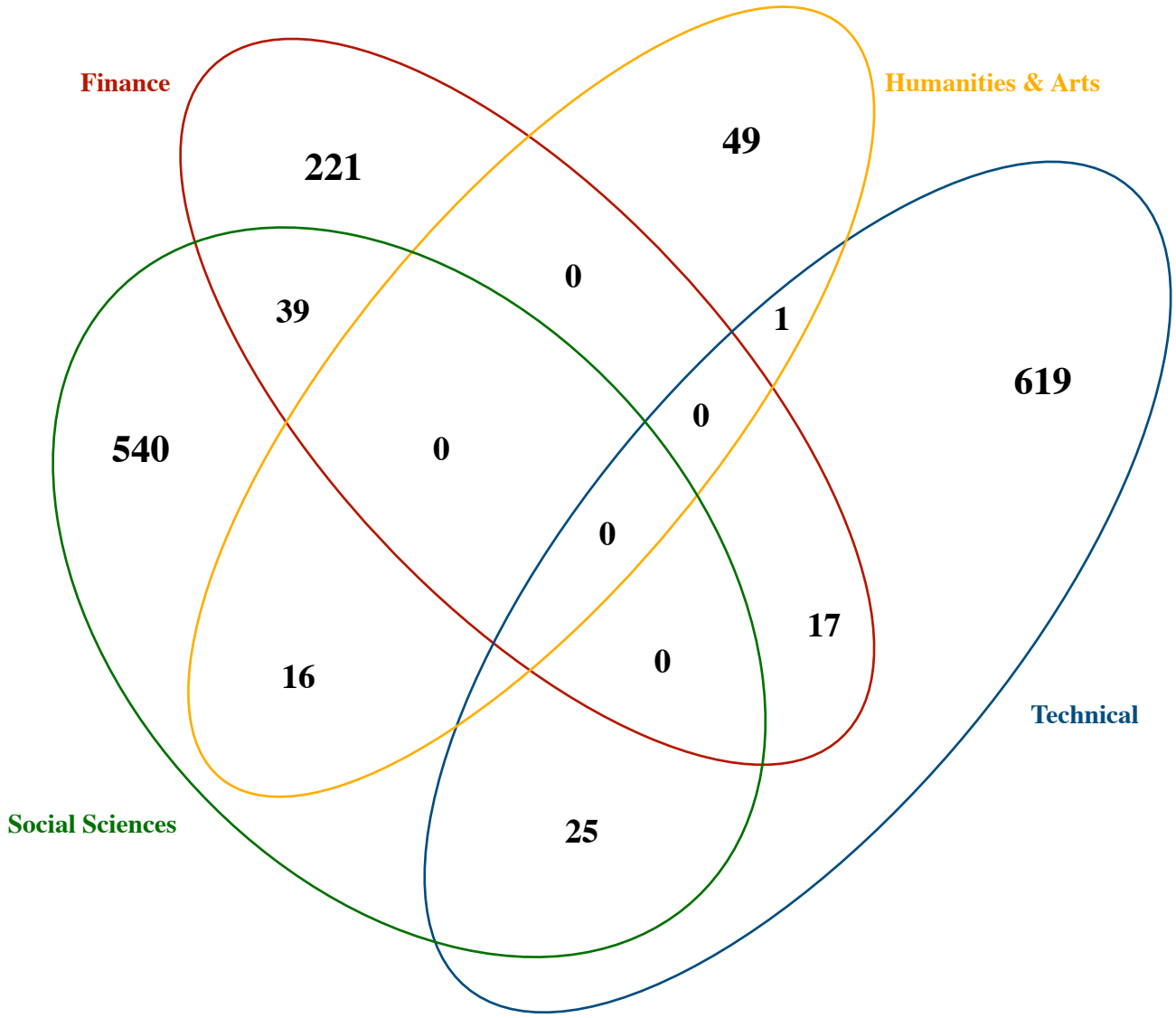

Fig.15 Venn diagram representative of the Education general category, author elaboration

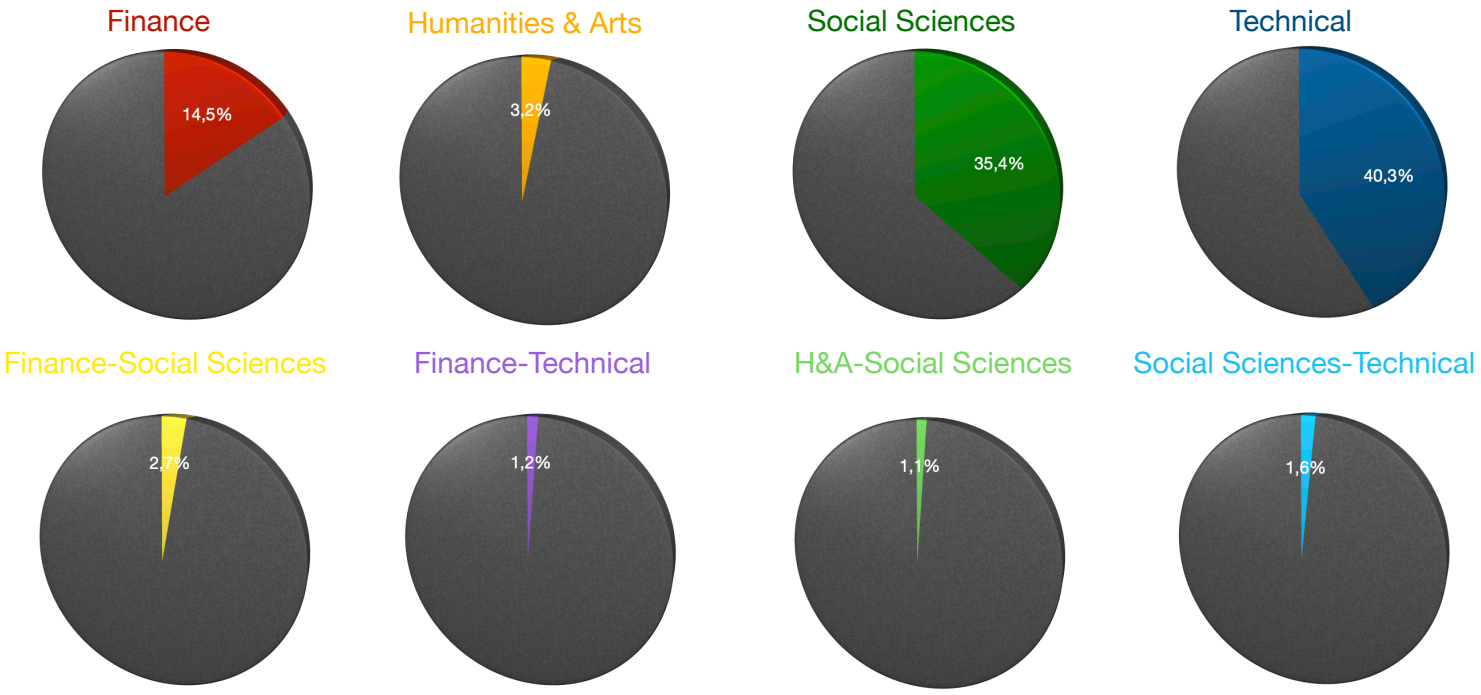

Fig.16 Pie charts of occurrences rates of the Education general category, author elaboration

Work experience-related variables

Previous experience and role in the company

These two variables refer respectively to the presence or absence of experience in the parent company prior to joining the CVC and the last job title of this permanence for those who had it.
The data show that only 26.1% of Corporate Venture Capital (CVC) managers came from previous experience in the parent company, while around 74% were hired directly. This suggests a prevalence of external recruitment strategies, probably oriented towards the acquisition of specific VC or entrepreneurial skills not always present in-house.
However, among the ones coming from the parent company, the most frequent former positions are 'Director' and 'Manager', indicating a certain level of internal seniority valued in the move to VC. The absence of junior roles among these entrants suggests that internal paths require a consolidated corporate track record. On the whole, the combination of senior internal resources and experienced external profiles seems to respond to the need to balance knowledge of the corporate context and openness to innovation as well as market logics.

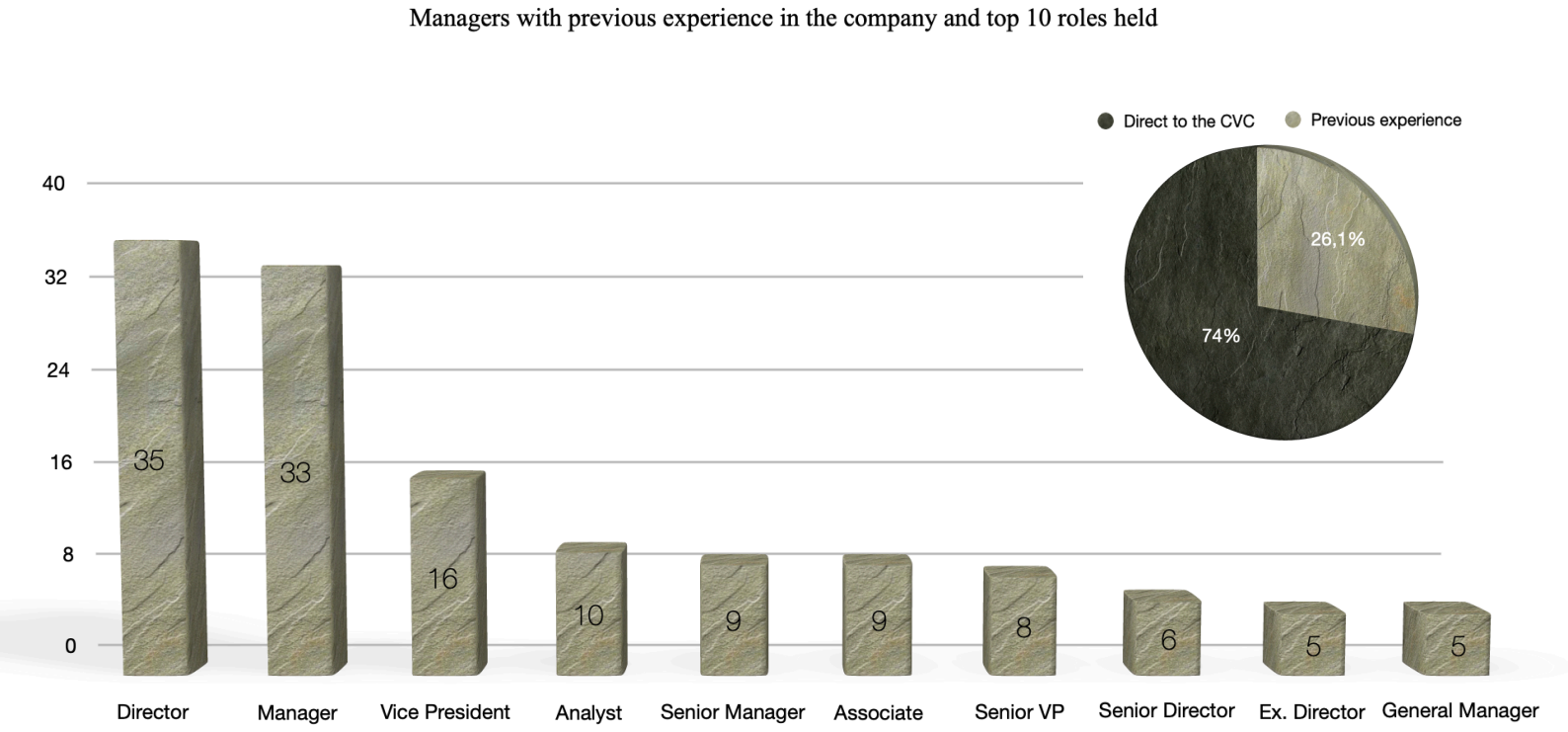

Fig.17 Most common roles held by CVC managers with internal career paths, author elaboration

Category of the previous role

Again, a specific variable had to be created in order to be able to identify in a simple and categorical manner the type of competence acquired during the time spent in the parent company. This was done in order to again be able to find correlations between the knowledge obtained through experience and the investments selected by the CVC managers. For each individual, an analysis was made mixing database information and supplementary search on Linkedin to find out the specifics regarding the roles held; all of the above in order to be able to identify a macro-category of membership between: commercial, technical and finance. Because this classification activity is subject to a greater degree of subjectivity, a comment summarizing the positions held and the reasoning behind the classification was included for each item with possible ambiguities. In this way it was possible for anyone with access to the database to validate the procedure followed, at a level of granularity equal to the individual. Only after this process, performed essentially on a sample basis, was the classification considered reliable and thus suitable for use as input to the econometric model. Again, a keyword search created a backbone for classification process. In this case, the second manual row-by-row step was even more crucial than in the previously described case, since as can be seen in Fig. 16, the information concerning roles was more general than the ones related to education, and therefore not useful for keyword searches. Although the graph does not show this, taking into account only the most repeated roles, in reality the database also presents more detailed and useful descriptions for this step (e.g. Previous role in the company: Principal Scientist, Immunology & Respiratory Disease Research —> Technical).

Technical Commercial Finance

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=IF(OR(NOT(ISERROR(SEARCH("engineer",H1738))), NOT(ISERROR(SEARCH("scientist",H1738))),
NOT(ISERROR(SEARCH("product designer",H1738))), NOT(ISERROR(SEARCH("R&D",H1738))),
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NOT(ISERROR(SEARCH("finance",H1738))), NOT(ISERROR(SEARCH("Acquisitions",H1738))),
NOT(ISERROR(SEARCH("analyst",H1738)))),"Finance","-")))
```

Fig.18 Function for an automatic first categorization of the previous role of the CVC managers in the parent company, author elaboration

As can already be partially guessed from the code, a selection of roles was made to be associated with the different categories. Clearly many specific situations were created for single individuals, but below you can see the association of some common and indicative positions to follow the reasoning.

TECHNICAL

- Engineers
- Technicians (lab, production, field…)
- Product designers
- Software developers & programmers
- Data scientists & data engineers
- R&D scientists

FINANCIAL

- Accountants & auditors
- Controllers
- Financial analysts
- M&A specialists
- CFOs & finance directors
- Treasury & cash managers

COMMERCIAL

- Product managers
- Strategy & operations
- Consultants
- Marketing
- Business development
- Sales

In this case, unlike the one concerning education, no mixed categories were envisaged.

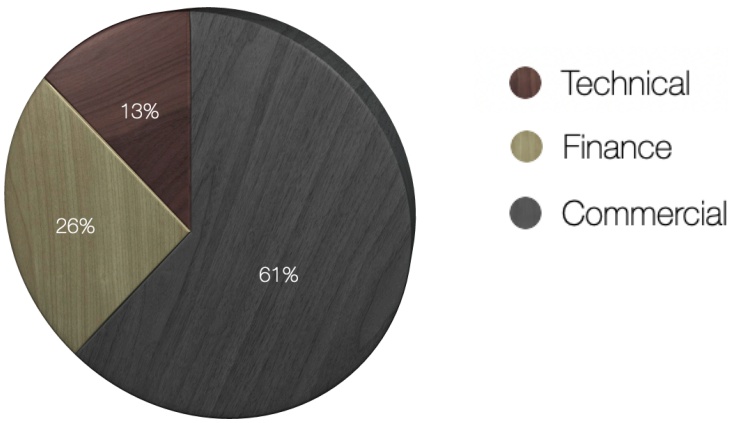

Fig.19 Pie chart of occurrences rates of the variable: Category of the previous role, author elaboration

Variables related to last and penultimate work experience before joining the company

A final element related to human capital analyzed in this thesis concerns work experiences prior to joining the CVC parent company. Since it would not have been possible to map all the experience in the CVs of managers, all the more so because they are often non-junior figures, the last two stable positions (e.g. position held for more than 6 months) were used. The underlying idea is that the more recent the positions, the fresher and more influential the skills acquired.

The data show that CVC managers come mainly from investment banks and consulting firms, with Goldman Sachs, Deloitte and McKinsey leading the way. This shows a clear preference for profiles with strong financial, strategic and risk management skills. The strong presence of the above-mentioned players also affirms the value placed on experience in structured, analytical-intensive environments. These backgrounds guarantee the ability to assess investments, manage portfolios and align with the strategic objectives of the parent company. The highlighted composition reflects a CVC approach oriented towards professionalization and efficiency in the selection and management of ventures.

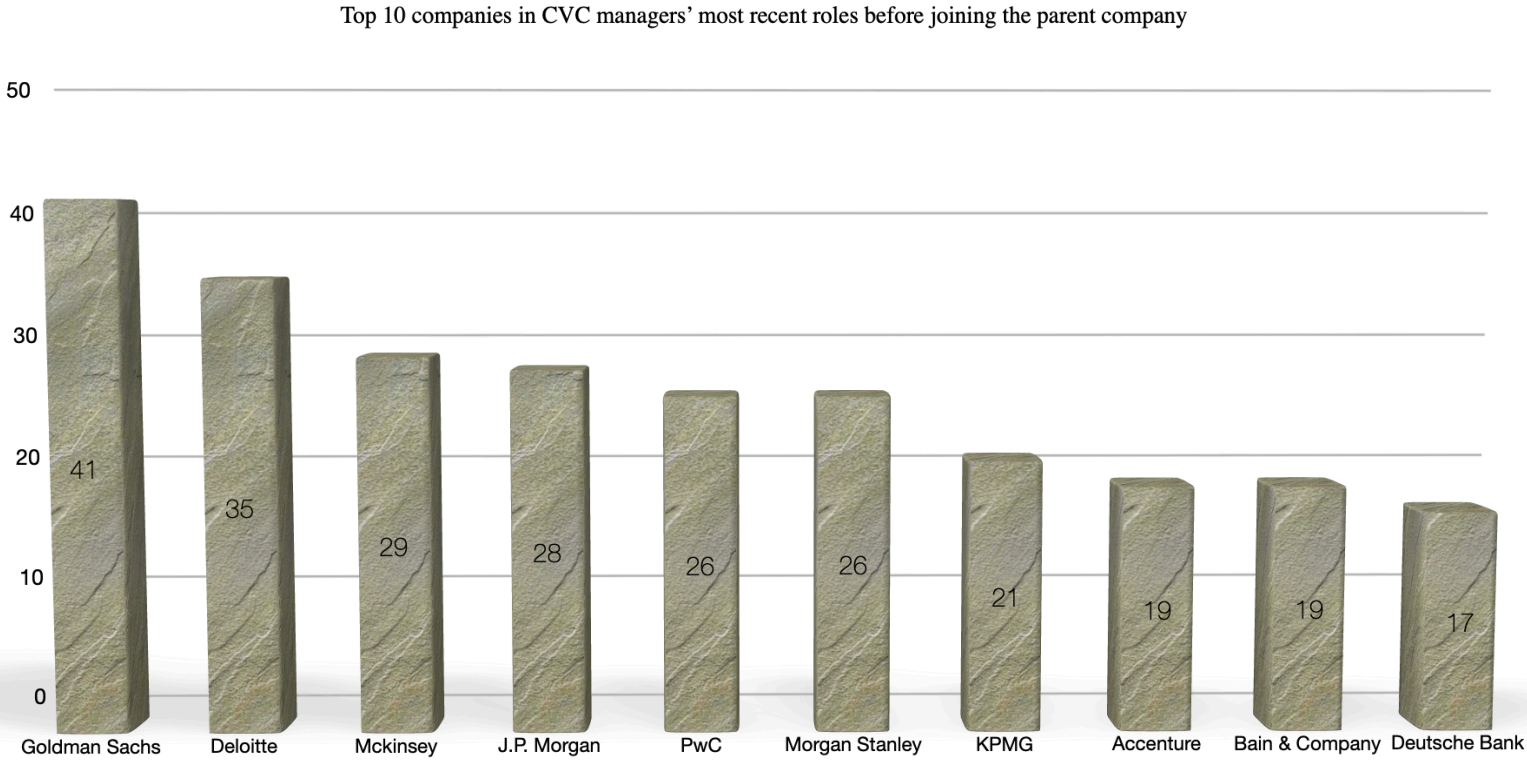

Fig.20 Top 10 most frequent companies in the last and penultimate roles taken by CVC managers before joining the parent company, author elaboration

In terms of positions filled, the data suggest that CVCs tend to recruit talent with previous experience in junior or mid-level roles, showing a preference for analytical profiles with high growth potential. The high presence of former Analysts and Associates confirms the strong ties to the world of strategy consulting and investment banking. However, the presence, although lower, of senior and even Founder and Partner figures, indicates that CVC units do not completely disregard entrepreneurial experience and established leadership. Rather than excluding, it appears that CVCs balance operational skills and strategic vision. It is a strategy that focuses on talent and versatility while maintaining a strong anchor to the corporate background. The challenge is often to foster innovation without distorting internal consistency.

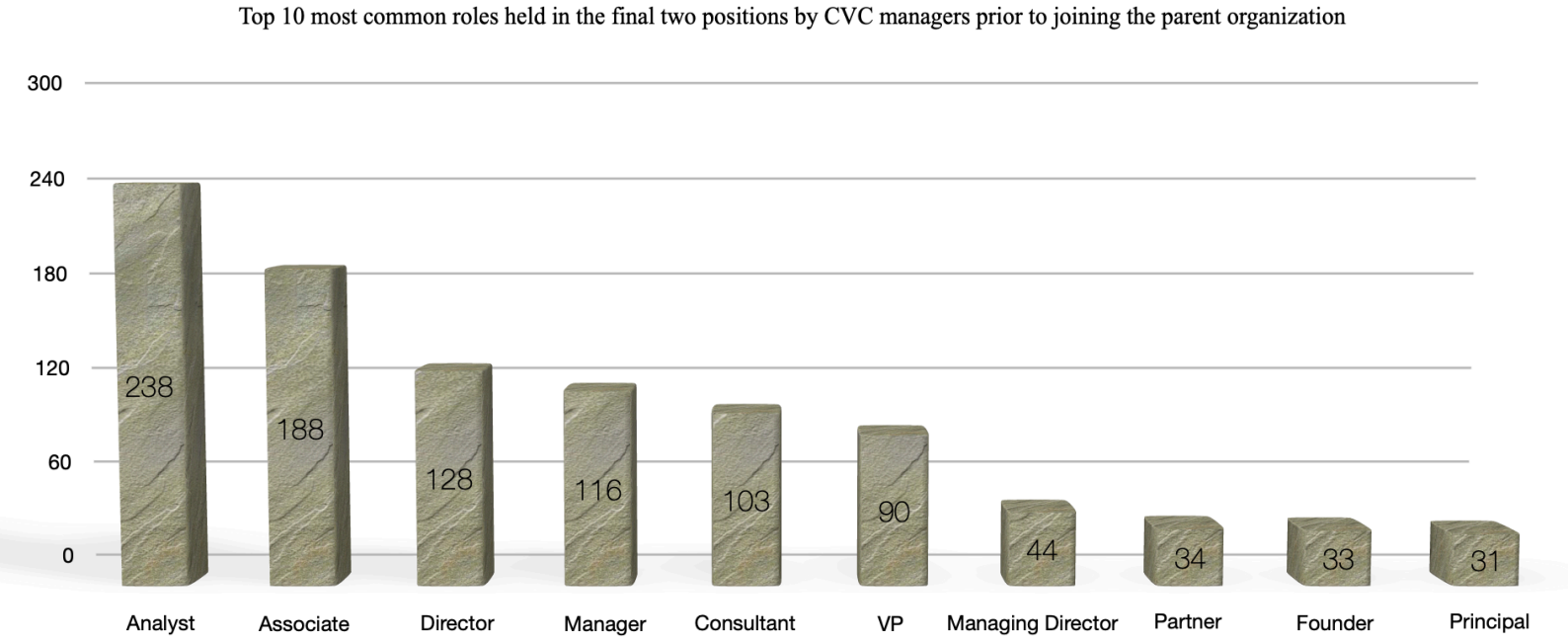

Fig.21 Top 10 most frequent roles in the last and penultimate experiences taken by CVC managers before joining the parent company, author elaboration

To conclude, it is also possible to analyze the industries of the companies in which these latter experiences took place. This graph shows that CVC managers come in large part from sectors strongly related to finance, technology, and strategic consulting. Most notable is the predominance of investment banking, which alone accounts for a significantly larger share than any other industry. It is followed by IT and finance, two areas that provide key expertise in investment analysis and technology assessment. The strategy sector is also well represented, confirming the importance of consulting expertise in the ideal CVC profile. Industries related to verticals such as healthcare, biotech, pharma, and TelCo are less frequent, suggesting that CVCs value financial and strategic

skills more than sector experience. However, their presence in the top 10 signals an 'openness in specific situations toward specialization (e.g., CVC funds with domain expertise). Overall, the background of CVC managers reflects a very financial execution and tech-driven investing orientation, with only a few instances of emphasis on industry-specific expertise.

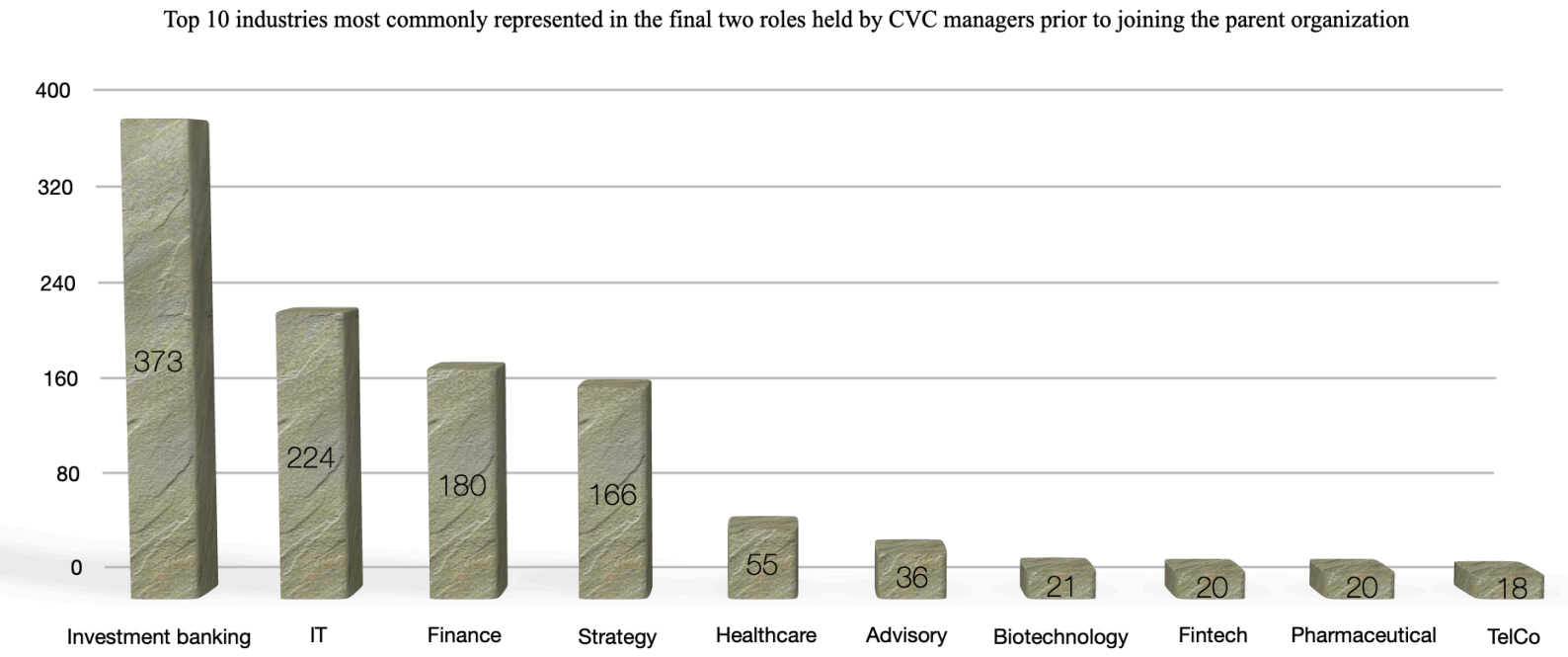

Fig.22 Top 10 most frequent industries in the last and penultimate experiences taken by CVC managers before joining the parent company, author elaboration

Generic work experience category

At this point a final variable was generated from scratch, again categorical, and summarizing skills obtained through the latest work experiences prior to arrival at the CVC fund company. The goal is, again, to have a suitable input for the econometric model so that we can analyze whether the skills acquired during these periods have an influence on investment choices. The macrocategories selected are the same as before, thus: technical, commercial and financial. To assign the relevant category, information in the database (partially reported above) was supplemented with targeted LinkedIn searches on individual profiles. Because of the usual risk related to the degree of subjectivity, comments related to the reasoning performed were again associated with the classification cells. This was done in order to have validation from other academics with access to the database. Once again this check was considered a necessary step before the new variable could be considered reliable. The habitual keyword search tool aimed at an initial skimming was put in

place in the starting stages. This was followed by manual line-by-line checking as usual, even considering that again the information in the database was rather general as for the variable "Category of the previous role". An example of a classification for which, however, the information in the database was sufficient is: Company Role 1: Vice Presidents in Private Equity, Company Role 2: Associate in Private Equity -> Financial.

Technical Commercial Finance

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=IF(OR(NOT(ISERROR(SEARCH("engineer",T1584))),NOT(ISERROR(SEARCH("engineer",Z1584))),NOT
(ISERROR(SEARCH("scien",T1584))),NOT(ISERROR(SEARCH("scien",Z1584))),NOT(ISERROR(SEARCH
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"financ",S1584))),NOT(ISERROR(SEARCH("venture",S1584))),NOT(ISERROR(SEARCH("asset
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```

Fig.23 Function for an automatic first categorization of the generic work experience category, author elaboration

The code reflects, at least in part, classification work that has involved associating certain roles with specific categories. While considering the existence of numerous special cases referring to individual profiles, some examples of recurring and significant positions are given below, which help to clarify the criterion used. Obviously, also because of affinity of activity, we are talking about rules very similar to those used for the variable: "Category of the previous role."

TECHNICAL

- Systems Architect
- Data Scientist
- Technical Project Manager
- AI/ML specialist
- Biotech researcher
- Engineer

FINANCIAL

- Financial Advisor
- Risk Analyst
- Private Equity Associate
- M&A Analyst
- Investment Analyst
- Controller

COMMERCIAL

- Client Relationship Manager
- Brand Manager
- Strategy Consultant
- Digital Marketing Manager
- Business development
- Commercial Director

Also in this case, only the three pure macrocategories were used, with no hybrids.

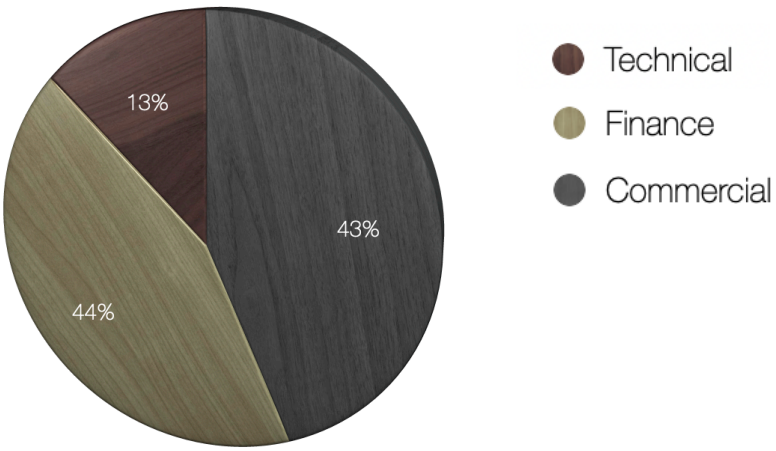


Fig.24 Pie chart of occurrences rates of the variable: Generic work experience category, author elaboration

As a result of what has been done up to this point, three categorical variables summarizing the human capital of each CVC worker in the database were obtained. In order to answer the research question, however, it was necessary to have an indication of aggregate human capital at the CVC fund level. A final step was designed for this purpose. The key objective was to use the percentage of managers with a given type of expertise as a proxy for the expertise of the entire fund. So it was possible to generate ten variables "% CVC competence", simply by dividing the number of workers with that competence by the number of total workers in the fund. The variables are related to individual items in the three categoricals, as follows:

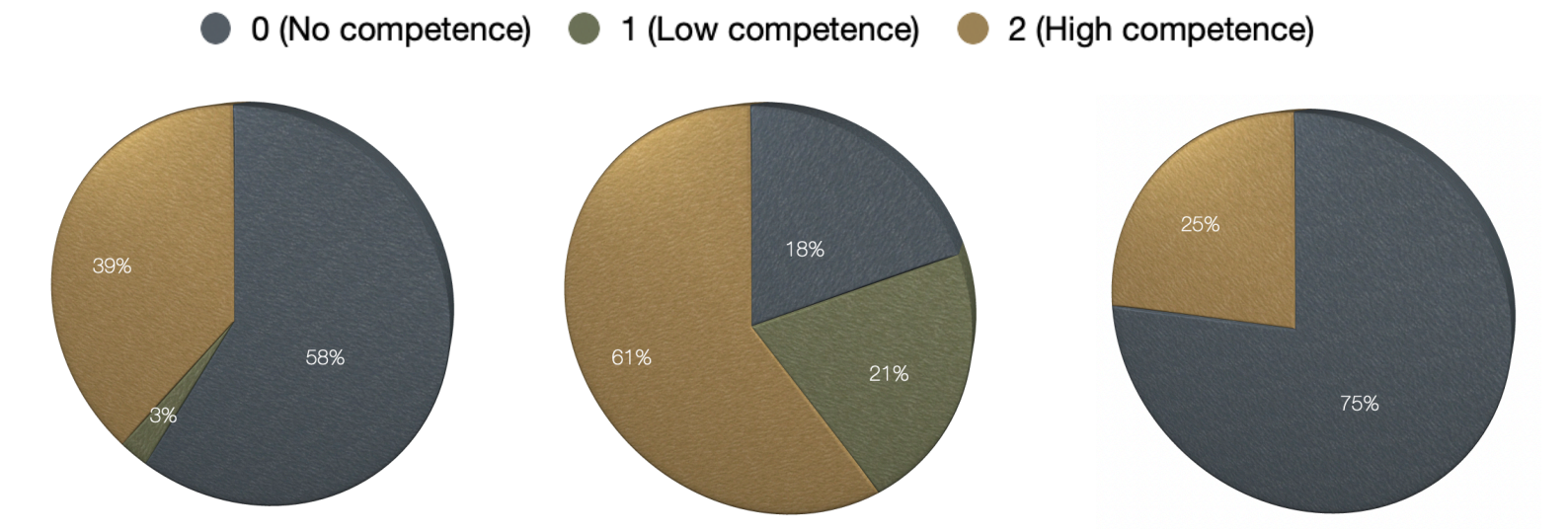
1. Financial competence resulting from roles in the parent
2. Commercial competence derived from roles in parent
3. Technical expertise from roles in parent
4. Financial competence from roles in previous companies
5. Commercial competence from roles in previous companies
6. Technical expertise from roles in previous companies
7. Financial competence derived from education
8. Technical expertise derived from education
9. Social sciences competence from education
10. Humanities and arts competence derived from education

In a first version, these variables assumed values of 0, 1 or 2. The assignment was done in an automated manner by means of a rather simple rule:

- 0 if there is no worker in the fund who has the background related to the variable

- 1 if the percentage of individuals in the fund with skills related to the variable are lower than the median of the percentages for all funds

- 2 if the percentage of individuals in the fund with skills related to the variable are higher than the median of the percentages for all funds

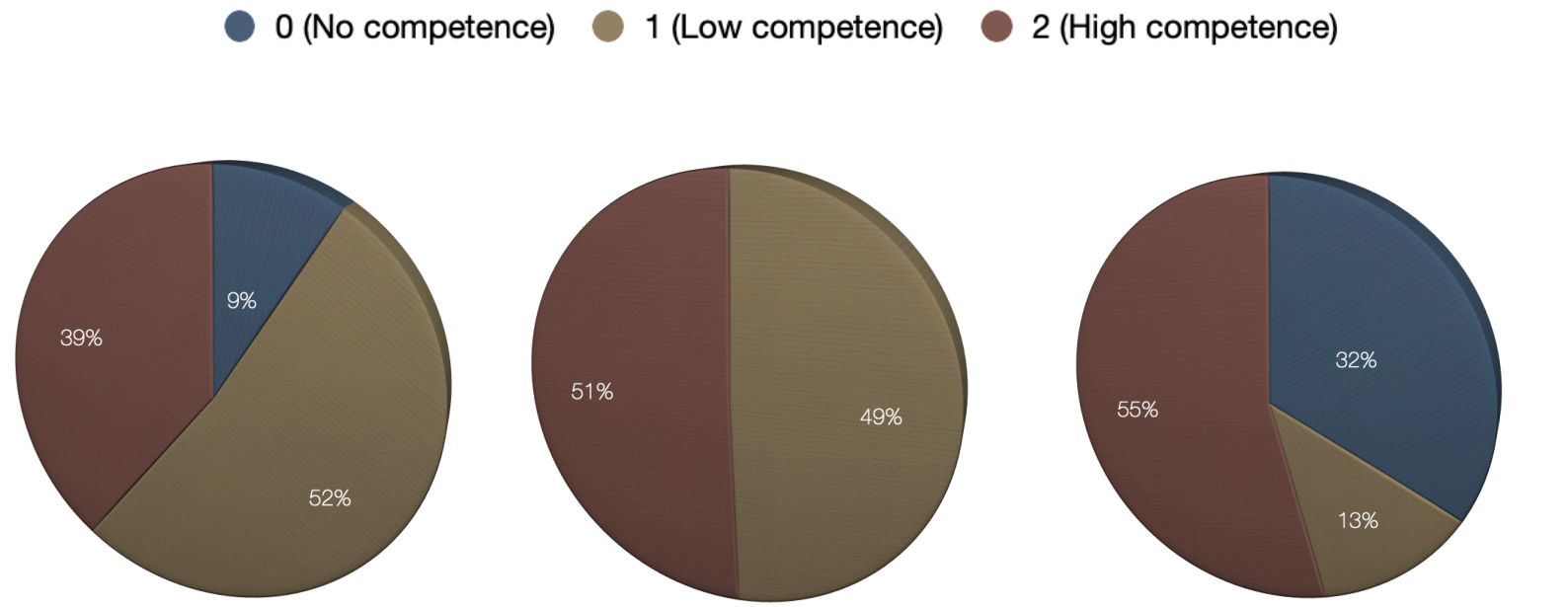


Financial competence resulting from roles in the parent

Commercial competence derived from roles in parent

Technical expertise from roles in parent

Fig.25 Pie charts of occurrences rates of the variables related to the competences of CVCs from previous roles in the parent, author elaboration

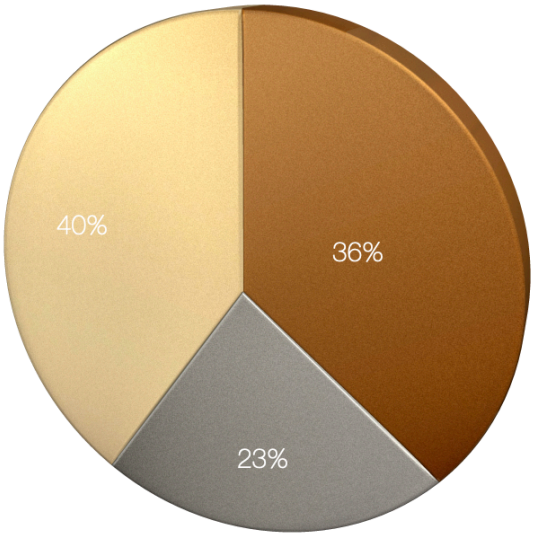


Financial competence from roles in previous companies

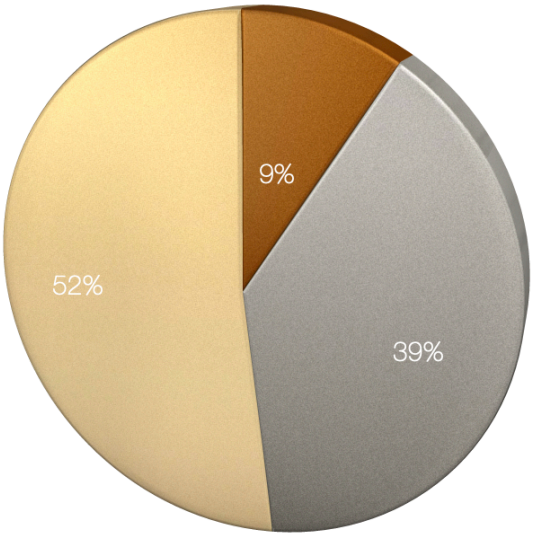
Commercial competence from roles in previous companies

Technical expertise from roles in previous companies

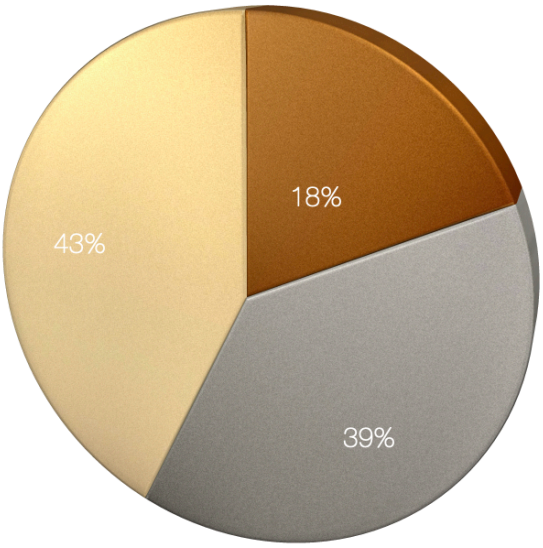
Fig.26 Pie charts of occurrences rates of the variables related to the competences of CVCs from roles in previous companies, author elaboration



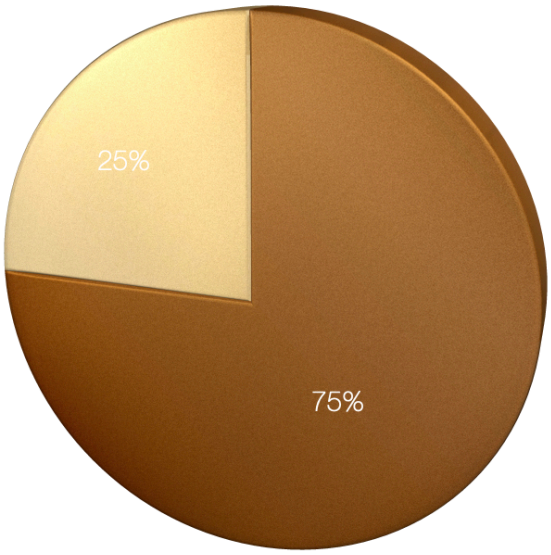
Financial competence derived from education



Technical expertise derived from education



Social sciences competence from education



Humanities and arts competence derived from education

Fig.27 Pie charts of occurrences rates of the variables related to the competences of CVCs from education, author elaboration

In order to validate the results obtained after the analysis, two additional categorizations were created. Both were of the Boolean type, which is more widely used in the literature than the possibility of taking values of 0, 1 or 2. The first ten dummies were obtained by transforming all 2s into 1s in order to obtain 0 in the case of no competence and 1 even with a single manager who had a background in the area. The second, on the other hand, involved transforming 1s into 0s and 2s into 1s, so as to have two categories separated by the median. No infographics will be reported on these two alternatives as they were not used in the main analysis, but only in the robustness tests.

CVC deals

This part is dedicated to a more detailed description of the data regarding the deals performed worldwide by the top CVC investors during the period 2017-2022. As previously stated, the basis comes from Pitchbook but some operations have been carried out ad hoc for this analysis.
As for the detail on the human capital of managers, only the most relevant variables for understanding the analysis will be reported, and again supported by infographics.

Deal_Year

The highest concentration of deals occurred in 2021, at 20.69%, reflecting the post-COVID investment surge. The years 2017 and 2018 show relatively balanced deal shares, in particular 17.07% and 17.42%. 2020 and 2022 recorded between the lowest deal shares, at 15.38% and 14.69%, respectively, likely due to market uncertainty, related to Covid and the outbreak of war in Ukraine. The decline in 2022 is aligned with the cooling trend reported by the state of CVC 2024 visible in fig. 3. In conclusion, CVC deal closing appears to have been resilient, with however limited fluctuations reflecting the broader economic and market dynamics.

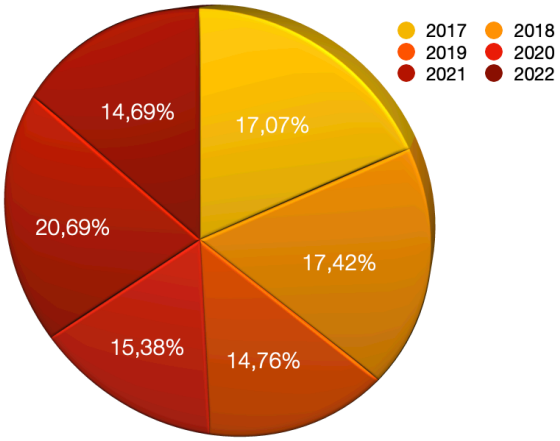


Fig.28 Pie chart of occurrences rates of the CVC deals in the years 2017-2022, author elaboration

CVC_deals

The data shows a strong concentration of CVC operations in the very first players, with Tencent Investment alone completing over 20% of the deals of the entire group of top 10 investors. This suggests a hyper-active strategy, probably driven by dominant positioning logics in emerging ecosystems. Salesforce Ventures, although second in number of deals, follows with a marked gap, highlighting a consistent but more selective approach, perhaps linked to more targeted synergies with its core SaaS business. From third place onwards (Samsung, Qualcomm, Bloomberg Beta, etc.), the numbers drop sharply, indicating a market with a few hyperactive leaders and a long tail of CVCs still operational but with smaller footprints. Lotte Ventures, SAP.iO and Comcast Ventures close the top 10, but the differences are marginal between 4th and 10th place, suggesting a certain homogeneity in terms of quantitative strategy. The geographic variety stands out: Asia (e.g. Tencent, Samsung, Sony, Lotte) is well represented, but also Europe and North America, signaling an effective globalization of CVC. The data also highlights the significant presence of consolidated corporate tech (e.g. SAP, Sony) that use CVC as an effective lever of external innovation for this industry specifically.

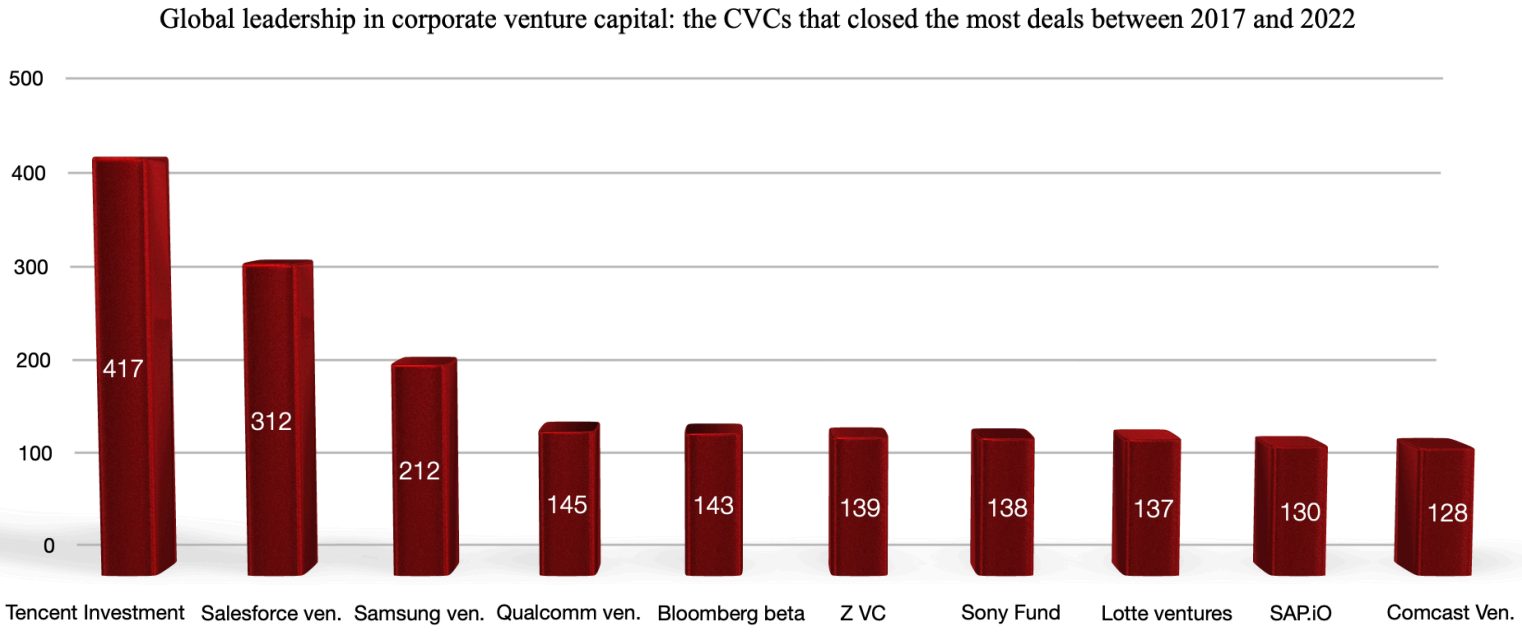


Fig.29 Top 10 most active CVCs by number of deals in the period 2017-2022, author elaboration

Through these variables, the purpose is to detail the deals by geography. On the one hand, considering the locations of the CVC headquarters and on the other, those of the ventures. This comparison reveals a clear preference in investing in startups that are not excessively distant, with rather similar percentages that suggest an association between CVCs and ventures from the same continents, giving value to proximity and confirming what the scientific literature says (Mazza & Shuwaikh, 2024). Despite this, it is possible to note a slight asymmetry between continents in global Corporate Venture Capital. American CVCs represent 46% of investors but 48.3% of global startups are financed on their own continent. Asia shows an almost perfect correspondence between the presence of CVCs (37.6%) and the share of startups financed (37.5%), and Europe, on the other hand, presents the most critical data: despite representing 16.4% of CVC investments, startups collect only 14.2% of investments. This suggests that the attractiveness of the American venture ecosystem is greater, the Asian environment is mature and self-sufficient and, as far as Europe is concerned, a lower attractiveness or a poor propensity of the same European CVCs to invest in their own continent. Overall, an imbalance of power and flows emerges: America dominates both as a source and as a destination of capital, while Europe appears marginal on both fronts. These data highlight the strategic importance for Europe to strengthen its innovative fabric to retain and attract capital.

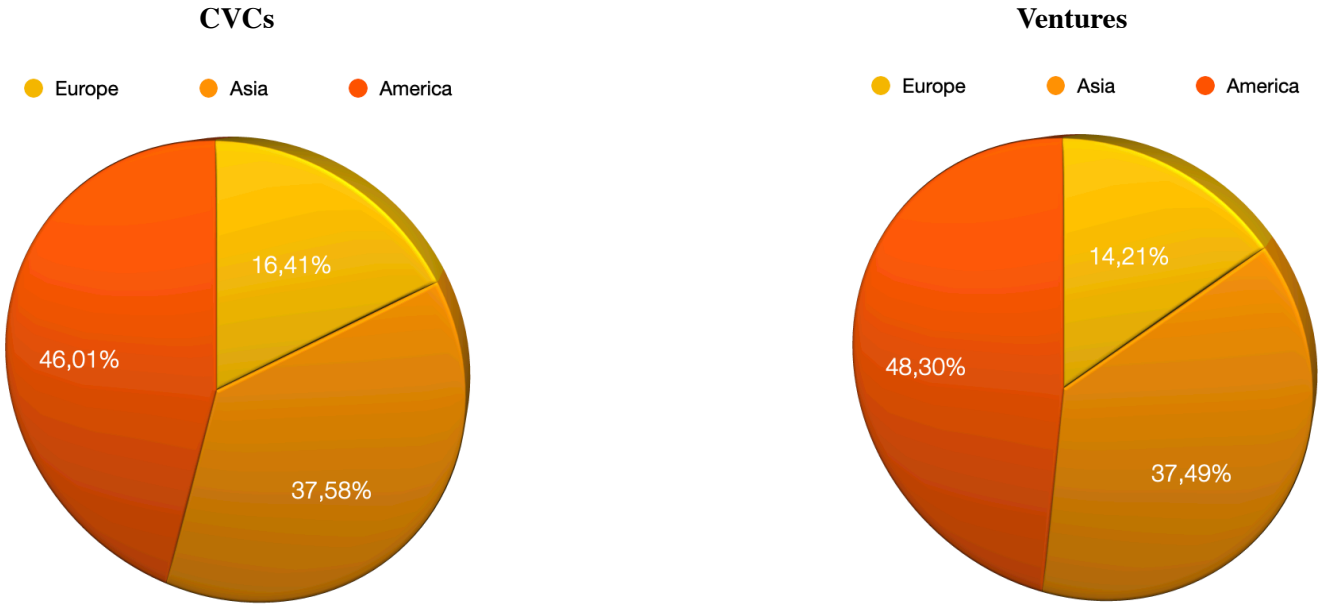


Fig.30 Pie charts relating to the location of the CVC headquarters and those of the ventures involved in the deals 2017-2022, author elaboration

Primary_industry_sector

The detailed description of this variable is essential to better understand the choice to focus on the healthcare and IT sectors. In fact, analyses of the available data show a clear preference of CVCs globally for the Information Technology sector, followed by Healthcare. This trend reflects an investment strategy oriented towards innovation and scalability. IT is dominant because it represents the engine of digital transformation: artificial intelligence, cloud, cybersecurity and software offer enormous opportunities for growth and cross-sector impact. Healthcare, on the other hand, attracts capital for its strategic and social importance, also accentuated by the pandemic, which has accelerated the adoption of technologies such as telemedicine, digital diagnostics and biotechnology. CVCs focus on these areas not only for economic returns, but also to integrate innovative solutions into their core businesses. It should not be overlooked that some of the most important CVC parents operate in these sectors. On the contrary, more traditional and less digitalized sectors, such as energy, finance and materials, receive marginal investments, a sign that technological disruption remains the main driver of corporate venture strategies.

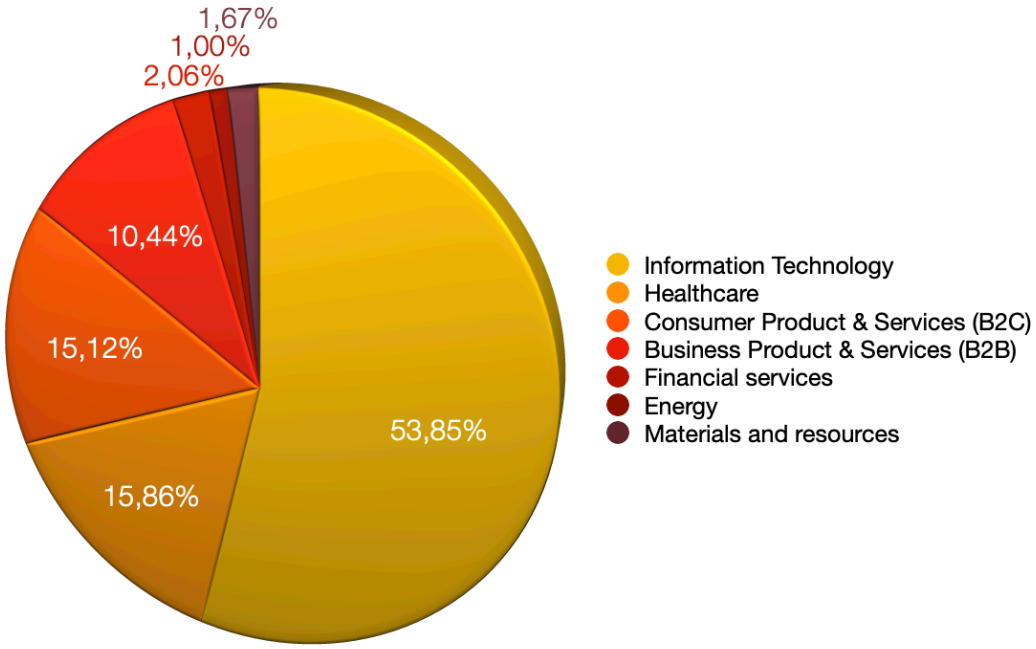


Fig.31 Pie charts relating to the location of the CVC headquarters and those of the ventures involved in the deals 2017-2022, author elaboration

Dummy_AI

To conclude the detail on the variables not directly used in the regression but at the basis of the construction of the latter, it is worth mentioning the AI dummy variable generated specifically for this study. Once again it was necessary to use a keyword search, in this case on the descriptive variable of the startups. Specifically, the same keywords as in the paper Venture capital investments in artificial intelligence (Montanaro et al., 2024) were used as a basis, which envisaged a completely similar operation. After this operation, it was possible to identify all the ventures that had artificial intelligence at the center of their business model, whether they were part of the IT category or not. This dummy was used instrumentally to subsequently associate CVCs with investments in the AI sector. This additional operation was carried out to add the analysis of this very current and little explored industry to those on the dominant sub-sectors in this market, namely IT and Healthcare.

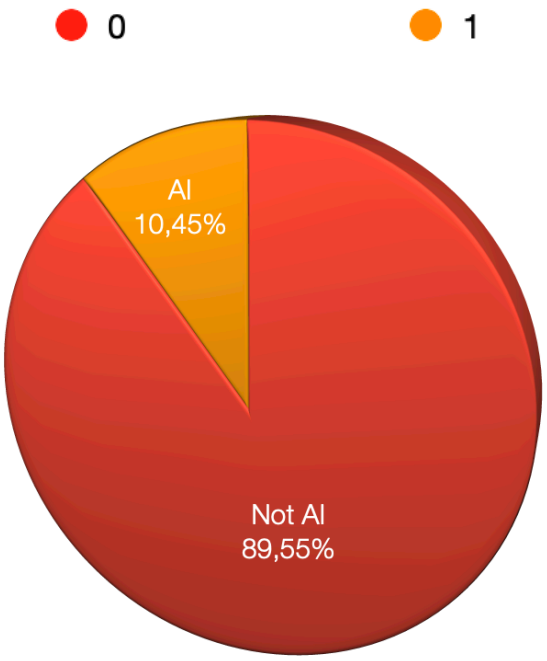


Fig.32 Pie chart of occurrences 0 and 1 in AI dummy, author elaboration

At this point, as done before, the process of operationalizing the variables will be described (i.e. the final step before being able to run the econometric analysis). In this case, however, the focus will obviously be on the data regarding the deals. The goal of this phase was to obtain a set of dependent variables that could map the investment choices of CVCs in the sectors of interest for the research question. In order to do this, the available data were used to have three different perspectives for the three industries chosen as focus, namely AI, IT and Healthcare. In particular, the perspectives, similar but not coinciding, are: the number of investments of the single CVC in startups in the sector, the percentage of investments in the sector on the total of those made and the cumulative amount of money invested in the sector by the single CVC. To all this, the category of the non-AI IT world has been added in all perspectives, to make further comparative analyses. The result is a pool of twelve dependent variables, three points of view for four categories, on which twelve separate regressions were performed. Since the construction of the model, the expectation was to obtain similar correlated independent variables in the three perspectives for each industry.

Below is a detailed infographic on the above-mentioned dependent variables.

Detail on the industries of investment of the top 10 CVCs in the period 2017-2022

The available data clearly show how, between 2017 and 2022, the top 10 corporate venture capital (CVC) have clearly favored investments in the IT sector, even if not related to artificial intelligence, while AI and Healthcare have played a more limited but still relevant role. Salesforce and Tencent dominate in terms of volume, but differ in internal balance: Salesforce invests much more in AI than the others, signaling a strategy oriented towards emerging innovation. Tencent instead maintains a more balanced distribution, while remaining anchored to traditional IT. CVCs such as SAP.iO and Qualcomm instead show a marked attention towards AI, in proportion to their total volume. Healthcare appears everywhere as a secondary but stable sector, indicating a constant interest, although less of a priority for these large players who do not make it the main focus. In short, the IT sector remains the core of investments, but AI is gaining strategic visibility, a sign of a gradual technological shift in CVC priorities.

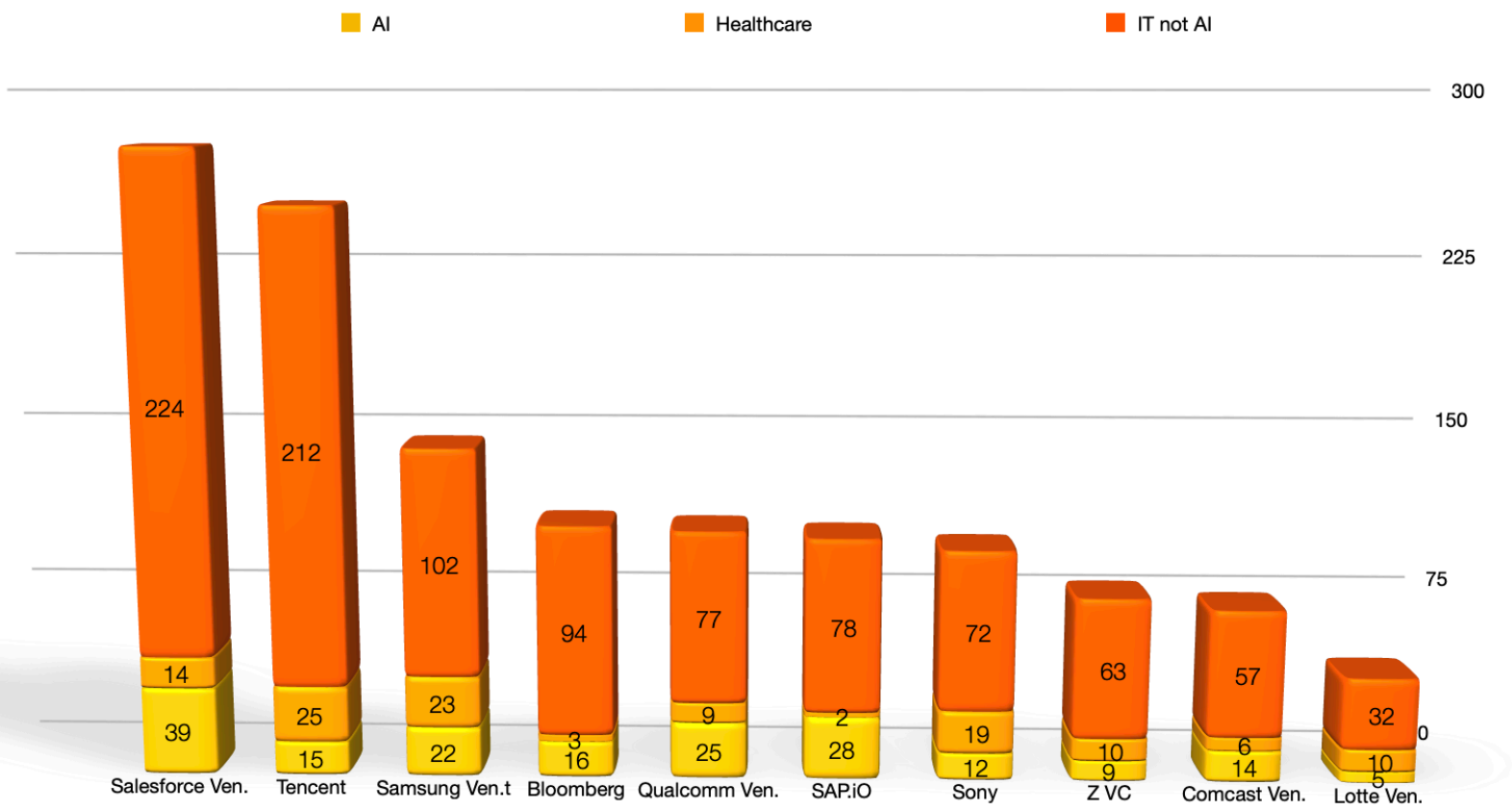


Fig.33 Investment number detail on the industries of interest of the top 10 CVCs in the period 2017-2022, author elaboration

Amount invested by various top CVCs in the different sectors

If we instead analyze the complementary perspective of the cumulative sums invested by these players, the trend situation is not very different. In the period 2017-2022, the main corporate venture capitals (CVCs) have invested very different sums in the three industries considered: AI, Healthcare and non-AI IT. The predominance of the non-AI IT sector is evident, representing the largest share of investments for almost all players, in particular Salesforce Ventures and SAP.iO. However, there is a growing interest in AI, with some players such as Qualcomm Ventures and Comcast Ventures dedicating a significant share of their portfolio to it. The Healthcare sector, although represented, appears marginal in the strategy of many CVCs, with the exception of isolated cases. The panorama therefore reflects a clear preference for consolidated and shorter-return technologies (traditional IT), with a progressive but selective orientation towards artificial intelligence, while healthcare seems less central to the strategic objectives of these corporations. It

is interesting to note, however, that the number of deals is not always directly proportional to the sums invested, with CVC preferring numerous small rounds, perhaps in the early stage.

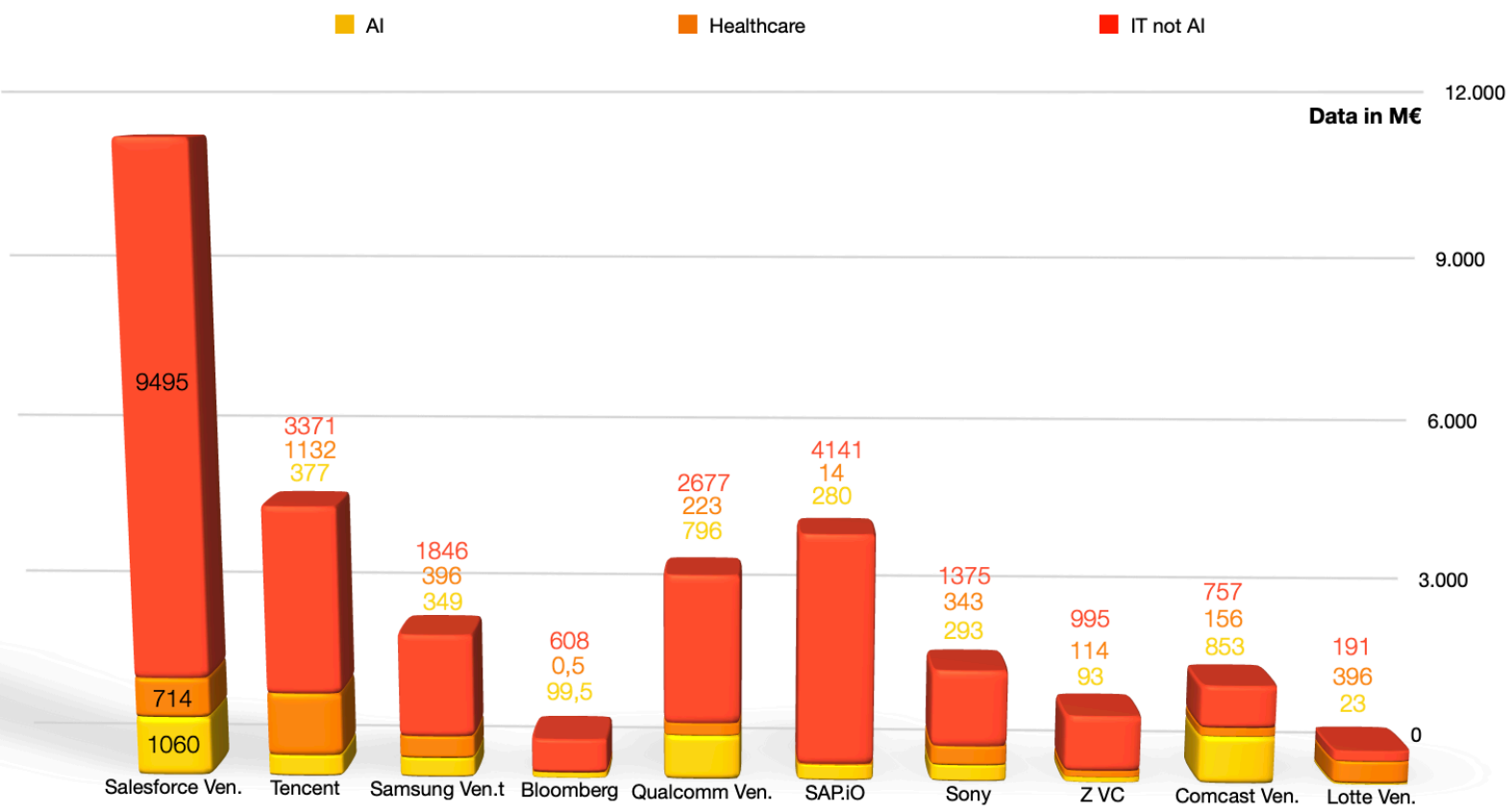


Fig.34 Investment amount detail on the industries of interest of the top 10 CVCs for investments number in the period 2017-2022, author elaboration

Exit performances:

This section is dedicated to a detailed and infographic-rich description of the performance of startups backed by the top CVCs during the period 2017-2022. The focus is on the exit deals. As previously stated, the basis comes from Orbis M&A but some operations have been carried out ad hoc for this analysis. As for the detail on the human capital of managers, only the most relevant variables for understanding the analysis will be reported.

CVCs exits in absolute number

If we analyze the 10 most active CVCs in terms of absolute number of exits, we can already see some interesting insights. Salesforce Ventures dominates with 33 exits, far exceeding the other players, a sign of high activity or particularly effective selection. Samsung Ventures, Z VC, Cisco and Qualcomm Ventures stand at similar numbers (18–20), but with different compositions between IPOs and M&As, suggesting heterogeneous exit strategies. The case of Cisco is interesting, with 100% M&As, unlike Z VC or GV, which show a more balanced mix. M12 and Dell Capital also exclusively record M&As, a sign of a potentially strategic preference. Finally, Intel Capital follows the sector trend with a low number of IPOs (only 2 out of 14), indicating a lower propensity to exit in public markets. In general, it can be seen that acquisitions are the most popular exit methodology for these players, in fact, there is not even one among the 10 most active CVCs that has a greater number of IPOs than mergers.. Since these data are not related to the total number of investments, they provide a measure of the impact in absolute value but not of efficiency. However, the composition and order of exits already provide useful clues about differences in divestment strategies.

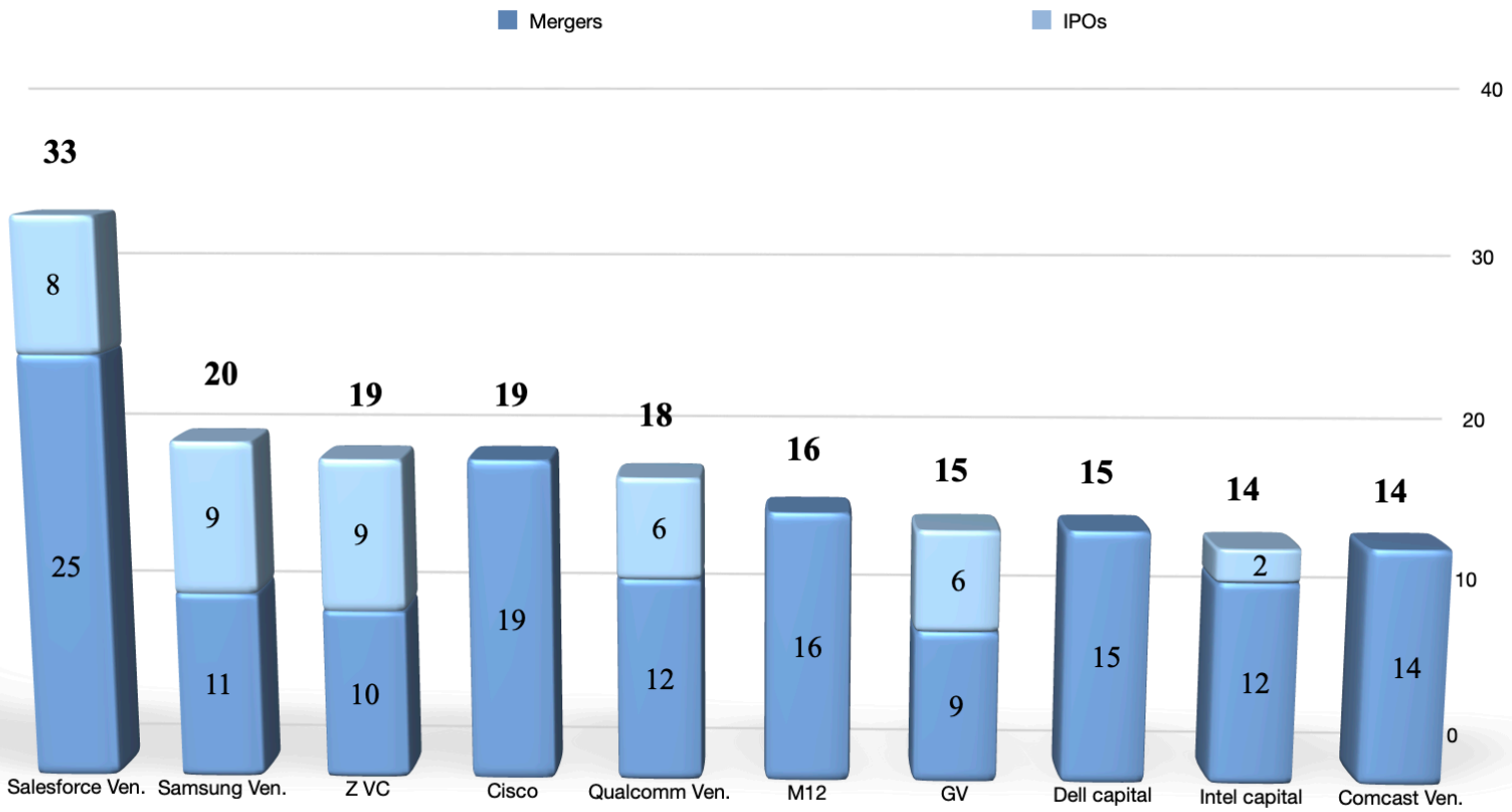


Fig.35 Number of general exits, IPOs and M&As of the top 10 most active CVCs in the period 2017–2022, author elaboration

CVCs exits ratios

Amgen Ventures and Takeda Ventures stand out for the highest exit rates, demonstrating a particularly effective strategy in selecting investments with high exit probabilities. This data is even more interesting considering that they are not among the CVCs with the highest number of absolute exits, a sign of a selective and targeted approach, more oriented towards efficiency than volume. It is possible to note from the data how some CVCs also have strategies based on total exits via IPOs and others total exits via mergers. If we make a comparison with the previous graph, some investors, despite being very active in terms of concluded operations, do not reach high levels of effectiveness, indicating that a greater quantity of investments does not necessarily translate into a higher quality of results. The only player that manages to combine a good incidence of exits with consistent activity is Samsung Ventures, which confirms itself as one of the few cases capable of combining scale and performance.

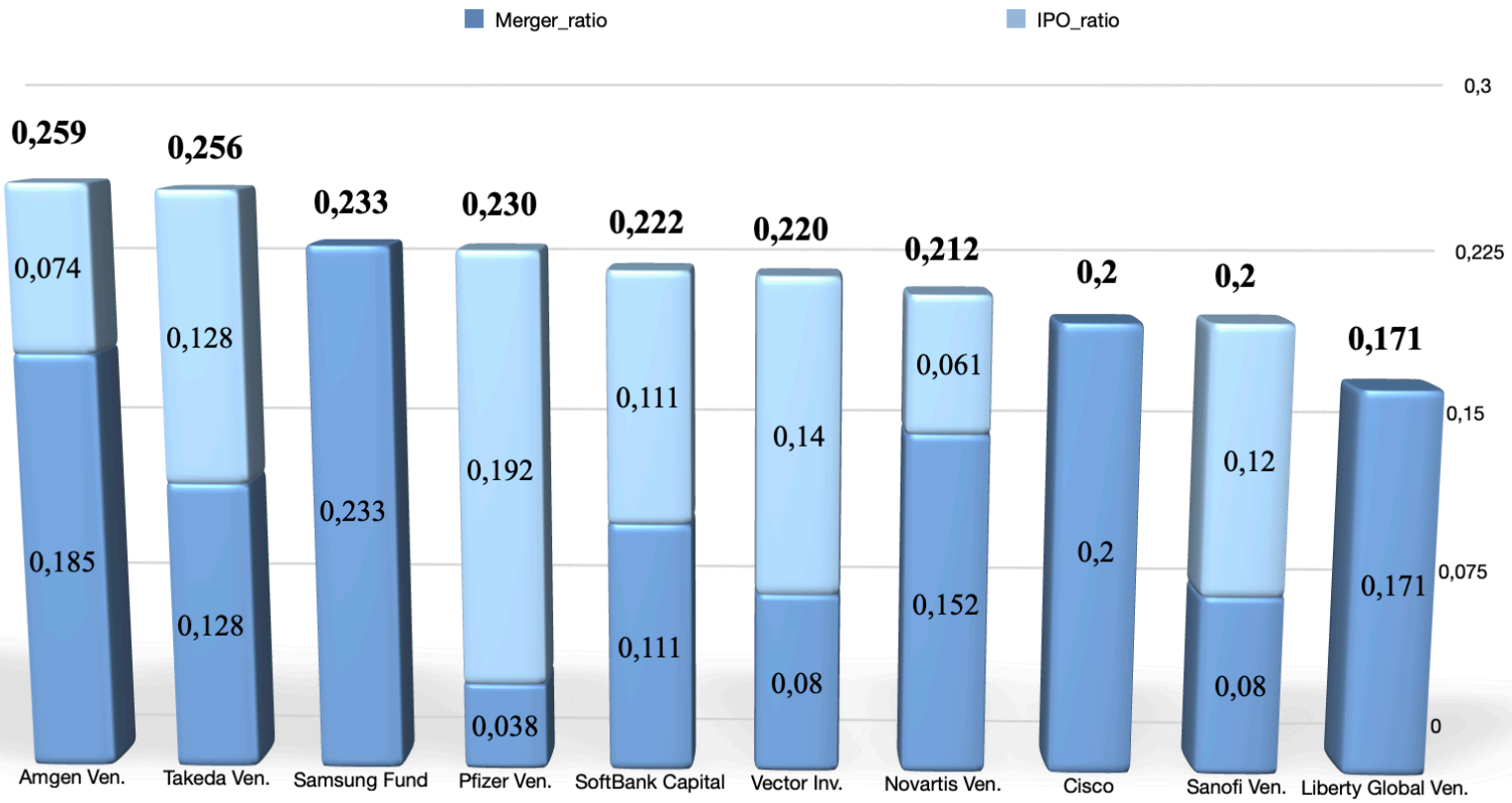


Fig.36 Exit ratio, IPO ratio and M&A ratio of the top 10 CVCs by exit rate in the period 2017–2022, author elaboration

4.3 Econometric model

In this section, more details will be provided on the two econometric models developed to answer the research question. In particular, the rationale behind the construction will be specified, some technical characteristic and a description of the variables present. Once again, the aim is to allow the reader to investigate in detail all the elements of the analysis, in order to verify its robustness and have the tools to replicate the entire process.

4.3.1 First model

In this first part of the econometric study, we aim to examine the relationship between the background of Corporate Venture Capital managers and the selection of the ventures in which they invest. To this end, we employed the Stata software, applying the linear regression method, a statistical technique that enables us to estimate the association between a continuous dependent variable and one or more independent variables. This strategy allows us to measure the influence of managerial attributes on startup selection, isolating the contribution of each element included in the model. The use of Stata aligns with the conventions commonly adopted in the field of economics, where the software is extensively used: a recent study has indeed shown that Stata is the predominant tool in economic research, based on an analysis of over 10,000 academic publications (Upton et al., 2025). In particular, the model will allow to evaluate the impact of the different types of skills acquired by CVC managers both in their academic and professional career. The goal is to understand how these skills influence the preferences of CVC funds in the selection of startups to invest in, with particular reference to the healthcare, IT and AI sectors.

4.3.1.1 First model variable overview

 Independent  Control  Dependent

Variable	Description
Comp_fin_Parent_CVC	Summary score (0–2) of fund managers' financial expertise based on their prior work experience in the parent company.
Comp_tech_Parent_CVC	Summary score (0–2) of fund managers' technical expertise based on their prior work experience in the parent company.
Comp_comm_Parent_CVC	Summary score (0–2) of fund managers' commercial expertise based on their prior work experience in the parent company.
Comp_fin_Experience_CVC	Summary score (0–2) of fund managers' financial expertise based on their prior work experience before joining the parent company.

Variable	Description
Comp_tech_Experience_CVC	Summary score (0–2) of fund managers' technical expertise based on their prior work experience before joining the parent company.
Comp_comm_Experience_CVC	Summary score (0–2) of fund managers' commercial expertise based on their prior work experience before joining the parent company.
Comp_fin_Edu_CVC	Summary score (0–2) of fund managers' financial expertise based on their academic background.
Comp_tech_Edu_CVC	Summary score (0–2) of fund managers' technical expertise based on their academic background.
Comp_soc_Edu_CVC	Summary score (0–2) of fund managers' expertise on social sciences based on their academic background.
Comp_hum_Edu_CVC	Summary score (0–2) of fund managers' expertise on humanities and arts based on their academic background.
Industry_parent	Categorical variable treated as a vector of 8 dummies, referring to the industry in which the parent company operates.
Age_CVC	CVC years of activity.
Region_parent	Categorical variable treated as a vector of 3 dummies, referring to the continent in which the parent company HQs are based.
Region_CVC	Categorical variable treated as a vector of 3 dummies, referring to the continent in which the parent company HQs are based.
Count_IT	Number of IT ventures funded by the CVC.
Count_HC	Number of healthcare ventures funded by the CVC.
Count_AI	Number of AI ventures funded by the CVC.
Count_IT_no_AI	Number of IT ventures that do not deal with AI funded by the CVC.
Pct_IT	Continuous variable measuring for each CVC the percentage of investments in the IT sector on the total.
Pct_HC	Continuous variable measuring for each CVC the percentage of investments in the healthcare sector on the total.
Pct_AI	Continuous variable measuring for each CVC the percentage of investments in the AI sector on the total.
Pct_IT_no_AI	Continuous variable measuring for each CVC the percentage of investments in the AI sector on the total.
Equity_IT	Total amount (in M$) invested by the CVC in equity of IT startups.
Equity_HC	Total amount (in M$) invested by the CVC in equity of healthcare startups.
Equity_AI	Total amount (in M$) invested by the CVC in equity of AI startups.
Equity_IT_no_AI	Total amount (in M$) invested by the CVC in equity of IT but not AI startups

In order to verify that all the conditions were met to consider the results reliable, the calculation of the VIF (Variance Inflation Factor) was also carried out. This analysis allows to identify how much an independent variable is linearly explained by the others. In other words, how much it is "collinear" with respect to the other variables. The results estimate the VIFs well below the commonly agreed-upon threshold of five (Belsley, Kuh & Welsch, 2005).

Variable	VIF	1/VIF
Comp_fin_Edu_CVC	2.01	0.497813
Comp_tech_Edu_CVC	1.78	0.560387
Comp_fin_Experience_CVC	1.74	0.574270
Comp_fin_Parent_CVC	1.68	0.594792
Comp_tech_Experience_CVC	1.64	0.609424
Comp_tech_Parent_CVC	1.55	0.646314
Comp_comm_Parent_CVC	1.39	0.719191
Comp_hum_Edu_CVC	1.31	0.764454
Comp_comm_Experience_CVC	1.28	0.782403
Comp_soc_Edu_CVC	1.22	0.818148
Mean VIF	1.56	

Tab.3 VIF analysis of independent variables, author elaboration

Finally, to complete the description of the variables at the heart of this model, the summary statistics will be presented. In particular, it will be possible to know the mean, standard deviation, minimum value, maximum value of each one. For the sake of synthesis, the dummy variables that control for the characteristics of the CVC parent (*Region_parent* and *Industry_parent*) and the variable related to the region of the CVC (*Region_CVC*) has been omitted.

Variable	Mean	Standard dev.	Min.	Max.
Comp_fin_Parent_CVC	0,805	0,974	0	2
Comp_tech_Parent_CVC	0,494	0,867	0	2
Comp_comm_Parent_CVC	1,429	0,785	0	2
Comp_fin_Experience_CVC	1,299	0,630	0	2
Comp_tech_Experience_CVC	1,221	0,912	0	2
Comp_comm_Experience_CVC	1,584	0,496	1	2
Comp_fin_Edu_CVC	1,039	0,880	0	2
Comp_tech_Edu_CVC	1,429	0,658	0	2
Comp_soc_Edu_CVC	1,247	0,746	0	2
Comp_hum_Edu_CVC	0,494	0,868	0	2
Age_CVC	18,064	7,930	7	52
Count_IT	34,385	43,285	0	255
Count_HC	10,449	13,211	0	62
Count_AI	7,21	7,545	0	39
Count_IT_no_AI	31,744	39,868	0	224
Pct_IT	0,434	0,267	0	1
Pct_HC	0,222	0,332	0	1
Pct_AI	0,105	0,077	0	0,333
Pct_IT_no_AI	0,397	0,235	0	0,743
Equity_IT	735,9	1376,7	0	10442,1
Equity_HC	345,8	635,2	0	3330,9
Equity_AI	181,5	281,8	0	1516,9
Equity_IT_no_AI	667,6	1250,2	0	9494,9

Tab.4 Summary statistics of the first model variables, author elaboration

4.3.1.2 First econometric model applied to hypoteses

In order to evaluate the truth of the research hypotheses, the variables described in the previous sections were used to formulate the regression models that will be detailed below.

The model dedicated to hypothesis 1a (see chapter 3), aims to understand whether when CVC managers possess valuable expertise in a certain sectors, the likelihood of investing in startups operating in that industry increases. To this end, all available variables were used, developing 12 separate regressions, each associated with one of the 12 previously mentioned dependent variables. The objective was to obtain a set of results to allow comparative considerations and analyses. All associations between relevant skills and different industries will be detailed in the chapter dedicated to the results.

$$Y_i^{(k)} = \alpha^{(k)} + \sum_{m=1}^{10} \beta_m^{(k)} X_{i,m} + \sum_{n=1}^{4} \gamma_n^{(k)} Z_{i,n} + \varepsilon_i^{(k)} \quad \text{with } k = 1, \ldots, 12$$

Where:

- $Y_i^{(k)}$: the **k-th dependent variable** for CVC i, among the 12 considered (e.g., *Count_IT*, *Pct_AI*, *Equity_HC*, etc.).
- $X_{i,m}$: the **10 main independent variables** for CVC i, representing fund managers' competencies (from *Comp_fin_Parent_CVC* to *Comp_hum_Edu_CVC*).
- $Z_{i,n}$: the **4 control variables** (*Industry_parent*, *Age_CVC*, *Region_parent*, *Region_CVC*).
- $\beta_m^{(k)}$: coefficient associated with the **m-th independent variable** in the regression of the k-th dependent variable.
- $\gamma_n^{(k)}$: coefficient associated with the **n-th control variable** in the regression of the k-th dependent variable.
- $\varepsilon_i^{(k)}$: error term for CVC i in the k-th regression.
- $\alpha^{(k)}$: intercept of the k-th regression.

Hypothesis 1b is more specific in nature. It aims to investigate whether, in the absence of well-established academic paths for developing sector-specific skills, professional experience plays a more significant role in investment decisions. Among the sectors considered, AI is currently the only one that fits this profile, as it still lacks a widespread presence of senior professionals with

formal academic training in the field. Therefore, for the considerations relating to this hypothesis, only the following relations were carried out:

$$Y_i^{(k)} = \alpha^{(k)} + \sum_{m=1}^{10} \beta_m^{(k)} X_{i,m} + \sum_{n=1}^{4} \gamma_n^{(k)} Z_{i,n} + \varepsilon_i^{(k)} \quad \text{with } k = 1, 2, 3$$

Where:

- $Y_i^{(k)}$: the k-th AI-related dependent variable for CVC i (specifically: *Count_AI*, *Pct_AI*, *Equity_AI*)
- $X_{i,m}$: the m-th main independent variable (managerial competencies)
- $Z_{i,n}$: the n-th control variable (*Industry_parent*, *Age_CVC*, *Region_parent*, *Region_CVC*)
- $\beta_m^{(k)}$: coefficient for the m-th independent variable in regression k
- $\gamma_n^{(k)}$: coefficient for the n-th control variable in regression k
- $\alpha^{(k)}$: intercept of regression k
- $\varepsilon_i^{(k)}$: error term for CVC i in regression k

4.3.2 Second model

In the second part of the econometric analysis, the objective is to explore the relationship between the human capital of Corporate Venture Capital (CVC) managers and the performance of the ventures in which they have invested. Specifically, the focus is on the likelihood of successful outcomes, measured in terms of general exits, initial public offerings (IPOs), and mergers. As in the previous section, the analysis was conducted using Stata software and based on the linear regression method, which enables the estimation of how each component of human capital affects venture outcomes. This represents the core model of the analysis. Additionally, it will be possible to see a robustness check in the following chapters, performed using a probit regression, an alternative method suitable for binary dependent variables, by transforming the performance outcomes into dummies. Once again, through the comprehensive mapping of skills, categorized by type and timing of acquisition, the aim is to assess whether, which, and when specific managerial competencies influence the success rate of CVC-backed ventures.

4.3.2.1 Second model variable overview

Independent Control Dependent

Variable	Description
Comp_fin_Parent_CVC	Summary score (0–2) of fund managers' financial expertise based on their prior work experience in the parent company.
Comp_tech_Parent_CVC	Summary score (0–2) of fund managers' technical expertise based on their prior work experience in the parent company.
Comp_comm_Parent_CVC	Summary score (0–2) of fund managers' commercial expertise based on their prior work experience in the parent company.
Comp_fin_Experience_CVC	Summary score (0–2) of fund managers' financial expertise based on their prior work experience before joining the parent company.
Comp_tech_Experience_CVC	Summary score (0–2) of fund managers' technical expertise based on their prior work experience before joining the parent company.
Comp_comm_Experience_CVC	Summary score (0–2) of fund managers' commercial expertise based on their prior work experience before joining the parent company.
Comp_fin_Edu_CVC	Summary score (0–2) of fund managers' financial expertise based on their academic background.
Comp_tech_Edu_CVC	Summary score (0–2) of fund managers' technical expertise based on their academic background.
Comp_soc_Edu_CVC	Summary score (0–2) of fund managers' expertise on social sciences based on their academic background.
Comp_hum_Edu_CVC	Summary score (0–2) of fund managers' expertise on humanities and arts based on their academic background.
Industry_parent	Categorical variable treated as a vector of 8 dummies, referring to the industry in which the parent company operates.
Age_CVC	CVC years of activity.
Region_parent	Categorical variable treated as a vector of 3 dummies, referring to the continent in which the parent company HQs are based.
Region_CVC	Categorical variable treated as a vector of 3 dummies, referring to the continent in which the parent company HQs are based.
Exit_ratio	Continuous variable measuring for each CVC the percentage of investments that have achieved an exit
Merger_ratio	Continuous variable measuring for each CVC the percentage of investments that have achieved an exit
Ipo_ratio	Continuous variable measuring for each CVC the percentage of investments that have achieved an exit

Since the set of independent variables remained unchanged from the previous analysis, the assessment of multicollinearity through the VIF calculation was not repeated. As already verified, all VIF values were well below the accepted threshold of 5 (Belsley, Kuh & Welsch, 2005), ensuring that collinearity does not affect the reliability of the results.

Once again, to enrich the reader's understanding of the protagonist variables, summary statistics are reported. As with the first model it will be possible to know the mean, standard deviation, minimum value, maximum value of each one. In a mirror image of what was done previously, for the sake of synthesis, the dummy variables that control for the characteristics of the CVC parent (Region_parent and Industry_parent) and the variable related to the region of the CVC (Region_CVC) has been omitted.

Variable	Mean	Standard dev.	Min.	Max.
Comp_fin_Parent_CVC	0,805	0,974	0	2
Comp_tech_Parent_CVC	0,494	0,867	0	2
Comp_comm_Parent_CVC	1,429	0,785	0	2
Comp_fin_Experience_CVC	1,299	0,630	0	2
Comp_tech_Experience_CVC	1,221	0,912	0	2
Comp_comm_Experience_CVC	1,584	0,496	1	2
Comp_fin_Edu_CVC	1,039	0,880	0	2
Comp_tech_Edu_CVC	1,429	0,658	0	2
Comp_soc_Edu_CVC	1,247	0,746	0	2
Comp_hum_Edu_CVC	0,494	0,868	0	2
Age_CVC	18,064	7,930	7	52
Exit_ratio	0,104	0,061	0	0,259
Merger_ratio	0,076	0,048	0	0,233
Ipo_ratio	0,028	0,039	0	0,192

Tab.5 Summary statistics of the second model variables, author elaboration

4.3.2.2 Second econometric model applied to hypoteses

To complete the verification of the research hypotheses, the last set of regression models was built, summarized below. Hypothesis 2a (see Chapter 3) predicts that CVC managers with financial and economic skills, acquired through academic training or professional experience, are more likely to lead the initiatives towards successful exits, thanks to a greater understanding of financial markets and M&A dynamics.

To evaluate this hypothesis, three regressions were performed, each with a different dependent variable. In this case, technical and humanistic skills acquired in the academic field were excluded from the independent variables, in order to isolate the specific effect of financial and economic skills. As for the control variables, however, all were used.

$$Y_i^{(k)} = \alpha^{(k)} + \sum_{m=1}^{M} \beta_m^{(k)} X_{i,m} + \sum_{n=1}^{N} \gamma_n^{(k)} Z_{i,n} + \varepsilon_i^{(k)} \quad \text{with } k = 1, 2, 3$$

Where:

- $Y_i^{(k)}$: the *k-th* dependent variable related to exit outcomes (Exit_ratio, Merger_ratio, or Ipo_ratio) for CVC i
- $X_{i,m}$: the *m-th* main independent variable for CVC i, measuring managers' **financial, commercial or social science competencies** (academic or professional)
- $Z_{i,n}$: the *n-th* control variable for CVC i (Industry_parent, Age_CVC, Region_parent, Region_CVC)
- $\beta_m^{(k)}$: coefficient of the *m-th* independent variable in the *k-th* regression
- $\gamma_n^{(k)}$: coefficient of the *n-th* control variable in the *k-th* regression
- $\alpha^{(k)}$: constant term of the *k-th* regression
- $\varepsilon_i^{(k)}$: error term for CVC i in regression k
- $k = 1, 2, 3$: refers respectively to Exit_ratio, Merger_ratio, and Ipo_ratio

Finally, the last model was developed on the basis of hypothesis 2b. This hypothesis is based on the idea that CVC managers' technical skills, acquired through academic training or professional experience, increase the probability of successful investments (venture exits), since they allow more accurate assessments of technological potential and a deeper understanding of sector dynamics.

To analyze this hypothesis, a model was built that mirrors the previous one, but focuses on technical skills, not on economic-financial ones.

$$Y_i^{(k)} = \alpha^{(k)} + \sum_{m=1}^{3} \beta_m^{(k)} X_{i,m} + \sum_{n=1}^{4} \gamma_n^{(k)} Z_{i,n} + \varepsilon_i^{(k)}, \quad \text{with } k = 1, 2, 3$$

Where:

- $Y_i^{(k)}$: the *k-th* dependent variable (Exit_ratio, Merger_ratio, Ipo_ratio) for CVC i
- $X_{i,m}$: the 3 independent variables measuring managers' **technical skills**:
  - Comp_tech_Parent_CVC
  - Comp_tech_Experience_CVC
  - Comp_tech_Edu_CVC
- $Z_{i,n}$: the 4 control variables (Industry_parent, Age_CVC, Region_parent, Region_CVC)
- $\beta_m^{(k)}$: coefficient for the *m-th* independent variable in the *k-th* regression
- $\gamma_n^{(k)}$: coefficient for the *n-th* control variable in the *k-th* regression
- $\alpha^{(k)}$: intercept of the *k-th* regression
- $\varepsilon_i^{(k)}$: error term

Results, robustness tests and discussion

This chapter is dedicated to the presentation of the empirical results obtained from the regression models previously introduced. Subsequently, some robustness tests will be illustrated, in order to strengthen the validity of the analyses. Finally, the results will be discussed, with a particular focus on the comparison with the existing literature.

5.1 First model empirical results

This section presents a detailed analysis of all regression outputs related to Hypotheses 1a and 1b, formulated in Chapter 3. In order to facilitate the reader's understanding of the results, it is recalled that the industries analyzed are the following: Artificial Intelligence (AI), Information Technology (IT), Healthcare, and an additional category that includes non-AI IT ventures.

For each of these industries, three dimensions of analysis were considered:

- The number of investments made by each CVC fund in the sector;

- The percentage of investments in the sector on the total investments of the fund;

- The cumulative value of investments made in the sector by each CVC;

This approach led to a total of 12 regressions, which will be reported and analyzed in detail. A methodological clarification concerns the treatment of categorical control variables. As explained previously, these variables are included in the model through vectors of dummy variables. However, to avoid problems of perfect multicollinearity, a phenomenon known as dummy variable trap (Pillai & Mohan, 2024), it is not possible to include all the categories of a categorical variable in the model. In the presence of the intercept, the inclusion of all the dummies would lead to a linear dependence between the variables, preventing the correct estimation of the coefficients. To overcome this, for each categorical variable a reference category has been selected, excluded from the model, which acts as a baseline with respect to which the effects of the other categories are interpreted. For the benefit of transparency and interpretative clarity, these baselines are declared from the outset: for the variable relating to the age of the CVC, since it is a continuous numerical variable, it is not necessary to adopt this precaution, for the variable relating to the industry to which the parent company belongs, the reference category is IT, for the variable relating to the geographical positioning (continent) of the headquarters of the parent company and CVC, the reference category is America. The choice of these baselines is based on the observed frequency of

the respective categories within the sample: in fact, the most represented modalities were selected to ensure greater robustness and coherence to the analysis. To conclude, we would like to clarify for the reader the symbolism used to represent the significance of the variables. On the side of the outputs of the regressions, it will be possible to see a number of stars for each row. If the number is 0, there is no significant correlation, if it is one we will have a weak correlation (p-value < 0.1), if it is 2 we will have a significant correlation (p-value < 0.05) if it is 3 we are talking about a strong correlation (p-value < 0.01). The thresholds are those commonly used in the scientific literature (Bruns et al. 2024).

5.1.1 First model empirical results - IT sector

count_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-4.750275	6.779606	-0.70	0.487	-18.34257	8.842016	
comp_tech_Parent_CVC	-1.041982	6.853982	-0.15	0.880	-14.78339	12.69942	
comp_comm_Parent_CVC	6.841286	6.955239	0.98	0.330	-7.103129	20.7857	
comp_tech_Experience_CVC	-1.977349	6.317745	-0.31	0.755	-14.64366	10.68897	
comp_fin_Experience_CVC	5.749654	10.63825	0.54	0.591	-15.57875	27.07806	
comp_comm_Experience_CVC	-19.86191	11.26351	-1.76	0.083	-42.44388	2.72007	✶
comp_fin_Edu_CVC	1.689069	7.542909	0.22	0.824	-13.43355	16.81169	
comp_tech_Edu_CVC	13.56964	9.871009	1.37	0.175	-6.220546	33.35982	
comp_soc_Edu_CVC	18.35093	10.46084	1.75	0.085	-2.621789	39.32365	✶
comp_hum_Edu_CVC	7.38546	6.28052	1.18	0.245	-5.206223	19.97714	
cvc_age	-.0530536	.6781096	-0.08	0.938	-1.412582	1.306474	
dummy_consumer	-53.14752	21.47996	-2.47	0.017	-96.21225	-10.0828	✶✶
dummy_energy	-47.3213	29.2255	-1.62	0.111	-105.9149	11.27231	
dummy_Fin_Comm_Services	-60.53168	19.50906	-3.10	0.003	-99.645	-21.41836	✶✶✶
dummy_Healthcare_Pharma	-40.77044	15.60686	-2.61	0.012	-72.06031	-9.480574	✶✶
dummy_Media_Comm	-34.38979	14.63991	-2.35	0.023	-63.74105	-5.038535	✶✶
dummy_Semiconductors	-8.423354	31.8054	-0.26	0.792	-72.18934	55.34263	
dummy_Transportation	-26.71348	25.55635	-1.05	0.301	-77.95088	24.52393	
dummy_Asia_CVC	21.36199	17.51823	1.22	0.228	-13.75994	56.48392	
dummy_Europe_CVC	-8.354392	20.40765	-0.41	0.684	-49.26927	32.56049	
dummy_Asia_Parent	-10.9972	17.68251	-0.62	0.537	-46.4485	24.4541	
dummy_Europe_Parent	1.355382	19.21931	0.07	0.944	-37.17702	39.88778	
_cons	36.51895	45.75837	0.80	0.428	-55.22105	128.259	

Tab.6 Results of logistic regression with dependent variable the number of investments made by each CVC fund in the IT sector, author elaboration

It is clear from the output that several control variables, represented by dummies relating to the parent company's industry sector, are statistically significant, all with negative coefficients. In particular, note the magnitude of the coefficients, ranging from -34 to -60. This means that for a variation of one unit in the control variable (remember that in this case they are dummies) there is a variation of up to 60 investments in IT ventures. This result was moreover predictable and

consistent with the theoretical intuition, considering that the reference category is the IT industry. Indeed, it is reasonable to expect that CVCs with parents operating in the IT industry would be more inclined to invest in start-ups in the same field. Shifting our attention to the main variable of interest, i.e. the human capital of managers, we note the significance of two specific variables. On the one hand, a university education in social disciplines has a positive impact on the number (in absolute value) of investments in IT start-ups by CVCs (+18.35). On the other hand, having gained business experience prior to joining the parent company has a negative effect on the same dependent variable (-19.06). An overall interpretation of the investment dynamics in the IT sector will be proposed later, after the presentation of the results of the further analysis perspectives.

pct_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.0164386	.0332185	0.49	0.623	-.0501604	.0830377	
comp_tech_Parent_CVC	-.0064421	.0335829	-0.19	0.849	-.0737718	.0608876	
comp_comm_Parent_CVC	-.0176785	.034079	-0.52	0.606	-.0860029	.0506459	
comp_tech_Experience_CVC	.0009784	.0309555	0.03	0.975	-.0610836	.0630404	
comp_fin_Experience_CVC	.0175587	.0521249	0.34	0.738	-.0869455	.1220629	
comp_comm_Experience_CVC	-.0108481	.0551886	-0.20	0.845	-.1214945	.0997982	
comp_fin_Edu_CVC	.0112675	.0369585	0.30	0.762	-.0628298	.0853648	
comp_tech_Edu_CVC	.0049125	.0483656	0.10	0.919	-.0920548	.1018798	
comp_soc_Edu_CVC	.0576726	.0512557	1.13	0.265	-.0450888	.160434	
comp_hum_Edu_CVC	.0009314	.0307731	0.03	0.976	-.0607649	.0626277	
cvc_age	-.0009507	.0033226	-0.29	0.776	-.0076121	.0057107	
dummy_consumer	-.4050487	.1052468	-3.85	0.000	-.6160558	-.1940417	✶✶✶
dummy_energy	-.3214615	.1431981	-2.24	0.029	-.6085564	-.0343665	✶✶
dummy_Fin_Comm_Services	-.3045792	.0955899	-3.19	0.002	-.4962254	-.1129331	✶✶✶
dummy_Healthcare_Pharma	-.4762096	.07647	-6.23	0.000	-.6295227	-.3228966	✶✶✶
dummy_Media_Comm	-.1385198	.0717321	-1.93	0.059	-.2823341	.0052945	✶
dummy_Semiconductors	-.199112	.155839	-1.28	0.207	-.5115504	.1133264	
dummy_Transportation	-.2062996	.1252202	-1.65	0.105	-.4573508	.0447517	
dummy_Asia_CVC	-.0540149	.0858352	-0.63	0.532	-.2261041	.1180743	
dummy_Europe_CVC	-.0314924	.0999927	-0.31	0.754	-.2319657	.168981	
dummy_Asia_Parent	-.0013038	.0866402	-0.02	0.988	-.1750069	.1723993	
dummy_Europe_Parent	.0216222	.0941701	0.23	0.819	-.1671775	.210422	
_cons	.6060002	.2242053	2.70	0.009	.1564956	1.055505	

Tab.7 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund in the IT sector on the total of the investments made, author elaboration

Confirming the findings of the previous analysis, several control variables related to parent company industries other than IT are again significant, with consistently negative coefficients. However, when analysing the percentage of investments in the IT sector out of the total investments made, i.e. a relative measure, useful to take into account the different fund sizes, the variables related to human capital lose statistical significance. Although not falling within the conventional thresholds of significance, it is interesting to note that the lowest p-value (0.265) is associated, once

again, with social science education, with a positive coefficient, aligning at least partially with the indication that emerged in the previous analysis. In fact, it must be remembered that the sample is rather limited due to the low public availability of data and the high level of clustering, which physiologically leads to p-value levels inflated upwards.

log_equity_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.5428444	.2800555	1.94	0.058	-.0186331	1.104322	✶
comp_tech_Parent_CVC	.0367894	.2831279	0.13	0.897	-.5308478	.6044267	
comp_comm_Parent_CVC	-.0529188	.2873107	-0.18	0.855	-.628942	.5231044	
comp_tech_Experience_CVC	-.2501045	.2609767	-0.96	0.342	-.7733313	.2731224	
comp_fin_Experience_CVC	.0535483	.4394504	0.12	0.903	-.8274968	.9345934	
comp_comm_Experience_CVC	.2593992	.4652789	0.56	0.579	-.6734289	1.192227	
comp_fin_Edu_CVC	.6462622	.3115865	2.07	0.043	.021569	1.270955	✶✶
comp_tech_Edu_CVC	.4319285	.4077568	1.06	0.294	-.3855747	1.249432	
comp_soc_Edu_CVC	.4416378	.4321218	1.02	0.311	-.4247143	1.30799	
comp_hum_Edu_CVC	.3024349	.259439	1.17	0.249	-.217709	.8225788	
cvc_age	-.0110274	.0280117	-0.39	0.695	-.0671875	.0451327	
dummy_consumer	-1.683241	.8873054	-1.90	0.063	-3.462181	.0956992	✶
dummy_energy	-2.162469	1.207262	-1.79	0.079	-4.582884	.2579461	✶
dummy_Fin_Comm_Services	-2.338341	.8058907	-2.90	0.005	-3.954055	-.7226279	✶✶✶
dummy_Healthcare_Pharma	-2.917231	.6446963	-4.52	0.000	-4.209769	-1.624692	✶✶✶
dummy_Media_Comm	-.8659772	.6047532	-1.43	0.158	-2.078434	.34648	
dummy_Semiconductors	.549452	1.313834	0.42	0.677	-2.084627	3.183531	
dummy_Transportation	-.3247906	1.055695	-0.31	0.760	-2.441332	1.791751	
dummy_Asia_CVC	1.181653	.7236521	1.63	0.108	-.2691821	2.632488	
dummy_Europe_CVC	.3668441	.84301	0.44	0.665	-1.323289	2.056977	
dummy_Asia_Parent	-.5826493	.7304385	-0.80	0.429	-2.04709	.8817917	
dummy_Europe_Parent	-.9009772	.7939215	-1.13	0.261	-2.492694	.6907395	
_cons	4.228915	1.890211	2.24	0.029	.4392708	8.018559	

Tab.8 Results of the logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the IT sector, author elaboration

The regression results analyzing the equity investments (expressed in millions of Euros) made by CVCs in the IT sector are presented here. The amounts have been transformed into logarithms in order to mitigate the impact of extremely high and variable values, thus making the model more robust and interpretable.The usual relevance of the parent company's industry is confirmed in this analysis as well, with several sector alternatives being significant and associated with negative coefficients, confirming a prevailing orientation of CVCs in the IT sector towards investments in their own sphere of reference. In addition, interesting indications related to human capital once again emerge: the presence of financial skills within the CVC team, either through academic paths or through previous experience in the parent company, is significantly associated with larger investments. The results obtained confirm the evidence discussed, without substantially changing the interpretation.

Overall interpretation for the IT sector

Altogheter, the results confirm the strong influence of the IT sector of the parent company on the investment decisions of CVCs, with negative and significant coefficients for alternative industries, consistent with a marked sectoral orientation. Regarding the main focus of the work, i.e. human capital, the analysis shows that social science education is associated with more investments in IT start-ups, while business experience prior to joining the parent is negatively correlated with this activity. Furthermore, when considering the value of investments, a significant positive association is observed between financial skills (academic or professional) and the amount invested. These results suggest that managerial profiles with analytical backgrounds, such as those typically acquired in finance or generic economic paths, might foster a greater ability to evaluate and select technological opportunities. Conversely, experiences focused on purely commercial roles might reflect a less technical orientation or less suited to complex evaluations typical of IT innovation investments. In summary, human capital emerges as a relevant lever, capable of influencing both the quantity and quality of IT investments on the part of CVCs.

5.1.2 First model empirical results - Healthcare sector

count_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-1.112277	1.834853	-0.61	0.547	-4.790936	2.566383	
comp_tech_Parent_CVC	.9018964	1.854983	0.49	0.629	-2.81712	4.620913	
comp_comm_Parent_CVC	1.263512	1.882387	0.67	0.505	-2.510447	5.037471	
comp_tech_Experience_CVC	.4214323	1.709854	0.25	0.806	-3.006618	3.849483	
comp_fin_Experience_CVC	-2.202522	2.879169	-0.76	0.448	-7.974908	3.569863	
comp_comm_Experience_CVC	-1.010716	3.04839	-0.33	0.742	-7.122371	5.100939	
comp_fin_Edu_CVC	.1913945	2.041436	0.09	0.926	-3.901438	4.284227	
comp_tech_Edu_CVC	2.472989	2.67152	0.93	0.359	-2.883087	7.829064	
comp_soc_Edu_CVC	-1.79591	2.831153	-0.63	0.529	-7.472031	3.880211	
comp_hum_Edu_CVC	1.396644	1.699779	0.82	0.415	-2.011207	4.804496	
cvc_age	.1994458	.1835257	1.09	0.282	-.168501	.5673926	
dummy_consumer	3.242081	5.813402	0.56	0.579	-8.413087	14.89725	
dummy_energy	-8.982862	7.909679	-1.14	0.261	-24.84081	6.875089	
dummy_Fin_Comm_Services	8.32499	5.279993	1.58	0.121	-2.260758	18.91074	
dummy_Healthcare_Pharma	14.69483	4.223888	3.48	0.001	6.226443	23.16322	✶✶✶
dummy_Media_Comm	-3.187541	3.962191	-0.80	0.425	-11.13126	4.756173	
dummy_Semiconductors	-10.78825	8.60791	-1.25	0.215	-28.04607	6.469573	
dummy_Transportation	-3.068339	6.91665	-0.44	0.659	-16.93539	10.79871	
dummy_Asia_CVC	4.291852	4.741186	0.91	0.369	-5.213654	13.79736	
dummy_Europe_CVC	5.441275	5.523189	0.99	0.329	-5.632053	16.5146	
dummy_Asia_Parent	-7.215936	4.785649	-1.51	0.137	-16.81058	2.378713	
dummy_Europe_Parent	-10.98995	5.201574	-2.11	0.039	-21.41848	-.5614262	✶✶
_cons	7.825294	12.38418	0.63	0.530	-17.0035	32.65409	

Tab.9 Results of logistic regression with dependent variable the number of investments made by each CVC fund in the Healthcare sector, author elaboration

The interpretation of the regression results with the absolute number of CVC investments in the healthcare sector as dependent variable is rather linear. The variables related to human capital do not show significant effects: the variable with the lowest p-value (0.359) is technical academic education, however, well above the conventional significance thresholds. As expected, the fact that the parent company operates in the pharmaceutical sector is highly significant and associated with a positive coefficient, indicating a greater propensity to invest in start-ups in the same field. A further interesting element emerges from the analysis of the geographical control variables: the European location of the parent is associated with a lower number of investments, suggesting a possible difference in approach between European CVCs and those from other geographical areas in the healthcare sector.

pct_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-.0226814	.0334997	-0.68	0.501	-.0898442	.0444814	
comp_tech_Parent_CVC	.0049806	.0338672	0.15	0.884	-.062919	.0728803	
comp_comm_Parent_CVC	-.0126251	.0343675	-0.37	0.715	-.0815278	.0562776	
comp_tech_Experience_CVC	.0085156	.0312175	0.27	0.786	-.0540717	.071103	
comp_fin_Experience_CVC	-.0518332	.0525662	-0.99	0.329	-.157222	.0535557	
comp_comm_Experience_CVC	-.0537179	.0556557	-0.97	0.339	-.165301	.0578651	
comp_fin_Edu_CVC	-.0385971	.0372713	-1.04	0.305	-.1133216	.0361274	
comp_tech_Edu_CVC	.0202096	.048775	0.41	0.680	-.0775784	.1179977	
comp_soc_Edu_CVC	-.0597785	.0516895	-1.16	0.253	-.1634098	.0438527	
comp_hum_Edu_CVC	-.0005594	.0310336	-0.02	0.986	-.062778	.0616591	
cvc_age	-.0015565	.0033507	-0.46	0.644	-.0082742	.0051613	
dummy_consumer	.0913981	.1061377	0.86	0.393	-.1213951	.3041913	
dummy_energy	.0419481	.1444103	0.29	0.773	-.2475771	.3314732	
dummy_Fin_Comm_Services	.3019075	.096399	3.13	0.003	.1086391	.4951759	✶✶✶
dummy_Healthcare_Pharma	.5594012	.0771173	7.25	0.000	.4047904	.714012	✶✶✶
dummy_Media_Comm	.042568	.0723394	0.59	0.559	-.1024637	.1875996	
dummy_Semiconductors	-.1285714	.1571582	-0.82	0.417	-.4436546	.1865117	
dummy_Transportation	-.0770276	.1262801	-0.61	0.544	-.330204	.1761488	
dummy_Asia_CVC	-.110531	.0865618	-1.28	0.207	-.2840769	.063015	
dummy_Europe_CVC	-.0087622	.1008392	-0.09	0.931	-.2109326	.1934081	
dummy_Asia_Parent	-.0902976	.0873736	-1.03	0.306	-.2654711	.0848758	
dummy_Europe_Parent	-.1512371	.0949673	-1.59	0.117	-.3416351	.0391608	
_cons	.4577895	.2261032	2.02	0.048	.00448	.9110991	

Tab.10 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund in the Healthcare sector on the total of the investments made, author elaboration

Analysing the relative values again, the situation remains largely unchanged compared to previous results. The centrality of the Healthcare sector is confirmed, as was to be expected. Only slight variations, not particularly significant, are observed: in particular, the geographical variable loses

relevance, while signs of significant activity emerge from CVCs belonging to parent companies active in the financial and commercial services sectors.

log_equity_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-.1766905	.3819062	-0.46	0.645	-.9423664	.5889854	
comp_tech_Parent_CVC	.1190192	.386096	0.31	0.759	-.6550566	.8930951	
comp_comm_Parent_CVC	.0381726	.3917999	0.10	0.923	-.747339	.8236842	
comp_tech_Experience_CVC	.4933549	.3558889	1.39	0.171	-.2201594	1.206869	
comp_fin_Experience_CVC	.1499674	.59927	0.25	0.803	-1.051497	1.351431	
comp_comm_Experience_CVC	-.1859077	.6344918	-0.29	0.771	-1.457987	1.086172	
comp_fin_Edu_CVC	.2032249	.4249044	0.48	0.634	-.6486571	1.055107	
comp_tech_Edu_CVC	1.324048	.55605	2.38	0.021	.2092348	2.438861	✶✶
comp_soc_Edu_CVC	.733176	.5892761	1.24	0.219	-.4482514	1.914603	
comp_hum_Edu_CVC	.3884768	.3537919	1.10	0.277	-.3208333	1.097787	
cvc_age	-.0261402	.038199	-0.68	0.497	-.1027246	.0504443	
dummy_consumer	.9438836	1.210001	0.78	0.439	-1.482023	3.36979	
dummy_energy	-2.292654	1.64632	-1.39	0.169	-5.593327	1.008019	
dummy_Fin_Comm_Services	.7159014	1.098977	0.65	0.518	-1.487416	2.919218	
dummy_Healthcare_Pharma	3.483193	.8791598	3.96	0.000	1.720584	5.245802	✶✶✶
dummy_Media_Comm	-.2398831	.8246901	-0.29	0.772	-1.893287	1.413521	
dummy_Semiconductors	2.170018	1.79165	1.21	0.231	-1.422024	5.762059	
dummy_Transportation	-1.304697	1.439631	-0.91	0.369	-4.190984	1.581589	
dummy_Asia_CVC	1.598323	.9868302	1.62	0.111	-.3801525	3.576798	
dummy_Europe_CVC	1.06089	1.149596	0.92	0.360	-1.243912	3.365692	
dummy_Asia_Parent	-1.586726	.9960847	-1.59	0.117	-3.583755	.410304	
dummy_Europe_Parent	-2.341243	1.082655	-2.16	0.035	-4.511836	-.1706503	
_cons	.3786401	2.577643	0.15	0.884	-4.789224	5.546504	

Tab.11 Results of the logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the Healthcare sector, author elaboration

Concluding the analysis on the Healthcare sector with the last perspective, concerning the (logarithmic) value of equity investments made by CVCs, some further insights can be drawn. In line with what emerged in previous analyses, and consistent with expectations, the presence of the parent company in the Healthcare sector is confirmed to be significant, with a positive impact on the amount of investments in the same sector. In this specific analysis, however, a link with human capital also emerges: technical academic education is positively correlated with the value of investments, with a coefficient of 1.324, indicative of a significant impact. It must be remembered that the coefficient refers to a logarithmic scale. This result is not surprising, as the healthcare sector requires an in-depth understanding of its scientific dynamics, making a technical background crucial for investment opportunities. It is, in fact, useful to remember that in the classification adopted for the analysis, technical backgrounds also include medical, biological and scientific studies.

Overall interpretation for the Healthcare sector

On the whole, the results confirm the decisive influence of the parent company's belonging to the healthcare sector on CVCs' investment decisions, with positive and significant coefficients suggesting a marked propensity to invest within its industry of reference. With reference to the role of human capital, the results show a limited impact on decisions in terms of the number of investments made in the Healthcare sector: no variable is statistically significant and the only one with a relatively lower p-value is technical academic education, although still above the conventional thresholds. However, when considering the economic dimension of investments, a positive and significant relationship emerges precisely with technical education. This suggests that managerial profiles with academic backgrounds in technical-scientific fields, including medical, biological or engineering studies, are better able to assess in depth the complex opportunities offered by the healthcare sector, which is notoriously characterised by high specialisation and regulatory complexity. A further interesting insight comes from the geographical control variables: in the regression on the absolute number of investments, the European location of the parent is associated with a lower volume of activity. However, this evidence loses significance when moving on to consider relative measures. In summary, in the healthcare sector, the industrial factor of the parent is confirmed as central, while human capital shows a more limited impact. The most relevant result is that it appears that, in areas of high technical specialisation, scientific academic skills can be a competitive advantage for the selection and evaluation of complex operations.

5.1.3 First model empirical results - AI sector

count_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-1.647133	1.092044	-1.51	0.137	-3.836548	.542283	
comp_tech_Parent_CVC	1.837574	1.104024	1.66	0.102	-.3758611	4.051009	
comp_comm_Parent_CVC	1.060749	1.120334	0.95	0.348	-1.185386	3.306884	
comp_tech_Experience_CVC	.3206766	1.017648	0.32	0.754	-1.719585	2.360938	
comp_fin_Experience_CVC	1.33428	1.713585	0.78	0.440	-2.101252	4.769812	
comp_comm_Experience_CVC	-1.148382	1.814301	-0.63	0.529	-4.785835	2.489072	
comp_fin_Edu_CVC	2.344508	1.214995	1.93	0.059	-.0914102	4.780426	✶
comp_tech_Edu_CVC	3.546302	1.59	2.23	0.030	.3585446	6.73406	✶✶
comp_soc_Edu_CVC	4.722027	1.685008	2.80	0.007	1.343788	8.100265	✶✶✶
comp_hum_Edu_CVC	1.268435	1.011652	1.25	0.215	-.7598045	3.296676	
cvc_age	.0318897	.1092284	0.29	0.771	-.1871	.2508794	
dummy_consumer	-7.764931	3.459943	-2.24	0.029	-14.7017	-.8281621	✶✶
dummy_energy	-13.15313	4.707578	-2.79	0.007	-22.59126	-3.715006	✶✶✶
dummy_Fin_Comm_Services	-8.198918	3.142476	-2.61	0.012	-14.4992	-1.898633	✶✶
dummy_Healthcare_Pharma	-6.737106	2.513918	-2.68	0.010	-11.77721	-1.697005	✶✶
dummy_Media_Comm	-5.556068	2.358164	-2.36	0.022	-10.2839	-.8282334	✶✶
dummy_Semiconductors	.0883635	5.123142	0.02	0.986	-10.18292	10.35964	
dummy_Transportation	-3.771339	4.11656	-0.92	0.364	-12.02454	4.481867	
dummy_Asia_CVC	.8967456	2.821796	0.32	0.752	-4.760615	6.554107	
dummy_Europe_CVC	-.1988459	3.287219	-0.06	0.952	-6.789322	6.391631	
dummy_Asia_Parent	-2.677334	2.848259	-0.94	0.351	-8.387749	3.033082	
dummy_Europe_Parent	-1.142816	3.095804	-0.37	0.713	-7.349528	5.063897	
_cons	-3.145391	7.370655	-0.43	0.671	-17.92266	11.63188	

Tab.12 Results of logistic regression with dependent variable the number of investments made by each CVC fund in the AI sector, author elaboration

This work also aims to offer useful insights into a sector that is currently on the rise: that of artificial intelligence (AI). The results concerning the number of investments made by CVCs in start-ups operating in this field appear particularly interesting, especially since, compared to other sectors, the influence of the managers' human capital is more pronounced. As to be expected, several control variables related to the industry to which the parent company belongs are also significant, with negative coefficients. This effect reflects the fact that the reference category is the IT industry, historically and technologically close to AI, which is why it is natural that CVCs linked to large tech players show a greater propensity to invest in the sector. On the human capital front, a positive link between investments in AI and academic training of a technical, financial or human sciences nature is immediately apparent. It is interesting to note how in this case the significance and impact on the number of investments grow in parallel. The only educational category that shows no significant effect is humanities and arts, a result consistent with the usefulness of various skills in the sector.

pct_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-.0142598	.0116764	-1.22	0.227	-.0376696	.00915	
comp_tech_Parent_CVC	.0079021	.0118045	0.67	0.506	-.0157645	.0315687	
comp_comm_Parent_CVC	.0001554	.0119789	0.01	0.990	-.0238609	.0241716	
comp_tech_Experience_CVC	.013295	.010881	1.22	0.227	-.0085201	.03511	
comp_fin_Experience_CVC	.0280981	.0183221	1.53	0.131	-.0086355	.0648318	
comp_comm_Experience_CVC	.0083805	.019399	0.43	0.667	-.0305121	.0472731	
comp_fin_Edu_CVC	.0139191	.012991	1.07	0.289	-.0121263	.0399646	
comp_tech_Edu_CVC	.021992	.0170007	1.29	0.201	-.0120924	.0560763	
comp_soc_Edu_CVC	.026108	.0180165	1.45	0.153	-.0100131	.062229	
comp_hum_Edu_CVC	-.0020805	.0108168	-0.19	0.848	-.023767	.019606	
cvc_age	-.0002258	.0011679	-0.19	0.847	-.0025673	.0021157	
dummy_consumer	-.0685591	.0369946	-1.85	0.069	-.1427289	.0056106	✶
dummy_energy	-.0945338	.0503347	-1.88	0.066	-.1954487	.0063811	✶
dummy_Fin_Comm_Services	-.0504014	.0336002	-1.50	0.139	-.1177657	.0169629	
dummy_Healthcare_Pharma	-.0733957	.0268795	-2.73	0.009	-.1272858	-.0195057	✶✶✶
dummy_Media_Comm	-.0205017	.0252141	-0.81	0.420	-.0710529	.0300495	
dummy_Semiconductors	-.0554563	.054778	-1.01	0.316	-.1652795	.0543669	
dummy_Transportation	.0367833	.0440153	0.84	0.407	-.0514622	.1250287	
dummy_Asia_CVC	-.0260277	.0301714	-0.86	0.392	-.0865177	.0344623	
dummy_Europe_CVC	.0607377	.0351478	1.73	0.090	-.0097294	.1312048	✶
dummy_Asia_Parent	-.0303076	.0304543	-1.00	0.324	-.0913648	.0307497	
dummy_Europe_Parent	-.0502854	.0331011	-1.52	0.135	-.1166492	.0160784	
_cons	.0249621	.078809	0.32	0.753	-.1330403	.1829646	

Tab.13 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund in the AI sector on the total of the investments made, author elaboration

In the case of the analysis based on relative metrics, there is a noticeable reduction in the significance of the variables related to human capital. However, while remaining above the conventional thresholds, some p-values are still small: e.g. 0.131 for financial experience outside the parent company and 0.153 for education in social sciences, the latter already relevant in the previous analysis. Beyond human capital, negative coefficients continue to be recorded for some alternative industries to IT, confirming the prevalent sector specialisation. A further interesting element concerns the geographical dimension: CVCs based in Europe appear, in this case, more active in AI-related investments.

log_equity_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.2121766	.3292226	0.64	0.522	-.447875	.8722282	
comp_tech_Parent_CVC	.4863075	.3328344	1.46	0.150	-.1809853	1.1536	
comp_comm_Parent_CVC	.2969079	.3377515	0.88	0.383	-.3802431	.9740588	
comp_tech_Experience_CVC	-.0725361	.3067943	-0.24	0.814	-.6876217	.5425495	
comp_fin_Experience_CVC	.187089	.5166012	0.36	0.719	-.8486342	1.222812	
comp_comm_Experience_CVC	.4616246	.5469642	0.84	0.402	-.6349726	1.558222	
comp_fin_Edu_CVC	.7518959	.3662892	2.05	0.045	.0175303	1.486262	✶✶
comp_tech_Edu_CVC	.8119484	.4793434	1.69	0.096	-.1490774	1.772974	✶
comp_soc_Edu_CVC	.5502722	.507986	1.08	0.284	-.4681784	1.568723	
comp_hum_Edu_CVC	.0310308	.3049866	0.10	0.919	-.5804306	.6424921	
cvc_age	-.0301737	.0329295	-0.92	0.364	-.0961933	.035846	
dummy_consumer	-.9091414	1.043083	-0.87	0.387	-3.000396	1.182113	
dummy_energy	-1.901109	1.419212	-1.34	0.186	-4.746457	.9442393	
dummy_Fin_Comm_Services	-.9147539	.9473745	-0.97	0.339	-2.814125	.9846176	
dummy_Healthcare_Pharma	-1.312456	.7578805	-1.73	0.089	-2.831915	.2070028	✶
dummy_Media_Comm	-.3270866	.7109249	-0.46	0.647	-1.752405	1.098232	
dummy_Semiconductors	-.8848986	1.544493	-0.57	0.569	-3.981421	2.211624	
dummy_Transportation	.2449833	1.241035	0.20	0.844	-2.243143	2.733109	
dummy_Asia_CVC	1.094467	.8506979	1.29	0.204	-.6110791	2.800014	
dummy_Europe_CVC	1.452338	.9910105	1.47	0.149	-.5345187	3.439194	
dummy_Asia_Parent	-1.970328	.8586757	-2.29	0.026	-3.69187	-.2487871	✶✶
dummy_Europe_Parent	-2.251036	.9333039	-2.41	0.019	-4.122197	-.3798741	✶✶
_cons	1.35707	2.22206	0.61	0.544	-3.097892	5.812032	

Tab.14 Results of the logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the AI sector, author elaboration

We conclude the analysis of the AI sector with the usual perspective based on the logarithm of the value of equity investment, expressed in millions of euros. Also in this case, some industries other than IT present negative and significant coefficients compared to the baseline, confirming the centrality of the technology sector. The role of human capital, in particular financial and technological education, becomes relevant again. A relatively low p-value (0.150) is also noted for the technical experience gained in the parent company. To integrate this analysis, a regression was conducted using the absolute value of investments as the dependent variable, without logarithmization. The results confirm what emerged, but offer a further cue: education in social sciences also becomes significant again, accompanied by an effective relevance of technical experience in the parent, whose p-value is further reduced. Finally, the importance of the geographical dimension is confirmed: CVCs with headquarters in America are more active in AI investments, probably due to the greater availability of capital in the US tech context. The coefficients associated with Europe and Asia are in fact negative and equal to -1.97 and -2.25.

Overall interpretation for the AI sector

Altogheter, the results highlight a significant influence of the sector membership of the parent company on CVCs' investment decisions also in the artificial intelligence sector. Consistent with

what was observed in the IT case, alternative industries are associated with negative and significant coefficients, confirming a strong sector specialization: corporations with technological roots show a greater propensity to invest in AI, a field closely linked by nature and skills to the IT world. With reference to the central theme of the analysis, i.e. human capital, AI represents an interesting case. In particular, a positive correlation is observed between the number and value of investments and the presence of technical, financial and economic academic skills. On the contrary, no significant effect is found for education in the humanities-arts, a result consistent with the analytical and scientific nature of investments in AI. Furthermore, there is also a certain relevance for the technical experience gained within the parent company, an element that suggests how familiarity with the processes and technology being analyzed can facilitate a more informed evaluation of the opportunities in the sector. Finally, the geographical dimension plays a non-negligible role: CVCs with headquarters in the United States are significantly more active, presumably by virtue of the greater availability of capital and the more mature technological context. In short, artificial intelligence is configured as an area in which human capital, in particular that linked to solid technical and analytical bases, exerts a concrete influence on CVC investments.

5.1.4 First model empirical results - IT not AI sector

count_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	-3.871199	6.244369	-0.62	0.538	-16.39041	8.648008	
comp_tech_Parent_CVC	-1.991363	6.312874	-0.32	0.754	-14.64791	10.66519	
comp_comm_Parent_CVC	7.332592	6.406137	1.14	0.257	-5.510938	20.17612	
comp_tech_Experience_CVC	-2.525324	5.818971	-0.43	0.666	-14.19166	9.141012	
comp_fin_Experience_CVC	3.867175	9.798382	0.39	0.695	-15.7774	23.51175	
comp_comm_Experience_CVC	-20.83604	10.37428	-2.01	0.050	-41.63521	-.0368696	✶
comp_fin_Edu_CVC	.6586206	6.947412	0.09	0.925	-13.2701	14.58734	
comp_tech_Edu_CVC	12.88039	9.091712	1.42	0.162	-5.3474	31.10817	
comp_soc_Edu_CVC	15.68912	9.634976	1.63	0.109	-3.627842	35.00609	
comp_hum_Edu_CVC	6.668127	5.784685	1.15	0.254	-4.929468	18.26572	
cvc_age	.0790027	.6245742	0.13	0.900	-1.173193	1.331199	
dummy_consumer	-50.47296	19.78416	-2.55	0.014	-90.13781	-10.80812	✶✶
dummy_energy	-45.73319	26.91821	-1.70	0.095	-99.70095	8.234558	✶
dummy_Fin_Comm_Services	-56.3869	17.96886	-3.14	0.003	-92.4123	-20.3615	✶✶✶
dummy_Healthcare_Pharma	-37.8537	14.37473	-2.63	0.011	-66.6733	-9.034106	✶✶
dummy_Media_Comm	-29.65038	13.48412	-2.20	0.032	-56.68442	-2.61635	✶✶
dummy_Semiconductors	1.58315	29.29442	0.05	0.957	-57.14863	60.31493	
dummy_Transportation	-21.70245	23.53873	-0.92	0.361	-68.89477	25.48986	
dummy_Asia_CVC	23.33992	16.1352	1.45	0.154	-9.009203	55.68904	
dummy_Europe_CVC	-5.027221	18.79651	-0.27	0.790	-42.71195	32.65751	
dummy_Asia_Parent	-7.847974	16.28651	-0.48	0.632	-40.50047	24.80452	
dummy_Europe_Parent	.8464783	17.70199	0.05	0.962	-34.64387	36.33682	
_cons	36.1364	42.14583	0.86	0.395	-48.36091	120.6337	

Tab.15 Results of logistic regression with dependent variable the number of investments made by each CVC fund in the IT not AI sector, author elaboration

As anticipated in the other sections, to capture more precisely the specific dynamics of the AI sector, avoiding overlaps with the IT field - which often involves the same actors - a further analysis has been introduced. In this case, the category considered includes exclusively IT ventures, deliberately excluding those that also fall within the AI classification.

The results of the first regression are perfectly in line with expectations and show a strong coherence with what emerged for the IT sector. The variables related to different industries continue to be significant and associated with negative coefficients, confirming a marked sectoral orientation. The negative effect of purely commercial experience gained in previous work contexts is also detected again. On the other hand, a significant impact of education in social sciences is not observed, although the associated p-value (0.109) is still close to the conventional threshold of significance.

pct_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.0368383	.0289065	1.27	0.208	-.0211158	.0947924	
comp_tech_Parent_CVC	-.0184621	.0292237	-0.63	0.530	-.077052	.0401278	
comp_comm_Parent_CVC	-.013668	.0296554	-0.46	0.647	-.0731235	.0457874	
comp_tech_Experience_CVC	-.0160753	.0269373	-0.60	0.553	-.0700813	.0379307	
comp_fin_Experience_CVC	-.0114746	.0453588	-0.25	0.801	-.1024136	.0794644	
comp_comm_Experience_CVC	-.0239732	.0480248	-0.50	0.620	-.120257	.0723107	
comp_fin_Edu_CVC	.0102639	.0321611	0.32	0.751	-.0542152	.0747429	
comp_tech_Edu_CVC	.0034575	.0420875	0.08	0.935	-.0809228	.0878379	
comp_soc_Edu_CVC	.0136437	.0446024	0.31	0.761	-.0757787	.103066	
comp_hum_Edu_CVC	.0076637	.0267786	0.29	0.776	-.0460241	.0613514	
cvc_age	-.0015071	.0028913	-0.52	0.604	-.0073038	.0042895	
dummy_consumer	-.384243	.0915851	-4.20	0.000	-.5678601	-.2006259	✶✶✶
dummy_energy	-.3138479	.1246102	-2.52	0.015	-.5636762	-.0640195	✶✶
dummy_Fin_Comm_Services	-.2706506	.0831817	-3.25	0.002	-.4374199	-.1038812	✶✶✶
dummy_Healthcare_Pharma	-.4301061	.0665437	-6.46	0.000	-.5635182	-.296694	✶✶✶
dummy_Media_Comm	-.075888	.0624209	-1.22	0.229	-.2010344	.0492583	
dummy_Semiconductors	.0513542	.1356102	0.38	0.706	-.2205278	.3232363	
dummy_Transportation	-.1924319	.1089659	-1.77	0.083	-.4108952	.0260315	✶
dummy_Asia_CVC	-.0573369	.0746933	-0.77	0.446	-.2070879	.0924142	
dummy_Europe_CVC	-.023053	.0870131	-0.26	0.792	-.1975038	.1513977	
dummy_Asia_Parent	.0649687	.0753938	0.86	0.393	-.0861867	.2161241	
dummy_Europe_Parent	.0297853	.0819463	0.36	0.718	-.1345072	.1940777	
_cons	.6390278	.1951021	3.28	0.002	.2478716	1.030184	

Tab.16 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund in the IT not AI sector on the total of the investments made, author elaboration

The analysis of the percentage of investments, in this case, is not very fruitful. However, this data is consistent with what was observed for the entire IT sector. Also in this circumstance, the majority of parent industries not belonging to IT show a negative coefficient, accompanied by a certain degree of statistical significance. This is a completely reasonable result, in line with what emerged in the

analyses referred to the pure IT category, considering that the baseline for the parent industry is the same.

log_equity_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.5812835	.3044684	1.91	0.062	-.0291389	1.191706	✶
comp_tech_Parent_CVC	-.0312244	.3078086	-0.10	0.920	-.6483435	.5858948	
comp_comm_Parent_CVC	-.067847	.312356	-0.22	0.829	-.6940831	.5583892	
comp_tech_Experience_CVC	-.3427698	.2837265	-1.21	0.232	-.9116072	.2260676	
comp_fin_Experience_CVC	-.0337727	.4777581	-0.07	0.944	-.99162	.9240747	
comp_comm_Experience_CVC	.332541	.5058381	0.66	0.514	-.6816034	1.346685	
comp_fin_Edu_CVC	.6014038	.338748	1.78	0.081	-.0777451	1.280553	✶
comp_tech_Edu_CVC	.4495924	.4433017	1.01	0.315	-.439174	1.338359	
comp_soc_Edu_CVC	.2676106	.4697906	0.57	0.571	-.6742629	1.209484	
comp_hum_Edu_CVC	.2713392	.2820548	0.96	0.340	-.2941465	.8368249	
cvc_age	.0013169	.0304535	0.04	0.966	-.0597388	.0623726	
dummy_consumer	-1.734318	.9646534	-1.80	0.078	-3.668332	.1996952	✶
dummy_energy	-2.343309	1.312501	-1.79	0.080	-4.974716	.288098	✶
dummy_Fin_Comm_Services	-3.195802	.8761416	-3.65	0.001	-4.952361	-1.439244	✶✶✶
dummy_Healthcare_Pharma	-3.00681	.7008956	-4.29	0.000	-4.412021	-1.601598	✶✶✶
dummy_Media_Comm	-.9971269	.6574706	-1.52	0.135	-2.315276	.3210222	
dummy_Semiconductors	.9546005	1.428363	0.67	0.507	-1.909095	3.818296	
dummy_Transportation	-.3808653	1.147722	-0.33	0.741	-2.68191	1.920179	
dummy_Asia_CVC	1.284823	.7867341	1.63	0.108	-.2924834	2.86213	
dummy_Europe_CVC	.4209	.9164967	0.46	0.648	-1.416565	2.258365	
dummy_Asia_Parent	-.1879965	.7941121	-0.24	0.814	-1.780095	1.404102	
dummy_Europe_Parent	-.7790121	.863129	-0.90	0.371	-2.509482	.9514573	
_cons	4.179438	2.054984	2.03	0.047	.0594441	8.299432	

Tab.17 Results of the logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the IT not AI sector, author elaboration

Even in the last analysis, an almost total overlap with what was observed for the IT sector emerges. In addition to the usual significance of the parent industries, the relevance of human capital is confirmed. Once again, when analyzing the volumes of money invested, financial skills, acquired both through previous professional experiences and through formal education, are central. The only significant difference concerns a slight reduction in the statistical significance of financial education compared to the IT category, in particular that including companies operating in the field of Artificial Intelligence. This result also appears consistent, considering the crucial role of these skills in the AI context. Integrating the analysis again with the non-logarithmic version (reported in the annexes), we observe the return of the negative coefficient associated with commercial experience, a result that has now recurred in our analyses relating to the IT sector. Furthermore, technological education shows a slight positive impact, an outcome that also makes sense.

Overall interpretation for the IT not AI sector

The overall results allow us to more precisely separate the characteristics of the IT and AI sectors. In this analysis, non-technological parent industries repeatedly show negative and significant coefficients, signaling a clear specialization of the sector: companies with a technological base show a greater propensity to invest in the IT sector. Human skills emerge as a central factor: education and experience in economics and finance, acquired both professionally and through training, are fundamental in explaining investment volumes. On the contrary, purely commercial experience continues to show a negative impact, while education in social sciences does not reach statistical significance (although the p-value is close to the threshold). When considering the percentage of investments, the results remain in line with previous analyses: the same reference industries show consistent trends, confirming the methodological soundness of the benchmark. The integration with the data of the non-logarithmic version strengthens this evidence: the negative coefficient for commercial experience, now recurrent in the models, is confirmed, and a modest but significant positive effect of technological education is detected. In conclusion, the results indicate that, in the IT sector excluding AI, the investment decisions of CVCs are strongly influenced by the technological root of the parent companies and by human capital with financial, economic and technical skills. The separate analysis of the IT and AI components proved useful to highlight common specificities and inhomogeneities, showing how the technical-analytical and managerial focus remains central in both contexts, albeit with variations in terms of statistical relevance.

5.2 First model robustness check

In this section, further analyses will be presented, with a different classification of the human capital of CVC managers. The aim is obviously to reinforce the results emerged in section 5.1. In particular, an alternative classification of the independent variables has been generated, no longer based on the 0-2 score, but on a Boolean model. Specifically, the score assigned to each CVC in relation to certain skills is equal to 0 if these skills are below the median, and 1 if above. The linear regressions will then be presented again, this time referring to the new coding, more in line with traditional methods. Following the results, a series of further robustness checks will be reported. To facilitate reading and for the sake of synthesis, not all the outputs of those secondary analyses will be reported, although they are available upon request.

count_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-6.898912	11.55785	-0.60	0.553	-30.07101	16.27319	
competenza_tech_Parent_CVC_2	-4.305505	14.63855	-0.29	0.770	-33.65403	25.04303	
competenza_comm_Parent_CVC_2	6.02055	10.85538	0.55	0.581	-15.74318	27.78429	
competenza_tech_Experience_CVC_2	-7.501198	11.24829	-0.67	0.508	-30.05266	15.05027	
competenza_fin_Experience_CVC_2	-6.354786	14.44881	-0.44	0.662	-35.3229	22.61333	
competenza_comm_Experience_CVC_2	-18.35743	11.45146	-1.60	0.115	-41.31621	4.60136	
competenza_fin_Edu_CVC_2	9.875647	13.72612	0.72	0.475	-17.64358	37.39487	
competenza_tech_Edu_CVC_2	13.55414	14.09294	0.96	0.340	-14.70049	41.80878	
competenza_soc_Edu_CVC_2	21.38523	14.00653	1.53	0.133	-6.696167	49.46662	
competenza_hum_Edu_CVC_2	14.4434	12.18216	1.19	0.241	-9.980374	38.86717	
cvc_age	-.1279617	.6837048	-0.19	0.852	-1.498707	1.242784	
dummy_consumer	-60.98869	20.92175	-2.92	0.005	-102.9343	-19.04311	✶✶✶
dummy_energy	-49.30955	30.39351	-1.62	0.111	-110.2449	11.62577	
dummy_Fin_Comm_Services	-56.76387	20.2259	-2.81	0.007	-97.31435	-16.21339	✶✶✶
dummy_Healthcare_Pharma	-50.3145	14.15808	-3.55	0.001	-78.69973	-21.92926	✶✶✶
dummy_Media_Comm	-37.33712	14.73219	-2.53	0.014	-66.87338	-7.800851	✶✶
dummy_Semiconductors	-13.23394	32.06419	-0.41	0.681	-77.51877	51.05088	
dummy_Transportation	-33.82071	25.61913	-1.32	0.192	-85.18397	17.54255	
dummy_Asia_CVC	19.05387	17.55763	1.09	0.283	-16.14706	54.25479	
dummy_Europe_CVC	-10.7628	20.15324	-0.53	0.596	-51.16761	29.64201	
dummy_Asia_Parent	-7.124121	17.88388	-0.40	0.692	-42.97914	28.7309	
dummy_Europe_Parent	2.310965	19.46283	0.12	0.906	-36.70967	41.3316	
_cons	61.55509	28.68853	2.15	0.036	4.03805	119.0721	

Tab.18 Results of alternative logistic regression with dependent variable the number of investments made by each CVC fund in the IT sector, author elaboration

As can be observed from the output, the industries of the parent company that are relevant remain the same as those identified in the main model, confirming negative coefficients once again. This is due to the usual IT baseline. As regards human capital, however, the variables appear less significant from a statistical point of view. However, a detailed analysis of the p-values highlights how the coefficients relating to commercial experience in other companies (p = 0.115) and training in social sciences (p = 0.133) are close to the significance threshold. Furthermore, the signs of the coefficients are consistent with what emerged in the main analysis. Given the usual limited sample size, slight deviations in the p-values can be considered physiological and, overall, do not compromise a consistent and confirmatory reading of the previous results.

pct_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	.0447014	.0561825	0.80	0.430	-.0679377	.1573405	
competenza_tech_Parent_CVC_2	-.0074798	.0711577	-0.11	0.917	-.1501424	.1351827	
competenza_comm_Parent_CVC_2	-.0245187	.0527678	-0.46	0.644	-.1303117	.0812744	
competenza_tech_Experience_CVC_2	.0071447	.0546777	0.13	0.897	-.1024775	.1167669	
competenza_fin_Experience_CVC_2	.0177253	.0702353	0.25	0.802	-.1230881	.1585387	
competenza_comm_Experience_CVC_2	.0116447	.0556653	0.21	0.835	-.0999575	.1232468	
competenza_fin_Edu_CVC_2	.0575492	.0667224	0.86	0.392	-.0762212	.1913195	
competenza_tech_Edu_CVC_2	.0073003	.0685054	0.11	0.916	-.1300448	.1446455	
competenza_soc_Edu_CVC_2	.0613675	.0680854	0.90	0.371	-.0751355	.1978705	
competenza_hum_Edu_CVC_2	.0052728	.0592172	0.09	0.929	-.1134506	.1239962	
cvc_age	-.000999	.0033235	-0.30	0.765	-.0076621	.0056642	
dummy_consumer	-.4012068	.1017002	-3.94	0.000	-.6051033	-.1973102	✶✶✶
dummy_energy	-.3269932	.1477422	-2.21	0.031	-.6231985	-.030788	✶✶
dummy_Fin_Comm_Services	-.3156926	.0983176	-3.21	0.002	-.5128077	-.1185776	✶✶✶
dummy_Healthcare_Pharma	-.510963	.0688221	-7.42	0.000	-.648943	-.372983	✶✶✶
dummy_Media_Comm	-.1537109	.0716129	-2.15	0.036	-.297286	-.0101358	✶✶
dummy_Semiconductors	-.2080989	.1558633	-1.34	0.187	-.520586	.1043882	
dummy_Transportation	-.236282	.124534	-1.90	0.063	-.4859577	.0133937	✶✶
dummy_Asia_CVC	-.0576378	.0853472	-0.68	0.502	-.2287488	.1134731	
dummy_Europe_CVC	-.0371117	.0979644	-0.38	0.706	-.2335186	.1592952	
dummy_Asia_Parent	.0167947	.0869331	0.19	0.848	-.1574957	.1910852	
dummy_Europe_Parent	.0208725	.0946084	0.22	0.826	-.1688059	.2105509	
_cons	.6273704	.1394543	4.50	0.000	.3477813	.9069595	

Tab.19 Results of alternative logistic regression with dependent variable the percentage of investments made by each CVC fund in the IT sector on the total of the investments made, author elaboration

In this case, comments are superfluous. As in the main analysis, the relative measure does not seem to be correlated with human capital. The p-values are well above the thresholds, with the lowest at 0.392. The significances concern only the industries which, moreover, are almost identical to those highlighted in the corresponding output in the principal analysis.

log_equity_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	1.11707	.4898147	2.28	0.027	.1350503	2.099089	✶✶
competenza_tech_Parent_CVC_2	-.1081631	.6203728	-0.17	0.862	-1.351936	1.13561	
competenza_comm_Parent_CVC_2	-.2212102	.4600445	-0.48	0.633	-1.143544	.7011235	
competenza_tech_Experience_CVC_2	-.3226252	.4766956	-0.68	0.501	-1.278342	.633092	
competenza_fin_Experience_CVC_2	-.3982501	.6123316	-0.65	0.518	-1.625901	.8294008	
competenza_comm_Experience_CVC_2	.1402306	.4853056	0.29	0.774	-.8327486	1.11321	
competenza_fin_Edu_CVC_2	1.151619	.5817047	1.98	0.053	-.0146282	2.317867	✶
competenza_tech_Edu_CVC_2	.6229082	.5972499	1.04	0.302	-.5745058	1.820322	
competenza_soc_Edu_CVC_2	.8516763	.5935879	1.43	0.157	-.3383957	2.041748	
competenza_hum_Edu_CVC_2	.5813658	.5162726	1.13	0.265	-.4536985	1.61643	
cvc_age	-.0069175	.028975	-0.24	0.812	-.0650088	.0511739	
dummy_consumer	-1.920109	.8866509	-2.17	0.035	-3.697737	-.1424809	✶✶
dummy_energy	-2.128316	1.288058	-1.65	0.104	-4.710717	.4540852	
dummy_Fin_Comm_Services	-1.973417	.8571611	-2.30	0.025	-3.691922	-.2549126	✶✶
dummy_Healthcare_Pharma	-3.270605	.6000105	-5.45	0.000	-4.473554	-2.067656	✶✶✶
dummy_Media_Comm	-.8643919	.6243412	-1.38	0.172	-2.116121	.3873368	
dummy_Semiconductors	.7666667	1.35886	0.56	0.575	-1.957684	3.491018	
dummy_Transportation	-.4272724	1.085723	-0.39	0.695	-2.604016	1.749471	
dummy_Asia_CVC	1.260969	.7440814	1.69	0.096	-.2308246	2.752762	✶
dummy_Europe_CVC	.1113876	.8540818	0.13	0.897	-1.600943	1.823718	
dummy_Asia_Parent	-.5819906	.7579077	-0.77	0.446	-2.101504	.9375229	
dummy_Europe_Parent	-.7373772	.8248229	-0.89	0.375	-2.391048	.9162931	
_cons	5.443552	1.215802	4.48	0.000	3.006016	7.881089	

Tab.20 Results of alternative logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the IT sector, author elaboration

To close the perspective on IT, we find the canonical last output on the quantitative monetary resources used. Once again the results are perfectly in line with the main analysis. Without dwelling on the umpteenth correspondence of the industry factor, we can discuss more carefully the skills component. Statistical significance continues to concern the same two dimensions: financial expertise derived from academic training and that gained through previous experiences in the parent company. This almost perfect correspondence further strengthens the robustness and overall coherence of the analyses.

In the following pages the same procedure will be carried out for the remaining 3 industries, always with the aim of identifying similar results by changing the structure of the dependent variables.

count_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-3.257973	3.056463	-1.07	0.291	-9.385813	2.869867	
competenza_tech_Parent_CVC_2	1.870963	3.871151	0.48	0.631	-5.890228	9.632154	
competenza_comm_Parent_CVC_2	3.22666	2.870696	1.12	0.266	-2.528738	8.982059	
competenza_tech_Experience_CVC_2	-1.386586	2.9746	-0.47	0.643	-7.350299	4.577128	
competenza_fin_Experience_CVC_2	-5.091604	3.820974	-1.33	0.188	-12.7522	2.568987	
competenza_comm_Experience_CVC_2	-2.6086	3.028327	-0.86	0.393	-8.68003	3.462829	
competenza_fin_Edu_CVC_2	-.4948536	3.629861	-0.14	0.892	-7.772286	6.782579	
competenza_tech_Edu_CVC_2	1.914019	3.726863	0.51	0.610	-5.557892	9.38593	
competenza_soc_Edu_CVC_2	-2.003658	3.704012	-0.54	0.591	-9.429756	5.422439	
competenza_hum_Edu_CVC_2	1.857819	3.221562	0.58	0.567	-4.601023	8.316662	
cvc_age	.2435759	.1808051	1.35	0.184	-.1189165	.6060683	
dummy_consumer	1.469573	5.532737	0.27	0.792	-9.622897	12.56204	
dummy_energy	-11.36679	8.037535	-1.41	0.163	-27.48108	4.747499	
dummy_Fin_Comm_Services	9.941653	5.348719	1.86	0.069	-.7818836	20.66519	
dummy_Healthcare_Pharma	14.90738	3.74409	3.98	0.000	7.400929	22.41383	✶✶✶
dummy_Media_Comm	-2.81906	3.895914	-0.72	0.472	-10.6299	4.991777	
dummy_Semiconductors	-12.19723	8.479343	-1.44	0.156	-29.19729	4.802827	
dummy_Transportation	-1.581586	6.774954	-0.23	0.816	-15.16455	12.00138	
dummy_Asia_CVC	4.674162	4.643098	1.01	0.319	-4.634688	13.98301	
dummy_Europe_CVC	6.645712	5.329505	1.25	0.218	-4.039302	17.33073	
dummy_Asia_Parent	-8.399022	4.729375	-1.78	0.081	-17.88085	1.082803	
dummy_Europe_Parent	-11.62353	5.146928	-2.26	0.028	-21.94249	-1.304557	✶✶
_cons	9.455355	7.586654	1.25	0.218	-5.754971	24.66568	

Tab.21 Results of alterative logistic regression with dependent variable the number of investments made by each CVC fund in the Healthcare sector, author elaboration

As already emerged in the main analysis, no significant correlation is found between the number of investments in the Healthcare sector and the human capital of CVC managers. Consistent with expectations, the strong significance of the parent company belonging to the Healthcare industry is confirmed, while the remaining control variables show a rather limited relevance. However, the variable relating to the geographical location of the parent company's headquarters deserves attention: as in the previous model, the headquarters in Europe is associated with a strongly negative impact. A negative component, albeit more limited, is also recorded for the headquarters located in Asia. These results further strengthen the hypothesis that the US context is the most favorable in terms of absolute number of investments in the Healthcare sector.

pct_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-.0754798	.058351	-1.29	0.201	-.1924666	.041507	
competenza_tech_Parent_CVC_2	.0102788	.0739043	0.14	0.890	-.1378904	.1584479	
competenza_comm_Parent_CVC_2	.0141413	.0548046	0.26	0.797	-.0957353	.1240178	
competenza_tech_Experience_CVC_2	-.0204111	.0567882	-0.36	0.721	-.1342646	.0934423	
competenza_fin_Experience_CVC_2	-.0676173	.0729463	-0.93	0.358	-.2138659	.0786313	
competenza_comm_Experience_CVC_2	-.0775484	.0578139	-1.34	0.185	-.1934582	.0383615	
competenza_fin_Edu_CVC_2	-.0596528	.0692978	-0.86	0.393	-.1985865	.0792809	
competenza_tech_Edu_CVC_2	.0403328	.0711497	0.57	0.573	-.1023137	.1829793	
competenza_soc_Edu_CVC_2	-.0382875	.0707134	-0.54	0.590	-.1800594	.1034843	
competenza_hum_Edu_CVC_2	-.0143345	.0615029	-0.23	0.817	-.1376404	.1089715	
cvc_age	-.0011222	.0034518	-0.33	0.746	-.0080426	.0057982	
dummy_consumer	.0810071	.1056257	0.77	0.446	-.1307596	.2927738	
dummy_energy	-.0162114	.1534448	-0.11	0.916	-.3238498	.291427	
dummy_Fin_Comm_Services	.3008571	.1021126	2.95	0.005	.0961337	.5055805	✶✶✶
dummy_Healthcare_Pharma	.6007134	.0714785	8.40	0.000	.4574076	.7440193	✶✶✶
dummy_Media_Comm	.0522252	.074377	0.70	0.486	-.0968918	.2013421	
dummy_Semiconductors	-.1444741	.1618794	-0.89	0.376	-.4690228	.1800746	
dummy_Transportation	-.0520195	.1293409	-0.40	0.689	-.3113323	.2072934	
dummy_Asia_CVC	-.1025449	.0886415	-1.16	0.252	-.2802604	.0751707	
dummy_Europe_CVC	.0297196	.1017458	0.29	0.771	-.1742684	.2337075	
dummy_Asia_Parent	-.103845	.0902887	-1.15	0.255	-.2848628	.0771729	
dummy_Europe_Parent	-.1566054	.0982602	-1.59	0.117	-.3536052	.0403944	
_cons	.2963602	.1448371	2.05	0.046	.0059794	.5867411	

Tab.22 Results of alternative logistic regression with dependent variable the percentage of investments made by each CVC fund in the Healthcare sector on the total of the investments made, author elaboration

The results are identical to the main model, even in terms of significance threshold.

log_equity_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-.0023872	.6450068	-0.00	0.997	-1.295548	1.290774	
competenza_tech_Parent_CVC_2	.0113373	.8169307	0.01	0.989	-1.62651	1.649185	
competenza_comm_Parent_CVC_2	.1469501	.6058042	0.24	0.809	-1.067614	1.361514	
competenza_tech_Experience_CVC_2	.5257767	.6277311	0.84	0.406	-.7327485	1.784302	
competenza_fin_Experience_CVC_2	-.2799261	.8063417	-0.35	0.730	-1.896544	1.336692	
competenza_comm_Experience_CVC_2	-.3642622	.6390691	-0.57	0.571	-1.645519	.9169942	
competenza_fin_Edu_CVC_2	.2668672	.7660111	0.35	0.729	-1.268892	1.802627	
competenza_tech_Edu_CVC_2	1.847279	.7864816	2.35	0.023	.2704786	3.42408	✶✶
competenza_soc_Edu_CVC_2	1.071723	.7816593	1.37	0.176	-.4954091	2.638856	
competenza_hum_Edu_CVC_2	.6022073	.6798476	0.89	0.380	-.7608051	1.96522	
cvc_age	-.031505	.0381554	-0.83	0.413	-.1080019	.0449919	
dummy_consumer	.46359	1.167576	0.40	0.693	-1.877259	2.804439	
dummy_energy	-2.419428	1.696165	-1.43	0.160	-5.820033	.9811774	
dummy_Fin_Comm_Services	.9217764	1.128743	0.82	0.418	-1.341216	3.184769	
dummy_Healthcare_Pharma	2.98818	.7901169	3.78	0.000	1.404091	4.572269	✶✶✶
dummy_Media_Comm	-.1758167	.8221565	-0.21	0.831	-1.824141	1.472508	
dummy_Semiconductors	2.220133	1.7894	1.24	0.220	-1.367397	5.807663	
dummy_Transportation	-1.557286	1.429722	-1.09	0.281	-4.423705	1.309133	
dummy_Asia_CVC	1.598591	.9798349	1.63	0.109	-.3658593	3.563042	
dummy_Europe_CVC	.8773186	1.124688	0.78	0.439	-1.377545	3.132182	
dummy_Asia_Parent	-1.480387	.998042	-1.48	0.144	-3.481341	.5205663	
dummy_Europe_Parent	-2.065049	1.086158	-1.90	0.063	-4.242665	.1125676	✶
_cons	2.492898	1.601015	1.56	0.125	-.7169442	5.702739	

Tab.23 Results of alternative logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the Healthcare sector, author elaboration

Even in this final analysis on the Healthcare sector, there is an almost total overlap of results compared to those emerging in the main analysis. In particular, evaluating the logarithm of the sums invested, the significance of technical training is confirmed, associated with a positive effect on the amount of investments. Furthermore, once again, the relevance of the usual factor linked to the sector membership of the parent company is confirmed. Finally, an element of novelty emerges: a slight but significant negative association between the European location of the parent company's headquarters and the amount of investments. This last insight can be considered innovative if the observation is limited to the analysis on equity, while it is consistent with what has already been found in the complex of analyses dedicated to the Healthcare sector.

count_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-1.201814	1.956924	-0.61	0.542	-5.125211	2.721582	
competenza_tech_Parent_CVC_2	3.692775	2.478534	1.49	0.142	-1.276387	8.661936	
competenza_comm_Parent_CVC_2	.631106	1.837985	0.34	0.733	-3.053832	4.316044	
competenza_tech_Experience_CVC_2	-.5708796	1.90451	-0.30	0.766	-4.389193	3.247434	
competenza_fin_Experience_CVC_2	-.2935914	2.446408	-0.12	0.905	-5.198343	4.611161	
competenza_comm_Experience_CVC_2	-.7437504	1.938909	-0.38	0.703	-4.63103	3.143529	
competenza_fin_Edu_CVC_2	3.80913	2.324046	1.64	0.107	-.8503013	8.468562	
competenza_tech_Edu_CVC_2	2.567094	2.386153	1.08	0.287	-2.216855	7.351042	
competenza_soc_Edu_CVC_2	4.109032	2.371522	1.73	0.089	-.6455836	8.863648	✶
competenza_hum_Edu_CVC_2	1.941782	2.06263	0.94	0.351	-2.193542	6.077105	
cvc_age	.0184374	.1157618	0.16	0.874	-.2136511	.2505259	
dummy_consumer	-9.60255	3.542377	-2.71	0.009	-16.70459	-2.500511	✶✶✶
dummy_energy	-12.32106	5.146093	-2.39	0.020	-22.63835	-2.003761	✶✶
dummy_Fin_Comm_Services	-7.499546	3.424559	-2.19	0.033	-14.36537	-.6337195	✶✶
dummy_Healthcare_Pharma	-9.859531	2.397182	-4.11	0.000	-14.66559	-5.05347	✶✶✶
dummy_Media_Comm	-6.009346	2.494389	-2.41	0.019	-11.01029	-1.008397	✶✶
dummy_Semiconductors	.0473415	5.428964	0.01	0.993	-10.83708	10.93176	
dummy_Transportation	-5.362116	4.337716	-1.24	0.222	-14.05871	3.334481	
dummy_Asia_CVC	.4891589	2.972779	0.16	0.870	-5.470904	6.449222	
dummy_Europe_CVC	-2.101411	3.412256	-0.62	0.541	-8.942573	4.739751	
dummy_Asia_Parent	-1.869095	3.028018	-0.62	0.540	-7.939906	4.201716	
dummy_Europe_Parent	-.3128835	3.29536	-0.09	0.925	-6.919682	6.293915	
_cons	8.485546	4.857414	1.75	0.086	-1.252982	18.22407	

Tab.24 Results of alternative logistic regression with dependent variable the number of investments made by each CVC fund in the AI sector, author elaboration

Comparing the results with those of the main analysis, a substantial alignment is observed at the macro level, although some differences emerge in the details. The usual pattern relating to the industries is confirmed, characterized by negative coefficients, presumably attributable to the high affinity between the IT and Artificial Intelligence sectors.

The component linked to human capital deserves greater attention. In this case, the only variable that maintains statistical significance, with a positive coefficient, is training in the social sciences.

However, a more in-depth analysis of the p-values reveals that the remaining variables previously found to be significant are still close to the conventional threshold: training in the financial sector shows a p-value of 0.107, while the technical one stands at 0.287. As further confirmation of the consistency with the previous category results, a relatively low p-value (0.142) is also noted for the variable relating to the technical experience gained within the parent company.

pct_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-.0008415	.0204133	-0.04	0.967	-.0417678	.0400847	
competenza_tech_Parent_CVC_2	.0238746	.0258544	0.92	0.360	-.0279603	.0757096	
competenza_comm_Parent_CVC_2	-.0007235	.0191726	-0.04	0.970	-.0391623	.0377153	
competenza_tech_Experience_CVC_2	.0152699	.0198666	0.77	0.445	-.0245601	.0551	
competenza_fin_Experience_CVC_2	.0351749	.0255193	1.38	0.174	-.0159882	.086338	
competenza_comm_Experience_CVC_2	.0142671	.0202254	0.71	0.484	-.0262824	.0548166	
competenza_fin_Edu_CVC_2	.0059122	.0242429	0.24	0.808	-.0426918	.0545163	
competenza_tech_Edu_CVC_2	-.0025671	.0248907	-0.10	0.918	-.05247	.0473359	
competenza_soc_Edu_CVC_2	-.0033202	.0247381	-0.13	0.894	-.0529172	.0462767	
competenza_hum_Edu_CVC_2	-.0118917	.021516	-0.55	0.583	-.0550286	.0312452	✶✶
cvc_age	-.000369	.0012075	-0.31	0.761	-.00279	.002052	
dummy_consumer	-.0784149	.0369517	-2.12	0.038	-.1524986	-.0043312	
dummy_energy	-.078311	.0536806	-1.46	0.150	-.1859341	.0293121	✶✶✶
dummy_Fin_Comm_Services	-.0546537	.0357227	-1.53	0.132	-.1262734	.0169659	
dummy_Healthcare_Pharma	-.099781	.0250058	-3.99	0.000	-.1499146	-.0496474	
dummy_Media_Comm	-.0254251	.0260198	-0.98	0.333	-.0775917	.0267414	
dummy_Semiconductors	-.0572686	.0566313	-1.01	0.316	-.1708075	.0562704	
dummy_Transportation	.0252088	.0452481	0.56	0.580	-.0655083	.1159258	
dummy_Asia_CVC	-.0318546	.03101	-1.03	0.309	-.094026	.0303168	
dummy_Europe_CVC	.0420785	.0355944	1.18	0.242	-.0292839	.1134409	
dummy_Asia_Parent	-.026405	.0315863	-0.84	0.407	-.0897317	.0369216	
dummy_Europe_Parent	-.0464144	.034375	-1.35	0.183	-.1153321	.0225033	
_cons	.1437066	.0506693	2.84	0.006	.0421209	.2452924	

Tab.25 Results of alternative logistic regression with dependent variable the percentage of investments made by each CVC fund in the AI sector on the total of the investments made, author elaboration

Continuing with the analysis, in the case in which the dependent variable is expressed in relative terms, only some control variables are active, while no component of human capital shows statistical significance. Also in this case, the situation appears substantially consistent with what emerged in the main analysis. However, it is appropriate to highlight a slight attenuation of the significance associated with the geographical location of the CVC headquarters.

log_equity_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	.7363736	.5830822	1.26	0.212	-.4326359	1.905383	
competenza_tech_Parent_CVC_2	.8847135	.7385004	1.20	0.236	-.5958907	2.365318	
competenza_comm_Parent_CVC_2	.3880798	.5476433	0.71	0.482	-.709879	1.486039	
competenza_tech_Experience_CVC_2	-.2342154	.5674651	-0.41	0.681	-1.371914	.9034837	
competenza_fin_Experience_CVC_2	-.2072767	.728928	-0.28	0.777	-1.668689	1.254136	
competenza_comm_Experience_CVC_2	.275975	.5777146	0.48	0.635	-.882273	1.434223	
competenza_fin_Edu_CVC_2	.9307772	.6924694	1.34	0.185	-.4575403	2.319095	
competenza_tech_Edu_CVC_2	.7475022	.7109746	1.05	0.298	-.677916	2.17292	
competenza_soc_Edu_CVC_2	.6555294	.7066153	0.93	0.358	-.761149	2.072208	
competenza_hum_Edu_CVC_2	-.0651575	.6145781	-0.11	0.916	-1.297312	1.166997	
cvc_age	-.0283281	.0344922	-0.82	0.415	-.0974808	.0408247	
dummy_consumer	-1.358749	1.055482	-1.29	0.203	-3.474862	.7573643	
dummy_energy	-1.7844	1.533322	-1.16	0.250	-4.858526	1.289726	
dummy_Fin_Comm_Services	-.5751216	1.020376	-0.56	0.575	-2.620853	1.47061	
dummy_Healthcare_Pharma	-1.833042	.7142609	-2.57	0.013	-3.265049	-.4010349	✶✶
dummy_Media_Comm	-.3357175	.7432244	-0.45	0.653	-1.825793	1.154358	
dummy_Semiconductors	-.7117098	1.617606	-0.44	0.662	-3.954815	2.531396	
dummy_Transportation	.2701219	1.29246	0.21	0.835	-2.321104	2.861347	
dummy_Asia_CVC	1.101599	.8857649	1.24	0.219	-.6742529	2.87745	
dummy_Europe_CVC	1.036968	1.016711	1.02	0.312	-1.001415	3.07535	
dummy_Asia_Parent	-2.001233	.9022239	-2.22	0.031	-3.810083	-.1923828	✶✶
dummy_Europe_Parent	-2.033843	.9818806	-2.07	0.043	-4.002395	-.0652907	✶✶
_cons	4.134445	1.447308	2.86	0.006	1.232767	7.036122	

Tab.26 Results of alternative logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the AI sector, author elaboration

The last output concludes the analysis of the AI sector, highlighting some slight divergences compared to the main model. The control variables are fully consistent, in particular the significance and the negative sign associated with the location of the parent company in Europe or Asia. This data confirms the hypothesis of a greater availability of investments in the AI sector by US entities, likely also favored by the concentration of large technological players in the American market. The only relevant difference concerns the reduction in the statistical significance of the independent variables that were previously significant. Although these variables continue to present the lowest p-values within the model, they are not sufficient to exceed the conventional threshold of significance.

count_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	-5.746048	10.60186	-0.54	0.590	-27.00149	15.50939	
competenza_tech_Parent_CVC_2	-6.391415	13.42774	-0.48	0.636	-33.31241	20.52958	
competenza_comm_Parent_CVC_2	7.429681	9.95749	0.75	0.459	-12.53389	27.39325	
competenza_tech_Experience_CVC_2	-8.538117	10.3179	-0.83	0.412	-29.22426	12.14802	
competenza_fin_Experience_CVC_2	-9.01394	13.25369	-0.68	0.499	-35.58598	17.5581	
competenza_comm_Experience_CVC_2	-20.00785	10.50426	-1.90	0.062	-41.06762	1.051918	*
competenza_fin_Edu_CVC_2	8.47604	12.59078	0.67	0.504	-16.76695	33.71903	
competenza_tech_Edu_CVC_2	13.93354	12.92725	1.08	0.286	-11.98404	39.85112	
competenza_soc_Edu_CVC_2	18.96775	12.84799	1.48	0.146	-6.790914	44.72641	
competenza_hum_Edu_CVC_2	13.07863	11.17453	1.17	0.247	-9.324948	35.48221	
cvc_age	.0062542	.6271528	0.01	0.992	-1.251111	1.26362	
dummy_consumer	-57.94319	19.19123	-3.02	0.004	-96.41928	-19.46709	***
dummy_energy	-50.17192	27.87954	-1.80	0.078	-106.067	5.723188	*
dummy_Fin_Comm_Services	-52.26621	18.55293	-2.82	0.007	-89.4626	-15.06982	***
dummy_Healthcare_Pharma	-46.08221	12.987	-3.55	0.001	-72.11958	-20.04484	***
dummy_Media_Comm	-32.41708	13.51363	-2.40	0.020	-59.51028	-5.323884	**
dummy_Semiconductors	-3.878694	29.41202	-0.13	0.896	-62.84625	55.08886	
dummy_Transportation	-28.16119	23.50006	-1.20	0.236	-75.27598	18.9536	
dummy_Asia_CVC	21.22947	16.10536	1.32	0.193	-11.05984	53.51877	
dummy_Europe_CVC	-5.988895	18.48628	-0.32	0.747	-43.05166	31.07387	
dummy_Asia_Parent	-4.503651	16.40463	-0.27	0.785	-37.39295	28.38565	
dummy_Europe_Parent	1.132594	17.85298	0.06	0.950	-34.66048	36.92567	
_cons	54.83487	26.31558	2.08	0.042	2.075297	107.5944	

Tab.27 Results of alternative logistic regression with dependent variable the number of investments made by each CVC fund in the IT not AI sector, author elaboration

Also in this case, the robustness test confirms the reliability of the results obtained in the main analysis. The significance of the variable relating to commercial work experience is again noted, associated with a negative coefficient. Even in this case we are talking about a significant impact, with a variation of one unit of the independent variable leading to a reduction of approximately 20 startups supported in the sector under analysis. The negative impact of the control variables referring to the parent company's belonging to sectors other than IT is also evident.

pct_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	.0586381	.0482136	1.22	0.229	-.0380245	.1553006	
competenza_tech_Parent_CVC_2	-.0429055	.0610648	-0.70	0.485	-.165333	.0795221	
competenza_comm_Parent_CVC_2	-.0108477	.0452833	-0.24	0.812	-.1016353	.0799398	
competenza_tech_Experience_CVC_2	-.0113335	.0469223	-0.24	0.810	-.105407	.0827401	
competenza_fin_Experience_CVC_2	-.0228455	.0602733	-0.38	0.706	-.1436862	.0979951	
competenza_comm_Experience_CVC_2	-.0191049	.0477698	-0.40	0.691	-.1148776	.0766678	
competenza_fin_Edu_CVC_2	.0634554	.0572586	1.11	0.273	-.0513412	.178252	
competenza_tech_Edu_CVC_2	.0439798	.0587887	0.75	0.458	-.0738845	.1618441	
competenza_soc_Edu_CVC_2	.0610277	.0584283	1.04	0.301	-.056114	.1781693	
competenza_hum_Edu_CVC_2	.0220574	.050818	0.43	0.666	-.0798264	.1239413	
cvc_age	-.0012817	.0028521	-0.45	0.655	-.0069998	.0044364	
dummy_consumer	-.3781004	.0872752	-4.33	0.000	-.5530766	-.2031241	✶✶✶
dummy_energy	-.3454582	.1267867	-2.72	0.009	-.5996502	-.0912662	✶✶✶
dummy_Fin_Comm_Services	-.2665042	.0843724	-3.16	0.003	-.4356608	-.0973477	✶✶✶
dummy_Healthcare_Pharma	-.4346664	.0590605	-7.36	0.000	-.5530756	-.3162573	✶✶✶
dummy_Media_Comm	-.081646	.0614554	-1.33	0.190	-.2048567	.0415647	
dummy_Semiconductors	.0572861	.1337559	0.43	0.670	-.2108784	.3254505	
dummy_Transportation	-.198091	.1068703	-1.85	0.069	-.412353	.0161711	✶
dummy_Asia_CVC	-.0527451	.0732417	-0.72	0.475	-.1995859	.0940958	
dummy_Europe_CVC	-.0116266	.0840693	-0.14	0.891	-.1801755	.1569223	
dummy_Asia_Parent	.0742847	.0746027	1.00	0.324	-.0752847	.2238541	
dummy_Europe_Parent	.0314014	.0811893	0.39	0.700	-.1313733	.1941762	
_cons	.535334	.1196743	4.47	0.000	.2954014	.7752666	

Tab.28 Results of alternative logistic regression with dependent variable the percentage of investments made by each CVC fund in the IT not AI sector on the total of the investments made, author elaboration

This output also does not need to be commented at length. None of the variables related to human capital are significant, as is the case in the main analysis. As expected, the significance concerns the canonical control variables related to the industries. As regards the latter, in addition to the significance, it is always worth noting the coefficients, which estimate impacts on the percentages of up to almost 50%.

log_equity_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
competenza_fin_Parent_CVC_2	1.077008	.5324387	2.02	0.048	.0095326	2.144483	✶✶
competenza_tech_Parent_CVC_2	-.2628411	.674358	-0.39	0.698	-1.614848	1.089165	
competenza_comm_Parent_CVC_2	-.2533787	.5000778	-0.51	0.614	-1.255974	.749217	
competenza_tech_Experience_CVC_2	-.3462166	.518178	-0.67	0.507	-1.385101	.6926678	
competenza_fin_Experience_CVC_2	-.4466633	.6656171	-0.67	0.505	-1.781145	.8878185	
competenza_comm_Experience_CVC_2	.2030017	.5275372	0.38	0.702	-.8546468	1.26065	
competenza_fin_Edu_CVC_2	1.041747	.632325	1.65	0.105	-.225988	2.309483	
competenza_tech_Edu_CVC_2	.6602257	.6492229	1.02	0.314	-.6413879	1.961839	
competenza_soc_Edu_CVC_2	.6773934	.6452423	1.05	0.298	-.6162394	1.971026	
competenza_hum_Edu_CVC_2	.5697338	.561199	1.02	0.315	-.5554024	1.69487	
cvc_age	.0071742	.0314964	0.23	0.821	-.0559723	.0703207	
dummy_consumer	-1.907025	.9638078	-1.98	0.053	-3.839344	.0252929	✶
dummy_energy	-2.278308	1.400146	-1.63	0.110	-5.085432	.5288152	
dummy_Fin_Comm_Services	-2.755126	.9317518	-2.96	0.005	-4.623176	-.8870766	✶✶✶
dummy_Healthcare_Pharma	-3.269628	.6522238	-5.01	0.000	-4.577258	-1.961997	✶✶✶
dummy_Media_Comm	-.9602173	.6786718	-1.41	0.163	-2.320872	.4004376	
dummy_Semiconductors	1.174916	1.477109	0.80	0.430	-1.78651	4.136342	
dummy_Transportation	-.4201572	1.180203	-0.36	0.723	-2.786322	1.946008	
dummy_Asia_CVC	1.361304	.8088318	1.68	0.098	-.2603063	2.982914	✶
dummy_Europe_CVC	.1911594	.9284045	0.21	0.838	-1.67018	2.052498	
dummy_Asia_Parent	-.2064549	.8238613	-0.25	0.803	-1.858197	1.445288	
dummy_Europe_Parent	-.5975765	.8965995	-0.67	0.508	-2.39515	1.199997	
_cons	5.094928	1.321602	3.86	0.000	2.445276	7.744581	

Tab.29 Results of alternative logistic regression with the dependent variable defined as the logarithm of equity investments made by each CVC fund in the IT not AI sector, author elaboration

This represents the last output related to the robustness test, which concludes with a further series of confirmations. The result regarding the dummy variables related to the industrial sector of the parent company now appears to be established. In line with what emerged in the main analysis, the relevance of the commercial experience gained in the parent is confirmed, with a positive coefficient and a p-value equal to 0.048. However, a full statistical significance is not found with regard to academic education in the financial field; however, the related p-value (0.105) is rather close to the conventional threshold, suggesting a possible trend in line with the previous results. A slight novelty is represented by the significance of the control variable related to the geographical location of the parent company's headquarters in Asia, which has a positive coefficient. However, the associated p-value (0.098) indicates a marginal significance, and therefore does not constitute an element on which to place particular emphasis.

Other robustness tests

As anticipated, some additional tests were conducted to support the solidity and robustness of the analysis. To preserve the readability of the chapter, the outputs are not reported, but all the

elaborations are available upon request. A first test involved the logarithmic transformation of the variable "years of activity of the CVC", which had previously shown little relevance as a control variable. The aim was to reduce its dispersion and verify any changes in the results. However, the variable continued to be non-significant, confirming what emerged in the main analysis. The other two tests also confirmed the main results. The first involved a simplification of the control variables, merging all the industries belonging to the parent other than IT and Healthcare into a single aggregate variable called "Others". The second involved the independent variables relating to human capital, combining in a single measure the previous work experiences, both internal and external to the parent. This last operation led to a slight increase in the p-values for the new aggregate variable on work experience, and to a slight reduction in those associated with academic education, which was already among the most relevant components in the main analysis. Overall, none of these tests produced significant changes or results that were in contrast with the central findings of the main analysis.

5.3 Second model empirical results

This section reports the results of the regression analyses related to hypotheses 2a and 2b, formulated in Chapter 3. In order to facilitate the reader's understanding, it is recalled that the objective is to verify whether the human capital of CVC managers is empirically correlated with the exit performance of the investee ventures. The analysis considers, at first, exits in a general sense, and then merger operations and IPOs individually. From a methodological point of view, the use of the same dependent and control variables employed in the first model is confirmed. Therefore, the dummies excluded from the regressions to avoid multicollinearity problems also remain unchanged. Finally, the statistical significance thresholds adopted are the usual ones: 0.1, 0.05 and 0.01. A really last indication concerns the interpretation of the “Coefficient” item in the regressions for this model. The value visible in the tables represents the estimated increase in the percentage of general exits, mergers or IPOs as the independent and control variables increase by 1 unit .

5.3.1 Second model empirical results - General exit

exit_ratio	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.0073608	.0111221	0.66	0.511	-.0149377	.0296593	
comp_tech_Parent_CVC	-.0038184	.0112441	-0.34	0.735	-.0263615	.0187248	
comp_comm_Parent_CVC	-.0011479	.0114103	-0.10	0.920	-.024024	.0217283	
comp_tech_Experience_CVC	-.0057478	.0103644	-0.55	0.581	-.0265273	.0150316	
comp_fin_Experience_CVC	-.0159112	.0174523	-0.91	0.366	-.050901	.0190786	
comp_comm_Experience_CVC	-.0013317	.0184781	-0.07	0.943	-.038378	.0357146	
comp_fin_Edu_CVC	-.0085767	.0123743	-0.69	0.491	-.0333858	.0162323	
comp_tech_Edu_CVC	.0060209	.0161937	0.37	0.711	-.0264454	.0384872	
comp_soc_Edu_CVC	-.0136329	.0171613	-0.79	0.430	-.0480392	.0207734	
comp_hum_Edu_CVC	.0015399	.0103034	0.15	0.882	-.0191171	.0221969	
cvc_age	.0009111	.0011125	0.82	0.416	-.0013193	.0031414	
dummy_consumer	-.0090179	.0352384	-0.26	0.799	-.0796668	.0616309	
dummy_energy	-.0096082	.0479452	-0.20	0.842	-.1057325	.0865162	
dummy_Fin_Comm_Services	.0241987	.0320051	0.76	0.453	-.0399677	.0883652	
dummy_Healthcare_Pharma	.000185	.0256035	0.01	0.994	-.0511469	.0515168	
dummy_Media_Comm	-.0125717	.0240172	-0.52	0.603	-.0607232	.0355799	
dummy_Semiconductors	-.0480673	.0521776	-0.92	0.361	-.1526771	.0565425	
dummy_Transportation	-.0248237	.0419259	-0.59	0.556	-.1088801	.0592326	
dummy_Asia_CVC	-.0533267	.0287391	-1.86	0.069	-.1109451	.0042918	✶
dummy_Europe_CVC	-.0042532	.0334793	-0.13	0.899	-.0713752	.0628687	
dummy_Asia_Parent	.0197658	.0290086	0.68	0.499	-.0383931	.0779246	
dummy_Europe_Parent	-.0125461	.0315298	-0.40	0.692	-.0757596	.0506673	
_cons	.1462156	.0750678	1.95	0.057	-.0042863	.2967176	

Tab.30 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund that reached an exit on the total of the investments made, author elaboration

The output leaves little room for interpretation. There are no significant variables related to human capital. The control variables also provide limited insights, with a slight negative significance of the location of CVC's headquarters in Asia.

5.3.2 Second model empirical results - IPO

ipo_ratio	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
comp_fin_Parent_CVC	-.0032947	.0062292	-0.53	0.599	-.0157835	.0091941
comp_tech_Parent_CVC	.0081531	.0062975	1.29	0.201	-.0044726	.0207789
comp_comm_Parent_CVC	-.0038151	.0063906	-0.60	0.553	-.0166274	.0089972
comp_tech_Experience_CVC	-.0022218	.0058048	-0.38	0.703	-.0138598	.0094161
comp_fin_Experience_CVC	.0051738	.0097746	0.53	0.599	-.014423	.0247706
comp_comm_Experience_CVC	.0068951	.0103491	0.67	0.508	-.0138535	.0276437
comp_fin_Edu_CVC	-.0082216	.0069305	-1.19	0.241	-.0221164	.0056733
comp_tech_Edu_CVC	.0075395	.0090696	0.83	0.409	-.010644	.025723
comp_soc_Edu_CVC	-.0066559	.0096116	-0.69	0.492	-.0259259	.0126141
comp_hum_Edu_CVC	.0027437	.0057706	0.48	0.636	-.0088258	.0143131
cvc_age	.0003145	.0006231	0.50	0.616	-.0009347	.0015637
dummy_consumer	.0053843	.0197361	0.27	0.786	-.0341842	.0449527
dummy_energy	.0061349	.0268528	0.23	0.820	-.0477017	.0599715
dummy_Fin_Comm_Services	.0160902	.0179252	0.90	0.373	-.0198477	.052028
dummy_Healthcare_Pharma	.022619	.0143398	1.58	0.121	-.0061306	.0513685
dummy_Media_Comm	.0021713	.0134513	0.16	0.872	-.024797	.0291397
dummy_Semiconductors	-.0141604	.0292232	-0.48	0.630	-.0727494	.0444287
dummy_Transportation	-.0135573	.0234815	-0.58	0.566	-.0606349	.0335203
dummy_Asia_CVC	-.0106643	.016096	-0.66	0.510	-.0429348	.0216062
dummy_Europe_CVC	-.0279569	.0187508	-1.49	0.142	-.06555	.0096363
dummy_Asia_Parent	.019421	.0162469	1.20	0.237	-.0131521	.0519942
dummy_Europe_Parent	.0117041	.017659	0.66	0.510	-.0237	.0471082
_cons	.0074611	.0420434	0.18	0.860	-.0768308	.091753

Tab.31 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund that reached an IPO on the total of the investments made, author elaboration

The discussion is very similar if we go to evaluate the specific case of IPOs. The p-values remain rather high, and in this case even the slight significance that emerged in the general analysis, disappears.

5.3.3 Second model empirical results - Merger

merger_ratio	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]	
comp_fin_Parent_CVC	.0106555	.0089074	1.20	0.237	-.0072027	.0285138	
comp_tech_Parent_CVC	-.0119715	.0090051	-1.33	0.189	-.0300257	.0060827	
comp_comm_Parent_CVC	.0026673	.0091382	0.29	0.771	-.0156536	.0209882	
comp_tech_Experience_CVC	-.003526	.0083006	-0.42	0.673	-.0201677	.0131157	
comp_fin_Experience_CVC	-.021085	.0139771	-1.51	0.137	-.0491074	.0069374	
comp_comm_Experience_CVC	-.0082268	.0147986	-0.56	0.581	-.0378962	.0214426	
comp_fin_Edu_CVC	-.0003552	.0099103	-0.04	0.972	-.020224	.0195137	
comp_tech_Edu_CVC	-.0015186	.012969	-0.12	0.907	-.02752	.0244827	
comp_soc_Edu_CVC	-.006977	.013744	-0.51	0.614	-.034532	.0205781	
comp_hum_Edu_CVC	-.0012038	.0082517	-0.15	0.885	-.0177474	.0153398	
cvc_age	.0005966	.0008909	0.67	0.506	-.0011896	.0023828	
dummy_consumer	-.0144022	.0282215	-0.51	0.612	-.0709829	.0421785	
dummy_energy	-.0157431	.038398	-0.41	0.683	-.0927264	.0612403	
dummy_Fin_Comm_Services	.0081086	.025632	0.32	0.753	-.0432806	.0594977	
dummy_Healthcare_Pharma	-.022434	.0205051	-1.09	0.279	-.0635443	.0186763	
dummy_Media_Comm	-.014743	.0192347	-0.77	0.447	-.0533062	.0238202	
dummy_Semiconductors	-.0339069	.0417876	-0.81	0.421	-.117686	.0498721	
dummy_Transportation	-.0112664	.0335773	-0.34	0.739	-.0785848	.0560519	
dummy_Asia_CVC	-.0426623	.0230164	-1.85	0.069	-.0888073	.0034827	✶
dummy_Europe_CVC	.0237036	.0268126	0.88	0.381	-.0300525	.0774597	
dummy_Asia_Parent	.0003447	.0232322	0.01	0.988	-.0462331	.0469225	
dummy_Europe_Parent	-.0242503	.0252513	-0.96	0.341	-.0748761	.0263756	
_cons	.1387545	.0601197	2.31	0.025	.0182217	.2592873	

Tab.32 Results of logistic regression with dependent variable the percentage of investments made by each CVC fund that reached a merger on the total of the investments made, author elaboration

The last output is perfectly in line with expectations. Again there do not seem to be any particular correlations with human capital. Furthermore, the only significance is related to the Asian headquarters of CVCs, which explains why it is relevant in the analysis of exits in general. Clearly we are talking about a concordant sign, so again a negative coefficient.

Overall interpretation of the three regressions

Overall, the regression results do not suggest any solid evidence to support a link between human capital and exit performance of ventures. The estimates do not show statistically significant associations with the managerial characteristics examined, and the contribution of the control variables is also limited. The only recurring element concerns the negative, albeit marginal, effect of the Asian location of CVC headquarters, which appears stable in the different specifications. This absence of concrete signals is also confirmed in the sub-cases analyzed, such as IPOs and mergers,

where the significance indicators are even less incisive. Ultimately, the analysis conducted does not reveal, in the sample considered, an empirically significant relationship between human capital and exit results. It will however be necessary to validate this first evidence through more stringent robustness tests, to exclude that any effects are hidden by specificities of the model or by the composition of the dataset.

5.4 Second model robustness check

This section illustrates further analyses aimed at reinforcing the results emerged in Section 5.3, adopting an alternative perspective on the dependent variables. In particular, to verify their interpretative coherence, we transformed the outcome variables into Boolean indicators: each takes the value 1 if the exit, merger or IPO ratio exceeds the median, 0 otherwise. A probit model was then estimated on the new data set, rather than a simple linear regression. The probit model is a form of nonlinear regression that uses the standard normal cumulative distribution function to predict the probability that the dependent variable takes the value 1, ensuring a more adequate estimate when the outcome is dichotomous.

high_exit	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
comp_fin_Parent_CVC	-.0355468	.2378361	-0.15	0.881	-.501697	.4306034
comp_tech_Parent_CVC	-.0811157	.2440294	-0.33	0.740	-.5594045	.3971732
comp_comm_Parent_CVC	.0343397	.2407162	0.14	0.887	-.4374554	.5061349
comp_tech_Experience_CVC	-.1714278	.2279556	-0.75	0.452	-.6182126	.275357
comp_fin_Experience_CVC	.1220494	.3678269	0.33	0.740	-.598878	.8429768
comp_comm_Experience_CVC	-.2110748	.3883573	-0.54	0.587	-.9722411	.5500915
comp_fin_Edu_CVC	.0089218	.2542865	0.04	0.972	-.4894705	.5073142
comp_tech_Edu_CVC	.248696	.340746	0.73	0.465	-.4191539	.9165459
comp_soc_Edu_CVC	-.0942938	.359953	-0.26	0.793	-.7997888	.6112012
comp_hum_Edu_CVC	.0335299	.216948	0.15	0.877	-.3916803	.4587401
cvc_age	.0184195	.024539	0.75	0.453	-.0296759	.066515
dummy_consumer	-.1747884	.7620046	-0.23	0.819	-1.66829	1.318713
dummy_energy	.4130926	1.028157	0.40	0.688	-1.602059	2.428244
dummy_Fin_Comm_Services	.6021332	.6604266	0.91	0.362	-.6922791	1.896546
dummy_Healthcare_Pharma	.3026024	.546469	0.55	0.580	-.7684572	1.373662
dummy_Media_Comm	-.1070597	.5027026	-0.21	0.831	-1.092339	.8782193
dummy_Semiconductors	-.2492864	1.068571	-0.23	0.816	-2.343647	1.845074
dummy_Transportation	.3112482	.8890761	0.35	0.726	-1.431309	2.053805
dummy_Asia_CVC	-.3262855	.622233	-0.52	0.600	-1.54584	.8932688
dummy_Europe_CVC	.169472	.7075838	0.24	0.811	-1.217367	1.556311
dummy_Asia_Parent	-.2319818	.6176976	-0.38	0.707	-1.442647	.9786832
dummy_Europe_Parent	-.3616757	.6723335	-0.54	0.591	-1.679425	.9560738
_cons	-.0914812	1.586249	-0.06	0.954	-3.200472	3.01751

Tab.33 Results of probit regression with dependent variable indicating whether the share of exits achieved by each CVC fund is above the sample median. Author's elaboration.

As can also be seen from this output, there is no evidence that any variable has an effect on the probability of the exit event. In particular, this also applies to the independent variables relating to human capital.

high_ipo	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
comp_fin_Parent_CVC	-.2117337	.2701162	-0.78	0.433	-.7411518	.3176844
comp_tech_Parent_CVC	.4376814	.282935	1.55	0.122	-.116861	.9922238
comp_comm_Parent_CVC	-.0666314	.2986574	-0.22	0.823	-.6519892	.5187264
comp_tech_Experience_CVC	-.0666657	.2462118	-0.27	0.787	-.5492319	.4159005
comp_fin_Experience_CVC	-.2140505	.4299186	-0.50	0.619	-1.056675	.6285744
comp_comm_Experience_CVC	.1833013	.4197578	0.44	0.662	-.6394088	1.006012
comp_fin_Edu_CVC	-.1249093	.2776868	-0.45	0.653	-.6691654	.4193468
comp_tech_Edu_CVC	.6533924	.4044855	1.62	0.106	-.1393846	1.446169
comp_soc_Edu_CVC	.4685882	.4422983	1.06	0.289	-.3983005	1.335477
comp_hum_Edu_CVC	.2600846	.2513849	1.03	0.301	-.2326207	.7527899
cvc_age	.0192591	.0269293	0.72	0.475	-.0335213	.0720396
dummy_consumer	-.5304452	.9604686	-0.55	0.581	-2.412929	1.352039
dummy_energy	.1997819	1.097494	0.18	0.856	-1.951267	2.350831
dummy_Fin_Comm_Services	.4492093	.7456749	0.60	0.547	-1.012287	1.910705
dummy_Healthcare_Pharma	.8261238	.6406912	1.29	0.197	-.429608	2.081856
dummy_Media_Comm	-.0067056	.6090374	-0.01	0.991	-1.200397	1.186986
dummy_Semiconductors	-.0148627	1.269787	-0.01	0.991	-2.5036	2.473874
dummy_Transportation	-.4343894	.9656498	-0.45	0.653	-2.327028	1.458249
dummy_Asia_CVC	.8772322	.6816504	1.29	0.198	-.4587781	2.213242
dummy_Europe_CVC	-.467365	.8204625	-0.57	0.569	-2.075442	1.140712
dummy_Asia_Parent	.2414056	.6635202	0.36	0.716	-1.05907	1.541881
dummy_Europe_Parent	.3287225	.7401786	0.44	0.657	-1.122001	1.779446
_cons	-2.230128	1.797874	-1.24	0.215	-5.753896	1.29364

Tab.34 Results of probit regression with dependent variable indicating whether the share of IPOs achieved by each CVC fund is above the sample median. Author's elaboration.

Once again, it is possible to appreciate a confirmation of the results of the linear regressions. There are no particular significances to report. However, if we want to have some more insights, the lowest p-values are linked to technical education and technical experiences in the parent, respectively 0.106 and 0.122.

high_merger	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]	
comp_fin_Parent_CVC	.2680845	.2765424	0.97	0.332	-.2739287	.8100976	
comp_tech_Parent_CVC	-.1226495	.277717	-0.44	0.659	-.6669648	.4216658	
comp_comm_Parent_CVC	.3050383	.2810905	1.09	0.278	-.245889	.8559655	
comp_tech_Experience_CVC	-.256909	.2750881	-0.93	0.350	-.7960718	.2822538	
comp_fin_Experience_CVC	-.8043973	.4364226	-1.84	0.065	-1.65977	.0509752	✶
comp_comm_Experience_CVC	-.5583363	.4535854	-1.23	0.218	-1.447347	.3306746	
comp_fin_Edu_CVC	-.173713	.3011525	-0.58	0.564	-.763961	.4165351	
comp_tech_Edu_CVC	-.9563832	.4542355	-2.11	0.035	-1.846668	-.0660979	✶✶
comp_soc_Edu_CVC	-.6245084	.4615499	-1.35	0.176	-1.52913	.2801129	
comp_hum_Edu_CVC	.059538	.251201	0.24	0.813	-.4328069	.551883	
cvc_age	.0463998	.0324605	1.43	0.153	-.0172216	.1100212	
dummy_consumer	-1.458981	.9691904	-1.51	0.132	-3.358559	.4405972	
dummy_energy	-.482816	1.189829	-0.41	0.685	-2.814838	1.849206	
dummy_Fin_Comm_Services	.8161	.8409492	0.97	0.332	-.8321301	2.46433	
dummy_Healthcare_Pharma	-.8771324	.6574903	-1.33	0.182	-2.16579	.4115249	
dummy_Media_Comm	-.070572	.5781596	-0.12	0.903	-1.203744	1.0626	
dummy_Semiconductors	-.9409141	1.130413	-0.83	0.405	-3.156484	1.274655	
dummy_Transportation	.5298879	1.060949	0.50	0.617	-1.549533	2.609309	
dummy_Asia_CVC	-1.11047	.7261297	-1.53	0.126	-2.533658	.3127181	
dummy_Europe_CVC	.8685965	.7877336	1.10	0.270	-.675333	2.412526	
dummy_Asia_Parent	-.7302089	.6978186	-1.05	0.295	-2.097908	.6374904	
dummy_Europe_Parent	-1.077878	.7676627	-1.40	0.160	-2.582469	.4267135	
_cons	4.021859	2.074009	1.94	0.052	-.043124	8.086841	

Tab.35 Results of probit regression with dependent variable indicating whether the share of IPOs achieved by each CVC fund is above the sample median. Author's elaboration.

In the latter case, the situation is slightly more interesting. Despite the absence of variables with high levels of significance, some components related to human capital show signs of statistical activation. A peculiar element is that the associated coefficients are negative. This data appears consistent with what emerged in the main regressions, reinforcing the hypothesis that, in the sample analyzed, technical and financial skills do not have a positive impact on performance in terms of exit. Focusing on the variable that results in the highest significance threshold (technical education, with a negative coefficient), an interpretative hypothesis can be formulated. In the context of CVCs, where strategic objectives often tend to prevail over purely financial ones, the choice to invest in startups with technical profiles similar to those of the parent company may not be oriented towards achieving an exit, particularly in the form of a merger, but rather towards the integration of know-how or the creation of industrial synergies.

To conclude with a further proof, also in this case, it is reported that all the results were also verified with the logarithm of the age of the CVC and not the absolute value. The significances remained unchanged.

5.5 Discussion and comparison with existing literature

In this paragraph, the results reported above will be interpreted in a synthetic and qualitative way, in order to provide a first empirical confirmation or denial of the research hypotheses. The latter will be addressed individually, and the results will be commented in light of their coherence with what has already emerged from previous studies in the scientific literature.

5.5.1 Role of managerial expertise in sector-based investment choices

Previous studies have highlighted how the human capital of venture capitalists, in particular previous work experience and academic background, can represent a relevant factor in influencing investment behavior (Gompers et al., 2005; Bottazzi et al., 2008). It is reasonable to expect that a similar dynamic will also occur in the context of corporate venture capital, where the strategic component of investments is often closely linked to technical sector expertise, rather than mere financial evaluations. From this reflection, the first research hypothesis of this thesis takes shape: *When CVC managers possess expertise valuable in a certain sector, the likelihood of investing in startups operating in that industry increases*. Two main arguments support this hypothesis. The first is of a cognitive nature: greater expertise in the reference sector can reduce information asymmetries, improving the CVC's ability to accurately evaluate target startups (Cohen & Levinthal, 1990). The second has a strategic and complementary motivation: the presence of specialized skills should facilitate the identification of potential synergies between the target startup and the parent company, one of the key objectives of corporate venture capital (Yoon & Cho, 2017). To test the hypothesis, investments made by CVCs in the main industrial sectors were mapped, comparing them with the skills of the managers involved. In the Healthcare sector, technical education, including medical and natural science qualifications, emerges as relevant, a result fully in line with expectations relating to the highly specialized nature of the sector. In the AI sector, investment behavior is influenced by a combination of skills: both economic-financial and technical education have a positive impact, regardless of whether the number of investments or the volumes of capital employed are considered. Of particular importance is also the role of technical work experiences, which provide an advantage in terms of operational know-how in an emerging and highly dynamic sector. In the IT sector, as expected, the positive influence of technical and financial education is confirmed, demonstrating the importance of a dual competence in the technological and managerial fields to effectively guide investment decisions. Further supporting the hypothesis that specific and sector-relevant skills encourage investment, while non-relevant skills do not, is a negative coefficient associated with the pure commercial experience. This latter, less linked to the

technical dimension, seems to reduce the propensity to invest in sectors with a high technological content. Given the various methodological limitations of the study, it is possible to state only the existence of a correlation, within the sample analyzed, between the sectoral skills of managers and the selection of startups operating in specific industries. However, it is not possible to definitively conclude about a causal relationship. In any case, the results obtained would be supported by the existing literature. In particular, Ahuja et al. (2001) show how, thanks to their experience in specific knowledge areas, managers of corporate venture capital units tend to invest in technological and industrial sectors that are familiar to them, with the aim of generating immediate returns, avoiding less known technological or industrial areas.

5.5.2 Experience-driven investment in emerging sectors

A reflection on the industries under analysis has led to the formulation of a corollary hypothesis to the one previously examined. The Healthcare and Information Technology sectors have been confirmed, for years now, as the main recipients of investments in the Corporate Venture Capital field (MacMillan et al., 2008). On the contrary, the Artificial Intelligence sector, although rapidly growing, represents a relatively new field, whose exponential growth is a recent phenomenon (Cockburn et al., 2018). Precisely because of this rapid evolution, the presence of CVC professionals with a specific academic education in the field of AI is currently limited. This observation has led to the hypothesis that, in such a recent sector and without consolidated educational paths, experiential skills, acquired through work in the field, may have a greater influence than academic ones in determining investment choices.

In support of this hypothesis, the literature on tacit knowledge (Polanyi, 1966) highlights how learning by doing can compensate for the lack of formal specialization, providing practical tools and judgment skills that are more in line with operational reality. The following research hypothesis is thus born: *In the absence of consolidated academic paths to develop skills related to a sector, work experiences assume a greater influence in investment decisions*. To preliminarily verify it, the output of the same regressions used to test the first hypothesis was analyzed, comparing the AI sector (without a consolidated academic path among the managers analyzed) with more mature ones such as non-AI IT and Healthcare. The results show that only in the AI sector does a correlation emerge between technical work experiences and propensity to invest. This relationship is not significant in the non-AI IT sector or in the Healthcare one. It is important to note, however, that this influence is manifested only in the perspective that considers the volumes of capital invested, and that the level of statistical significance observed is not among the highest. We can therefore affirm that, on the basis of the correlations observed in the sample analyzed, it cannot be excluded

that in contexts in which academic training is not yet well structured or specific to the sector, the work experience component may acquire a greater weight in guiding investment choices. Clearly further studies would be useful to reach confirmations. In support of a possible relationship, it can be observed that it would not be the first time that work experience has a significant impact on the selection of startups in the context of corporate venture capital. An emblematic example is provided by Simon et al. (1999), according to which investment managers who have gained entrepreneurial experience outside the rigid confines of the parent company are more able to accurately evaluate the problems and potential of the companies in their portfolio.

5.5.3 Financial and economic expertise as a driver of successful exits in CVC

Venture capital literature has long recognized the importance of financial skills and knowledge of capital markets in guiding startups towards positive outcomes, particularly through exit operations such as IPOs or acquisitions (Zarutskie, 2010). Such skills, acquired through specialized academic paths or professional experiences in similar fields, provide investors with advanced analytical tools for evaluating startups, structuring deals and identifying the correct timing for the divestment of the investment, which are key factors in maximizing returns. In this context, it is reasonable to assume that similar dynamics may also occur in corporate venture capital (CVC), especially in cases where the investment objectives are not exclusively strategic, but also include financial purposes (Dushnitsky & Lenox, 2006). From this reflection, the third research hypothesis of this thesis takes shape: *CVC managers who possess economic-financial skills, acquired through academic training or professional experience, are more likely to lead startups towards a successful exit, thanks to a more advanced understanding of capital markets and M&A dynamics*. Two main arguments support this hypothesis. The first is of a technical-analytical nature: a solid preparation in economic-financial field allows managers to structure more efficient operations, more effectively align incentives with founders, adopt risk mitigation strategies and more accurately evaluate the exit potential. The second concerns the relational dimension: previous experiences in investment banking, private equity or corporate finance can facilitate access to professional networks useful for identifying potential buyers, advisors or favorable windows for the IPO. To test this hypothesis, the data relating to the exits (IPO and M&A) of startups participated by CVC were cross-referenced with the data on the economic-financial skills of the managers involved. The quantitative analysis, based on linear regressions and robustness tests, shows weakly positive but not particularly significant results, found only in the case of acquisitions (M&A) and not IPOs. In summary, the empirical results do not allow to affirm the existence of a robust correlation between the economic-financial skills of CVC managers and the probability of exit of the investee startups. However, these

results open interesting avenues for further research: it could be useful to extend the analysis to other CVC performance metrics less linked to financial outcomes, such as patent output or other strategic indicators. It should be remembered, in fact, that other scientific studies support the fact that CVC investments often have a greater impact on the latter type of performance than on financial ones (Haslanger et al. 2023).

5.5.4 Technical expertise as a driver of successful exits in CVC

A final question addressed in this thesis concerns the role of technical skills in fostering the success of startups, not only in the initial stages of selection and operational support, but also in guiding them towards an effective exit, such as an acquisition or a stock market listing. This topic has already been discussed, although not exhaustively, also in the literature on traditional venture capital (Chemmanur, Krishnan & Nandy, 2011). Technical skills, acquired through academic paths in the STEM (Science, Technology, Engineering, Mathematics) field or professional experiences in sectors with a high technological content, offer investors crucial tools to fully understand the products, business models and markets in which startups operate. This understanding facilitates a more accurate assessment of the innovative potential and scalability of the proposed solutions. In the context of corporate venture capital, where investments are often motivated by strategic as well as financial objectives, and where the ability to integrate emerging technologies into business processes is crucial, it is plausible to hypothesize that the presence of managers with a solid technical background can increase the probability of a successful exit of the investee startups. From this reflection arises the fourth research hypothesis of this thesis: *CVC managers who possess advanced technical skills, acquired through academic training or professional experience, are more likely to lead startups towards a successful exit, thanks to a deeper understanding of the technological potential and of the product and market dynamics*. In support of this hypothesis, it can be observed that a greater familiarity with the technological domain of the startup allows managers to more accurately assess the maturity of the technology, the degree of differentiation from the competition and the sustainability of the proposed innovation. Furthermore, these skills can improve the quality of the dialogue with the technical teams of the startups and strengthen the credibility of the CVC in the market. To test the hypothesis, data on exits (both IPOs and M&As) of startups funded by CVC were analyzed, cross-referencing them with the technical background of the managers involved. The quantitative analysis, conducted through linear regressions and robustness tests, did not highlight any statistical significance between the technical skills of managers and the probability of exit of the investee startups. Although this result may derive from structural limits of the sample considered, it does not allow us to affirm, on the basis of the analyzed

data, the existence of a systematic correlation between technical expertise and success in terms of exit. However, the lack of empirical evidence does not completely exclude the relevance of technical skills. On the contrary, also in this case, it suggests the need to explore alternative performance metrics, less linked to strictly financial results, such as patent production, adoption of technologies developed by the startup in the parent company or other strategic indicators of technology transfer. Such insights could offer a more complete perspective on the actual added value of technical expertise in the management of CVC investments. Indeed, it should be considered that startups financed by corporate venture capital funds tend to remain in the portfolio longer than those supported by independent venture capitalists (Guo et al., 2015), a fact that represents a clear indicator of how the exit objective is often considered less of a priority in the CVC than in the IVC.

Perspectives from the field: the A2A CVC

This chapter analyses a concrete case of Corporate Venture Capital, through the study of the dedicated unit of A2A S.p.A., one of the main Italian companies in the energy sector. It will start with an overview of the business context in which A2A operates, and then delve into the structure and strategic objectives of its CVC unit, including information on the internal organization and the main actors involved. Subsequently, the key insights emerging from a series of one-to-one interviews conducted with members of the A2A CVC team, who were asked to reflect on the results obtained and discussed in the previous chapters, will be presented. The aim of this section is to integrate and compare theoretical and quantitative evidence with the direct experiences of operators in the sector, thus offering a richer and more realistic perspective.

6.1 Description of a2a business context

A2A S.p.A. is one of the main Italian multi-utilities, active in the energy, environment and integrated water cycle sectors. Founded in 2008 from the merger between AEM Milano, ASM Brescia and AMSA, the company has progressively consolidated its role in Northern Italy, expanding its presence over time also on a national scale. A2A operates along the entire energy supply chain, from production, with a mix that includes renewable and thermoelectric sources, to the distribution and sale of electricity and gas. With a total of approximately 14,000 employees and a turnover that almost reached 13 billion euros in 2024, A2A is positioned as a key player in the Italian energy transition (A2A S.p.A., 2025). The group has explicitly defined its mission through the proprietary concept of “Life Company”, i.e. a company at the service of citizens’ quality of life, oriented towards environmental sustainability and technological innovation. Innovation has become one of the fundamental pillars of the group’s industrial strategy in recent years. The 2021–2030 Strategic Plan envisages over 16 billion euros of investments, of which more than 10 billion dedicated to the energy transition (e.g. decarbonization, electrification of consumption, development of renewable sources and smart grids) and approximately 5 billion to the circular economy (e.g. waste management, material recovery, process efficiency). A significant portion of these investments is closely linked to technological innovation projects with a major focus on digitalization and modernization of the infrastructure (A2A S.p.A., 2021). The growing complexity of the energy sector, characterized by regulatory transitions, technological acceleration and new social expectations, has pushed A2A to strengthen its approach to open innovation, developing tools that foster interaction with startups, innovative SMEs, research centers and universities. Alongside

the traditional internal innovation through research and development, A2A has created cutting-edge tools such as corporate venture building (CVB), as well as dedicated external innovation initiatives, such as Corporate Venture Capital (CVC). This strategy also reflects a broader dynamic of the sector: in recent years, numerous direct competitors, including Enel, Eni and Hera Group, have structured corporate venture capital units or collaboration programs with technology startups. The ability to intercept external innovation quickly and effectively is increasingly considered a critical success factor, not only to introduce more efficient and sustainable solutions, but also to explore new business models and accelerate adaptation to market changes. This is the context in which A2A's CVC unit was created, conceived as a strategic vehicle to identify, invest and collaborate with startups capable of generating industrial, technological and sustainable value for the group. It is evident how in this CVC the strategic objectives dominate the financial ones, in fact it is publicly declared that the main objective is to access technological innovations, new business models and external skills, with a logic of industrial integration. The next paragraph will analyze the structure and purposes of this unit with an higher level of detail.

6.2 Description of the a2a CVC unit

As part of the broader industrial innovation and transformation plan, A2A established its Corporate Venture Capital (CVC) unit in 2021, with the aim of actively supporting the ecological and digital transition through the direct involvement of the startup ecosystem. In a context in which the energy sector requires rapid and flexible responses to environmental and technological challenges, the CVC is configured as a strategic tool for accessing high-impact innovations and developing new solutions in synergy with external players. Cleantech, in particular, represents the priority area: it is a set of technologies, products and processes designed to reduce environmental impact, improve efficiency and reduce emissions. In this area, startups play a crucial role, thanks to their agility, speed of experimentation and ability to bring scalable solutions to the market. A2A's Corporate Venture Capital unit fits right into this context, operating as an innovation catalyst to make a concrete contribution to achieving the European climate neutrality objectives by 2050. The model adopted by A2A is hybrid and complex: on the one hand, the company acts as a Limited Partner in third-party funds (including Eureka Venture and CDP Tech Transfer), on the other it has established dedicated funds such as 360Life I, managed by 360 Capital, in which A2A is the sole investor. Furthermore, the development of 360Life II is underway, a flagship project open to other institutional and corporate investors, with a target endowment of 200 million euros. This fund aims to become the largest CVC fund in Italy focused on the circular economy and energy transition, in line with the objectives set in the 2021–2030 Strategic Plan. The investment activity focuses on Italian and

European startups, mainly in the early stage, with average tickets between 2 and 10 million euros. The areas of interest include renewable energy, smart grids, digitalization of services, storage, sustainable mobility, efficient waste management, circular economy and water tech. However, beyond the vertical sectors, the guiding criterion remains industrial coherence with the group's core areas, so as to maximize operational synergies and accelerate the adoption of solutions within the company perimeter. The adopted approach favors a logic of industrial collaboration, rather than an immediate economic return, with the aim of integrating innovative technologies and models within the company's core business. From an operational point of view, the CVC is not limited to financial support, but accompanies startups in the most critical phases of their development, promoting continuous collaboration with internal business units. In short, A2A's Corporate Venture Capital unit represents a key tool for industrial transformation, capable of connecting the company with the innovation ecosystem and stimulating the development of sustainable and technologically advanced solutions. A2A, with its CVC, aims to become a reference hub for cleantech and deeptech startups that want to contribute to building a more sustainable future.

The CVC team, integrated into the Innovation Department, works in synergy with the strategic and operational divisions, and is composed of a limited number of professionals but with transversal skills in venture capital, technology and industrial management. This structure allows them to combine a long-term vision with rapid execution capabilities, essential to seize emerging opportunities. In order to offer the reader a better understanding of the operational context and the role played by the professionals interviewed, an essential summary of the organizational structure in which the CVC unit is inserted is presented below.

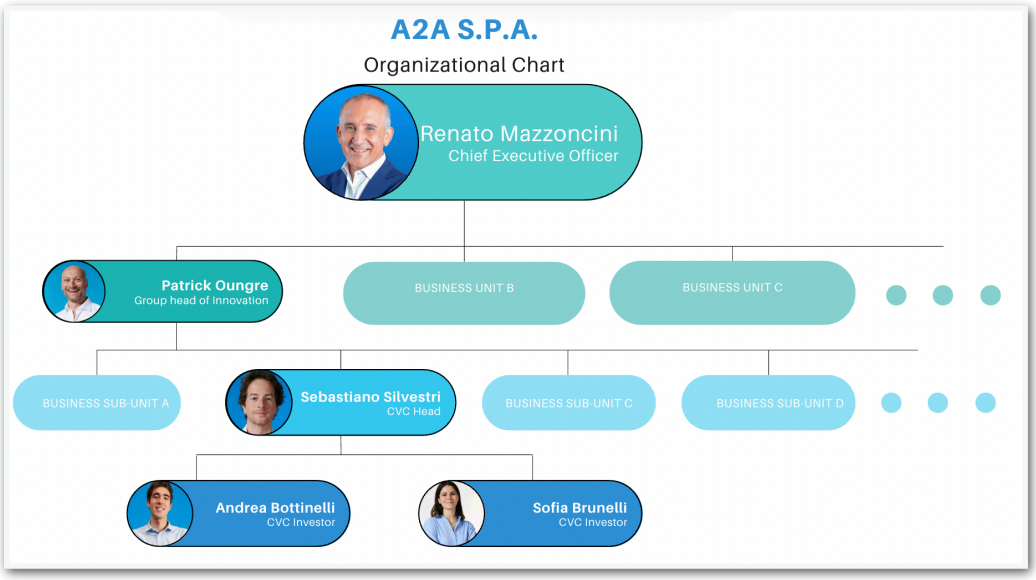


Fig.37 Identification of interviewees in the a2a organizational chart, author elaboration

6.3 Qualitative findings: interpretation of practitioner interviews

Following the development of the chapter dedicated to the results, it was possible to have a comparison with Sofia Brunelli and Andrea Bottinelli (see the simplified corporate organization chart of A2A reported in the previous section). These exchanges proved particularly valuable for gathering the point of view of industry professionals on the topics analyzed, offering the opportunity to integrate the quantitative analysis with qualitative insights capable of confirming or, possibly, questioning the results.

6.3.1 Relevance of human capital in CVC teams

The professionals of the CVC team of A2A have offered particularly interesting perspectives on the skills considered essential to operate effectively within a corporate venture unit. From their point of view, the hard skills considered fundamental are mainly of two types: on the one hand, the technical-specialist ones, indispensable for an in-depth understanding of the activities of the target startups; on the other, the economic-financial ones, necessary to carry out timely and coherent evaluations of the investments. One element of particular importance that emerged during the discussion concerns the contextuality of the need for skills. In the specific case of A2A, for example, the CVC team does not possess internal technical skills in terms of academic training or previous professional experience. This is made possible thanks to the constant availability of technical resources within the company, present in each area of expertise, which support the CVC team in understanding the more technical dimensions of the investment opportunities. This type of collaboration is facilitated by a flexible company structure, which allows technical personnel to temporarily support other operating units, promoting effective sharing of know-how. In this context, the A2A CVC team can therefore focus on mainly economic and financial skills, held by members dedicated full-time to investment activity. A further point for reflection that emerged concerns the importance attributed to soft skills in the composition of the team. In particular, the centrality of the ability to build and maintain solid and lasting interpersonal relationships was highlighted, considered of equal importance to technical skills. This ability is in fact crucial not only in the deal flow generation phase, through interaction with members of startups, investors and external stakeholders, but also in supporting the commercial development of startups in the portfolio, where the CVC team can act as an intermediary for the creation of market opportunities. Finally, this relational ability is also an essential requirement for internal integration and collaboration. Unlike other company departments, a CVC team requires continuous and transversal cooperation between

all its members, especially in contexts such as that of A2A, in which the team is currently small in size and requires strong operational cohesion.

6.3.2 Discussion of research results

Subsequently, it was possible to also present the main results that emerged from the regression analyses to the professionals of the A2A CVC team, enabling them to express an informed opinion on the matter. With regard to the coherence between skills and selection of similar industries, a solid logic was recognized at the base of the identified pattern, observed several times in practice. The most immediate explanation, according to them too, lies in the need to fully understand the technical concepts underlying the activities of the target startups. In the specific case of A2A, however, an interesting anomaly was highlighted: despite operating in a highly technical field such as cleantech, the team members do not have a technical background either at an academic or professional level. This apparent disconnect is compensated, as mentioned in the previous paragraph, by the possibility of continuously interfacing with technical figures within the organization, coming from the various specialized business units. Furthermore, the strong specialization of the team on cleantech investments has allowed, in the medium term, the development of specific technical know-how directly through experience gained in the field. It is precisely on the basis of this experience that the interlocutors expressed a clear position: in their opinion, a CVC should never take a generalist approach, as this prevents the maturation of in-depth vertical skills and leads, on the contrary, to a knowledge that is too horizontal and superficial of multiple sectors. During the discussion, the results relating to research hypothesis 1b, focused on the artificial intelligence sector, were also presented. The professionals confirmed that they find sense in the greater relevance attributed to professional experience compared to the academic background in such a recent and rapidly evolving field. In particular, they shared a real case of considerable relevance to the topic discussed, although they could not reveal the identity of the individuals or companies involved for confidentiality reasons. The example was reported of one of the partners of one of the funds, with a solid background as an entrepreneur, who managed to make a successful investment in a startup operating in the artificial intelligence sector. Despite not having academic qualifications related to the sector, he managed, through direct experience and operational involvement, to quickly develop a deep knowledge in the field, to the point of making it his main area of expertise. However, they also underlined that, in their specific case, it is not possible to make a parallel, since the cleantech sector has a much greater history and maturity than AI, making it more similar to IT and Healthcare.

Comments on the performance analysis results also generated valuable insights. The fact that no strong correlations emerged between the individual human capital of managers and exit performance did not surprise the interviewees. In their view, in fact, the dynamics linked to the exit from an investment involve complex ecosystems, characterized by the presence of multiple actors and strongly influenced by market specificities that significantly reduce the impact of the individual, and consequently of his skills. In this specific case, the CVC of A2A is a relatively young entity, which has not yet recorded exit operations, whether these are IPOs or mergers. Furthermore, the financial aspects do not represent the main focus of the team, as they are the object of the collaboration with 360 Capital, an independent venture capital fund responsible for specifically overseeing the financial dimension and ensuring adequate economic returns for the sustainability of the model.

In general, the attention to human capital in the composition of the CVC team is a theme considered central by the professionals interviewed, as is the importance attributed to the diversity and complementarity of the profiles. As highlighted in the team description provided above, the choice not to include figures with technical skills is part of a logic of building the group based on a targeted selection of skills, consistent with the specific business context. This approach reflects a conscious and contextualized approach to human capital management, with the exclusion of skills already available.

In closing, the two interlocutors were asked if there were further aspects that, in their opinion, deserved further investigation with respect to the topics discussed. Two particularly relevant reflections emerged. The first concerns the hypothesis that the results of the quantitative analyses could vary significantly if a classification of CVCs based on the governance structure and the degree of operational autonomy were introduced: according to them, this element represents a potentially decisive interpretative key. The second theme, strongly influenced by the "life company" philosophy that characterizes A2A, is that of ethical implications. Based on what emerged, one of the fundamental criteria in the selection of startups to finance is represented precisely by the evaluation of the positive impact that they can generate on society. According to the professionals interviewed, this dimension often has an even more significant and, above all, more conscious influence than the educational or professional background of individual managers.

Conclusions

This concluding chapter presents a summary of the main findings from the analysis, reports the limitations of the study and proposes possible future developments of the research. Finally, the implications for practitioners, policy makers and researchers are discussed.

7.1 Main findings

This research work aims to contribute to the existing literature on the factors that influence the selection processes and the performance of startups funded by Corporate Venture Capital. In particular, the objective is to deepen the role of human capital, investigating its impact both in the selection phase of ventures and on the results in terms of exit. In line with this intent, the work aims to answer the following research question: *How does the human capital of CVC managers influence both the selection of ventures and their exit performances?* To conduct the empirical analysis, the academic and professional background of 1,101 managers belonging to the teams of the 77 largest corporate venture capital firms at a global level was studied. The information was collected through official company websites and personal LinkedIn profiles. The data were aggregated at fund level, building variables indicating the percentage of managers with specific skills. These variables were integrated with investment data (2017–2023) from PitchBook, to analyze sector choices, and with Orbis M&A data relating to exits, to assess the link between human capital and investment success. The investigation was based on econometric models, in particular linear regressions. Two main analyses were developed: the first assessed the influence of managerial skills on the selection of startups, the second on the success rate of exits. The independent variables (skills) and control variables remained unchanged in both analyses, while the dependent variables changed: in the first, the volume of investments in the various sectors was considered, in the second, the percentage of exits on the total operations. The analysis conducted in this study provides interesting new insights into the selection process and performance of CVC-backed ventures. The empirical analysis confirms that human capital can play a relevant role, particularly in the investment selection phase. First, sector-specific skills, especially those acquired through technical training or work experience in specific sectors, are associated with a higher probability of investing in coherent industrial fields. This relationship was evident in all three sectors: Healthcare, IT and Artificial Intelligence, which are rather technical and therefore require that in-depth knowledge contributes to reducing information asymmetries and fostering a better strategic alignment with the parent company. At the same time, it emerges that less relevant experiences (e.g. purely commercial), tend to reduce the

propensity to invest in high-tech sectors, reinforcing the idea that sector alignment is a determining factor. Second, in emerging fields such as Artificial Intelligence, where structured academic paths are still not widespread, technical work experiences seem to partially compensate for the lack of formal training. The results suggest that, in the absence of consolidated academic specializations, experiential learning may represent a more influential factor in investment choices, although the effect is statistically significant only in terms of invested capital, and not of investment frequency and always considering that the empirical results on the sample cannot be interpreted as an index of causality. Finally, with regard to exit performance, the analyses do not show robust correlations between the technical or financial skills of CVC managers and the probability of exit success (IPO or M&A). A weak positive relationship between financial skills and M&A operations is found, but it is not sufficient to draw conclusions. These last results suggest that, in the context of CVCs, where strategic objectives often prevail over strictly financial ones, traditional financial performance metrics may not fully capture the value generated by human capital. Alternative indicators, such as patent production or technological integration with the parent company, could offer a more accurate representation of the actual impact.

7.2 Limitations and possible future developments

The results and limitations of this work open the way to several promising directions for future research. The main limitation, highlighted in several places during the analysis, concerns the sample size. A larger number of observations could have given greater robustness and statistical solidity to the results obtained. The origin of this limitation is however understandable: the data collected are extremely detailed at the individual level, and each piece of information relating to Corporate Venture Capital (CVC) required the in-depth analysis of dozens of individuals for each observed unit. In this context, having achieved a mapping of the skills of the 77 main CVCs at a global level represents a good result in terms of data collection for a research thesis. However, this basis could be further expanded by longer-term works conducted by larger research teams. A further development could consist in an even more detailed analysis of the individual profile of individual managers active in CVCs. Although the information collected on education and experiences gained within the company is complete, only the last two positions held before joining the parent company were considered with regard to previous professional experiences. This choice was dictated by the desire to focus on the experiences presumably most relevant when selecting and supporting startups. However, including previous work experiences could offer a more detailed view of the managers' background. This could also be completed by a more nuanced classification of roles compared to the typology used in this study (technical, financial, commercial). From a methodological point of

view, it is finally appropriate to underline the possibility of addressing the issue of endogeneity in a more rigorous way. Although the complexity of the context makes this operation particularly challenging, the identification of appropriate instrumental variables could allow an analysis closer to the identification of causal links, going beyond mere statistical correlation. Furthermore, a further research perspective, strongly complementary to the present study, concerns the possibility of obtaining even more granular data relating to individual managers involved in the decision-making processes of CVCs. The analysis conducted aimed to explore in depth the internal dynamics of CVCs, but it was not possible, due to the lack of publicly available data, to identify precisely which managers actually selected and supported each startup. We therefore proceeded by considering the entire CVC team in an aggregate manner. Access to information at this level of detail would significantly enrich the analysis and allow for greater precision in assessing impacts and, consequently, in the conclusions reached. To conclude, as already anticipated during the interpretation of the results, it could be interesting to analyze the impact of managers' human capital on venture performance, analyzing indicators that are more closely linked to strategic performance than to financial ones.

7.3 Implications for practitioners, policymakers, and research

From an applicative point of view, the analysis results offer significant operational insights both for corporations that manage CVC vehicles and for startups seeking strategic capital. For the former, it is important to adopt manager selection criteria that favor coherence between the professional background and the industrial or technological objectives of the corporate sponsor: the composition of the management team can substantially influence the type of startups selected and the level of strategic alignment achieved. Startups, in turn, can interpret the background and skills of CVC managers as an indicator of potential value, capable of signaling not only the availability of capital, but also the possibility of activating technological and industrial synergies. From a policy perspective, the data suggest the opportunity to invest in training courses that combine technical know-how and managerial skills, especially in emerging fields such as artificial intelligence, where academic structures are still in the process of consolidating. In this sense, if a country intends to guide technological development towards specific trajectories, encouraging the growth of hybrid human capital in strategic positions such as those of CVC managers could represent an effective lever. Furthermore, the results call for a broader reflection on the metrics for evaluating the impact of CVCs: in a context where strategic objectives can go beyond merely financial ones, indicators such as technological integration with the corporate or the production of intellectual property could also be more suitable for policymakers to measure the value actually generated. Finally, with regard

to the scientific literature, this work contributes by proposing a shift of attention from the organizational level of the CVC to the individual level of its decision makers. While most research tends to consider the CVC as a unitary actor, this analysis highlights how the characteristics of human capital, and in particular the technical and sectoral skills acquired through study or experience, are discriminating factors in investment selection processes. This micro-organizational perspective enriches the existing theoretical framework, offering a more detailed reading of the mechanisms that regulate capital allocation in corporate contexts.

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Annexes

Annex A: Results of the logistic regression with the dependent variable defined as the equity investments made by each CVC fund in the IT sector, author elaboration

equity_IT	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
comp_fin_Parent_CVC	12.12604	226.5107	0.05	0.958	-442.0006	466.2527
comp_tech_Parent_CVC	-11.66344	228.9957	-0.05	0.960	-470.7721	447.4452
comp_comm_Parent_CVC	-110.7826	232.3787	-0.48	0.635	-576.6739	355.1087
comp_tech_Experience_CVC	-201.3015	211.0797	-0.95	0.344	-624.4908	221.8877
comp_fin_Experience_CVC	-107.9852	355.4304	-0.30	0.762	-820.5802	604.6097
comp_comm_Experience_CVC	-667.5992	376.3206	-1.77	0.082	-1422.077	86.87817
comp_fin_Edu_CVC	399.588	252.0132	1.59	0.119	-105.668	904.8439
comp_tech_Edu_CVC	510.2582	329.7964	1.55	0.128	-150.9437	1171.46
comp_soc_Edu_CVC	490.3515	349.5029	1.40	0.166	-210.3597	1191.063
comp_hum_Edu_CVC	251.8969	209.8359	1.20	0.235	-168.7989	672.5926
cvc_age	-15.94499	22.65605	-0.70	0.485	-61.36764	29.47766
dummy_consumer	-1514.475	717.6584	-2.11	0.039	-2953.293	-75.65624
dummy_energy	-1582.095	976.4416	-1.62	0.111	-3539.743	375.5522
dummy_Fin_Comm_Services	-1637.504	651.8096	-2.51	0.015	-2944.304	-330.7049
dummy_Healthcare_Pharma	-682.5645	521.4346	-1.31	0.196	-1727.978	362.8488
dummy_Media_Comm	-865.4881	489.1283	-1.77	0.082	-1846.131	115.1551
dummy_Semiconductors	291.8558	1062.637	0.27	0.785	-1838.604	2422.316
dummy_Transportation	-865.5402	853.8532	-1.01	0.315	-2577.413	846.3323
dummy_Asia_CVC	77.84287	585.2945	0.13	0.895	-1095.602	1251.288
dummy_Europe_CVC	170.6407	681.8319	0.25	0.803	-1196.35	1537.631
dummy_Asia_Parent	-504.7125	590.7834	-0.85	0.397	-1689.162	679.7368
dummy_Europe_Parent	-787.8549	642.1288	-1.23	0.225	-2075.246	499.5358
_cons	1777.246	1528.815	1.16	0.250	-1287.843	4842.335

Annex B: Results of the logistic regression with the dependent variable defined as the equity investments made by each CVC fund in the HC sector, author elaboration

equity_HC	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
comp_fin_Parent_CVC	-39.49504	101.1533	-0.39	0.698	-242.2951	163.3051
comp_tech_Parent_CVC	121.4344	102.263	1.19	0.240	-83.59051	326.4594
comp_comm_Parent_CVC	-12.02299	103.7738	-0.12	0.908	-220.0769	196.0309
comp_tech_Experience_CVC	107.7765	94.26221	1.14	0.258	-81.20787	296.7608
comp_fin_Experience_CVC	-69.29846	158.7251	-0.44	0.664	-387.5232	248.9263
comp_comm_Experience_CVC	41.6536	168.0541	0.25	0.805	-295.2747	378.5819
comp_fin_Edu_CVC	-15.14924	112.5419	-0.13	0.893	-240.7822	210.4838
comp_tech_Edu_CVC	-3.319094	147.2777	-0.02	0.982	-298.5931	291.955
comp_soc_Edu_CVC	-152.0463	156.0781	-0.97	0.334	-464.9641	160.8714
comp_hum_Edu_CVC	94.40321	93.70679	1.01	0.318	-93.4676	282.274
cvc_age	2.687182	10.11755	0.27	0.792	-17.59729	22.97165
dummy_consumer	170.2719	320.4859	0.53	0.597	-472.2637	812.8074
dummy_energy	-232.6045	436.0512	-0.53	0.596	-1106.835	641.6255
dummy_Fin_Comm_Services	318.0272	291.0797	1.09	0.279	-265.5525	901.607
dummy_Healthcare_Pharma	340.6398	232.8579	1.46	0.149	-126.2122	807.4919
dummy_Media_Comm	-123.1688	218.4309	-0.56	0.575	-561.0963	314.7587
dummy_Semiconductors	-502.755	474.5438	-1.06	0.294	-1454.158	448.6481
dummy_Transportation	-339.3292	381.3067	-0.89	0.377	-1103.803	425.1447
dummy_Asia_CVC	32.05776	261.376	0.12	0.903	-491.9695	556.085
dummy_Europe_CVC	-68.4373	304.4869	-0.22	0.823	-678.8967	542.0221
dummy_Asia_Parent	-524.0856	263.8271	-1.99	0.052	-1053.027	4.855975
dummy_Europe_Parent	-492.7945	286.7566	-1.72	0.091	-1067.707	82.11779
_cons	636.2227	682.7254	0.93	0.356	-732.5592	2005.005

Annex C: Results of the logistic regression with the dependent variable defined as the equity investments made by each CVC fund in the AI sector, author elaboration

equity_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
comp_fin_Parent_CVC	-34.10511	42.90356	-0.79	0.430	-120.1216	51.91134
comp_tech_Parent_CVC	82.25632	43.37423	1.90	0.063	-4.703785	169.2164
comp_comm_Parent_CVC	-7.831531	44.01502	-0.18	0.859	-96.07633	80.41327
comp_tech_Experience_CVC	-11.25459	39.98075	-0.28	0.779	-91.41117	68.90199
comp_fin_Experience_CVC	-.3974738	67.32232	-0.01	0.995	-135.3706	134.5756
comp_comm_Experience_CVC	-14.35594	71.27916	-0.20	0.841	-157.262	128.5502
comp_fin_Edu_CVC	113.2552	47.73399	2.37	0.021	17.55431	208.9561
comp_tech_Edu_CVC	122.3086	62.46696	1.96	0.055	-2.930126	247.5473
comp_soc_Edu_CVC	129.6378	66.1996	1.96	0.055	-3.084432	262.36
comp_hum_Edu_CVC	-.0548609	39.74518	-0.00	0.999	-79.73914	79.62942
cvc_age	-2.144336	4.291299	-0.50	0.619	-10.74787	6.4592
dummy_consumer	-164.1841	135.9322	-1.21	0.232	-436.7117	108.3435
dummy_energy	-370.0092	184.9485	-2.00	0.050	-740.8086	.790184
dummy_Fin_Comm_Services	-151.7603	123.4597	-1.23	0.224	-399.2821	95.76159
dummy_Healthcare_Pharma	-160.9482	98.7653	-1.63	0.109	-358.9607	37.06433
dummy_Media_Comm	-87.77977	92.64614	-0.95	0.348	-273.5241	97.96456
dummy_Semiconductors	-67.37647	201.2749	-0.33	0.739	-470.9084	336.1555
dummy_Transportation	-234.2799	161.7289	-1.45	0.153	-558.5269	89.96715
dummy_Asia_CVC	-22.64905	110.861	-0.20	0.839	-244.9121	199.614
dummy_Europe_CVC	51.89185	129.1463	0.40	0.689	-207.0309	310.8145
dummy_Asia_Parent	-242.9422	111.9007	-2.17	0.034	-467.2896	-18.59477
dummy_Europe_Parent	-279.4921	121.6261	-2.30	0.025	-523.3377	-35.64651
_cons	78.8294	289.5739	0.27	0.786	-501.7313	659.3901

Annex D: Results of the logistic regression with the dependent variable defined as the equity investments made by each CVC fund in the IT not AI sector, author elaboration

equity_IT_no_AI	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
comp_fin_Parent_CVC	39.40942	206.2214	0.19	0.849	-374.0396	452.8584
comp_tech_Parent_CVC	-58.47008	208.4838	-0.28	0.780	-476.4549	359.5147
comp_comm_Parent_CVC	-71.82069	211.5638	-0.34	0.736	-495.9805	352.3392
comp_tech_Experience_CVC	-204.2851	192.1726	-1.06	0.292	-589.5679	180.9977
comp_fin_Experience_CVC	-114.0949	323.5933	-0.35	0.726	-762.8603	534.6706
comp_comm_Experience_CVC	-709.3835	342.6123	-2.07	0.043	-1396.28	-22.48712
comp_fin_Edu_CVC	325.7284	229.4395	1.42	0.161	-134.2701	785.7269
comp_tech_Edu_CVC	517.4105	300.2554	1.72	0.091	-84.56534	1119.386
comp_soc_Edu_CVC	418.1565	318.1968	1.31	0.194	-219.7896	1056.103
comp_hum_Edu_CVC	263.8666	191.0402	1.38	0.173	-119.146	646.8792
cvc_age	-10.19918	20.62667	-0.49	0.623	-51.55317	31.15481
dummy_consumer	-1444.475	653.3753	-2.21	0.031	-2754.413	-134.5362
dummy_energy	-1558.967	888.9785	-1.75	0.085	-3341.261	223.3277
dummy_Fin_Comm_Services	-1619.881	593.4249	-2.73	0.009	-2809.626	-430.1358
dummy_Healthcare_Pharma	-626.9887	474.7279	-1.32	0.192	-1578.761	324.7835
dummy_Media_Comm	-886.9791	445.3154	-1.99	0.051	-1779.783	5.824601
dummy_Semiconductors	622.1363	967.4535	0.64	0.523	-1317.491	2561.764
dummy_Transportation	-657.4357	777.3707	-0.85	0.401	-2215.97	901.0987
dummy_Asia_CVC	166.1087	532.8677	0.31	0.756	-902.2267	1234.444
dummy_Europe_CVC	232.1225	620.758	0.37	0.710	-1012.422	1476.667
dummy_Asia_Parent	-295.5383	537.8649	-0.55	0.585	-1373.893	782.816
dummy_Europe_Parent	-614.823	584.6112	-1.05	0.298	-1786.898	557.2519
_cons	1573.792	1391.874	1.13	0.263	-1216.747	4364.33