

**The discrepancy in the Venture Capital
western industries: analyzing the impact of
capital markets and exit strategy in
American and European sectors.**

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INTRODUCTION

The world of venture capital has emerged as a pivotal force driving innovation, entrepreneurship, and economic growth in both the United States and Europe. Over the years, venture capital has played a crucial role in nurturing nascent ideas, providing crucial funding, and guiding startups through their journey towards success. However, despite sharing a common objective, the venture capital landscapes in the United States and Europe exhibit distinct characteristics, influenced by various factors including historical context, regulatory frameworks, and capital market dynamics.

This thesis delves into the intricate nuances of the venture capital industry, focusing on the Western markets of the United States and Europe. By examining the impact of capital markets and exit strategies, this study aims to unravel the discrepancies between the American and European venture capital ecosystems. Through a comprehensive analysis, we will explore the evolution of venture capital, the structure of the industry, and the pivotal role played by different actors within the ecosystem.

The first chapter delves into the foundational structure of venture capital, elucidating the roles and interactions of various stakeholders within the ecosystem. It explores the lifecycle of venture capital investment, encompassing fundraising, evaluation, investment decisions, and exit strategies. Additionally, the methodologies employed for startup valuation and performance measurement are scrutinized to provide a comprehensive understanding of venture capital operations.

In the next chapter the analysis goes through description the pivotal role played by venture capital at each stage, offering insights into how funding, mentorship, and strategic guidance shape the trajectory of startups. Furthermore, the chapter provides

an in-depth comparison of the American and European venture capital landscapes, highlighting key differences and similarities in their approaches to nurturing entrepreneurial ventures.

The third chapter investigates their consequential impact on the evolution of the venture capital industry. By analyzing prevalent approaches such as Initial Public Offerings (IPOs) and mergers and acquisitions (M&A), it uncovers the drivers behind the differential usage of exit strategies in the United States and Europe. The chapter also examines the implications of exit strategy selection on industry growth and sustainability.

This chapter explores the interplay between venture capital and capital markets, with a specific focus on the American and European contexts. It examines how the structure and efficiency of capital markets influence venture capital activities, including fundraising, investment decisions, and exit strategies. The chapter also delves into the impact of banking systems versus market-based systems on the venture capital industry, with a spotlight on exchanges like NASDAQ.

The final chapter presents a comparative analysis of venture capital magnitudes between the United States and key European nations. It quantifies the influence of IPOs and assesses the impact of capital market efficiency and liquidity on venture capital volumes. Additionally, the chapter identifies key drivers contributing to the superiority of the U.S. venture capital environment and proposes prospective strategies for enhancing the evolution of the European venture capital industry.

Through this holistic examination, the thesis endeavors to provide valuable insights into the dynamics of the venture capital industry within the Western context, offering actionable recommendations for policymakers, investors, and stakeholders seeking to bolster entrepreneurship and innovation.

CHAPTER 1: VENTURE CAPITAL

1.2 History and development of Venture Capital

Venture capital has a rich and dynamic history that spans several centuries. Its evolution can be traced through various milestones and eras, each marked by unique characteristics and developments.

The concept of venture capital has its origins in the 18th century, with the emergence of private partnerships in Europe. Wealthy individuals provided funding to entrepreneurs and explorers in exchange for a share of the profits from their endeavors.

One of the earliest known instances of venture capital in the United States was in the mid-19th century when wealthy families, such as the Vanderbilts and Rockefellers, invested in entrepreneurial ventures like railroads and oil exploration.

The modern VC industry began to take shape in the mid-20th century, after the end of World War II, with the development of Silicon Valley in California which became a hub for technology innovation. It possible to consider as a turning point the establishment of American Research and Development Corporation (ARDC) in 1957, the first publicly owned venture capital firm. ARDC's success with investments in companies like Digital Equipment Corporation set a precedent for future venture capital firms.

The 1970s and 1980s witnessed the rapid growth of the venture capital industry, fueled by innovations in technology and the establishment of firms like Kleiner Perkins and Sequoia Capital. These firms played a pivotal role in funding the emerging tech giants of the era.

The 90s and 00s saw a significant increase in VC investment, especially through internet-related startups and social media like Yahoo, Amazon, and Facebook. The

initial phase of the Tech-era unfortunately was characterized by witnessed substantial valuations and high-risk investments, which produced the so-called dot-com bubble. However, the dot-com bubble burst in the early 2000s, leading to a significant market correction, causing many startups to fail and investors to lose money and highlighted the cyclical nature of the VC industry.

The venture capital industry rebounded after the dot-com crash, with renewed focus on prudent investment practices.

Venture capital expanded globally during this period, pushed the rise of startup ecosystems in Europe, Asia, and other regions. International venture capital firms began to play a more prominent role in funding startups worldwide.

The 2010s saw the emergence of new sectors for venture capital investment, including fintech, health tech, and renewable energy, reflecting changing consumer needs and technological advancements.

Corporate venture capital (CVC) gained prominence as established companies sought to invest in startups to stay innovative and competitive.

Crowdfunding and angel investing platforms democratized access to capital for early-stage startups, complementing traditional VC funding.

The unicorn phenomenon, where startups achieve valuations of \$1 billion or more, became increasingly common, albeit raising concerns about valuation bubbles

1.3 Venture Capital structure and actors

It is necessary to analyze subjects involve during financing/fund raising activity to have better comprehension of the industry. In the Venture Capital ecosystem operate various actors and stakeholders who play different roles in funding and supporting early-stage businesses. Primary drole is taken by VC' Firm which are financial investors typically organized as a limited partnership (LP).

Limited partners, which are typically institutional investors, high-net-worth individuals, and family offices provide the capital to the firm while the General

Partners are responsible for managing the investments. VC firms create individual investment funds having a finite lifespan, often lasting 7-10 years, and mostly focused on specific sector such as technology, startups, biotech companies. In exchange for their investment, VC firms receive equity ownership in the startup. This equity stake grants them a share of the company's ownership and potential profits. VC firms also earn carried interest, which is a share of the profits generated by successful investments. Carried interest is typically calculated as a percentage of the profits above a specified return threshold, often referred to as the "hurdle rate." At the end of each fund lifespan VC firms provide an exit strategy through acquisition, IPO, or selling the owned equity to another VC firms providing distribution of earnings to limited partners.

Subjects analyzed since now represent the supply side in VC industry, which gives support in term of financing for entrepreneurs mostly involved in activities that non produce an immediate revenues flow. "In fact, 47% of new firms in our sample that received VC financing were started without any commercial revenues"¹¹. Certainly, it's important to emphasize that the support provided by Venture Capital firms extends beyond just financial backing. These firms work closely with entrepreneurs, assisting them in navigating and mitigating risks. They often specialize in specific industries, allowing them to possess in-depth knowledge of the sectors in which they invest, and this expertise enables them to take on mentoring roles as well.

The Venture Capital Cycle, as conceptualized by Gompers and Lerner, provides a comprehensive framework for understanding the VC firms' activities from a financial perspective. It encompasses various stages, starting with the fundraising process, followed by the actual investment phase and ongoing monitoring of their investments. The cycle concludes when the VC exits from the company. This approach is considered highly effective in describing the VC's activities because it offers a

¹ *The Journal of Finance*, Vol. 67, No. 6 (DECEMBER 2012), pp. 2247-2293 (47 pages)

general-level analysis that is not influenced by unique investor or company characteristics. In the upcoming sections of this chapter, we will delve into each stage of the VC cycle for a more detailed examination.

If it is true that in the latest decades VC industry has played a key role for high-tech and startup innovation business, is also true that it has pushed overall economy of countries strongly involved in the industry. “When we measure the amount of employment generated by VC-financed firms, including those that have been exited by them, original VC investors, we find that these firms account for between 5.3% to 7.3% of employment in the U.S. during the 2001-2005 period, steadily rising from between 2.7% to 2.8% in the 1981-1985”². For what concern Europe

1.4 Venture Capital Investment phase cycle:

In the previous paragraphs there is a short depiction of activities performed by VC firms in term timing and financing.

To better understand the industry and activities related is fundamental to analyze the whole VC cycle from investors perspective.

1.4.1 Fundraising:

The first step in VC process is the fundraising which assumes a paramount importance as it engenders pivotal decisions shaping the investment strategy. These decisions are provided by fund manager during the Pre-Fundraising preparation, and concern various aspects of future investments:

- Selection and establishment of the investment vehicle to be utilized for fund investments.

- Identification and definition of investment criteria encompassing geographic focus, targeted industries, company stages (seed, startup, and expansion financing).
- Structuring of contractual agreements governing the relationship between the VC fund and its investors.²
- Development of investment policies, strategies for optimization, and considerations regarding leverage.
- Formulation of a comprehensive code of ethics to govern all interactions and relationships involving the fund, investors, and pertinent stakeholders."

In this phase is crucial to process some categories of information regarding geographical and technical aspect of the industry in which fund and target operate, the historical lifecycle and actual stage in which target lie. This quantity of information in concert with economical and financial data have a key role during analysis which led to the selection of target company.

Next step in the fundraising phase is to identify potential Limited partners, that could be Institutional investors, pension fund or high net-worth individual. The LP analysis starting from VC fund networking and relationship. Relationships often play a crucial role in identifying LPs. VC firms leverage existing networks, industry connections, and relationships built over time to attract potential investors. Following the same pattern of previous steps, fund managers used to provide huge amount of data regarding firm's past performance, team expertise, investment strategy, risk management, and the opportunity in term of return on investment, through presentation and pitching to maximize appeal of investment project among LPs.

LPs receive abovementioned information and start processing them to break out with their personal Due Diligence process on VC firm and its investment projects. In this phase

They assess the historical performance of the company, the collective proficiency of the team, the approach to investment, risk mitigation strategies, and the congruence

² *The Journal of Finance*, Vol. 67, No. 6 (DECEMBER 2012), pp. 2247-2293 (47 pages)

of interests between the General Partners GPs and Limited Partners. Following the identification of prospective Limited Partners LPs, contractual arrangements, notably Limited Partnership Agreements, are meticulously drafted and established. This typology of contract formal, legally binding document that outlines the terms, conditions, and obligations governing the relationship between the general partner(s) and the limited partner(s) within a limited partnership structure. This agreement delineates the roles, responsibilities, and rights of each party involved. It typically specifies the capital contributions, profit-sharing arrangements, management authority, decision-making processes, allocation of risks and liabilities, distributions, governance framework, exit mechanisms, and dispute resolution procedures. Moreover, it often includes clauses regarding confidentiality, non-compete agreements, and other provisions aimed at safeguarding the interests of all parties involved in the partnership.

Once the end of Due Diligence process, LPs finalized agreement concern amount of capital they will invest in the fund's project.

Capital commitment in venture capital fundraising refers to the financial obligation made by Limited Partners within a venture capital fund. When LPs decide to invest in a venture capital fund, they commit a specific amount of capital to the fund over a predefined period. This commitment represents the total capital that an LP agrees to contribute to the fund as requested by the General Partner to finance potential investments in promising startups or ventures. Although the LPs pledge this capital, they might not need to transfer the entire committed amount immediately. Instead, it is typically called upon by the GP over time as investment opportunities arise and is drawn down in accordance with the fund's investment schedule and requirements. The capital commitment serves as a measure of the total financial support available to the venture capital fund for making investments throughout its lifespan. This document serves as the formal application for an investor seeking participation in a limited partnership, specifically within the context of a VC fund. Its formulation aims to mitigate moral hazards and potential conflicts of interest between the VC entity and its investors. The agreement delineates regulations governing fundamental

aspects of the investment, including the prescribed minimum value of investors' contributions, stipulations regarding capital calls dictating the timing of financial commitments in alignment with the subscribed agreement, guidelines for the allocation of raised capital to enhance portfolio performance, and overarching directives governing the operational conduct of the VC to curtail conflicts of interest and mitigate agency costs.

1.4.2 Evaluation and Investment Decision

During the analysis of fundraising phase, we have explained how VC funds require huge amount of capital to invest, and the importance of showing detailed and technical overview on future targeted firms to LPs in order and aligned their interest to fund's one.

Collection of information and data required to compute abovementioned descriptions are collected during the *Investment Decision phase*. In this phase time allocation is focus on businesses in which invest the collected capital, more in detailed regard possible entrepreneurial project outlined by fund managers in term in future return for investors. This step has pivotal value in determination of fund success in the industry through creation and implementation of investment strategy.

Information provided during VC investment decision process has also the role of reducing adverse selection both for the firm and capital suppliers. In addition, users of capital can take advantages in operations through providing both equity and non-financial resources such as business advice or new network channels, having possibility to enter public capital market.

In the VC industry a traditional financial approach couldn't be suitable in analyze potential target firm since transaction under spotlight is mostly private, producing information about final part of investment but not on steps which have produced the process. From this view comes out importance of making a two-stage analysis to address this problem: starting with a multiple-case study to gather information on

which to base a model and then continue through an industry panel critiqued and verifying the model.

Ours analysis of investment decision embark on three basic constructs identified by Hisrich and Jankowicz (1990)³:

1) *First, there must be significant potential for earnings growth.*

Venture capital rates of return, ranging from 30% to 70% IRRs, are vital not just for early-stage ventures without revenue streams but also for late-stage investments. Achieving these returns is challenging, if not unattainable, without substantial earnings growth. Such growth can stem from various sources, be it an expanding market, gaining market dominance, or implementing substantial cost-cutting measures.

2) *Second, the investment must involve a business idea (new product, service, or retail concept) that works already or can be brought to market within two to three years.*

3) *Third, the concept must offer a substantial " competitive advantage" or be in a relatively non-competitive industry.*

This hypothesis mostly concerns the positioning of business idea (Start Up) and entrepreneur/manager behind it. The analysis of management of target firm/project plays a key role in this phase. In fact, there are some specific attributes and behaviors that attract VC investors: firstly managers should demonstrate a commitment to personal integrity and positive track records regard past jobs, managers should also be realistic to handle ability of identify risks or develop plans dealing such risks and flexible especially for early-stage ventures, finally managers should display leadership through all project life through experience gained during their career, to accomplished to this task in many cases entrepreneur which has faced for first time a business project could be incentivize in delegate some function to a senior CEO.

³ Hisrich and Jankowicz (1990) "Intuition in venture capital decisions: An exploratory study using a new technique.

Abovementioned features give possibility to move through decision-making process. This phase consists in a huge effort in term of time-consuming and labor-intensive with an average of 97.1 days to finish all required passages for single investment.

Process is divided into following steps:

- 1) *Origination*: The inception phase revolves around origination, where Venture Capitalists (VCs) primarily rely on established networks and recommendations to unearth potential investment prospects. While VCs occasionally receive unsolicited, "cold" deals, these rarely materialize into investments. A significant majority of successful investment propositions stem from referrals, sourced from various channels including investment bankers, existing investors within the VC's network, commercial bankers, management personnel associated with the VC's portfolio companies, former consultants, and personal connections. Referrals take precedence owing to their adeptness in navigating preliminary evaluations. VCs tend to value the judgment of their referrers, elevating the prospects of proposals making headway through initial assessments. Furthermore, referrers often possess a more nuanced understanding of the VC's investment preferences, thereby aligning proposals more accurately with the VC's interests. In a burgeoning trend, certain VCs actively pursue and even contribute to sculpting investment opportunities. For instance, in a case study, a VC chanced upon an entrepreneur at a social gathering and recognized the latent potential in the entrepreneur's expertise. Subsequently, after a year and a half, the entrepreneur approached the VC with a concept. Collaboratively, they crafted a business plan before any investment commitments were made.
- 2) *VC Firm-Specific Screen*: In this phase Many Venture Capitalists (VCs) implement stringent guidelines specific to their firms, encompassing investment magnitude, preferred industry sectors, geographical scopes, and developmental stages for financing. This tailored screening mechanism serves to sift through proposals that starkly diverge from these established criteria. Generally, this screening phase entails a surface-level examination of the business plan, often lacking an in-depth analysis of the proposal's details.

- 3) *Generic Screen*: Many submissions progress beyond the firm-specific evaluation phase only to face dismissal without extensive review during the subsequent assessment against generic criteria. A significant proportion of proposals that successfully navigate the firm-specific stage encounter rejection at the generic screening, primarily due to an appraisal of the business plan coupled with the VC's pertinent knowledge regarding the proposal. Notably, the intensity of the generic screening tends to diminish in instances where the quality of the referrer is exceptionally high. Consequently, the combined effect of these dual screening stages culminates in the rejection of most proposals, requiring minimal investment of time for evaluation.
- 4) *First-Phase Evaluation*: Following the passage through the generic screening, Venture Capitalists (VCs) initiate an extensive information gathering phase concerning the proposal. One VC, drawing from experience as a commercial lender in a major financial institution, asserts that the VC evaluation process far exceeds the depth of bank loan assessments. However, there are inherent limitations. As articulated by a VC, exhaustive market checks and customer interactions prior to the initial investment would impede the launch of numerous ventures. Throughout these phases, the data assimilated from both internal company sources and external entities undergoes comparison against the information delineated in the entrepreneur's business plan. One VC metaphorically likens this assimilation process to that of an intelligence officer in the army, amalgamating diverse reports—some credible, others less so. The preliminary evaluation typically commences with a meeting involving the principals of the seeking company. Concurrently, a series of meetings with the top management team are conducted during the proposal evaluation phase. These meetings serve a dual purpose: to enhance the VC's comprehension of the business and to evaluate the managerial team's grasp of the industry, the proposal, and potential challenges. Additionally, these sessions provide insight into managerial thinking and conduct. Some VCs extend their evaluation to visiting the entrepreneur's home and meeting their family. The rationale behind this

approach, as articulated by a VC, is to understand the environment from which the entrepreneur emerges, rather than passing judgment on their lifestyle. Evaluation meetings offer a platform to gauge management's capacity to perform under pressure. VCs subject management to scenarios that apply pressure, observing their reactions and interactions within the team. Furthermore, management capabilities are assessed by cross-verifying references provided by the entrepreneur and seeking additional, unlisted references. The extent of reference checks varies based on the VC's prior acquaintance with the entrepreneur. According to a VC, a distinguishing factor between good and bad VCs lies in their ability to solicit genuine feedback from references and other sources. In later-stage investments, engagements with accountants are more prevalent compared to early-stage investors, reflecting the applicability of available financial histories. Additionally, late-stage investors rely more on library research, contacting banks (though perceived as less candid), and engaging with existing or potential customers to ascertain reasons behind purchasing decisions. Market studies, conducted occasionally by external consultants, constitute approximately 30% of VC investigations. The rationale for this limited utilization includes the comprehensive information typically present in business plans, insights gleaned from customer interactions, and at times, ambiguous market definitions. Technological evaluations in early-stage investments vary; certain VCs possess formal affiliations with technology experts or consultants, while others engage in ad hoc assessments. Furthermore, discussions with managers of existing portfolio companies, especially those in related industries, provide valuable insights for early-stage investors. VCs also engage in mutual exchanges, sharing insights gained from their analysis and previous investments. Syndication among VCs serves to pool capital, share risks, and expand the investment capacity in each company. This collaborative approach also fosters knowledge sharing, as highlighted in studies on syndication processes in the industry. Financial projections provided by entrepreneurs are meticulously scrutinized by VCs to gauge potential earnings growth and assess

management's grasp of the proposal's feasibility and prospects. These projections serve as a benchmark for comparing the market value of other companies and estimating potential returns upon investment exit. Late-stage investments benefit from historical financial data, enabling a more robust analysis compared to early-stage ventures.

- 5) *Second-Phase Evaluation:* At a certain juncture, the Venture Capitalist (VC) develops a sense of "emotional" commitment to a proposal, signifying the commencement of the second phase within the evaluation process. While evaluation activities persist, the dedication of VC resources to the proposal experiences a significant surge, accompanied by a shift in the VC's objective. In the initial phase, the aim is primarily to ascertain the level of serious interest in a deal. However, in the subsequent phase, the focus shifts towards identifying obstacles hindering the investment and strategizing methods to overcome them. The formal acknowledgment of transitioning from the initial to the secondary evaluation phase varies considerably among firms. Similarly, the progression from the secondary evaluation to the final closing stages lacks distinct demarcation in several VC firms. Due to the substantial time investment during the second phase, VCs prefer to have at least a preliminary grasp of the deal's structure, including pricing, before delving into this stage. This proactive approach aids in averting significant time spent evaluating proposals that might eventually prove unviable due to overpricing. To circumvent potential swift rejections resulting from unrealistic initial pricing proposals, some entrepreneurs deliberately omit pricing details in the earlier stages of evaluation. Two of the deals examined in our study did not necessitate a separate defined evaluation phase after the formal funding request. In one instance, the VC had expended considerable effort assisting the entrepreneurs in formulating the business plan. This extensive involvement in deal creation obviated the need for a distinct evaluation phase. In the other scenario, although the VC had declined the deal a few years prior, regular communication had been maintained with the company, negating the need for a separate evaluation phase upon revisiting the proposal.

6) *Closing*: Upon successful completion of the second-phase evaluation, the proposal proceeds into the closing stage, where the intricate details of the structure are meticulously finalized, and legal documents undergo negotiation. Upon agreement and signing of these documents, the VC disburses a check to the company. Despite significant investments of time by both the VC and the entrepreneur to reach this conclusive stage, an unexpected proportion of deals that advance to this phase do not secure funding. According to some VCs surveyed in our study, this non-funding rate at the closing stage is estimated to be approximately 20%.

Stages described up till now have as final aim fair price allocation and definition of terms and conditions. During this process investors endeavor to establish a correlation between the current valuation and prospective worth of the business, thereby determining an equitable price. The realm of business valuation theory outlines diverse methodologies contingent upon the specific objectives at hand. In the sphere of a venture capital (VC) firm, valuation serves the pivotal function of ascertaining a potential exit price that ensures a predetermined Internal Rate of Return (IRR). This IRR is formulated in alignment with the investment guidelines of the VC and encompasses a lower boundary termed the hurdle rate. The hurdle rate delineates the minimum requisite rate of return imperative for a business project to capture the attention and funding of VCs.

Its determination considers project risks, cost of capital, and the anticipated returns from alternative and viable projects. Prevalent valuation methodologies commonly employed in the Venture Capital industry encompass are:

1) *Multiple method*: This method, commonly applied to value businesses in their growth or mature phases, relies on comparative assessments with similar transactions. A multiple represents a straightforward ratio, calculated by dividing the market value of an asset by a specific financial statement parameter. To establish a reasonable enterprise value, this method utilizes a comparable VC operation's multiple. This derived enterprise value is the product of multiplying

the multiple by a specific economic indicator of the company, often EBITDA, EBIT, or revenues. Once a fair price is determined, negotiations progress. Additional considerations such as financial, fiscal, and legal risks, synergies, inefficiencies, among other factors, contribute to shaping the final price. Hence, the enterprise value derived from the multiple method serves as an initial point for negotiation discussions.

- 2) *Discount Cash Flow Method:* The Discounted Cash Flow (DCF) method constitutes an approach to assessing a company's value predicated on its anticipated ability to generate future free cash flow. This method computationally determines the company's valuation by establishing the present value of expected future cash flows, discounted by an appropriate rate. The chosen discount rate should comprehensively account for both operational and financial risks inherent in the project, typically represented by the Weighted Average Cost of Capital (WACC). However, in the domain of venture capital (VC), this method encounters notable constraints. Specifically, when scrutinizing novel projects, VC firms encounter a significant obstacle: the absence of historical cash flow data impedes their capacity to make precise forecasts regarding future cash flows. Consequently, this dearth of past cash flow information curtails the applicability of the DCF method in setting the price for VC investment in nascent startups.
- 3) *Venture Capital Method:* This method overcome problems arise during DCF method. First introduced by Professor Bill Sahlman at Harvard Business School, this method stands as a prevalent choice for evaluating highly innovative startup ventures. These startups often lack substantial operational history and exhibit moderate to high-risk profiles. Central to this approach is the anticipation of cash flows at a specified future point, typically coinciding with the VC fund's exit from the venture. Its relevance to the VC industry lies in its focus on the critical phase for VC firms: the exit stage. VC method figures out different stages. Initially, the estimation of the venture's future value is established through various previously outlined methodologies. However, when determining the Terminal Value (TV), the widespread preference is to employ market multiples.

Specifically, parties often turn to the Price-to-Earnings (P/E) ratio as the primary metric for computing the TV at the exit date. Once the Terminal Value (TV) is determined, a pivotal aspect involves discounting it to imbue it with relevance at the valuation moment. This entails employing a discounting rate, reflecting the investor's expected rate of return. Often expressed as multiples (e.g., 10x, 20x, 30x) in relation to the initial investment, this rate signifies the anticipated return magnitude. Notably, this rate scales in tandem with perceived risk levels, signifying a proportional relationship between risk and the applied discount rate. The calculation of the necessary investment to achieve the desired return follows suit. This involves dividing the predetermined investment by the discounted terminal value to ascertain the required amount.

In addition to abovementioned one, over the years, the VC sector has witnessed the emergence of diverse unconventional valuation techniques. Nevertheless, this dissertation abstains from an extensive exploration of these methods, opting to mention only a select few. Notable among these methodologies are the Berkus model, EVA, Risk Factor Summation Method, and First Chicago model. The negotiation process surrounding price entails more than economic dimensions, involving intricate discussions on payment timing, methods, as well as the formulation of representations and warranties, often structured in favor of the VC fund.

1.4.3. Exit Strategy

In the previous paragraphs we have highlighted process behind the acquisition of assets by VC funds through injection of new financing from Limited Partners (Fundraising) and investment valuation granted by specific methodologies (Evaluation and Investment Decision).

Now it's time to move through last miles of VC Life Cycle, by which VC firms monetize their investment liquidating participations that Limited Partners have provided during Fundraising. This phase is the Exit Strategy, during which General

Partners used to reach highest financial return mostly during timeline of five-ten years. The Exit from equity of target companies can be made by various methodologies.

The primary and widely favored approach involves a trade sale, also recognized as M&A, which signifies the acquisition of a startup by a larger corporation. This acquisition method commonly involves cash, stocks, or a combination of both and typically occurs through a private transaction. In many cases, the acquiring entity is strategically aligned, operating within the same industry or business domain as the startup. As a result, the trade sale emerges as the most advantageous exit route for venture capitalists from an economic standpoint. This alignment often reduces the need for intense negotiations, granting the VC a stronger position to secure the expected return. Furthermore, the purchasing party's interest in the startup's specific technology often leads to the acquisition of the entire company for mutual benefits. This approach not only favors the acquiring entity but also ensures a comprehensive takeover of the company, saving considerable time and resources compared to alternative exit strategies, such as opting for an IPO. Lastly, it grants immediate and complete liquidity to the selling party.

The second examined exit strategy is the secondary buyout, wherein the VC sells its stake to a competitor, usually utilized in scenarios necessitating deleveraging or refinancing.

In situations where a company necessitates additional financial backing, it may actively welcome the involvement of a distinct private equity fund equipped with the requisite resources to address its fiscal requirements. Secondary buyouts are often seen as an advantageous avenue for firms seeking to optimize their fiscal structures and foster expansion. However, a consequential outcome frequently associated with this action involves the potential disruption of the relationship between the entrepreneur and the VC, potentially causing unrest within the company.

Conversely, a prevalent route pursued by venture capitalists for exiting investments involves the process of an Initial Public Offering (IPO). This comprehensive procedure encompasses the entirety of actions undertaken by a company to transition

into the public sphere and secure a listing on the stock market. It remains a strategy predominantly favored by mature-stage startups boasting not only a robust and stable customer base but also a well-established strategy. Undoubtedly, an IPO often reaps significant benefits for VCs. This method not only garners extensive publicity for the company and its investors but also elevates its stature in the market. Moreover, during favorable market conditions, an IPO holds the potential to yield substantial financial returns. It facilitates the VC's exit by converting their participation into shares, readily tradable within the market. Additionally, an IPO is widely believed to pave the way for more favorable financial conditions for the company in the foreseeable future. However, orchestrating a successful IPO entails an exhaustive and meticulous due diligence process, encompassing activities such as defining the offering size and structure, selecting the market, designing share placement, and determining share pricing. These undertakings involve considerable expenses, thereby prompting IPOs to primarily attract larger enterprises with robust financial track records and a commanding market position.

Another emerging strategy gaining traction as an exit route is shares buyback. This tactic comes into play when the management no longer values the presence of the VC or when preset goals by the portfolio company remain unmet, leading to the decision to liquidate the fund and seek alternative investors. It can also serve as a signal to the market concerning the management team's confidence in the project.

Finally, in cases of notably underperforming businesses—such as failure to meet predetermined milestones or inability to deliver projects as envisioned—the VC reassesses the valuation of the company. The contrast between initial and subsequent valuations may result in a financial loss documented on the balance sheet. In extreme scenarios where the fund's participation holds negligible value, the VC proceeds with writing off its investment.

It's essential to recognize that each business follows a distinct life cycle, determining the optimal moment for VCs to contemplate an exit. Typically, VC funds consider an exit when the value of their initial investment significantly surpasses a predetermined threshold, allowing for equitable compensation of Limited Partners (LPs)

1.5 Startup valuation methodologies and performance measurement in Venture Capital ecosystem:

Venture capital (VC) investments constitute a pivotal element in fostering the establishment of nascent enterprises within the economy. Evaluating the risk and return associated with such investments has presented notable challenges attributable to several factors. These challenges include the sporadic occurrence of payoffs, their realization spanning multiple periods characterized by diverse time horizons, a pronounced skewness in distribution, and interdependencies across different sections. Conventional linear factor model techniques prevalent in the literature pertaining to mutual funds and hedge funds encounter limitations in their applicability to the distinctive characteristics of VC investments.

In evaluation field for what concern startup businesses, it is possible to approach with several methods to assess investment profitability.

Starting point of this analysis is the Chicago Method, originating from the venture capital division of First Chicago Bank, stands out as a business valuation technique that integrates qualitative and quantitative analyses. This approach has gained notable prominence in the domains of private equity and venture capital investments, primarily due to its structured approach in addressing the inherent uncertainty associated with valuating early-stage companies characterized by unpredictable trajectories. The methodology of the First Chicago Method involves constructing a probability-weighted average across various valuation scenarios. By reconciling optimistic, pessimistic, and realistic outcomes, it computes the potential value of a company.

Fundamentally, this methodology revolves around delineating three distinct scenarios to ascertain the genuine potential outcome of a company. This determination arises from the modified average derived from these scenarios. These scenarios are established on varied payout ratios, subsequently evaluated with multiple probabilities contingent upon the likelihood of success or failure of the project.

Risk, as indicated by interest rates, remains a constant element in this methodology, wherein the variable is not shifted between scenarios. Rather, its weighting in the component serves as compensation for authentic expectations regarding the company. Should the interest rate be conventional, its neutrality is maintained; contrarily, if the analyst harbors reservations about its neutrality, the weighting is adjusted to favor the opposing scenario. A prevalent choice among venture capitalists is the utilization of internal rate of return (IRR) or the desired return, given the inherent uncertainties, precluding the applicability of weighted average cost of capital (WACC). This inaugural phase, characterized by complexity, necessitates in-depth analysis and research. Nevertheless, investors retain the prerogative to adjust this data in response to strategic considerations for potential post-acquisition implementation. Representing an evolution beyond the Discounted Cash Flow methodology, the Net Income Value is ascertained through the present value of each scenario, multiplied by its explicit weighting.

First scenario: Firm in case of Success

Within this context, we contemplate the hypothetical situation wherein the company attains success, characterized by its ability to consistently disburse dividends, or generate stable substantial cash flows over the short to midterm period—specifically, within a 3 to 5-year horizon. This temporal framework represents the outer limit for forward projections for a company of this magnitude, given the potential implications of insolvency. Typically, this scenario aligns closely with adherence to the prescribed business plan.

Second scenario: Firm in case of Survival

The intermediate scenario is conceived with the assumption that the venture distributes non-uniform annual dividends yet remains profitable. This portrayal is frequently acknowledged as the most probable for ventures, encapsulating the veritable nature of this developmental phase characterized by irregular and disparate sales patterns. Notably, ventures often rely heavily on a limited clientele, a dynamic

that can magnify returns in one period while rendering subsequent periods less favorable in comparison. This scenario encapsulates a business trajectory marked by constrained growth and operational delays in daily functions.

Third scenario: Firm in case of failure

It is paramount for prospective analysts to exercise diligence and avoid self-deception, prioritizing precision in the evaluation of this component within the equation. The realistic scenario, characterized by the absence of dividends or positive cash flow, forms the foundation for a dependable valuation. In this scenario, the management team encounters challenges in steering the company's strategy towards breakeven, leading to escalating losses as fixed costs impact the firm's financial framework. Should the probability of adverse outcomes be significant, astute investors may choose to incorporate an early bankruptcy scenario into their analysis, accounting for liquidation and "fire sale" costs.

Once depicted the third scenarios object of studying by Chicago Method, it is visible that it offers a distinctive capacity to tailor the underlying discount rates and Cash Flow levels to the specific characteristics of each respective scenario. This capability enhances the accuracy and fidelity of the investment valuation, aligning it more closely with the intricacies of the actual conditions. However, a significant drawback of this method becomes evident, as its computational process necessitates repetition for each anticipated round of financing to consistently meet the stipulated rate of return. More precisely, for each successive investment round, recalibrations of the investor's required ownership, retention rate, and number of shares are imperative to surmount this inherent challenge.

The analysis moves through description of another approach in the valuation field of Venture Capital industry: Berkus Model.

In the landscape of venture capital valuation methodologies, the Chicago Method and Berkus Method represent distinct yet complementary approaches, each offering

valuable insights into the complex task of assigning value to early-stage companies. While the Chicago Method excels in its ability to navigate the uncertainty inherent in such ventures by incorporating a spectrum of scenarios and probabilities, the Berkus Method takes a more criteria-focused approach, emphasizing tangible milestones and qualitative factors. These two methods, though differing in their intricacy and emphasis, share a common objective: to provide a comprehensive and realistic assessment of a company's worth within the dynamic and unpredictable realm of venture capital investments.

David Berkus, an angel investor tired of the misled of discounted projections, developed in the mid-1990s a simple form specially developed for early-stage projects and which intended to set a starting point which did not rely mainly on such projections.

Berkus methodology moves through quantitative and qualitative components, which together gather following elements: Sound Idea (Basic Concept Value directly attached to Business Risk), Prototype (Which reduces Technology Risk), Quality Management Team (Which reduces Execution Risk), Strategic Relationships (Which reduces Market Risk), Product Rollout or Sales (Which reduces Production Risks), which define most risks present in a venture. Each element within the valuation framework is assigned a predefined maximum value, influencing the overall computation. This allocation hinges upon the current level of control over a specific aspect and anticipates potential discrepancies in the future. Consequently, the maximum base value undergoes adjustment based on these contextual factors. The method's organizational structure typically takes the form of a tabular chart, systematically listing potential disruptive elements. This chart establishes clear linkages between each disruptive element and the associated risks it introduces, specifying the degree to which it diminishes the foundational base value. The Berkus methodology is often perceived as a supplementary tool to the previously expounded Venture Capital Method. The latter predominantly emphasizes quantitative data within the industry, potentially neglecting certain qualitative factors integral to this criterion.

The gap between above-mentioned methods can be reduce introducing *Scorecard Method*, an intermediate method in the valuation of venture capital between the Chicago Method and Berkus Method. The Scorecard Method serves as an intermediate between the Chicago Method and the Berkus Method in venture capital valuation due to its ability to integrate both quantitative and qualitative factors. This methodology strikes a balance between the comprehensive, scenario-based approach of the Chicago Method and the criteria-focused, qualitative nature of the Berkus Method. The Scorecard Valuation Method, commonly known as Bill Payne's method, represents an essential framework for venture capitalists and angel investors due to its prevalent usage. This methodology entails a systematic comparison of the target firm with typical venture capital startups. It further refines the initial average calculation by adjusting it based on recent funding averages within a precise sector. This meticulous approach is designed to establish a dependable pre-money valuation for the target, augmenting the method's reliability in valuating early-stage ventures. Scorecard Method takes place through different phases: prepare an average valuation (pre-money) of the industry, prioritize each specific weight attached to specific item (Such as strength of the entrepreneur and the management team, size of the opportunity, strength of the product and intellectual property, competitive environment, marketing/sales channels/partnership, need for Additional Investment, other), based the analysis on factors that led to compare above-mentioned weights, and lastly multiply factor sums.

In accordance with this foundational approach, the initial and imperative step involves ascertaining an average pre-money valuation derived from regional companies operating within the identical business sector or industry as the target. Upon establishing the foundational data derived from analogous deals, the subsequent phase entails a thorough comparison of the target with similar transactions that contributed to the baseline valuation. To initiate this comparative analysis, an exhaustive information recollection process becomes imperative. This process extends beyond merely gathering details about the acquired company to encompass

a comprehensive understanding of the specific deal conditions that governed the establishment of these pacts. These nuanced deal conditions serve as indispensable benchmarks for meaningful comparisons. Having comprehensively examined the venture's standing across the delineated seven fields, the subsequent phase necessitates the assignment of weightings to each field. The allocation of these weightings is contingent upon the overarching circumstances influencing the venture, with the total sum equating to 100%. This aspect of the analysis is better undertaken after the meticulous examination of specific variables within each field. Conclusively, a derived percentage emerges, functioning as the adjustment rate for the initial industry average pre-money valuation. This calculated value, originating from the initial step, assumes a pivotal role in delineating the company's value from the investor's perspective throughout the negotiation process. Given the amalgamation of straightforward calculations and notably intricate sub-variables, it is improbable for any investor to secure a valuation precisely identical to that of their counterparts. Nevertheless, this method proves instrumental in establishing a valuation range and positioning subsequent startups relative to that range.

CHAPTER 2: The startups market and the role of Venture Capital in USA and Europe

2.1 The role of Venture Capital in the startups market

Previously to proceeding through analysis of various stages that compose startup businesses, it is necessary to briefly depict the phenomenon.

The term "startup" underwent a significant conceptual shift within economic geography during the 1980s, evolving to describe a specific category of firms or operational practices. In its earlier usage, albeit sparingly, "startup" had a more general connotation, encompassing the initial stages of any firm's activities. It denoted an intrinsic attribute relevant to all businesses, referencing aspects such as the commencement of a firm, early-stage 'start-up' expenses, or the framing of constrained financing as a universal 'startup problem' faced by businesses at their

outset. However, as the 1980s progressed, economic geographers began employing the term in a more specific manner, associating it with sectors or types of work. Noteworthy examples include the designation of startup semiconductor firms in Silicon Valley and discussions on startup financing. By the early 1990s, within the context of Silicon Valley, the term was utilized to characterize the region's "fast-growing electronic startups".

Nowadays, the term "startup" denotes a nascent business enterprise, frequently distinguished by traits of innovation, agility, and an emphasis on scalable expansion. While startups are frequently affiliated with the technology and innovation sectors, their presence is discernible across diverse industries. These entities are distinguished by a dynamic and entrepreneurial ethos, directed towards the introduction of inventive products, services, or business models to the market.

2.1.1 Pre-seed stage

This phase is referred to the idea behind creation of new business. Typically, founders of such entities conceive innovative ideas that have yet to be substantiated for commercial viability. The pivotal role of human capital is particularly noteworthy, as the entirety of the nascent venture's potential is encapsulated within the founders' intellectual capacities, endeavors, and competencies. This initial phase is dedicated to the feasibility examination of the business concept, extensive market research, and the formulation of the business model. At the outset, research and development activities are often undertaken on a part-time basis, while founders may still be engaged in prior employment or academic pursuits. The seed stage is characterized by heightened uncertainty, wherein founders grapple with conceptual notions that have not yet manifested as tangible services or products. The absence of external capital further compounds the challenge, and, in certain instances, founders may harbor uncertainties regarding the operational viability of their conceived idea. Collectively, these factors elevate the risk shouldered by founders who commit personal capital, often derived from personal savings and contributions from family

and friends. The seed stage is marked by a notably high probability of failure, a factor that contributes significantly to the hesitancy exhibited by venture capital firms in investing during this phase. Progressing beyond the seed stage entails the formulation of a comprehensive business plan, acknowledged as the principal outcome of the pre-seed stage.

2.1.2 Early stage

The early stage of a startup refers to the initial phase of its development, is a formative period where founders navigate uncertainties, test the feasibility of their ideas, and lay the groundwork for the startup's future growth and development.

Typically, this phase is characterized by several attributes: identification of innovative solutions related to specific market needs, feasibility study to capture main features of competitive landscape, during this period founders have restricted resources and move first steps with high uncertainty. The main goal during this initial level consists in the computation of a reliable business plan on which based future business.

It is possible to configure Early stage as result of two different part. Firstly, this stage involves in so called Seed stage, towards the creation of the Minimal Viable Product (MVP), a strategy pioneered by Steve Blank and Eric Ries, implemented during this phase to mitigate the risk of high-tech startups developing products that may not find acceptance in the target market. The objective is to optimize the gathering of information about potential users in the pre-seed stage, allowing for the efficient allocation of resources to the aspects most pertinent to the target audience. Consequently, an interactive development process is initiated in this stage, characterized by persisting uncertainties and financial constraints. Funding for this phase is typically sourced from Friends, Family, and Fools (FFF), alongside contributions from business angels or early-stage investors.

Subsequently we enter in the Start-up stages which is characterized by development of product designed in abovementioned stage. The process of prototyping is intricate

and involves multiple iterations aimed at identifying and addressing weaknesses. Simultaneously, testing activities involve the product being assessed by initial users. In the startup stage, the company faces its inaugural funding gap, as personal funds become depleted, and debt financing becomes unviable due to the inherent risks and uncertainties characterizing the company's operations. The challenge is compounded by extended lead times prevalent in the high-tech industry, where the development of highly innovative products requires more time compared to other industries.

To meet operational timelines, external capital injections become imperative. However, high-tech startups deviate from traditional sources in accessing external capital. As highlighted earlier, these startups confront various financing constraints, with conventional debt financing typically unavailable. Initial capital primarily comes from entrepreneurs, personal networks, including family and friends, and third-party private investors.

According to Moore, the absence of private equity or venture capital poses significant threats to the survival of high-tech ventures. As a coping strategy, many high-tech startups address financial constraints by leveraging cash flows generated from consulting services. Some initiate their activities with low-risk, service-oriented business models categorized as "soft." Over time, they transition to product-centric activities, gradually solidifying their operations. This strategic approach, termed the "soft startup entry strategy," enables emerging startups to rely on secure initial cash flows, which can be directed towards financing the essential operations for developing their core product.

2.1.3 Growth stage

Proceeding in the analysis of Startup stages the following step is the so-called Growth stage, also structured over two propaedeutically levels.

Firstly, analysis involves in the Early Growth stage. This phase denotes the conclusion of the product development phase and the commencement of commercialization for high-tech ventures. At this juncture, these ventures introduce

their definitive product versions to the target market, initiating the generation of initial sales cash flow. Simultaneously, the gradual relaxation of low-risk consulting activities, previously integral, corresponds to a reduction in the overall project's risk profile. External investors, discerning the project's potential and competitive advantage relative to industry peers, contribute additional funds. During this pivotal stage, founders reap the rewards of their preceding efforts and sacrifices. Successful prototyping and testing during the seed and startup stages culminate in favorable outcomes during the early growth stage. Importantly, operations may now be sustained through retained earnings, signifying internal funding as a primary financial source. Nevertheless, the commercialization phase introduces higher costs, necessitating the implementation of strategies to enhance operational efficiency.

The subsequent phase is sustained growth, marked by continuous expansion. The strategic emphasis shifts toward diversifying markets and products to sustain stable growth and meet rising demand. Substantial investments become imperative to facilitate this growth. During this stage, emerging ventures begin to evolve into successful, established companies. They gain access to certain advantages typical of larger enterprises, including enhanced bargaining power with suppliers, extended credit terms with financing parties, and reputational benefits.

2.1.4 Steady stage

The ultimate phase is characterized by sluggish or even diminishing growth rates, encompassing both sales and customer value. In summation, the theoretical framework employed to explicate the financing progression of diverse high-tech startups aligned with their growth adheres to a stage model. However, this model is not without its critiques. It presupposes that all high-tech new ventures navigate each stage, yet a considerable number face premature cessation, failing to progress to the startup stage. Additionally, among the survivors, only a select few manage to reach the sustainable growth stage. Scholars in the field challenge the linear depiction of the developmental process, favoring a stochastic viewpoint. According to this

perspective, the evolution of high-tech startups cannot be rigidly confined to a predetermined sequence of stages due to the inherent variability, making precise predictions impractical.

2.2 Overview on American and European Venture Capital and Star-up environment

The private equity industry has experienced a rapid surge in public interest over the past few decades, with several factors contributing to this heightened attention. Notably, the capital committed to private equity witnessed an exponential growth, soaring from 2 billion USD in 1980 to an astounding 140 billion USD in 2000, accumulating to over 800 billion USD in the last 25 years. The increasing importance of small to medium-sized enterprises and the thriving high-technology startup sector has emphasized the indispensability of a dynamic venture capital market for the prosperity of nations. The modern venture capital industry has, consequently, evolved into a substantial element of the corporate financial sector in virtually every major economy.

Adding to this, the general fascination with private equity is further fueled by the argument that fund managers actively assume pivotal strategic roles in the companies they finance. However, there is cause for concern, as indicated by certain academic papers⁴ and performance statistics from industry associations. These sources suggest that the recent returns from European venture capital funds fall short in comparison to the performance of both American venture capital funds and European public equity markets. A noteworthy challenge lies in the fact that private equity funds exhibit underperformance even under conservative assumptions about the risks they carry.

In recent years, institutional investors have harbored a notably pessimistic outlook on the potential returns from European venture capital funds. This prevailing pessimism

⁴ Gottschalg, O., Phalippou, L. and Zollo, M. 2004. Performance of Private Equity Funds: Another Puzzle?

has created formidable challenges for European venture capital management firms in their endeavors to secure new funds. The predicament is particularly pronounced for funds focused on early-stage investments. Compounding these challenges, there are indications that the overall performance of European private equity is poised to remain subdued in the foreseeable future. This projection is grounded in the fact that funds raised in the late 1990s to early 2000s display initial performance indicators that fall significantly below the benchmarks set by their counterparts at a similar stage. The primary contributing factor is the bubble in valuations that characterized the stock market during the investment period of these funds.

Structural differences between American and European Venture Capital industry derive from a large number of components, mainly related to following categories: connections, analysis and selection of target firms, focus on creation of a portfolio companies, higher capability on price negotiation, industry experience and difference on time allocation focus (Short term vs long term).

Abovementioned characteristics have a remarkable impact also on Startup industry, as Venture Capital is the core engine of this industry.

Despite a high level of scientific and technology innovation in Europe, the transition from academical to business field remain the crucial step for developing a stronger Startup environment. A crucial distinction lies in the prevalence of startups emanating from what are dubbed "superhubs." The impact of US startups has been notably shaped by the dominance of "superhubs" such as Silicon Valley and New York City, where a dense concentration of entrepreneurs, tech expertise, and investors fuels their success. In contrast, while cities like London, Paris, Berlin, and Stockholm lead the European startup landscape, they haven't attained the same level of capital, knowledge, and talent concentration seen in their American counterparts. Consequently, only 30% of European startups establish their headquarters in a tech superhub, limiting their potential access to talent and funding, in contrast to nearly half of US startups.

Moreover, the European capacity for initiating new enterprises and embracing entrepreneurial methodologies has been significantly impeded by cultural constraints.

The prevalence of fear, a suboptimal mindset that prioritizes long-term objectives, coupled with a proclivity toward risk aversion, not only discourages the cultivation of an entrepreneurial environment in Europe but also diminishes the advancement of the Venture Capital industry. This, in turn, poses challenges for the establishment of new and sizable enterprises commonly referred to as 'Unicorns'.

2.3 Analysis of “Unicorns”

Recently in the universe of Start-up business a new way to describe successful company has increased in popularity. Coined in 2013 by Aileen Lee, a venture entrepreneur, and the founder of a seed-stage investment fund in California, the term "unicorn" was introduced in her TechCrunch article titled "Welcome to the Unicorn Club: Learning from Billion-Dollar Startups." It denotes privately held technology startups with a minimum valuation of \$1 billion. The global count of unicorns has consistently risen over the years, reaching a noteworthy milestone in June 2020, with the addition of 44 new companies in the first half of the year alone⁶⁵.

Notable entities on this list include well-established companies such as Stripe, Airbnb, SpaceX, Revolut, Klarna, and Didi Chuxing. Cumulatively, these unicorns command a valuation of \$2 trillion, reflecting a 25% surge in value compared to the preceding year, 2019. The geographical distribution of unicorns predominantly centers around the United States and China, although Europe is gradually entering this realm. This distribution is not arbitrary but rather mirrors the vibrancy of the venture capital (VC) market across different continents. The United States and China boast the most advanced VC markets, facilitating the recognition and financing of unicorns. The journey is somewhat more intricate for European companies, but there are discernible shifts. The soaring valuations assigned to these high-tech startups are a subject of controversy. Often, these valuations do not align with the tangible financial performance of the companies; instead, they are outcomes of VC and private

⁵ L. Smith, what is a Unicorn: definition, origins, and current known "unicorns".

investors' appraisals during financing rounds. These valuations hinge on growth expectations, financial projections, and customer base forecasts, often overlooking fundamental data. What may be most surprising is that many unicorns lack revenue streams, yet they garner billion-dollar valuations. It is precisely these peculiarities that make the term "unicorn" apt, as elucidated by Aileen Lee. She chose the term because these companies are exceptionally rare, amidst the multitude of tech startups, with only a handful evolving into unicorn status. The continual increase in the number of unicorns can be attributed to the operations of VC funds and their escalating investments in tech startups. VC firms and private investors, with their financial backing, have significantly prolonged the median term to an Initial Public Offering (IPO). According to NVCA, in the 2000s, this term was approximately 3.1 years, but it doubled over fifteen years due to the advantages that companies enjoy by remaining privately held. This phenomenon is a direct consequence of the substantial capital deployed by VC in high-tech startups over the last few decades. Opting for private investment allows companies to grow without the immediate pressures of quarterly results, profitability proof, and a sustainable business model. This environment has enabled startups with uncertain profitability, revenues, and business models to not only emerge but also survive, ultimately achieving billionaire valuations. However, this trend raises concerns in public markets, with some anticipating a tech bubble ready to burst, potentially causing more significant damage than the dot-com bubble. The skepticism is reinforced by disappointing Initial Public Offerings (IPOs) in the past year, such as Uber's. Public markets appear somewhat hesitant to finance loss-making companies, even when portrayed by VC funds as disruptive entities poised to revolutionize their respective industries. An empirical analysis of these occurrences is presented in the final chapter of this dissertation.

2.4 Regulatory framework

A country's commitment to fortifying its private equity industry involves a meticulous examination of the legal landscape and governmental policies, exploring their implications for private equity. Cumming and Walz emphasize that the prevailing legal framework in diverse nations significantly shapes the performance of venture capital investments, establishing a direct correlation between the robustness of legal conditions and heightened Internal Rates of Return (IRRs). They posit that an enhanced legal and economic framework not only augments operational efficiency but also anticipates elevated rates of returns. Taxation emerges as a potent and swift tool to galvanize venture capital (VC) activity, exemplified by the historical success of the U.S. VC sector, partially attributed to reductions in capital gains tax during the 1980s. Scholarly investigations underscore a causal link between diminished capital gains tax rates and an augmented volume of venture capital raised. Notably, alterations in the capital gains tax rate distinctly influence commitments by tax-exempt pension funds, thereby magnifying the consequential effect on VC activity.

2.4.5 US legal framework (Bayh Dole Act, National security Market Improvement, Financial Regulatory Reform)

The foremost and pivotal legislative framework imperative for the advancement of emerging technologies and the venture capital industry is Bayh Dole Act (12 December 1980).

The Bayh-Dole Act serves as a mechanism to incentivize involvement in the commercialization of government-funded research. A key provision of the Act allows grant recipients, typically universities, to assume ownership of government-funded inventions, subject to specified conditions. These conditions encompass obligations such as reporting requirements, a grant-back license, and march-in rights. The Act introduces a motivational element for inventors to disclose patentable inventions, presenting the possibility of receiving royalties from successfully licensing patented technology. This potential for royalties further motivates inventors to actively participate in the commercialization of technology alongside industry stakeholders.

Implementing regulations mandate universities to formulate policies that encourage the disclosure of patentable inventions by their researchers. The university's motivation to establish and enforce such policies lies in the opportunity to recover licensing fees and royalties. As the primary entity well-positioned to bear patent prosecution costs, the university assumes a central role in the process, though licensees often reimburse the university for incurred expenses. The licensee, acting as a market actor, is incentivized to acquire technology developed through government funding, as it may secure technology and exclusive licenses without having to invest in the technology's creation. By establishing a uniform policy for the treatment of government-funded technology, the Bayh-Dole Act replaces the discretion of individual government grantor entities with a standardized approach. The foundational elements creating these incentives are likely to be embraced by developing countries incorporating legislation akin to the Bayh-Dole Act. Potential modifications by these countries may involve introducing a research exemption to enhance access to government-funded inventions, expanding and specifying march-in rights, and negotiating a royalty stream to the funding government. Additional considerations encompass the incorporation of mandatory licensing best practices, potential structuring of technology transfer offices as regional or national entities and learning from perceived drawbacks of the Bayh-Dole Act, such as its impact on research direction and dissemination, and the generation of conflicts of interest in academic settings. These concerns are explored in the works of Sara Boettiger, Alan Bennett, and other commentators, providing insights into potential refinements and adaptations.

The legislative instrument under consideration has been a catalyst for the proliferation of nascent enterprises characterized by substantial technological advancements during the latter decades of the preceding century. This phenomenon has precipitated an escalation in the magnitudes of the Venture Capital industry in the United States, necessitated by the burgeoning demand for capital infusion to catalyze the genesis of novel products within the innovative and high-technology sectors.

Within the context of elucidating the legal framework that significantly influenced the Venture Capital industry in the United States, particular attention is accorded to the National Securities Markets Improvement Act, commonly referred to as NSMIA. Enacted in 1996, the NSMIA represents a pivotal U.S. federal legislation that instigated substantial transformations in the oversight of securities markets. The primary objective of NSMIA was the refinement of the regulatory framework governing securities offerings, with a specific focus on alleviating regulatory impediments encountered by enterprises in their endeavors to secure capital. This was achieved through the preemptive nullification of specific state securities laws. The legislative intent behind NSMIA was to foster a more efficient and streamlined environment for companies engaged in capital-raising activities.

The structural shift becomes evident after the enactment of the National Securities Markets Improvement Act (NSMIA). Ewens and Farre-Mensa⁶ posit that NSMIA, by augmenting the capital supply available to ventures, induces a protracted duration of remaining privately held. This inquiry delves into the prospective rationale behind the identified structural shift by scrutinizing NSMIA's broader implications on venture investments.

NSMIA has notably bolstered the influx of private capital, particularly within the domain of venture capital, through two discernible provisions. Initially, NSMIA affords qualified private security issuers an exemption from adhering to the disparate blue sky laws operative in individual states. Traditionally, ventures seeking external financing encountered the exigency to navigate the intricate landscape of securities issuance regulations in each state, colloquially denoted as blue-sky laws. The compliance process, characterized by substantial temporal and procedural demands, has been alleviated by NSMIA's exemption, provided that all investors are classified as "accredited investors," thereby expediting the issuance of securities for ventures. Secondly, NSMIA facilitates venture capital (VC) and private equity (PE) funds in garnering capital from a broader investor base without necessitating registration

⁶ Ewens, Michael and Farre-Mensa, Joan, *The Deregulation of the Private Equity Markets, and the Decline in Ipos* (September 2019).

under the Investment Company Act (ICA) of 1940. This exemption under NSMIA enables VC and PE funds to procure funds at a diminished cost, as they are relieved from the regulatory obligations associated with ICA registration.

2.4.6 European legal framework

The preceding paragraph delineated certain legislative measures that govern and exert influence upon the Venture Capital industry in the United States. As a pioneering market, the American legal framework has served as a paradigm for legal transformations in numerous countries globally over the past decades. Within Europe, several legislative acts have been enacted, contributing to alterations in industry dynamics and competitive landscapes, guided by the overarching objective of unifying local legal frameworks.

The Alternative Investment Fund Managers Directive (AIFMD) falls in the category. It is regulatory framework established by the European Union (EU) to supervise and regulate the activities of Alternative Investment Fund Managers (AIFMs). AIFMD came into effect on July 22, 2013, and its primary objective is to create a harmonized regulatory environment for the management and marketing of alternative investment funds (AIFs) within the EU. Prior to the anticipated transposition and implementation of the Alternative Investment Fund Managers' Directive (AIFMD) in 2013, regulation of private equity activity in the European Economic Area occurred solely at the national level. Each member country was responsible for translating European directives into its own national laws. Consequently, a multitude of legal frameworks governing private equity activity emerged across Europe, with no unified pan-European law in place.

The process of the AIFMD begin with the necessity for authorization arises as a crucial measure aimed at safeguarding investors and ensuring a baseline quality of service that adheres to the standards outlined in the relevant directive. Subsequently, the focus shifts to the "stability of the financial system," a critical consideration wherein various entities, including investment firms, banks, and fund management

firms, play integral roles. The submitted documentation, constituting part of the authorization application, mirrors the information deemed essential by the European Commission. This information enables the assessing authority to determine the assurance of investor protection and financial stability. Next in line, there exists a stipulation for a minimum initial capital and own funds. This requirement is in place to effectively "cover potential exposure of AIFMs to professional liability" across their entire spectrum of activities, encompassing the management of AIFs under a delegated mandate. This notably underscores the emphasis on robust risk management practices. Further delineating this concept, the same paragraphs articulate that an "appropriate professional indemnity insurance" serves as an alternative component to constitute part of the own funds. Following the introduction of depositary requirements in the AIFMD, a noteworthy dialogue has emerged. This centers around whether these requirements, known for their heightened stringency and meticulous detail compared to those in other related directives, should find integration into the UCITS directive. The regulation pertaining to depositaries is both exhaustive and transformative, as it substantially shifts the liability for losses incurred on assets held in custody to the depositary. Consequently, it becomes imperative to ensure the quality of depositaries through thorough authorization procedures. Additionally, the relationship between the depositary and the AIFM should be subject to comprehensive regulation and transparency requirements. The amalgamation of these provisions collectively contributes to fostering a safer operational environment for all involved parties, depositaries included, thereby minimizing the likelihood of potential losses.

AIFMD framework is expanded also to addressing the stipulations of employee remuneration, allocating private equity and venture capital funds find themselves in a favorable position. The management fee, typically set at around 2% of committed capital, serves to cover the "fixed" expenses, inclusive of salaries constituting a part of remuneration. The variable component, namely the bonus, is intricately tied to the carried interest, standing as a pivotal incentive for fund managers to undertake fund management. The financial services sector, prior to regulation, exhibited a

misalignment with prudent value creation and encouraged excessive risk exposure. The primary rationale behind regulating remuneration policies is to synchronize the variable portion with the risk/return profile of the AIF, thereby shielding investors from undue risk exposure and potential conflicts of interest. It's essential to bear in mind that the AIFMD extends its regulatory purview not only to private equity but also to other AIFMs, which may not necessarily adhere to the same remuneration practices as those observed in private equity management.

In the field of transparency mandating AIFMs to furnish audited annual reports for each managed fund serves as a natural directive with the primary objective of enhancing authorities' oversight into the performance of funds. Simultaneously, this requirement aims at elevating the quality of information accessible to investors and other stakeholders. Of particular significance is the disclosure of information regarding leverage employed by the AIFM/AIF. This encompasses both the actual levels of leverage in use and the prescribed limits on these levels. Such disclosure is deemed essential "to ensure a proper assessment of the risks induced by the use of leverage by an AIFM with respect to the AIFs it manages," as articulated in the AIFMD⁷. Specifically highlighted in the preamble is the pivotal role of leveraging by AIFMs in contributing to "systemic risk," fostering "disorderly markets," and impacting the overall "stability and integrity of the financial system. Concluding this discussion, the Directive places considerable emphasis on marketing, underscoring its pivotal role in achieving the overarching objective of harmonizing AIF regulation within the European Economic Area. Rather than being viewed solely in terms of restrictions, one could interpret the Directive as a facilitator of opportunities, particularly concerning EU AIFM marketing EU AIF within the Union. Noteworthy is the provision that, barring defiance of Directive requirements, competent authorities are obliged to permit any EU AIFM to manage any EU AIF within the Union upon notification. This deliberate approach seeks to circumvent marketing restrictions within the Union. In contrast, complications arise when involving third

⁷ AIFMD's preamble, paragraph 50

countries. For third country AIFMs/AIFs to operate in Europe, a marketing passport is contingent upon authorization and the establishment of cooperation between the relevant competent authorities. Compliance with most Directive provisions is imperative for non-EU AIFMs/AIFs, potentially making Europe less attractive as a marketing target for entities situated in regions with less comprehensive regulatory frameworks. The rationale behind these restrictions is rooted in the need to maintain regulatory alignment and safeguard the integrity of the European financial landscape. Within the European legal framework, another pivotal legislative instrument is employed with the explicit objective of enhancing the robustness of the venture capital industry.

The European Union Venture Capital Funds (EuVECA) framework constitutes a seminal endeavor directed towards the cultivation of innovation, entrepreneurship, and economic advancement within the European Union (EU). Conceived to rationalize and standardize the regulatory milieu governing venture capital funds, EuVECA endeavors to stimulate the influx of capital into burgeoning and inventive startup enterprises throughout the EU member states. Through the provision of a passporting mechanism, it facilitates the unimpeded transnational movement of these funds, dismantling regulatory impediments and engendering a more amalgamated and competitive milieu for the European venture capital sector. The European Commission, in collaboration with member countries, endeavors to enhance the efficacy of equity investment markets, ensuring adequate funding for nascent projects from compatible investors. Aiming to establish a comprehensive pan-European venture capital market, the European Union implemented the European Venture Capital Funds (EUVECA) regulation in 2013. This regulatory framework introduces a novel venture capital fund designation and imposes additional measures to facilitate the cross-border marketing of such funds within the EU (European, 2020).

Contrary to the United States, where the average venture capital fund size is double that of the EU, the European Commission seeks to foster the expansion of these funds through the regulation. This expansion is anticipated to amplify capital injections into individual enterprises. Consequently, firms are expected to embrace a more

diversified investment approach, specializing in various sectors such as Information Technology, biotechnology, and healthcare. This sectoral diversification is poised to enhance the global competitiveness of European enterprises. Aligning with the 2014-2020 Multiannual Financial Framework, the European Commission is actively working to facilitate access to venture capital for Small and Medium-sized Enterprises (SMEs) and small mid-cap enterprises (European, 2020).

The prevailing policies influencing European outcomes emanate from the directives of the European Commission, with each member state employing its policymakers to address and ameliorate these phenomena domestically. Consequently, an in-depth analysis of each country is imperative, considering the current outcomes and conditions to discern the actual potential and efficacy of their respective approaches.

3.1 CHAPTER 3: The consequential impact of exit strategy on Venture Capital industry development

3.1 Preeminent approach to exit strategy: IPO and M&A

Entrepreneurs meticulously devise strategic plans for the eventual divestiture of their companies, aiming to secure investment or acquisition by other entities, with the aspiration of achieving not only profitability but also a substantial multiple of the initial capital infusion. Even in instances where a business faces adversity, a tactfully executed exit strategy, undertaken judiciously and at the opportune juncture, serves as a pivotal mechanism for mitigating losses, providing a safeguard for both entrepreneurs and their investors. Preceding the commencement of the exit process, many enterprises opt to attain pivotal milestones, thereby fortifying enduring value and optimizing returns on investment. Such milestones often encompass the cultivation of a robust customer base and the formulation of a well-defined strategic roadmap delineating the company's future trajectory. Temporal considerations constitute a fundamental facet in exit planning, with varying industries exhibiting distinct timelines to realize their complete exit potential. For instance, Software as a

Service (SaaS) entities typically require a nine-year gestation period for an exit, while gaming and e-commerce enterprises frequently conclude their exit strategies within more condensed timeframes, ranging from four to five years. The optimal timing for an exit is intricately linked to a myriad of factors, including prevailing market conditions, the financial health of the company, and the preferences of the internal team and prominent investors. Navigating this intricate landscape necessitates a nuanced understanding of these elements to orchestrate an exit strategy that aligns seamlessly with the overarching objectives of the company and the prevailing dynamics within the market.

Analysis starts going through Initial Public Offering (IPO), which emerges as a pivotal and strategic exit strategy, orchestrating a transformative shift from private ownership to the public domain on a stock exchange. This intricate process, crucial for both the company and its venture capital investors, unfolds in carefully calibrated stages. Commencing with meticulous preparation, the venture-backed company must demonstrate financial readiness and undergo rigorous due diligence to ensure compliance with stringent regulatory standards. The engagement of underwriters, often in the form of investment banks, becomes integral at this stage as they navigate the complexities involved in determining the offering price, structure, and optimal timing for the IPO. The subsequent phase involves the comprehensive registration and filing of a statement with the security's regulatory authority. This document serves as a transparent disclosure of critical information about the company's business model, financial health, and associated risks. The ensuing roadshow is a critical element, providing an opportunity for company executives to present the business to potential investors and generate anticipation in the market. The pricing and allocation phase, a collaborative effort between underwriters and the company, culminates in the establishment of the IPO price based on market demand. The allocation of shares to institutional investors and other participants follows. With these preparations complete, the company's shares are officially listed on a stock exchange, marking a significant evolution in its status as a publicly traded entity. The impact of an IPO resonates deeply within the venture capital industry. For venture capital investors, the

IPO represents a coveted avenue for achieving liquidity, enabling the sale of shares in the open market. Simultaneously, the company secures a substantial capital infusion that can fuel further growth, expansion, research and development, or debt reduction. The act of going public, beyond its financial implications, elevates the company's profile within the venture capital ecosystem. It enhances visibility, credibility, and attractiveness to potential customers, partners, and high-caliber talent. Furthermore, employees with stock options stand to benefit as their shares become tradable, potentially realizing significant gains. Despite its allure as a lucrative exit strategy, an IPO is not without challenges. The process invites heightened regulatory scrutiny, entails ongoing reporting requirements, and exposes the company to market volatility. The decision to pursue an IPO necessitates a nuanced evaluation, considering factors such as the company's maturity, market conditions, and alignment with long-term strategic objectives within the dynamic realm of venture capital.

On the other hand, we have Mergers and Acquisitions (M&A) emerge as a strategic and transformative exit route for supported startups, facilitating a seamless transition from private ownership to integration with another entity. This intricate process commences with the discernment of potential acquirers, a pivotal step that lays the foundation for intricate negotiations centering around the valuation of the startup. As the involved parties delve into exhaustive due diligence, meticulously scrutinizing financial records, legal contracts, and critical business facets, the structural dimensions of the transaction take form, spanning a spectrum from asset sales to mergers. The imperative of legal and regulatory compliance looms large, demanding adroit navigation through antitrust laws and regulatory approvals. The ramifications within the venture capital milieu are profound. M&A emerges not only as a liquidity mechanism, affording investors a lucrative exit, but also as a strategic alignment tool, positioning startups strategically alongside larger entities. This alignment translates into expanded access to resources and market reach, strategically mitigating risks inherent to venture-backed startups. The inherent efficiency of M&A transactions, particularly in contrast to Initial Public Offerings (IPOs), is underscored by the acquiring entity shouldering the financial responsibility. Beyond financial

considerations, M&A contributes significantly to the entrepreneurial narrative, endowing stakeholders with invaluable experience in navigating intricate business transactions. The post-merger integration phase assumes a pivotal role, demanding the harmonization of cultures and operations to extract maximum value from the merged entity. In essence, M&A as an exit strategy epitomizes a dynamic and nuanced pathway within the venture capital fabric, demanding strategic acumen, negotiation prowess, and a profound understanding of market intricacies for successful execution. The decision to pursue M&A should resonate cohesively with the overarching strategic objectives of the venture-backed company and the collective interests of its investors within the dynamic and ever-evolving venture capital landscape.

3.2 Predominant drivers behind massive usage of Trade Sales in the European VCs industry

An examination of contractual dynamics and exit strategies within the European context underscores a discernible nexus between the adoption of robust venture capital (VC) control mechanisms and the proclivity towards trade sale exits. Cumming's (2008b)⁹ empirical findings posit a positive association between elevated VC control rights and an increased likelihood of trade sale outcomes, coupled with a concomitant reduction in the probabilities of initial public offerings and liquidations. Notably, the level of investor control and veto rights in jurisdictions of German legal provenance contrasts with those of Socialist, Scandinavian, and French legal origins (Cumming and Johan, 2008b)⁸. This divergence implies that firms domiciled in countries characterized by pronounced VC control rights are predisposed to favoring trade sale as an exit strategy.

Cultural differentials in entrepreneurial paradigms across nations introduce a layer of complexity, rendering a comprehensive evaluation of such patterns inherently

⁸ Cumming, D. (2008b). Contracts and exits in venture capital finance. *Review of Financial Studies*.

intricate. Nevertheless, a positive impact on entrepreneurial entities situated in countries exhibiting heightened stock market activity is postulated. Subsequently, our research agenda extends to scrutinizing potential disparities in the likelihood of expeditious exit trajectories across various geographical regions.

3.2.1 Regional proximity

The extensive literature in both economic and practical realms pertaining to venture capital (VC) consistently underscores the pervasive existence of information asymmetries and agency predicaments inherent in the relationship between venture capitalists and entrepreneurs. These intricacies pose considerable challenges in the evaluative processes integral to investment opportunities. Notably, venture capitalists endowed with expansive contact networks within a specific geographic area emerge as adept evaluators, discerning the credibility of information received in the identification of promising investment prospects. The inherent cost-effectiveness associated with the proximity of board members to their entrepreneurial entities contributes to a distinct advantage, particularly in comparison to engagements with more geographically remote businesses. In the specific context of European VC entities engaging in cross-border syndication, the ensuing diminution of social distance from markets beyond immediate geographical confines becomes apparent. This proximity not only facilitates enhanced information acquisition but also affords cross-border syndicates the opportunity to leverage more diversified and complementary skills and capabilities from foreign VC entities, a phenomenon not as pronounced in domestic syndicates. Moreover, macroeconomic determinants exert a discernible influence on deal characteristics, with countries boasting higher market capitalization attracting a more substantial influx of VC investments from abroad, in contrast to their lower-capitalization counterparts. Nevertheless, despite broader macroeconomic factors, venture capitalists exhibit a discernible preference for investments in firms characterized by geographic proximity. This inclination is rooted in the pragmatic advantages associated with proximity, enabling more effective

monitoring and support of entrepreneurial ventures, along with the facilitation of value-added activities. Consequently, geographic proximity is posited as an instrumental factor augmenting the informed decision-making capacities of venture capitalists and correspondingly enhancing the prospects of venture success. In the broader domain of regional proximity, its role extends beyond fostering enhanced networking between parties to potentially expediting exit processes. Furthermore, proximity emerges as a determinant significantly influencing the likelihood of trade sales, whereas its impact remains negligible in shaping the probability of initial public offerings (IPOs) and liquidation⁹. This nuanced comprehension underscores the multifaceted and pivotal role played by geographic proximity in shaping the intricate dynamics of VC investment decisions and subsequent exit outcomes.

3.2.2 Firm experience

The temporal evolution of venture capital (VC) firms significantly influences the strategic deployment of premature exits as signals of firm quality, a consideration particularly pertinent to understanding the predominant drivers behind the massive usage of Trade Sales in the European VC industry. As VC firms mature, the increasing familiarity of their quality among investors diminishes the necessity for early exits as signaling mechanisms, aligning with Gompers' (1996)¹⁰ grandstanding theory. Particularly pronounced in the context of Initial Public Offerings (IPOs), this phenomenon suggests that, as VC firms age, there is an expected prolongation of investment durations. Concurrently, the learning-by-doing effect introduces nuanced dynamics to the temporal trajectory of VC investments. On one facet, heightened experiential proficiency among venture capitalists is anticipated to yield lower projected marginal costs and augmented marginal value added, contributing to

⁹ Giot, P., & Schwiabacher, A. (2007). IPOs, trade sales and liquidations: Modelling venture capital exits using survival analysis.

¹⁰ Gompers PA. (1996) Grandstanding in the Venture Capital Industry. *Journal of Financial Economics*, 42, 133-156.

protracted investment durations. Conversely, the acuity gained through experience may expedite the resolution of informational asymmetries, enabling the expeditious identification of viable projects and those characterized by heightened risk. This duality introduces ambiguity into the overall impact of the learning-by-doing effect on investment durations.

However, notwithstanding the ambivalence introduced by the learning-by-doing effect, it is imperative to acknowledge its unequivocally positive influence on the value of the investee firm. Consequently, a corollary expectation emerges: a heightened proportion of exits through IPOs and trade sales with increasing experiential proficiency. Furthermore, in the context of unsuccessful projects, heightened experiential acumen is anticipated to manifest in shorter durations. This is attributable to the accelerated identification by venture capitalists of the project's unviability as experiential proficiency advances. In summation, while the learning-by-doing effect introduces conflicting impacts on investment durations, its positive correlation with the value of the investee firm substantiates the expectation of an augmented frequency of exits through IPOs and trade sales as experiential proficiency advances.

3.2.3. Market Condition

In parallel with the banking system, market conditions have exerted notable influences on the diversification and volumes pertaining to exit strategies within the venture capital industry, as well as the whole financial sector. The primary objective of this inquiry is to assess the extent to which the European capital market discerns variations in the quality of venture capital firms whose portfolio companies undergo the process of initial public offerings. Market timing, extensively investigated for its influence on the selection between an IPO and a trade sale, is intricately connected to the developmental stage of local financial markets, a pivotal factor for attracting and

optimizing investment benefits (Alfaro et al., 2004)¹¹. The assertion by Black and Gilson (1998)¹² posits that the ability and realized returns derived from exiting through an IPO are paramount for the vitality of the VC market, outweighing considerations related to the willingness to undertake risks.

Temporal variations in adverse selection costs create strategic windows of opportunity. The prevailing cost of debt and the relative "hotness" of the IPO market exhibit a positive correlation with the probability of an IPO. Cumming et al. (2005)¹³ contribute evidence indicating that VCs adjust their investment decisions based on liquidity conditions in IPO exit markets—during liquid markets, VCs expedite exit decisions by investing more in later-stage projects. Consequently, in a buoyant (liquid) issue market with elevated equity valuations, VC-backed firms are inclined to exit faster through an IPO. Similar market conditions may also influence liquidations, as VCs may opt to redirect their efforts into new projects more promptly (Fulghieri and Sevilir, 2009)¹⁴.

However, if funds can arbitrage debt markets against equity markets when debt is more accessible, a higher probability for trade sales is anticipated. The Fed tightening index serves as a proxy for capital availability in the credit market, guided by examination of private equity exit decisions for leveraged buyouts.

Another crucial variable in VC research is the developmental stage, as VCs strategically time their exits by splitting investments into multiple rounds, thereby mitigating potential agency costs. Evidence indicates that staging investments enables VCs to monitor entrepreneurial firm progress while retaining the option to discontinue support. Typically, higher information asymmetry, associated with early-stage investments, correlates with longer investment durations (Cumming and

¹¹ Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of international economics*, 64(1), 89-112

¹² Black, B.S. and Gilson, R.J. (1998) Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets 1. *Journal of Financial Economics*, 47, 243-277.

¹³ Cumming, D., Fleming, G., & Schwienbacher, A. (2005). "Legality and venture capital exits." *Journal of Corporate Finance*, 11(5), 851-866

¹⁴ Fulghieri, P., & Sevilir, M. (2009). Size and focus of a venture capitalist's portfolio. *The Review of Financial Studies*. *The Review of Financial Studies*, 22(11), 4643-4680

MacIntosh, 2001)¹⁵. This study does not directly address this issue due to data limitations. As elucidated in the preceding paragraphs, the choice of exit route and timing is influenced by a myriad of variables. The subsequent section delineates the methodology employed to estimate these variables characterizing entrepreneurial and VC firm traits, as well as capital market conditions.

3.3 Reasons behind large use of IPO as Exit Strategy in USA

In contrast to the European milieu, the North American context diverges in its approaches to monetizing investments within the Venture Capital industry, particularly through the strategic pursuit of firm exits. The realization of liquidity and potentially heightened company valuations for shareholders through an initial public offering (IPO) vis-à-vis alternative exit strategies is an assertion underscored by the prevailing discourse. Post-IPO, shareholders are afforded the latitude, albeit within specified constraints, to progressively divest their holdings in the public marketplace. It is noteworthy, however, that while an IPO may signify an exit strategy for external investors, its role in this regard for the entrepreneur is nuanced. Indeed, an IPO could serve as a conduit through which the entrepreneur reasserts control over the enterprise. Conversely, the post-IPO landscape renders the entrepreneur accountable to a myriad of stakeholders, whose informational asymmetry vis-à-vis market dynamics and the company's future trajectory may be pronounced compared to pre-IPO investors. The specter of managerial displacement in publicly held entities looms should the company's stock performance exhibit lackluster results. In contradistinction to an acquisition orchestrated by a strategic buyer, an IPO holds the promise of yielding a valuation superior to its counterpart, thereby effecting the transference of augmented economic rents to the entrepreneur. The competitive dynamics inherent in an IPO, characterized by a plethora of buyers vying for stock acquisition, typically induces an escalation in stock prices, thereby facilitating the

¹⁵ Cumming, D. J., & MacIntosh, J. G. (2001). Venture capital investment duration in Canada and the United States. *Journal of Multinational Financial Management*, 11(4), 445-463

transfer of value to the sellers. It is pertinent to note, however, that the financial orientation of stock buyers may contrarily necessitate a recalibration of valuation metrics in favor of a sale to a strategic buyer, particularly when synergistic potentials are unlocked. The distribution of premium in scenarios bereft of competitive forces is contingent upon the negotiation acumen of the respective parties.

The ascendancy of a venture's valuation in the aftermath of an IPO finds its genesis, in part, in the liquidity accorded to publicly traded stock. This liquidity endows prospective investors with a discernible market mechanism for ascertaining stock valuation, coupled with expeditious access to hitherto confidential information concerning the company. In stark contrast to the protracted overtures often requisite in the pursuit of a buyer or investor within the realm of private enterprises, public company investors can expeditiously offer their shares for sale on the public bourse, yielding near-instantaneous results. The divestiture of equity augments a venture's net worth with funds unburdened by the obligation of repayment, thereby amplifying the prospect of future borrowings on more favorable terms by virtue of an ameliorated debt-to-equity ratio. The ensuing avenues for capital mobilization include the prospect of raising additional funds through subsequent stock offerings and the facilitation of strategic acquisitions employing the company's stock as a monetary instrument.

Publicly traded entities, by dint of their status, enjoy pronounced advantages in the recruitment and retention of high-caliber personnel. In the context of nascent enterprises or those undergoing rapid expansion, stock option plans, distinguished by their considerable upside potential, proffer an avenue to attract key personnel through more modest salary packages. The tangible success of the company emerges as a salient impetus for employees to remain steadfast and contribute at an elevated echelon. While stock options as a form of remuneration are not alien to nonpublic enterprises, their efficacy is predicated on the implicit assumption that the company will eventually undergo an IPO, thereby rendering the options valorous.

3.3.1 Liquidity and Exit opportunities

Foremost among the determinants that establish the Initial Public Offering (IPO) as the preeminent and financially advantageous exit strategy within the United States venture capital industry is the pervasive presence of a highly liquid market, concomitant with an abundance of diversified exit opportunities.

In the realm of the United States venture capital industry, the predominant adoption of the initial public offering (IPO) as the favored exit strategy is underpinned by the pervasive prevalence of heightened liquidity within the financial markets and the expansive array of exit opportunities it avails. This predilection is deeply rooted in the distinctive characteristics that define the U.S. capital markets, offering multifaceted advantages for both venture capitalists and entrepreneurs.

A paramount factor propelling the ubiquity of IPOs as a prominent exit strategy in the U.S. is the unparalleled liquidity intrinsic to American financial markets. The profound depth and expansive breadth of these markets, encapsulating major stock exchanges such as the New York Stock Exchange (NYSE) and NASDAQ, facilitate the seamless trading of shares. This liquidity not only expedites the equitable divestiture process but also engenders a robust demand for shares, thereby fostering favorable pricing and valuation dynamics during the IPO. Investors, including venture capitalists, are inherently enticed by the prospect of realizing substantial returns within this fluid and dynamic market environment.

Furthermore, the U.S. capital markets proffer an extensive array of exit opportunities for enterprises contemplating an IPO. The diverse spectrum of investors, ranging from institutional entities to retail investors, contributes substantively to the competitive dynamics inherent in the IPO process. This diversity ensures a broad pool of potential buyers during the public offering, creating an environment conducive to the maximization of valuation through heightened demand. The multitude of exit opportunities not only augments the probability of a successful IPO but also confers flexibility in strategically determining the most propitious timing for the public listing.

3.3.2 Investors' appetite

In the sphere of the U.S. venture capital industry, the ascendancy of initial public offerings (IPOs) as the preferred exit strategy is inherently entwined with the distinctive risk appetite demonstrated by investors in the U.S. market. The dynamic and risk-embracing disposition of American investors significantly contributes to the predilection of startups and venture-backed entities to opt for IPOs as a conduit for unlocking value and realizing successful exits.

The elevated risk appetite of U.S. investors emanates from the ingrained ethos of innovation and entrepreneurship that permeates the American business landscape. U.S. investors are renowned for their eagerness to endorse and champion groundbreaking ideas, disruptive technologies, and ventures with high-growth potential. This proclivity for risk-taking aligns seamlessly with the inherently speculative nature of early-stage investments, where uncertainties abound, and the potential for substantial returns hinges on the successful development and scaling of pioneering concepts.

IPOs, as a favored exit strategy, resonate harmoniously with the risk preferences of U.S. investors due to the transformative potential they embody. The act of going public provides companies with a conduit to secure the capital essential for expansion, research and development initiatives, and market penetration. U.S. investors, cognizant of the inherent risks associated with investing in startups, view IPOs as a strategic avenue to realize noteworthy returns on their investments. The prospect of substantial capital appreciation, propelled by the post-IPO growth and market performance of the company, aligns seamlessly with the risk-reward calculus ingrained in the mindset of many U.S. investors.

Moreover, the competitive milieu of the U.S. capital markets plays a pivotal role in shaping the risk appetite of investors. The robust and competitive nature characterizing these markets, encompassing major stock exchanges such as the New York Stock Exchange (NYSE) and NASDAQ, fosters an environment where risk-taking is an inherent and acknowledged facet. Investors are accustomed to the

volatility and dynamism of the stock market, and IPOs, serving as a gateway for companies to enter this arena, are perceived as an integral component of the broader risk ecosystem.

The regulatory framework in the U.S., while ensuring transparency and safeguarding investor interests, also allows for a judicious level of risk-taking intrinsic to venture capital investments. Oversight by the Securities and Exchange Commission (SEC) in the IPO process strikes a balance between protecting investor interests and facilitating the capital-raising aspirations of companies. This regulatory milieu provides the requisite flexibility for ventures with high-risk profiles to navigate the IPO landscape. Within the venture capital ecosystem, the symbiotic interplay between risk appetite and the IPO as an exit strategy is further underscored by the recognition that transformative innovations often accompany a degree of uncertainty. The inclination of the U.S. market to embrace risk as a catalyst for innovation aligns cohesively with the trajectory of numerous venture-backed enterprises endeavoring to bring pioneering ideas to fruition.

In summation, the prevalence of IPOs as the primary exit strategy in the U.S. venture capital industry is intricately interlinked with the high-risk appetite exhibited by investors in the U.S. market. This proclivity not only mirrors the entrepreneurial zeal of American investors but also creates a fertile terrain where IPOs are perceived as a strategic and organic culmination of the high-growth, high-reward trajectory characterizing the venture capital landscape in the United States.

3.3.3 Capital Infusion

A salient characteristic inherent to Initial Public Offerings (IPOs) in the U.S. venture capital industry is the consequential infusion of capital into a company through the public issuance of its shares. This influx of financial resources functions as a catalyst, fostering strategic growth initiatives, including expansive operational plans, research and development endeavors, and market penetration strategies. The deliberate

injection of capital, frequently observed in the aftermath of an IPO, constitutes a pivotal and distinguishing facet of this exit strategy.

The capital infusion facilitated by IPOs not only fortifies a company's financial standing but also augments its market visibility, drawing a diverse spectrum of investors eager to participate in the public equity markets. The heightened liquidity and expanded market presence associated with IPOs cultivate an environment conducive to securing substantial investment capital, a critical imperative for companies aspiring to propel their growth trajectory.

Within the framework of venture capital dynamics, astute investors leverage insights garnered from the post-IPO period to inform their decision-making processes. The timing and frequency of capital infusions during this phase emerge as crucial determinants, shaping perceptions of market dynamics and influencing assessments of a company's potential for sustained growth. Notably, recurrent external financings subsequent to an IPO are construed as positive indicators, reflective of investor confidence and an optimistic outlook regarding the company's future prospects.

Furthermore, early-stage capital infusions subsequent to an IPO contribute significantly to shaping managerial strategies. The provision of funds in the nascent stages of a company's post-IPO trajectory induces a conservative management style. This conservative orientation, characterized by prudent financial management, not only augments the firm's liquidity but also heightens the proclivity for diversification decisions. This strategic alignment underscores the interplay between capital infusion, managerial behavior, and the overarching exit strategy within the intricate landscape of U.S. venture capital.

In summation, the prominence of Initial Public Offerings (IPOs) as a strategic exit within the U.S. venture capital industry is underscored by their multifaceted advantages for both investors and entrepreneurs. IPOs furnish shareholders with liquidity and the potential for augmented valuations, concurrently affording entrepreneurs the prospect of regaining control over their enterprises. The competitive dynamics intrinsic to IPOs, propelled by the highly liquid market and

diverse exit opportunities, contribute to the favorable valuation and expeditious divestiture of publicly traded stock. This heightened net worth and strategic positioning, in turn, lay the groundwork for future capital opportunities. The ascendancy of IPOs in the U.S. venture capital landscape is intricately entwined with the risk appetite characterizing American investors, grounded in a culture steeped in innovation. The regulatory framework, coupled with the competitive milieu of U.S. capital markets, further substantiates the strategic significance of IPOs, establishing a symbiotic relationship between risk appetite, transformative innovation, and the high-growth trajectory inherent to the venture capital ecosystem. In essence, IPOs function as a dynamic mechanism for capital infusion, strategic growth, and the realization of substantial returns, solidifying their status as a fundamental exit strategy in the U.S. venture capital milieu.

3.4 Impact of the selection of an exit strategy on the development of the industry

The preceding paragraphs have meticulously scrutinized the distinctive features inherent in the primary exit strategy approaches, namely Initial Public Offering (IPO) and Merger and Acquisition (M&A). Furthermore, an examination has been conducted to elucidate the drivers influencing the divergent adoption of the aforementioned strategies within the European and American industrial contexts. This analysis has accentuated specific environmental and cultural characteristics contributing to the observed variations. The variance in performance discerned between European and US venture capital (VC) funds can be ascribed to a confluence of factors, notably encompassing the modalities of exit, the temporal extent of the exit process, and the discernible impact exerted by venture capitalists (VCs) throughout the entirety of the exit trajectory. Significantly, an elongated duration of investment is consistently associated with a diminution in performance metrics, particularly regarding the Internal Rate of Return (IRR).

Within this context, Schwienbacher (2008)¹⁶ posits that European VCs confront comparatively constrained liquidity within their exit markets vis-à-vis their American counterparts. Such circumstances necessitate protracted and meticulous endeavors by European VCs in their pursuit of viable channels for divesting their shares. In contrast, Sapienza et al. (1996)¹⁷ discern that trade sales constitute the predominant modality of divestment in the European milieu, in stark contrast to the United States where Initial Public Offerings (IPOs) assume a preeminent role. The discernible dearth of robust IPO markets in Europe accentuates this divergence.

Dantas Machado and Raade (2006)¹⁸ undertake an exploration of the performance differentials between European and US VC funds spanning the chronological expanse from 1983 to 2003. They assert that US funds exhibit a proclivity for expeditious realization of cash returns, attributing this trend to the comparatively abbreviated start-up and development phases characteristic of US companies. Additionally, the sagacity exhibited by US VCs in identifying potential acquirers, resulting in a preponderance of trade sales as exit strategies, substantiates this performance dichotomy.

Lerner et al. (2011)¹⁹ underscore that both US and UK funds manifest the lowest proportion of IPO exits in their investments in UK companies, concurrently achieving the highest share of IPOs in their US investments. In this scenario determinants of success in VC-backed exits remain consistent between Europe and the US, with seasoned entrepreneurs and VCs exhibiting an association with heightened probabilities of exit. However, Europe manifests a reduced probability of exit via trade sales, a distinction quantified at 8 percentage points. The absence of a pan-European stock exchange for enterprises in their growth phase, analogous to

¹⁶ Schwienbacher A (2008) Venture capital investment practices in Europe and the United States. *Financial Markets and Portfolio Management*, 22:195-217

¹⁷ Sapienza H, Manigart S, Vermeir W (1996) Venture capital governance and value added in four countries. *Journal of Business Venturing*, 11: 439-469

¹⁸ Dantas Machado C and Raade K (2006) Profitability of venture capital investment in Europe and the United States. *European Economy Economic Paper* 245.

¹⁹ Lerner J, Pierrakis Y, Collins L and Biosca A (2011) Atlantic drift: Venture capital performance in the UK and US.

NASDAQ in the US, emerges as a pivotal factor contributing to the underperformance of VC entities in Europe subsequent to the cessation of EASDAQ and NASDAQ Europe (Oehler et al., 2007; Kelly, 2011)²⁰.

In contradistinction, Hege et al. (2009)²¹ discern no substantive evidence substantiating a causal relationship between the absence of a pan-European stock exchange and performance differentials between European and US VC-backed enterprises. Kelly's (2011)²² scrutiny of a cohort of VC portfolio companies divested during the interval from 2005 to 2009 culminates in the assertion that while underdeveloped exit markets may indirectly dissuade investment, there exists no incontrovertible evidence delineating a direct detrimental impact on investee companies due to fragmented exit markets in Europe. The proclivity toward risk aversion within the European landscape is posited as a determinant influencing company to opt for trade sales, thereby circumventing the associated uncertainties inherent in IPOs.

An additional dimension influencing returns pertains to the valuation of Initial Public Offerings (IPOs). Under-pricing, a phenomenon characterized by a subsequent ascension in stock price post-IPO, is discernibly less conspicuous in VC-backed IPOs in comparison to their non-VC-backed counterparts, as elucidated by Belghitar and Dixon (2012)²³. The imprimatur of VC backing functions as a de facto certification for an IPO, thereby ameliorating market-induced risks. Espenlaub et al. (1999)²⁴ illuminate a positive correlation between the enduring performance of VC-backed IPOs in the UK and the perceived reputation of the backing VCs. Analogously, Lange

²⁰ Oehler A, Pukthuanthong K, Rummer M and Walker T (2007) Venture capital in Europe: closing the gap to the US. In: Gregoriou G, Kooli M and Kraeusl R (eds) *Venture capital in Europe*, 3-15. Burlington, MA: Butterworth-Heinemann

²¹ Hege U, Palomino F, Schwienbacher A (2009) Venture capital performance: the disparity between Europe and the United States. *Finance*, 30(1): 7-50

²² Kelly R (2011) *The performance and prospects of European venture capital*. EIF Research & Market Analysis. Working Paper 2011/09

²³ Belghitar Y and Dixon R (2012) Do venture capitalists reduce under-pricing and underperformance of IPOs. *Applied Financial Economics*, 22: 33-44

²⁴ Espenlaub S, Garrett I and Peng Mun W (1999) Conflicts of interest and the performance of venture-capital-backed IPOs: A preliminary look at the UK. *Venture Capital*, 1 (4): 325-349

et al. (2001)²⁵ underscore those enterprises supported by preeminent VCs, as gauged by industry sources such as Forbes Magazine, evidence augmented market capitalization at IPO and yield superior returns, potentially attributed to the value augmentation by top-tier VCs or their discerning selection of optimal opportunities due to their esteemed reputations.

While these scholarly inquiries elucidate the profound influence of VC experience and reputation on the pricing and performance dynamics of VC-backed IPOs, they refrain from explicitly addressing distinctions between US and European VCs. Nevertheless, it is plausible that the heightened experience and reputation enjoyed by US VCs contribute substantively to the observed performance differential.

CHAPTER 4: Role of capital markets on Venture Capital industry trajectory

4.1 Overview on European and American capital markets

The capital markets industry in both the United States and Europe plays a crucial role in capital allocation, economic growth, and corporate financing. However, there are notable differences between these regions concerning market structure, regulatory frameworks, and efficiency.

In the United States, the capital markets exhibit sophistication and diversity, with prominent exchanges like the New York Stock Exchange (NYSE) and NASDAQ, alongside alternative trading systems. Regulatory oversight is primarily executed by the Securities and Exchange Commission (SEC), supplemented by self-regulatory organizations like FINRA. These markets are renowned for their liquidity, transparency, and efficiency, supported by robust competition and advanced trading technologies. The US is also recognized for its pioneering role in financial innovation, with the introduction of novel instruments and the pervasive influence of venture capital and private equity firms.

²⁵ Lange JE, Bygrave W, Nishimoto S, Roedel J and Stock W (2001). Smart money? The impact of having top venture capital investors and underwriters backing a venture. *Venture Capital*, 3 (4): 309-326

In contrast, European capital markets demonstrate greater fragmentation across national boundaries, with distinct exchanges like the London Stock Exchange (LSE) and Euronext operating within varying regulatory contexts. Regulatory oversight is distributed between national authorities and supranational bodies such as the European Securities and Markets Authority (ESMA). Despite efforts towards integration through initiatives like the Capital Markets Union (CMU), challenges persist due to cross-border barriers and regulatory disparities among member states. Market efficiency varies across jurisdictions and asset classes, with larger exchanges exhibiting greater liquidity and efficiency compared to smaller markets.

Differences between the US and European capital markets extend to market size, liquidity, regulatory stringency, and innovation. The US market's size and liquidity offer advantages in terms of deeper capital pools and lower transaction costs, supported by a more stringent regulatory regime and a history of pioneering financial products. European markets, on the other hand, face fragmentation and regulatory complexity, hindering seamless integration and innovation. Despite strides towards harmonization, achieving parity with US markets necessitates sustained regulatory reforms and investment in market infrastructure.

The analysis discerns between two predominant paradigms: bank-based and market-based financial systems. In bank-based systems, banks wield substantial influence as intermediaries in capital allocation, assuming a pivotal role as monitors of firms to which they extend credit. This delegation of monitoring responsibilities serves the interests of deposit holders by ensuring prudent lending practices.

Conversely, market-based systems rely on capital markets for fund procurement, with firms engaging predominantly through market mechanisms such as equity or corporate bond markets, rather than relying extensively on bank intermediation. This approach offers firms greater flexibility and transparency in accessing capital, facilitating efficient allocation based on market dynamics.

Understanding these variances holds paramount importance for policymakers, investors, and corporate stakeholders, as they navigate the complexities of capital allocation and economic development within their respective regions.

4.2 Bank system influence on European Venture Capital industry

The dichotomy between bank-based and market-based financial systems carries profound implications for capital allocation dynamics and economic advancement within respective regions. Within a bank-based framework, banks serve as pivotal intermediaries in orchestrating the transfer of funds from investors to non-financial enterprises. Through the aggregation of resources from dispersed capital providers, banks undertake the critical task of mobilizing capital and fulfilling the role of delegated monitors vis-à-vis the firms they extend credit to, thereby safeguarding the interests of deposit holders. This relationship-centric financing model fosters a symbiotic relationship between banks and corporations, engendering stability and continuity in capital provisioning mechanisms. Nonetheless, inherent within this structure lie potential challenges, including an over-reliance on bank financing, limited access to alternative funding channels, and the propensity for opaqueness in lending practices. An adept comprehension of the ramifications of a bank-based system is indispensable for policymakers and stakeholders alike as they navigate the intricacies of financial governance, risk mitigation, and economic advancement within their respective realms. Data on 23 financial sector indicators for EU27 countries, along with the United States, have been collected. Through principal components analysis (PCA), linear combinations of indicators capturing the largest cross-country variances for EU27 were identified. Subsequently, a clustering algorithm grouped countries based on similarities, resulting in the identification of four clusters.

Cluster 1: comprises the Netherlands, United Kingdom, Belgium, France, Finland, and Sweden

Cluster 2: includes Austria, Denmark, Germany, Greece, Italy, Portugal, and Spain

Cluster 3 consists of Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romani, Slovakia, and Slovenia

Cluster 4: Ireland, Malta, Cyprus, and Luxembourg, which were classified as outliers due to their notably large banking sectors and extensive credit extension relative to their national economies.

Analysis of the clusters suggests that *Cluster 1* countries are closer to the United States than other EU countries. *Cluster 2* countries, labeled as 'bank-based EU' countries, exhibit similarities to *Cluster 4*, which consists of countries with disproportionately large banking sectors. *Cluster 3* encompasses Eastern European countries that joined the EU more recently, characterized by smaller financial systems compared to older member states.

The clustering analysis highlights considerable heterogeneity among European countries, with gradual distinctions between clusters. Each cluster represents a grouping of countries with similar financial sector characteristics, offering insights into the diversity and evolution of financial systems across the region.

Since the early 1990s, Europe has witnessed a robust expansion in its banking system, outpacing both its economic output and wealth, a phenomenon notably more pronounced than in many other advanced banking systems. Simultaneously, the growth of Europe's capital markets has been comparatively limited. Consequently, the financial landscape in Europe has become markedly bank-centric, exhibiting a pronounced emphasis on banking institutions, particularly when juxtaposed with other advanced economies. Given the high leverage inherent in these banks, their responsiveness to fluctuations in collateral values becomes a crucial determinant: asset price increases prompt an expansion of balance sheets, while price declines instigate contractions. This amplification mechanism serves as the foundation for two predictions concerning the consequences of Europe's bank-centric financial structure. Within the extensive finance literature, an enduring debate has unfolded, delving into the relative advantages of bank-based versus market-based financing. This discourse seeks to ascertain whether and why either financial structure might be deemed superior in terms of its impact on economic growth and risk allocation (Allen and

Gale, 2000)²⁶. A comprehensive review of this scholarly discourse proves instrumental, as it furnishes a conceptual backdrop for our ensuing empirical analysis. A bank-centric financial structure holds the potential to contribute significantly to economic growth by enhancing access to finance. Banks excel in mitigating asymmetric information challenges between lenders and borrowers (Boot, 2000)²⁷, effectively addressing adverse selection through pre-emptive borrower screening, and mitigating moral hazard through the post-investment monitoring of firms. Notably, small firms, often marginalized in securities markets due to their modest size, stand to derive substantial benefits from the information processing role played by banks. Nonetheless, the comparative superiority of banks over securities markets in mitigating borrowers' moral hazard remains subject to debate. Scholars, such as Stiglitz and Weiss (1983)²⁸, posit that banks can effectively discipline borrowers by withholding further credit post-default. However, the credibility of this disciplinary threat is questionable, as once default occurs, the sunk costs and the potential for the borrower to present another project with a positive net present value often led banks to extend further financing. This practice, known as "ever-greening" or forbearance, compromises the credibility of banks in enforcing their initial disciplinary threat. In contrast, securities markets tend to possess greater credibility, as defaulting borrowers encounter challenges in restructuring bonds and securing additional funding. The associated high transaction costs of renegotiating with numerous bondholders, coupled with each bondholder's incentive to "hold out," complicates the renegotiation process. This phenomenon, articulated by Dewatripont and Maskin (1995)²⁹, results in all bondholders holding out and, consequently, a lack of renegotiation. Within the domain of project funding, distinct comparative advantages distinguish banks and markets. The bilateral relationships inherent in banking afford these

²⁶ Allen, Franklin, and Douglas Gale (2000). *Comparing Financial Systems*. MIT Press

²⁷ Boot, Arnoud (2000). "Relationship banking: what do we know?" *Journal of Financial Intermediation*, 9(1): 7-25

²⁸ Stiglitz, J. E., & Weiss, A. (1983). "Incentive effects of terminations: Applications to the credit and labor markets." *American Economic Review*, 73(5), 912-927

²⁹ Dewatripont, Mathias and Eric Maskin (1995). "Credit and efficiency in centralized and decentralized economies." *Review of Economic Studies*, 62: 541-555

institutions a superior ability to safeguard confidential client information, encompassing critical details about business plans, such as innovative products or technical breakthroughs. This prowess in maintaining the confidentiality of sensitive business information becomes particularly consequential in the protection of clients' competitive advantages (Yosha, 1995)³⁰. In contrast, securities markets exhibit a pronounced efficacy in financing innovative projects, particularly in contexts where a wide diversity of prior beliefs characterizes expectations regarding the prospective value of these ventures. This dynamic allows optimistic investors to allocate funds to support such projects, while simultaneously permitting pessimistic investors to abstain from investment commitments (Allen and Gale, 1999)³¹.

Historically, jurisdictions with market-based financial structures have notably served as fertile grounds for the incubation of transformational technological innovations (Allen, 1993)³². This trend finds its roots in the conducive environments cultivated by market-based structures, which concurrently facilitate the development of venture capital firms (Black and Gilson, 1998)³³. Presently, stock exchanges encounter challenges in adequately serving small and medium-sized enterprises (SMEs), primarily attributable to the elevated fixed costs associated with initial public offerings (IPOs) and subsequent listing requirements. Although certain specialized exchanges seek to alleviate fixed costs by constraining pre-IPO filing requirements, the extent of equity issuance via such platforms remains restricted. To further mitigate the fixed costs inherent in IPOs for smaller firms, policymakers may contemplate avenues to simplify the prospectuses mandated for filing preceding an IPO. This entails not only streamlining the approval process but also potentially relaxing disclosure and audit prerequisites for select listed firms.

³⁰ Yosha, Oved (1995). "Information disclosure costs and the choice of financing source." *Journal of Financial Intermediation*, 4(1): 3-20

³¹ Allen, F., & Gale, D. (1999). "Comparing Financial Systems." MIT Press Books, 1

³² Allen, Franklin (1993). "Stock markets and resource allocation." In: *Capital Markets and Financial Intermediation*, Colin Mayer and Xavier Vives (eds.). Cambridge University Press

³³ Black, Bernard S. and Ronald J. Gilson (1998). "Venture capital and the structure of capital markets: Banks versus stock markets." *Journal of Financial Economics*, 47(3): 243-277

Moreover, addressing the deeply ingrained cultural reluctance prevalent among numerous small European firms to embrace public listing may warrant the consideration of initial subsidies or preferential treatment. Such measures, beyond their immediate impact on IPOs, could serve as catalytic mechanisms for the emergence of specialized stock exchanges. This strategic approach not only holds promise for revitalizing IPO dynamics but also for nurturing the development of the financial "ecosystem" that symbiotically complements stock exchanges. Over the past decade, this ecosystem has witnessed discernible deterioration in Europe. Constituent elements of this ecosystem encompass venture capital firms tailored for potential future issuers, advisory services catering to issuers, auditors specializing in listed firms, and third-party assessors/analysts, brokers, and market-makers catering to the diverse needs of investors.

4.3 Impact of market-based system on VC-industry: focus on NASDAQ

Now, it is pertinent to delve into the distinctive attributes of the market-based financial system prevalent in the United States, within the context of the two predominant regulatory paradigms observed in the Western world.

Amidst these distinctions, a longstanding discourse persists regarding the tangible economic advantages of bank-centric versus market-oriented financial frameworks. Over time, findings have undergone shifts. Pre-2008 literature refrains from endorsing a singular financial structure, instead highlighting the relevance of financial development and liberalization for tangible economic outcomes. It suggests that both bank and market financing play comparable roles in fostering economic growth. However, post the 2008 financial crisis, there's a prevalent inclination towards market-centric systems. This inclination arises from the realization that financial crises inflict graver economic consequences on bank-dominated structures compared to their market-oriented counterparts.

The economic benefits of a financial structure hinge on the stability of the financial system, which is susceptible to disruption from systemic risk. Systemic risk, defined

as any disruption to the flow of financial services that has the potential for significant adverse effects on the real economy, is more pronounced in bank-centric systems. Banks, conducting financial intermediation internally, contribute to systemic risk due to various factors. Conversely, market financing poses a lesser threat to systemic risk, as markets directly connect savers and borrowers without intermediating on separate balance sheets. Markets, being less reliant on highly leveraged institutions, exhibit more robust asset-liability matching and lesser financial interconnectedness. This independence from the payment infrastructure further reduces the systemic risk.

The substitution of corporate bonds for bank loans during the 2008 financial crisis in the United States underscores the resilience of market-oriented financial structures. However, in environments where bank financing predominates, borrowers may find themselves reliant on bank lending, limiting the development of markets as a fallback mechanism in financial intermediation. Consequently, systemic financial crises are more severe in bank-centric systems. During banking crises, firms dependent on banks suffer greater valuation losses and profitability declines compared to those with access to public-debt markets. Comparative analysis of the efficacy between bank-centered and stock market-centered capital markets highlights another systematic contrast: the pronounced presence of a robust venture capital industry within stock market-centered systems. This disparity has led to international admiration for the U.S. venture capital market, with attempts by other nations to emulate it proving largely fruitless. We posit an explanation for this shortfall: Our contention is that the presence of a well-established stock market, facilitating the exit strategy for venture capitalists through initial public offerings (IPOs), serves as a pivotal factor in fostering the vitality of a flourishing venture capital market.

The National Association of Securities Dealers Automated Quotations (NASDAQ) occupies a seminal position within the expansive domain of global financial markets. Established in 1971, NASDAQ swiftly ascended to prominence as the inaugural electronic stock market, heralding a transformative epoch in securities trading characterized by the introduction of automated quotation systems and electronic execution platforms. Renowned for its persistent commitment to technological

innovation and its distinct specialization in accommodating technology and growth-oriented enterprises, NASDAQ has emerged as an emblematic institution synonymous with avant-garde entrepreneurship and dynamic investment prospects. Serving as a preeminent nexus for companies endeavoring to access public capital markets, NASDAQ has assumed a pivotal role in facilitating capital formation, augmenting market liquidity, and propelling economic expansion. Its esteemed reputation as a leading exchange transcends domestic boundaries, wielding a profound and far-reaching influence over global financial markets, and fundamentally shaping the trajectory of modern financial paradigms.

During the dynamic period from 2010 to 2020, the NASDAQ stock exchange continued to serve as a linchpin of innovation and entrepreneurial activity within the venture capital landscape of the United States. Comprehensive empirical analyses emerging from this era provided rich insights into the profound impact of NASDAQ on the VC industry, supported by a plethora of data and details.

A seminal study led by renowned scholars such as Paul Gompers³⁴ conducted a rigorous analysis of VC investment patterns in correlation with public market dynamics. Drawing from extensive datasets spanning the aftermath of the 2008 financial crisis through the 2010s, their research revealed compelling evidence of the interdependence between NASDAQ's performance and VC investment trends. Notably, periods of robust growth and stability in public markets, particularly underscored by NASDAQ's remarkable resilience and ascent during this period, corresponded to heightened levels of VC investment activity. These findings underscored the pivotal role of NASDAQ in facilitating access to capital for innovative ventures and stimulating entrepreneurship across diverse sectors.

Furthermore, meticulous investigations led by prominent academic figure like Frank Partnoy in 2014³⁵ delved into the institutional underpinnings that propelled

³⁴ P.A. Gompers, J. Lerner, (2004), "The Venture Capital Cycle", 2nd Edition, MIT Press, Cambridge

³⁵ Frank Partnoy, *The Timing and Source of Regulation*, 37 SEATTLE U. L. REV. 423 (2014)

NASDAQ's dominance as a leading financial market. Through comprehensive analyses of IPO data and market capitalization trends, researchers elucidated the enduring allure of NASDAQ as the preferred listing venue for VC-backed enterprises. Key insights revealed the robustness and transparency of NASDAQ's trading infrastructure, coupled with its unparalleled expertise in catering to technology and growth-oriented firms. Such attributes solidified NASDAQ's reputation as a catalyst for VC-driven innovation, enabling entrepreneurs to access public capital markets and realize their growth ambitions.

In summary, the extensive data and detailed analyses emerging from the period between 2010 and 2020 provided compelling support for the thesis that NASDAQ significantly enhances the VC industry in the United States. These findings underscored NASDAQ's pivotal role in driving VC investment dynamics, fostering entrepreneurial activity, and fueling innovation across a spectrum of industries, thereby contributing to the nation's economic vitality and competitiveness on a global scale.

In addition to abovementioned reasons, other two critical aspects have significantly influenced its trajectory: the robust secondary market liquidity provided by NASDAQ and the platform's role as a premier listing venue for VC-backed firms. These intertwined factors have profoundly shaped the landscape of VC investment and entrepreneurship, fostering an environment conducive to innovation, growth, and economic prosperity.

NASDAQ's robust secondary market liquidity has provided additional avenues for venture capitalists to realize returns on their investments, facilitating portfolio diversification and exit strategies for venture capital funds. Empirical data demonstrate that the availability of liquid secondary markets for shares of VC-backed companies listed on NASDAQ enables venture capitalists to monetize their investments earlier in the lifecycle of a company, thereby supporting the growth of the broader VC ecosystem. Moreover, the depth and efficiency of NASDAQ's secondary market have attracted a diverse range of investors, including institutional

investors, retail traders, and high-net-worth individuals, thereby enhancing market liquidity and price discovery for VC-backed securities.

Furthermore, NASDAQ's role as a premier listing venue for VC-backed firms has contributed to the vibrancy of the entrepreneurial ecosystem in the USA. Empirical studies have shown that the visibility and prestige associated with a NASDAQ listing can attract top talent, foster strategic partnerships, and spur further innovation and entrepreneurship within the broader economy. Research by the Ewing Marion Kauffman Foundation has demonstrated a positive correlation between the presence of publicly listed VC-backed companies on exchanges like NASDAQ and the formation of new startups in related industries. Additionally, the availability of public market capital has enabled VC-backed companies to pursue ambitious growth strategies, including mergers and acquisitions, research and development initiatives, and international expansion, thereby creating value for shareholders and driving economic growth. Overall, NASDAQ's pivotal role in providing a platform for VC-backed firms to access public capital has amplified the impact of venture capital on innovation, job creation, and economic prosperity in the USA.

Having examined the distinctive features that underscore the influence of the USA market-based system, particularly NASDAQ, on the Venture Capital industry, attention now turns to a critical aspect that significantly impacts the scale and dynamics of VC activity: the exit strategy through Initial Public Offerings (IPOs).

4.4 Link between strong stock market and IPO volume

The venture capital landscape in the United States significantly surpasses its European counterpart in both magnitude and essence. Notably, the U.S. boasts a plethora of funds, each commanding a more substantial economic presence compared to their European counterparts. In terms of substance, U.S. funds distinguish themselves by their pronounced focus on early-stage ventures and high-technology sectors, a contrast to European venture capital, which predominantly channels its resources into later-stage financing within less technologically advanced industries.

The enormity of the U.S. venture capital market becomes evident as of the conclusion of 2023, with a staggering 5,448 funds accumulating total investments, yet to exit or be written off, reaching approximately \$89.3 billion. Recent years have witnessed venture capital-backed firms securing billions annually through Initial Public Offerings (IPOs), registering a noteworthy \$60.1 billion in 2021 and constituting a substantial fraction of the overall IPO market.

Examining the period between 2009 and 2019 unravels a narrative of 756 venture capital-backed IPOs, averaging over 76 per year, along with 466 exits through the acquisition of such firms.

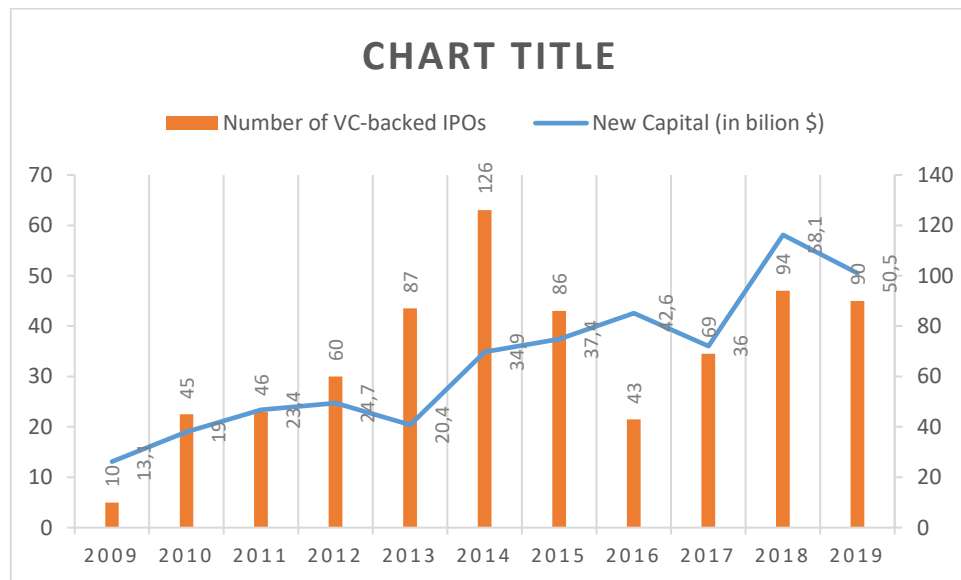
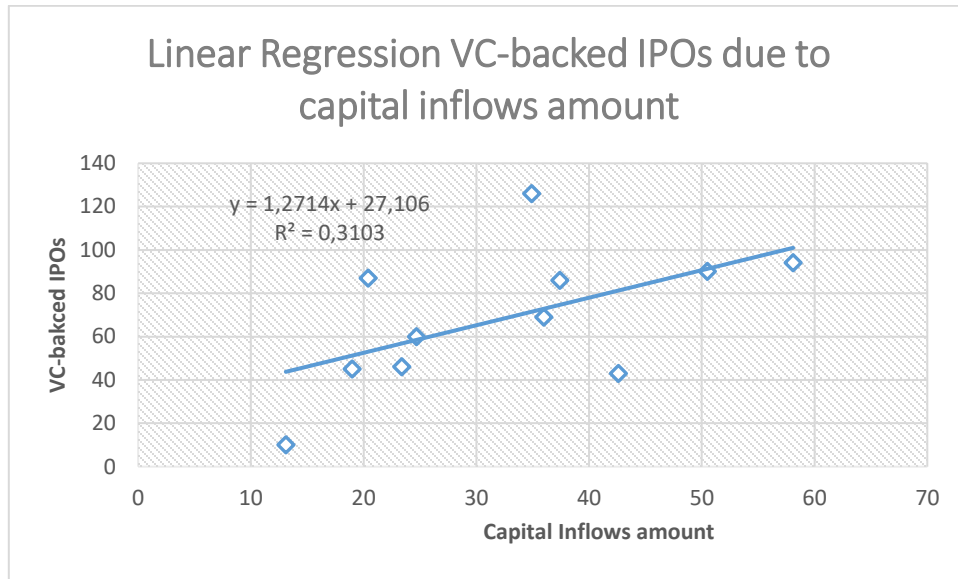


Figure 1 visually depicts the annual fluctuations in both the number of venture-capital-backed IPOs and the influx of new capital into venture capital funds. Inspection suggests a potential correlation between the availability of IPO exits and investor enthusiasm to invest in venture capital, possibly with a lag of one year. This visual impression finds affirmation through a straightforward regression analysis.



Conducting a linear regression analysis to scrutinize the relationship would prove to be a valuable analytical approach.

Linear regression is a statistical method used to model the relationship between a dependent variable, in this case VC-backed IPOs, and one or more independent variables, capital inflows from funds. The goal is to find the best-fitting linear equation that represents the relationship between the variables. The hypothesis in this context is that there exists a linear relationship between the capital inflows from funds and the number of VC-backed IPOs. In other words, as capital inflows increase, we expect a corresponding increase in the number of VC-backed IPOs.

The linear regression model can be represented by the equation:

$$VC\text{-backed IPOs} = \beta_0 + \beta_1 \times Capital\ Inflows\ from\ Funds + \epsilon$$

Here, VC-backed IPOs is the dependent variable (response variable), Capital Inflows from Funds is the independent variable (predictor variable), β_0 is the y-intercept, representing the expected value of VC-backed IPOs when capital inflows are zero, β_1 is the slope, indicating the change in VC-backed IPOs for a one-unit change in capital inflows, ϵ is the error term, representing the unobserved factors affecting VC-backed IPOs that are not explained by the model. Linear regression assumes several

things, including linearity, independence, homoscedasticity, and normality of errors. These assumptions need to be checked and satisfied for the model to provide reliable results.

To perform a linear regression analysis, a dataset containing information on VC-backed IPOs and capital inflows from funds is required. The dataset should ideally cover a relevant time, capturing fluctuations in both variables.

The model parameters (β_0 and β_1) are estimated using methods such as the least squares method, which minimizes the sum of squared differences between the observed and predicted values of VC-backed IPOs.

Once the model is fitted, the estimated coefficients provide insights into the relationship. A positive β_1 indicates a positive correlation, meaning that as capital inflows increase, VC-backed IPOs are expected to increase.

The model's performance is assessed using metrics like R-squared (coefficient of determination) to measure the proportion of variability in VC-backed IPOs explained by the model.

In conclusion, the linear regression model helps quantify and understand the relationship between VC-backed IPOs and capital inflows from funds. It provides a tool for prediction and can offer insights into the dynamics of the venture capital ecosystem. However, it's crucial to interpret the results cautiously and consider the limitations and assumptions of the model. In this specific case Regression 1 underscores a robust correlation between the number of IPOs each year and the subsequent year's new capital contributions. While these regressions do not aim to encapsulate all factors influencing capital commitments to venture capital funds, they substantiate the visual correlation evident in Figure 1.

5.1 CHAPTER 5: Analysis and discussion

5.1 Data gathering: Venture Capital industry volumes, VC-Backed IPOs and Stock Market returns of United States and bigger European nations.

In this section, an analytical approach is adopted to statistically validate the assertions made in preceding paragraphs. Specifically, two distinct forms of correlation are delineated. Firstly, emphasis is placed on the positive correlation observed between the quantity and scale of Venture Capital (VC)-Backed Initial Public Offerings (IPOs) and the overall performance of the Venture Capital industry within individual nations. Notably, the heightened levels of capital raised through VC-Backed IPOs within the American sphere stand out as a primary driver influencing the comparative superiority of the American market vis-à-vis its European counterpart (France, Germany, Italy, Spain, UK). This ascendancy in the impact of VC-Backed IPOs is largely attributed to the elevated efficiency and liquidity characterizing the capital markets of the United States. It is pertinent to acknowledge that while the market-based financial paradigm intrinsic to American culture undoubtedly contributes to this success, it represents merely one facet of the multifaceted dynamics at play.

Furthermore, the evolution of the Venture Capital industry, propelled by technological advancements, particularly within the digital sphere over recent decades, is identified as a crucial determinant. Within this context, the presence of NASDAQ emerges as a significant factor augmenting industry performance. NASDAQ, an abbreviation for the National Association of Securities Dealers Automated Quotations, functions as an electronically driven stock exchange. Renowned for its inclination towards listing technology-centric and growth-oriented stocks, NASDAQ operates via a computerized trading system, facilitating seamless transactions between buyers and sellers. This modus operandi stands in stark contrast to traditional trading floors characterized by face-to-face interactions. Since the late 1990s, NASDAQ has established itself as the preeminent index for high-tech firms, thereby bolstering the appeal and prominence of numerous technology-oriented enterprises.

To further elucidate the ramifications of capital markets, particularly regarding stock market returns, the subsequent correlation analysis delves into the relationship between Venture Capital volumes and the returns on major stock market indexes associated with the aforementioned nations.

After describing the analytical framework, attention is directed towards the data pertaining to the nations used to compose regressions. On one hand, there is the United States of America, the largest economy in the world with the most efficient and liquid capital market. The American market-based financial system enhances market performance and grants better allocation of investments, in contrast to Europe, where a bank-based financial system prevails. To delineate the developmental trajectory of the Venture Capital (VC) industry in the USA, data depicting volumes of investments in Venture Capital from 2009 to 2022, calculated on a billion USD basis, are utilized. It is evident that VC volumes have significantly increased, transitioning from \$27.9 billion in 2009 to \$240.9 billion in 2022 (approximately ten times the initial value). Consequently, the subsequent regressions analyze the impact of specific factors on this growth.

Five European nations are considered to achieve the goal of this dissertation, which is to analyze the discrepancy between the American Venture Capital industry and the European one. To define the development of the European industry, Venture Capital investments during the period 2009-2022 are utilized. The same dependent variable used for the USA, VC volumes (expressed in billions of USD), is calculated separately for each nation. Similarly, during that period, investments have increased in a homogeneous manner among all European nations under consideration. The following chart (*Figure 1*)³⁶ illustrates the development of VC volumes among the nations under analysis.

Figure 1: Value of venture capital investment from 2009 to 2022, in billions of USD

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
USA	\$ 27,90	\$ 32,40	\$ 45,70	\$ 41,70	\$ 50,10	\$ 73,80	\$ 86,40	\$ 84,00	\$ 90,00	\$ 146,40	\$ 149,30	\$ 171,40	\$ 345,40	\$ 240,90
FRANCE	\$ 0,71	\$ 0,73	\$ 0,70	\$ 0,60	\$ 0,88	\$ 0,79	\$ 0,94	\$ 0,96	\$ 1,40	\$ 1,70	\$ 2,10	\$ 2,16	\$ 3,40	\$ 3,80
GERMANY	\$ 0,90	\$ 0,93	\$ 1,01	\$ 0,73	\$ 0,97	\$ 0,91	\$ 0,96	\$ 1,20	\$ 1,40	\$ 1,70	\$ 2,30	\$ 2,10	\$ 4,90	\$ 3,60
ITALY	\$ 0,12	\$ 0,10	\$ 0,14	\$ 0,13	\$ 0,11	\$ 0,07	\$ 0,08	\$ 0,09	\$ 0,12	\$ 0,20	\$ 0,26	\$ 0,30	\$ 0,50	\$ 0,74
SPAIN	\$ 0,28	\$ 0,28	\$ 0,34	\$ 0,26	\$ 0,22	\$ 0,37	\$ 0,47	\$ 0,48	\$ 0,61	\$ 0,63	\$ 0,65	\$ 0,88	\$ 1,60	\$ 1,20
UK	\$ 0,90	\$ 0,95	\$ 1,12	\$ 0,94	\$ 0,81	\$ 1,09	\$ 1,20	\$ 1,00	\$ 2,40	\$ 3,30	\$ 3,49	\$ 3,40	\$ 6,10	\$ 3,50
EUROPE	\$ 2,91	\$ 2,99	\$ 3,31	\$ 2,66	\$ 2,99	\$ 3,23	\$ 3,65	\$ 3,73	\$ 5,93	\$ 7,53	\$ 8,80	\$ 8,84	\$ 16,50	\$ 12,84

³⁶ https://stats.oecd.org/Index.aspx?DataSetCode=VC_INVEST

In our model, VC volumes serve as the dependent variable, acting as a proxy for industry development. The initial regression seeks to elucidate the correlation between VC volumes and VC-backed IPOs number, underpinning the rationale behind industry development. This examination considers IPO numbers per annum as the independent variable. The presence of a vibrant IPO market is intricately linked to the stimulation of Venture Capital industry development, owing to enhanced liquidity and heightened value creation for entrepreneurs who retain control over substantial investments post-IPO. To discern the specific impact of VC-backed IPO numbers on the overall performance of the industry, the analysis incorporates control variables that are known to exert influence, such as GDP growth (measured in billions of USD) and investments in Research and Development (R&D) expressed as a percentage of GDP. Within this context, the correlation is explored between the American industry and aggregate data from the largest European economy under scrutiny. In the following chapter (*Figure 2*)³⁷ are shown the number of VC-Backed IPOs in American and European markets from 2013 to 2020.

Figure 2: VC-Backed IPOs number from 2013 to 2020, in billions of USD

Year	2013	2014	2015	2016	2017	2018	2019	2020
USA	81	132	78	49	64	91	77	113
Europe	32	87	69	61	74	58	41	61

The second regression delves into the analysis of the influence of the capital market on the development of the Venture Capital industry in both American and European markets. As previously elucidated, the liquidity and efficiency of stock exchanges significantly impact the performance of the Venture Capital industry. Particularly emblematic is the role of the NASDAQ index in driving the development of high-tech firms and, consequently, the

³⁷ <https://www.statista.com/statistics/1223273/value-annual-venture-backed-ipo-exits/>

Venture Capital industry over decades. To examine this impact, the analysis considers, as independent variables, the levels of most prominent national indexes (NASDAQ, CAC40, DAX, FTSEMIB, IBEX-35, FTSE100) from 2009 to 2022. Furthermore, the analysis incorporates the same control variables as examined in the preceding regression. In the following chart (*Figure3*)³⁸ are shown yearly variation of indexes value and percentage variation from 2009 to 2022.

Figure 3: Yearly variation of Stock Exchange Indexes and percentage variation year by year from 2009 to 2020

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NASDAQ Performance	2269	2652	2605	3019	4176	4736	5007	5383	6903	6635	8972	12888	15644	10466
NASDAQ Percentage Variation		17%	-2%	16%	38%	13%	6%	8%	28%	-4%	35%	44%	21%	-33%
CAC-40 Performance	3936	3804	3159	3641	4295	4272	4637	4862	5312	4730	5978	5551	7153	6473
CAC-40 Percentage Variation		-3%	-17%	15%	18%	-1%	9%	5%	9%	-11%	26%	-7%	29%	-10%
CAX Performance	5957	6914	5898	7612	9552	9805	10743	11481	12917	10558	13249	13718	15881	13932
CAX Percentage Variation		16%	-15%	29%	25%	3%	10%	7%	13%	-18%	25%	4%	16%	-12%
FTSEMIB Performance	23248	20173	15090	16273	18968	19012	21418	19235	21853	18324	23506	22233	27347	23707
FTSEMIB Percentage Variation		-13%	-25%	8%	17%	0%	13%	-10%	14%	-16%	28%	-5%	23%	-13%
IBEX-35 Performance	11.940	9.859	8.566	8.168	9.917	10.280	9.544	9.352	10.043	8.539	9.549	8.073	8.713	8.229
IBEX-35 Percentage Variation		-17%	-13%	-5%	21%	4%	-7%	-2%	7%	-15%	12%	-15%	8%	-6%
FTSE-100 Performance	5412	5899	5572	5897	6.749	6.556	6.242	7.142	7.687	6.728	7.346	6.460	7.384	7.451
FTSE-100 Percentage Variation		9%	-6%	6%	14%	-3%	-5%	14%	8%	-12%	9%	-12%	14%	1%

5.2 Regression Analysis: Quantifying the Influence of Initial Public Offerings on the Scale and Magnitude of the Venture Capital Industry

As previously outlined, it is imperative to undertake regression analyses utilizing the provided dataset to thoroughly evaluate the influence of VC-Backed IPOs and Capital Market on the developmental trajectory of the Venture Capital industry.

The initial regression analysis focuses on assessing the impact of the number of IPOs on the performance metrics, specifically expressed in investment volumes, within the Venture Capital sector. This model adopts Venture Capital volumes as the dependent variable, while considering the number of VC-Backed IPOs as the independent variable, alongside GDP and

³⁸ https://stats.oecd.org/Index.aspx?DataSetCode=VC_INVEST

investments in Research and Development (R&D) as control variables in the period from 2013 to 2020.

The ensuing analysis (*Figure 4*) has been conducted utilizing STATA software. This statistical approach enables a comprehensive examination of the relationships between the aforementioned variables, thereby facilitating a nuanced understanding of the dynamics governing the Venture Capital landscape. Through the integration of rigorous statistical methodologies and robust empirical evidence, this research endeavor seeks to contribute to the scholarly discourse surrounding the factors shaping the evolution and performance of the Venture Capital industry.

Figure 4: Stata regression analysis related to impact of IPOs number on Venture Capital industry (United States of America and aggregate European data)

Source	SS	df	MS	Number of obs	=	16
-----+-----				F (3, 12)	=	110.91
Model	52511.4506	3	17503.8169	Prob > F	=	0.0000
Residual	1893.83526	12	157.819605	R-squared	=	0.9652
-----+-----				Adj R-squared	=	0.9565
Total	54405.2859	15	3627.01906	Root MSE	=	12.563

VC-volumes	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
-----+-----						
IPOs number	.1158343	.1474756	0.79	0.447	-.2054875	.4371561
GDP	.0003057	.0091345	0.03	0.974	-.0195966	.0202079
R&D investments	.388665	.2136215	1.82	0.094	-.0767762	.8541063
_cons	-114.9075	57.90527	-1.98	0.071	-241.0722	11.25726

The regression analysis yields notable statistical significance, underscored by a prominent F-statistic of 110.91 (p-value = 0.0000). This finding underscores the model's robustness and suggests its adequacy in explaining the variance within the dataset. The elevated F-statistic implies that the collective influence of the independent variables significantly impacts the dependent variable. Additionally, the substantial R-squared value of 0.9652 elucidates that approximately 96.52% of the variability observed in the dependent variable is elucidated by

the independent variables encompassed within the model. This substantial coefficient substantiates the model's capacity to elucidate and capture the intricate dynamics inherent in the dataset, affirming its efficacy in shedding light on the nuanced relationships between the variables under scrutiny.

Analysis of individual coefficient and Significance of variables:

- *IPOs number*: The coefficient for 'IPOs number' is estimated at 0.1158 with a standard error of 0.1475 and a p-value of 0.447. Despite not achieving statistical significance at the conventional alpha level of 0.05, the coefficient suggests a positive relationship between the number of initial public offerings (IPOs) and the dependent variable. This implies that, although not statistically significant in this analysis, IPO activity may still exert some influence on the dependent variable. Further exploration into the nuanced effects of IPOs, particularly in the context of market dynamics and investor sentiment, could provide deeper insights into its impact.
- *GDP*: The coefficient for 'GDP' stands at 0.0003, with a standard error of 0.0091 and a p-value of 0.974. This non-significant coefficient suggests that changes in Gross Domestic Product (GDP) do not have a discernible impact on the dependent variable in this model. While GDP is typically considered a key indicator of economic health, its lack of significance here may indicate that other factors not captured by GDP are more influential in explaining variations in the dependent variable.
- *R&D investments*: The coefficient for 'R&D investments' is estimated at 0.3887, with a standard error of 0.2136 and a p-value of 0.094. Although the coefficient approaches statistical significance, falling just short of the conventional alpha level of 0.05, it implies a potential positive association between the 'R&D investments' variable and the dependent variable. However, caution is warranted in interpreting this result, as the lack of statistical significance may suggest that the observed relationship could be due to chance or other unaccounted-for variables.

Despite the lack of statistical significance, the positive coefficient associated with IPOs suggests a potential influence on the dependent variable. The apparent modest impact of VC-Backed IPOs on industry development underscores the intricate

dynamics inherent in entrepreneurial pursuits. Beyond mere numerical counts, the appeal of IPOs as a viable exit strategy serves as a compelling catalyst, motivating technology entrepreneurs to engage in prolific startup ventures, thereby ensuring a steady influx of startups into the Venture Capital ecosystem.

Moreover, the discernible contrast in IPO activity between the American and European markets accentuates the pivotal role of market characteristics in shaping investment proclivities within the technology domain. The resilience of the American market in facilitating IPOs amplifies its allure to prospective investors, fostering heightened investment activity within this sphere.

Furthermore, the allure of IPOs lies in their potential to facilitate substantial capital infusion without necessitating a relinquishment of managerial control—an aspect particularly resonant for entrepreneurs within the high-tech startup landscape, predominantly composed of engineering and software development professionals. This strategic alignment not only fortifies the technological prowess of emerging firms but also augments their prospects for sustained growth and innovation.

In essence, while the statistical insignificance of IPOs in the regression model may seem perplexing, a nuanced understanding of entrepreneurial motivations and market dynamics unveils the multifaceted opportunities inherent in IPOs for shaping industry development trajectories within the Venture Capital landscape.

5.3 Regression Analysis: Assessing the Influence of Capital Market Efficiency on Magnitude and Volumes of the Venture Capital Industry

The secondary regression analysis endeavors to scrutinize the influence of capital markets on the developmental trajectory of the Venture Capital industry. In this examination, our focal point shifts towards assessing the Venture Capital investments over a broader temporal scope, spanning from 2009 to 2020. Departing from the previous regression, this analysis adopts a more granular approach by delineating Venture Capital volumes specific to each European country under investigation, namely France, Germany, Italy, Spain, and the United Kingdom.

As a metric for gauging operational efficacy, the independent variable is construed through the fluctuations in the values of stock market indexes pertinent to the aforementioned nations. While these indexes adhere to a uniform calculation process, it is imperative to acknowledge that nuances and variations may exist owing to their distinct attributes and objectives. Consequently, although these indexes share commonalities, disparities in their calculation methodologies and resultant values are conceivable.

Given the dynamic nature of regression analyses, which seek to elucidate the impact of variables on one another as they evolve over time, the specific levels of the indexes per se do not directly influence the analysis. Rather, they serve as proxies indicative of the prevailing market sentiments and conditions within the respective national Venture Capital industries.

Furthermore, to augment the comprehensiveness of the model, a control variable is introduced, focusing on the Gross Domestic Product (GDP). This inclusion aims to encapsulate the broader economic backdrop within which the Venture Capital activities and capital market fluctuations unfold, thereby enriching the analytical framework and fostering a more nuanced understanding of the interplay between these variables.

In the following chart (*Figure 5*) is expressed the regression using the software Stata.

Figure 5: Stata regression analysis related to impact of capital market on Venture Capital industry (United State of America, France, Germany, Italy, Spain, and UK)

Source	SS	df	MS	Number of obs	=	84
-----+-----				F (2, 81)	=	130.75

Model		193644.101		2	96822.0506	Prob > F	=	0.0000
Residual		59981.0632		81	740.506953	R-squared	=	0.7635
-----+-----								
Total		253625.164		83	3055.72487	Adj R-squared	=	0.7577
						Root MSE	=	27.212
-----+-----								
VC-volumes		Coefficient	Std. err.	t	P> t	[95% conf. interval]		
-----+-----								
Index returns		.0015768	.0005221	3.02	0.003	.0005379	.0026157	
GDP		.0078562	.000486	16.16	0.000	.0068892	.0088233	
_cons		-36.79107	6.854823	-5.37	0.000	-50.43002	-23.15213	
-----+-----								

The regression model demonstrates a high level of statistical significance, as evidenced by the significant F-statistic of 130.75 with a p-value of 0.0000. This indicates that the model provides a robust fit for the data, suggesting that at least one of the independent variables has a significant effect on the dependent variable. Additionally, the R-squared value of 0.7635 suggests that approximately 76.35% of the variability in the dependent variable 'VC-Volumes' is explained by the independent variables included in the model. The adjusted R-squared value, which accounts for the number of predictors, remains high at 0.7577, further supporting the model's explanatory power.

Analysis of individual coefficient and Significance of variables:

- *Index returns*: The coefficient for 'Index returns' is estimated to be 0.0015768, with a standard error of 0.0005221 and a statistically significant p-value of 0.003. This suggests that 'Index returns' is statistically significant at the conventional significance level of 0.05, indicating that changes in returns have a significant impact on 'VC-Volumes'.
 - The positive coefficient for 'Index returns' implies that increases in returns are associated with higher trading volumes in the market. Specifically, for each

unit increase in 'Returns', 'VC-Volumes' is expected to increase by approximately 0.0015768 units, holding other variables constant.

- This finding underscores the critical role of returns as a driver of market activity and investor behavior. Higher returns may attract more investors, leading to increased trading volumes as market participants react to perceived profit opportunities.
- *GDP*: The coefficient for 'GDP' is estimated to be 0.0078562, with a standard error of 0.000486 and a highly significant p-value of 0.000. This indicates that changes in Gross Domestic Product (GDP) also have a statistically significant impact on 'VC-Volumes'. For each unit increase in GDP, 'VC-Volumes' is expected to increase by approximately 0.0078562 units, all else being equal.
- *Intercept*: The intercept term has a coefficient of -36.79107, with a standard error of 6.854823 and a highly significant p-value of 0.000. This suggests that even when both 'Returns' and 'GDP' are zero, there is a significant intercept value for 'VC-Volumes'. The intercept represents the baseline level of 'VC-Volumes' when 'Returns' and 'GDP' are both zero. In this case, the intercept value is -36.79107.

The statistically significant coefficient for 'Returns' indicates that changes in returns significantly impact 'VC-Volumes'. This implies that investors' perception of returns significantly influences trading volumes in the market. A one-unit increase in 'Returns' leads to an increase of approximately 0.0015768 units in 'VC-Volumes', suggesting that higher returns are associated with higher trading volumes.

This finding underscores the importance of returns as a driver of market behavior and investor sentiment. Higher returns may attract more investors, leading to greater trading volumes as market participants react to perceived profit opportunities.

The regression analysis underscores the profound influence of 'Returns' on 'VC-Volumes', indicating that fluctuations in returns exert a substantial impact on trading volumes within the market. This observation aligns with fundamental principles of financial theory, wherein returns on investment are pivotal determinants of investor behavior and market activity. According to the efficient market hypothesis, investors seek to maximize returns while minimizing risk, driving heightened trading activity

in response to perceived profit opportunities. As such, when returns are favorable, investors are more inclined to engage in buying and selling securities, resulting in increased trading volumes.

Moreover, the model's robust fit to the data, with 'Returns' and 'GDP' jointly explaining a significant portion of the variability in 'VC-Volumes', underscores the multifaceted nature of market dynamics. While 'GDP' reflects broader economic conditions, 'Returns' encapsulates the immediate financial performance of securities, making it a crucial indicator of investor sentiment and market sentiment in the short term. This interplay between macroeconomic factors and micro-level financial indicators underscores the complexity of market behavior and the myriad influences shaping trading volumes.

These insights offer valuable implications for market participants and policymakers alike, emphasizing the central role of returns as a key driver of market activity and investor behavior. Recognizing the significance of returns in influencing trading volumes underscores the importance of monitoring market performance and understanding investor sentiment. By leveraging this understanding, market participants can make more informed decisions, while policymakers can implement targeted measures to promote market stability and efficiency.

In essence, the regression analysis provides empirical validation of theoretical principles, reaffirming the pivotal role of returns in driving market dynamics. By shedding light on the intricate relationship between returns and trading volumes, the analysis offers valuable insights into the underlying mechanisms shaping market behavior, facilitating a deeper understanding of financial markets and their broader implications for economic activity.

Conclusion

The analysis conducted during this period not only delves into the theoretical underpinnings of the utilization of exit strategies within the European and American venture capital (VC) landscapes but also substantiates these insights with empirical evidence derived from regression analysis. This combined approach offers a comprehensive understanding of the factors influencing the dynamics of VC activity, particularly regarding IPO exits, and sheds light on the significant disparities observed between the US and European VC industries.

Theoretical insights underscore the multifaceted nature of performance differentials between European and American VC spheres. Liquidity constraints, cultural predispositions, and the absence of a unified pan-European stock exchange emerge as critical factors contributing to these discrepancies. European VCs often grapple with constrained exit markets, leading to prolonged divestment efforts, while their American counterparts benefit from robust IPO markets and adept identification of potential acquirers, facilitating expedited cash returns. Although determinants of success in VC-backed exits remain consistent between Europe and the US, Europe exhibits a diminished preference for IPO exits compared to the US, partly due to structural barriers in the European capital market landscape.

Regression analysis provides empirical validation of these theoretical insights while offering nuanced perspectives on the relationship between capital inflows, IPO activity, and overall VC volumes. While the impact of VC-backed IPOs on VC volumes may not attain statistical significance, the positive coefficient underscores the importance of IPOs as a critical exit strategy for entrepreneurs, with IPO activity influenced by capital inflows into VC funds. This highlights the intricate interplay between macroeconomic factors, financial indicators, and market behavior, emphasizing the pivotal role of robust capital markets in driving entrepreneurial activity and economic growth.

Furthermore, the regression analysis corroborates the significance of VC backing in mitigating market-induced risks in IPOs, thereby enhancing post-IPO performance. VC-backed IPOs exhibit reduced underpricing compared to their non-VC-backed counterparts, underscoring the value of VC experience and reputation in shaping IPO valuations. While explicit distinctions between US and European VCs warrant further exploration, it is plausible that the enhanced experience and reputation of US VCs significantly contribute to observed performance disparities, accentuating the need for concerted efforts to address regulatory and structural barriers in the European VC landscape.

In conclusion, the synthesis of theoretical understanding and empirical evidence underscores the critical importance of robust capital markets in driving entrepreneurial innovation and economic prosperity. Institutions like NASDAQ play a pivotal role in facilitating VC investment and IPO exits, shaping the trajectory of modern financial paradigms and fostering sustainable growth. As stakeholders navigate the complexities of capital allocation and economic development, understanding and leveraging the dynamics of market-based financial systems and VC activity remain imperative for enhancing competitiveness and fostering inclusive growth on a global scale.

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