Norwegian School of Economics

Bergen, 2015

Contextual study of VC and PE investments: the case of Norway

Anna Borovova

Supervisor: Eirik Vatne

Master Thesis written as a part of Master Program in Economics and Business Administration, International Business Profile

NORWEGIAN SCHOOL OF ECONOMICS

Foreword

This master thesis is one of a series of papers and reports published by the Center for Service Innovation (CSI). Center for Service Innovation (CSI) is a coordinated effort by NHH to focus on the innovation challenges facing the service sector and involves 20 business and academic partners. It aims to increase the quality, efficiency and commercial success of service innovations and to enhance the innovation capabilities of its business and academic partners. CSI is funded through a significant eight year grant from the Research Council of Norway and has recently obtained status as a Center for Research-based Innovation (SFI).

Aknowledgement

Current work is completed as part of the Master Program in Economics and Business Administration at Norwegian School of Economics (NHH). It has been a long time since I got interested in Private Equity and Venture Capital, however this research is the first attempt in my academic life to study this phenomenon in more detail.

I would like to thank my supervisor Dr. Eirik Vatne for the time, advice and recommendations that he gave me during the work on this thesis. His guidance and numerous insights were incredibly helpful for finding a right angle in approaching the chosen topic. I am also very grateful to Center for Service Innovation at NHH for providing the data for the practical part of this thesis.

On the personal side, I want to express all the gratitude to my parents, Zhanna and Mikhail, for their understanding, kindness and support that I continuously received. My whole family always encouraged me throughout the studies and helped to overcome many challenges on the way. I am also very thankful to my friends, who were patiently answering my questions about statistical techniques used in data analysis when I was designing the research methodology for this thesis.

Executive Summary

This thesis provides is contextual study of private investing activity in Norway. It addresses both theoretical aspects as well as practical implications of the VC and PE influence on the economics of the investee firm. The aim of this analysis is to understand how the presence of VC and PE investments in a firm affects it's performance and growth.

In the theoretical part we discuss the structure and dynamics of the venture capital cycle, specify the value adding activities provided by investors and make an overview of Norwegian VC and PE market specifics.

In the empirical analysis we focus on value creation activities. We address the key drivers of the investment activity and disclose the firm specific characteristics, that investors are looking for in the potential investee companies. Using CSI database, which contains observation on investee firms from 1992 to 2013, we analyze the value creation effects of the investments on Seed/Venture as well as Buyout stages using the following variables: sales revenues, payroll expenses, equity ratio, patents, R&D.

The results suggest that in the majority of the cases, VC and PE investing has a positive impact on value creation in the investee firms both on Seed/Venture and Buyout stages. We confirmed the fact that company's post investment performance, regardless the stage of investing is generally better than pre investment, meaning that the VC and PE investing is an efficient mechanism that enhances company's growth and performance.

Table of Contents

1. Introduction

Nowadays Private Equity (PE) and Venture Capital (VC) investments are raising substantial amount of attention in various research disciplines within finance and economics. This field is often considered to be underresearched, because of difficulties in accessing the accurate data, due to numerous non-disclosure agreements and unwillingness to share the information from the investor's side. However, despite all these obstacles it is critical to pay close attention to the evolution of this industry: look deeper into the stages of the investment cycle and study specific actors and strategies undertaken by providers of the capital within this area in order to understand the actual value creation process that is enhanced by these types of investments. As H. Landström (2007) points out, the economic importance of venture capital makes it crucial to understand the way venture capital market operates and how venture capitalists manage their investments.

VC is often called the "money of invention" (Black & Gilson, 1998) demonstrating how important it is for boosting innovative initiatives and entrepreneurship. It is considered as one of the key drivers for innovation led economic growth. Support for VC has therefore become a focus area for policy makers globally. Important consequences of high PE and particularity VC investment activity are better competitiveness of the entrepreneurial ventures that receive these types of funding and increase innovation in the economy. Nevertheless, it remains to be a controversial topic, raising a large debate in the literature. Researches and practitioners argue whether VC and PE investments have a clear positive impact on boosting innovation, or the investors primarily focus their attention on already highly innovative companies with substantial growth potential.

Addressing the example of the American economy, we can observe a highly developed economy, being at the forefront of the innovative developments globally. It is successful in commercializing innovation and supporting growth-orientated entrepreneurial ventures. We all know that USA remains to be the "motherland" of VC and PE investing, as well as most of the literature is based upon the evidence from American data. However, the current study is still particularly relevant with regard to Norwegian context. Having a prosperous economy and good development prospects, mainly due to high oil exports, Norway used to operate under a well-functioning and efficient model of a welfare state. One of the key drivers for its' success was high oil price, and once it drops Norwegian economy immediately starts feeling the dramatic consequences of such dependency, which we can observe in the year 2015. Nowadays, it is seems clear in the long run, the current strategy is not sustainable. The country

needs to search for alternative solutions in order to guarantee a stable economy in the future and overcome the resource curse. The fact of high economics dependency on natural resources in general is widely seen as a trap that blocks entrepreneurial initiatives and innovation in countries with rich mineral deposits. Therefore, it is a matter of critical importance to place emphasis on stimulating PE and VC investing in Norway. It will help nurturing entrepreneurial initiatives and result in establishing high potential innovative companies, which will ensure stability and prosperity of the Norwegian economy, create new jobs and generate income and wealth for the society in the years to come.

The aim of this thesis is to study how economic value is created via VC and PE investing. We would like to approach this problem mainly from an entrepreneurial perspective, looking into how these investments serve financial and non-financial needs of the new business, which often do not manage to raise necessary funds from more conventional sources. In order to narrow down the focus of this work, we prefer to leave returns on investments and other formal investor's financial success indicators out of the research scope. In the same time, we plan to take a broader business view of the problem, that is why we will not be constraint by a financial perspective on the VC investing. Moreover, we will often omit the details related to purely financial aspects of this problem, as it is not our research priority.

The theoretical part of the paper we will cover mainly VC investments as they are often considered a trigger for economic turnarounds and cause structural reorientation from resource dependency to innovative track. In the practical part due to limited amount of data available, and having the aim to improve the quality of the research findings, we will cover both VC and PE investments and will try to find out how presence of these investments impacts the performance of the firm.

This work is divided into three main parts. First, we will provide an extensive overview of the VC industry in order to draw a clear picture of the investment process and discover various stages and roles of VC investors. Second, we will focus on reviewing the most prominent research on VC investing, placing particular focus on value creation activities. Finally, in the practical part we will proceed with analyzing the actual data on PE and VC investments in Norwegian companies, provided by Center for Service Innovation (CSI) at Norwegian School of Economics.

2. What is PE and VC?

The European Private Equity and Venture Capital Association (EVCA) defines Private Equity (PE) as a provision of equity capital by financial investors – over the medium or long term – to non-quoted companies with high growth potential (EVCA, 2007). Venture capital (VC) lies within the domain of PE but exclusively covers investing on the earlier stages of the company's life cycle. VC is defined as a subset of PE that refers to equity investments made to support the pre-launch, launch and early stage development phases of a business (OECD, 2013).

Generally, there are several key differences between PE and public equity that need to be mentioned. Firstly, PE involves active ownership, meaning that besides bringing funds to the company, investors contribute with their professional expertise, whereas normal public equity does not include such involvement. Secondly, in contrast to public equity, PE relates to investing in unquoted companies. However, there can be exceptions, but in such a case most companies are delisted once the investment is made. Lastly, the investment horizon in PE is normally longer, because the value adding process through 'living with the company' takes significant amount of time. PE is viewed as a type of 'alternative investing', which is often contrasted to traditional investments in publicly traded stocks.

For the purposes of this work, we will primarily focus our attention on the earlier stages of PE investing, covering mainly VC investments, however in the practical part we will also address the later stage investments that are pure PE. VC investments are targeting young, innovative companies with high growth potential, which often heavily invest in R&D. Due to significant amount of intangible assets in their asset base, it can often be problematic to assess and objectively predict their future performance.

On the illustration below, we present a classification of investments, based on the maturity of portfolio companies. The classifications might slightly vary, but the VC segment is mainly composed of four main stages: seed, start-up, expansion and replacement, whereas the later stage representing buyouts lies within PE.

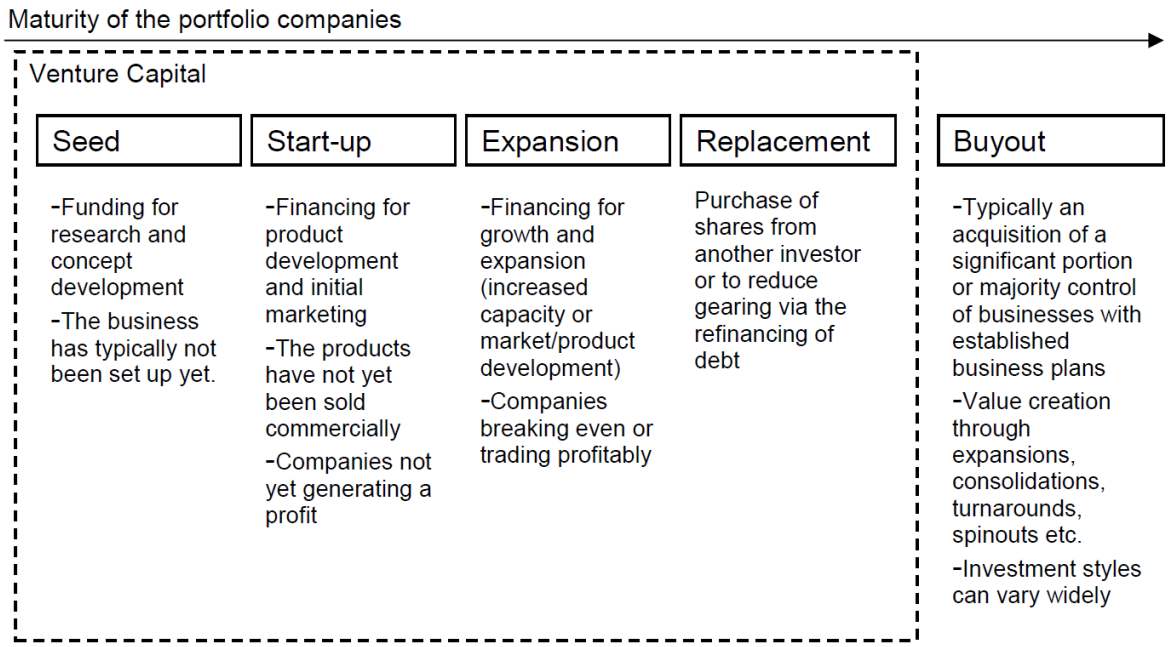


Figure 2.1. PE investments classification, according to maturity of target companies, based on EVCA, 2014

Providing a general classification we should mention that buyouts are often called leveraged buyouts (LBOs), due to the fact, that they are mostly financed through leverage. Further, LBOs are subdivided into management buyouts (MBOs) and management buy-ins (MBIs). In MBOs existing managers are acquiring the control over the company from previous owners, whereas in MBIs external management takes the control over the target company.

2.1 Key actors in the VC investment process

In this section we will determine the main actors of the VC investment process in further detail in order to envisage a more clear picture of how this investment mechanism works. There are four main actors, which are closely interconnected: *VC funds, individual investors, VC managers* and *portfolio companies.*

According to Metrick and Yasuda (2011) there are five main characteristics of a VC fund as a crucial actor in the VC investment eco-system:

- It is a *financial intermediary*, meaning that it takes the investors' capital and invests it directly into portfolio companies.

Slightly simplifying the model, the general organization structure of a VC fund can be defined as a limited partnership, which is directed and managed by a venture capitalist, also called *general partner* (GP). The money is raised from a wide pool of sources, including institutional investors and later on invested in a selected range of companies. Investors in order to keep the limited liability, are not involved in the daily operations of the fund and do not directly participate in the investment decisions. Therefore, they keep the status *of limited partners* (LPs) (Sahlman, 1990).

- VC invests only in *private companies*, meaning that once the investments are made, the companies cannot be immediately traded on a public stock exchange.
- Normally VC takes an *active role* in monitoring and helping the companies in its portfolio.

It can be done in many ways, but often a VC takes a seat on the board of directors in order to have control over the decision making process and provide expert advice at the highest level of the company's management. In addition to that, in order to assure growth and control, over company's activities VCs generally require diligent reporting from the entrepreneurs' side (Busenitz et al., 2004). The value-adding function of a VC will be studied in details later.

- The primary goal of the VC is to maximize its financial return by *exiting investments* through a *trade sale* or an *IPO.*

The most critical stage of the whole investment process is the exit, which is done by selling the stake in the portfolio company via IPO or a trade sale in order to get financial return and pay back the investors. The type of preferred exit is agreed upon before the investment is made and is disclosed in details in a standardized agreement. The choice of exit strategy also heavily relies upon the type of VC investor, as well as the stage of investment that is targeted.

- A VC fund invests to finance *internal growth of companies*.

This characteristic discloses the essence of a VC, that aims at growing the business, by adding the value throughout the investment process via bringing expertise and coaching alongside with the funding. Classic VC firms are active at all stages. According to one of the typologies they include *seed, start-up, expansion stages* (Metrick & Yasuda, 2011)

Considering financial interests, it is important to point out that the VC firm, or more correctly the management company of the VC fund, generally takes around 1 - 2.5 % of the

fund's annual committed capital as *a management fee*. This is used for operating the fund and paying out salaries to partners and other employees. The VC firm also has a stake in the profits of the fund, called *carried interest*. It averages to 20% and this income is divided between all venture partners (De Clercq et al., 2006). VC firms create funds with approximately 10 years life span and hold several funds under management simultaneously. Often they specialize by sector or by the stage of the company's development (Norton & Tenenbaum, 1993)

As indicated earlier, individual investors play the role of LPs in the VC fund so that they have limited responsibility, meaning that they are confined to the initial amount of money invested. In this case, the principal-agent conflict might arise. Individual investors act as principals, relying on GPs of the VC fund to act in their best interests. In order to manage this conflict of interests, contractual specification of the compensation is an important way for limited partners to get their interests aligned with the VCs (Gompers & Lerner, 1999).

The general structure of the VC investment process dynamics can be viewed on the illustration below, that depicts core elements in the VC investing framework: investors, VC fund, portfolio companies and management company.

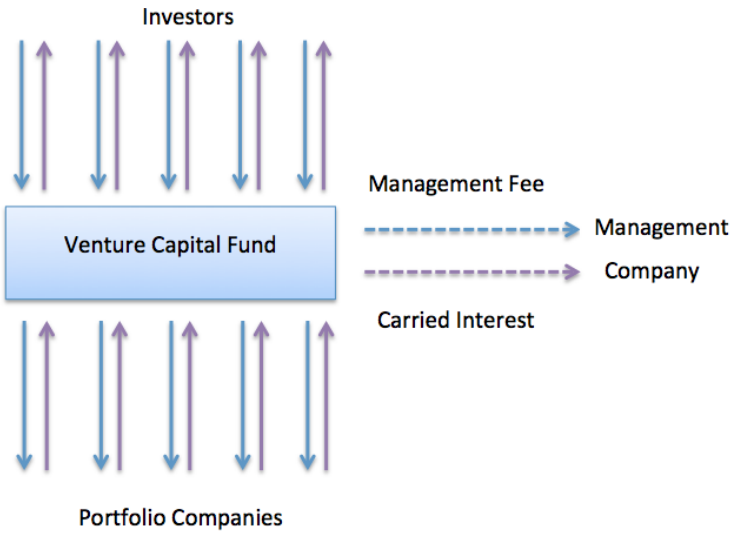


Figure 2.2. Overview of the VC investing process, from Manigart & Meuleman (2004)

In fact, type of ownership is one of most critical characteristics for the organization of a VC fund. For example, independent VC funds invest on behalf of institutional investors and wealthy individuals, whereas *captive funds* where most of the funds are provided by one shareholder of the management company, might have alternative ownership structures that affect their choice of funding and the whole investment process (Da Rin, et al., 2011). Main

providers of the capital for captive funds are governments, corporations, family offices and banks. Van Osnabrugge & Robinson (2001) point to some aspects that critically distinguish independent VCs from captive VCs. Independent funds often have a pressure to divest and have a clear focus on financial returns, whereas captive funds are flexible and can exploit upside potential for waiting when it arises.

2.2 Other types of VC providers

There is a rather wide spectrum of potential financing sources available for funding a new venture. An entrepreneur working on a newly founded company can choose, either to be limited by the amount of his own funds or refer to the help of informal investors, who are often called '3Fs': family, friends and fools – which can provide the initial funding at the very beginning. On the other hand, potentially there is an opportunity for getting traditional bank financing, which is hardly accessible to many entrepreneurs, due to excessive level of risk associated with startups. The VC universe offers several financing options that lie in between the two extreme cases mentioned above.

There are three major financing providers, that offer venture capital equity funding to entrepreneurial ventures: *traditional venture capitalists* (VCs), *business angels* (BAs) and *corporate venture capitalists* (CVCs). All these three types have their own specificities, mainly targeting different types of projects. Besides that, there are other less significant types of capital providers, such as bank owned, government owned funds, and both private/public and hybrid funds related to research universities that are focusing on highly risky R&D intensive projects.

In the previous section, the key characteristics of VCs have already been mentioned. Now we would like to clarify the specifics of two other subtypes of venture investing – business angels and corporate venture capitalists.

Business angels (BAs) are individuals that specifically provide financing to young, growing firms. Most often they are either former entrepreneurs or retired senior executives who decided to invest their money. Very often they choose a narrow focus, prioritizing the industry where they feel most knowledgeable and experienced due to their occupation (Harrison & Mason, 1996). They are highly committed to the success of the investee firm and are engaged in intensive mentoring and non-financial support of the firms in their portfolio. In

general, the relationship between the investee and BA is much less formal compared to the relationship with a VC. Overall, BAs focus on the earlier, most risky stages of investing such as seed and pre-seed.

On average, the ownership stake that BA owns in the venture does not exceed 10 -15% of the general sum of capital invested (De Clercq et al., 2006). The reporting mechanisms are quite relaxed as well as the agreements between investors and investees are rather informal. From the standpoint of the entrepreneur, BAs are the most expensive financing option, but most willing to take the risk.

On the other end of the VC investing spectrum, reside corporate venture capitalists (CVCs), who represent another source of equity financing for entrepreneurial ventures. CVC is a type of captive fund which primary focus is shifted towards long-term strategic interests and further acquisition and full integration of the portfolio company into the operations of the firm. However, there are examples of technology lead companies that support new ventures in developing the technology targeted for their interests, but do not intend to internalize the venture into their own operations. According to Siegel (1988), the CVC acts as a financial intermediary of a non-financial company. Besides focusing on financial gains of investing, CVCs view strategic fit of their investments to the core business of the parent company as a primary goal. This way CVCs aim to assure the indirect value for the parent company, in case of success of the venture, the parent company can acquire the total stake in the company. However, besides acquisition, common exit routes of CVCs also include trade sale, which is less preferred. In the detailed table below, we summarized the key characteristics for three main types of VC providers: VCs, Bas and CVCs.

Table 2.1. Characteristics of VC providers, based on De Clercq & Sapienza (2007)

	Professional Venture Capitalists (VCs)	**Business Angels (BAs)**	**Corporate Venture Capitalists (CVCs)**
Source of funds	• Investing from outside limited partners	• Investing own money	• Investing corporate funds
Legal form	• General partnership	• Private individual	• Subsidiary of a large firm
Typical size of investments & financing stages	• $2-10 M • All stages	• $ 50-100 M • Seed & startup	• $ 2-20 M • Later preffered
Motive for investment	• Equity growth only	• Equity growth and personal	• Strategic and equity growth
Investment criteria	• Growth prospects • Great management	• Growth and mentoring prospects	• Strategic value and fit
Finding investors	• Relatively easy to find	• Hard to find	• Few, but easy to find
Reaching agreement	• Lengthy and extensive due diligence	• Quick to reach an agreement if ‘fit’ is found	• Hard to meet the ‘fit’ requirements
Reporting requirements	• Regular reporting requirements, financially focused	• Light, but vary by individual	• Regular reporting requirements, strategically focused
Level of involvement	• Moderate, generally through board membership	• Low to extremely high, informal	• Low or moderate, board membership
Exit planning and method	• Often planned: IPO or trade sale	• Often unplanned: trade sale	• Often unplanned: IPO trade sale

3. Venture capital investment cycle

Following the classification, presented in the major research, we distinguish three different stages in the VC investment cycle: pre-investment, post-investment, and exit phases (Tyebjee & Bruno, 1984). In this section we will address the specifics and analyze the actions that are typically undertaken at each stage.

3.1 Pre-investment stage

There are several key characteristics of the pre-investment stage, which need to be taken into account. At this point VC is looking for potential investments, and therefore it should consider the most promising ventures that can potentially generate high capital gains. Besides that, it is crucial that the idea possesses uniqueness as well as has high growth potential. As far as VCs are always results orientated, it is necessary to keep the balance between the implementation time and amount of capital invested. Another element that is critical for this stage is the focus on management team or the individual entrepreneur, who is supposed to share the goals and aspirations of investors (De Clercq et al., 2006)

There are three phases, that are typically present at the pre-investment stage: deal origination, deal screening, deal evaluation and deal structuring. According to the evidence from the literature, less than 2 percent of all deals entering the deal origination stage finally end up receiving VC financing (Fried & Hisrich, 1994).

3.1.1 Deal origination

At this stage the key aim for a both VC and an entrepreneur is to get to know each other and to establish a good contact. The reputation, width of the VC network and referral system originated from contacts with lawyers, bankers, consultants and accountants makes it easier for a VC to find attractive and secure deals. (Shane & Cable, 2002) At the same time, syndication of investments among several investors of a similar kind or even different investor types, for example BAs and traditional VCs also plays an important role, because it facilitates the cooperation between multiple investors and makes the completion of the whole procedure easier. (Brander et al., 2002).

3.1.2 Deal screening

Deal screening is a very important stage in the VC investing process. At this stage the critical task for a VC is to determine whether the potential investee meets expectations of the investor with regard to industry, sector, investment stage, geographic location and amount of capital needed (Zacharakis & Meyer, 2000). Kaplan & Strömberg (2000) also point out more general criteria, helping help investors to filter out projects, such as: entrepreneur's background, the technology of the project and the management risk. The screening process is very time consuming from the side of the VC, therefore, the initial filtering is conducted via diligent scheming through the business plans. In case the initial screening is successful, the VC looks deeper into the potential of the project, checking for internal fit and as a next step, entrepreneur is invited for a meeting with a VC. Not surprisingly, the rate of projects surviving screening is very low (1.4% - 3.4%), as investors set very strict criteria in order to let only the most promising projects to follow the process (Hudson & Evans, 2005). High filtering barrier is intended to minimize the costs of screening and deal evaluation with regard to time impact from the investor's side. According to the research, reaching a decision takes approximately 6 minutes in the screening phase, compared to 21 minutes in the evaluation phase (Hall & Hofer, 1993), therefore screening can significantly reduce the costs of the overall pre-investment procedure. If this procedure is completed successfully, the successful projects passes through to the next stage – deal evaluation.

3.1.3 Deal evaluation

The deal evaluation / due diligence phase includes intensive interaction between prospective investor and the management team of the potential investee firm in the form of interviews, background checks etc. This is done in order to get better insights about how the firm can successfully meet the goals being set and keep the promises made to the VC and make sure that it can assure the substantial growth prospects that were envisaged initially. Later upon the completion of this procedure, the process is finalized with structuring of the final deal.

3.1.4 Deal structuring

In deal structuring, valuation of the venture is an essential phase. The main goal is to assure efficient pricing of the securities, which the VC is purchasing. The frame of reference for this process is determined by the final 'selling' price of the company upon exit. As far as

often it is problematic to accurately determine the actual expected cash flows of the new venture, the valuation done by the VC becomes more intuitive and heavily depends upon subjective expectations of investors. At this time, the critical aspect is achieving required rate of return by the time of the exit (De Clercq et al., 2006). Due to significant risks involved in early stage investing, VCs often obtain high stakes in the ventures they are investing in, intending to keep as full control over situation as possible.

Apart from the valuation, there are several other aspects that need to be taken into account: the extent of control that the VC can exercise, the composition of the board of directors, mechanisms given to VCs to force future exit events, conditions of top management employee contracts etc. (Bouillet-Cordonnier, 1992). When the VC steps in, the original entrepreneur often remains to hold a substantial amount of shares and control. The entrepreneur is often one of the key drivers of the company's success, possessing the strategic vision of development and valuable expertise. However, due to potentially high downside risks and big uncertainty, VCs try to design contracts in such a way that they can potentially minimize the exposure to such risks (De Clercq et al., 2006). Staging of the investments is one of most efficient techniques applied by the VCs aimed at lowering the exposure to downside risks, especially at the earliest stages of investing when the risk remains highest (Sahlman, 1990). For that purpose, investments are often undertaken in portions/stages, which are designed in order to mark milestones that the entrepreneur needs to reach in order to get subsequent tranche of financing. In this regard, entrepreneur's self-assessment is essential in order to assure that the VCs expectations, reflected in milestones that are set realistically.

3.2 Post-investment stage

At this stage of the investment cycle, we refer to all post-financing activities that involve VCs. There is often a mismatch between the business and technical expertise of entrepreneurs. Innovators, having high technical expertise, are likely to lack business acumen, whereas business people are often missing technical knowledge. Therefore, entrepreneurs need to be carefully advised, guided and controlled in order to be able to meet the agreed targets successfully. One of initial tools for mitigating potential risks from the investor's side is efficient contracting, which is ensured at the pre-investment stage. However, later in the process there is always a need for more careful supervision, which is consuming more time and effort and includes value-adding and active involvement.

According to De Clercq, Fried, Lentonen and Sapienza (2006) at the post-investment stage, there are several roles that VC tend to combine while providing monitoring and value-adding activities, which include strategic, financing, networking, interpersonal, reputational and discipline roles (De Clercq, 2006). The monitoring activities mitigate agency risks in VC/entrepreneur relationships and ensure sufficient amount of control (Sapienza & Gupta, 1994). It is also important to mention that generally VCs play a much more active role in monitoring of the investments than, for example banks, due to high illiquidity and uncertainty, and therefore, a higher risk exposure (Salhman, 1990). Nevertheless, the impact of monitoring should not be overestimated, because in any case it is mostly limited to consulting function, as the VC can not take on any operating responsibilities, which supposed to be conducted by the management of the company (Gifford, 1997). From the perspective of an entrepreneur, the value added compensates for the high costs of VC financing, whereas from the position of the VC it increases the average return on investment (Sapienza & Gupta, 1994). What comes to a more detailed assessment of the value adding activities, we will focus on them later on in this work.

Strategic role

This is mainly a supportive role, meaning that VC regularly participates in the decision making process and communicates with the venture's management, helping to professionalize the business (Hellman & Puri, 2002). Ideally, this interaction is organized in a form of guidance and advice being provided, rather than making final decisions instead of the management team.

Financing role

Provision of financial assistance is another strong side that VC can offer. Arranging syndicated investing and securing financing from such sources as other VCs, banks etc. is critical for a growing business (Lerner, 1994). Another important element that VCs can help to set in place is the development of strong financial management procedures, which can assure financial health of the venture (Pratch, 2005).

Networking role

VCs always have a wide range of general business contacts, and if they have focus in a particular field, they also possess industry contacts, which can be of great use for the new

venture. It also can be considered as one of the aspects of value adding that the VC ensures for the new venture. These useful contacts can help to boost marketing and increase sales, by attracting new customers via existing partners, find potential acquirers for a trade sale, as well as look for new service providers (Pratch, 2005).

Interpersonal role

Starting up and running a new business is a very challenging and stressful task that not everybody is capable of handling efficiently. In times of distress or doubt, an entrepreneur might not be willing to share the problems and concerns with his direct team members or subordinates and therefore he resigns to moral support, coaching and guidance that the more experienced colleagues from the VC side can provide (Pratch, 2005).

Reputational role

The reputational element is critical for a new venture due to high uncertainty and wide risk exposure. In case a reputable VC is involved, many risks can be mitigated and it becomes much easier to persuade wide range of stakeholders to get involved into the new initiative. It also facilitates easier recruitment of new experienced managers, getting new customers, attracting other investors etc. (Pratch, 2005). Sometimes VC's reputation is also critical for recruiting the senior management team through existing professional network, once the existing team does not meet the expectations (Kaplan & Strömberg, 2000).

Discipline role

This role is often referred to as controlling role, meaning that VC influence internal organization of the firm (Hellman & Puri, 2002). This involvement of the VC includes certain amount of pressure towards the entrepreneur. It incorporates continuous evaluation, and if necessary, the replacement of the management team. Entrepreneur is bind to respect the deadlines and objectives being set. These measures add value to the venture as a whole, but are not necessarily favorable for individual entrepreneur. These disciplinary acts create a healthier atmosphere and keeps entrepreneurs focused, which is crucial for the success of the venture (Sapienza, 1989).

3.3 Exit phase

As it was mentioned earlier, successful exit for the majority of VC investors is the key indication of a good investment strategy, and overall success of the investment made. A clear strategy ensures liquidity of initially illiquid stock of privately held company that can be converted into cash or publicly traded stock. There are four common strategies for a VC exit (De Clercq & Sapienza, 2006):

- the venture is going public via (IPO), selling the stock at the public stock market;
- the venture as a whole can be sold via trade sale;
- the venture can buyback its' stock from the VC investors;
- the venture can be liquidated and the residual of the proceeds is going to the VC once all creditors are paid off.

Regarding the VCs' preferences, the most desirable outcome is an IPO, as companies tend to get higher valuations in public markets compared to trade sales, therefore VCs can extract higher proceeds from such an exit. However, even though in many cases IPO is preferential, it does not provide immediate and full liquidity, whereas trade sale does and statistically turns out to be the most common exit route (Relander et al., 1994). In the same time, trade sale – the sale of the major stake in the company to strategic or financial investors, remains to be risky from the entrepreneur's perspective, as it often causes the loss of control over the company. In the trade sale most often the portfolio company is sold to an industrial actor, but also the VC can sell it to a PE fund for further development of the venture.

The third, most common exit strategy is buying back the VC's stock by the venture, meaning that VC leaves the company, but the entrepreneur/management remains and increases the significance and control via buying the stock back from the VC. In this case, most often the financing comes from debt, meaning that significant amount of future cash flow is used for paying it back.

And, finally, the least preferable scenario is liquidation. In this case, the assets of the company are liquidated at the salvage value, and the proceeds go to security holders following the order of seniority. This situation represents the worst outcome for both sides – entrepreneur and the VC, because the VC often loses part, if not all of the initial investment and as well the entrepreneur loses the money and the whole established business (Cumming & Macintosh, 2003). In addition to the above mentioned exit strategies, there are such options for divesting

as: repayment of principal loans, write-offs and sales to management MBOs and MBIs, however these opportunities are less frequent. (EVCA, 2012)

Value-adding activities such as assistance and support, mentioned under the discussion of the post-investment stage come at a cost. Overall, VC financing turns out to be very expensive for the company, compared to other financing sources. Investors expect a very decent rate of return in exchange for the additional services they provide, generally it varies from 36% to 45% in the case of early stage investing (Sapienza et al., 2002).

3.4 VC investment strategies

The efficiency of managing VC investment portfolio has clear impact on VC returns, therefore it is necessary to discuss the most common investment strategies. There are three main VC investment strategies that will be discussed: portfolio size scope, cross-border investing and syndication. The first two strategies will be covered in this section, whereas the latter will be addressed later in this work.

3.4.1 Portfolio size and scope

The research of Fulghieri and Sevilir (2009) provides evidence that human capital of VC partners, meaning time and effort invested in the company, is a scare and valuable resource and therefore it has to be allocated wisely. In larger portfolios when a probability of a startup failure is rather high, human capital can be better applied across a wider range of companies. On the contrary, in smaller portfolio partners are more eager to provide higher quality support to companies. This research demonstrates that VC management firms, or more generally, investors tend to choose larger portfolios when startups are riskier and have lower value.

The work of Inderst et al. (2007) demonstrates a different approach. There are arguments for keeping portfolio size constant and boosting competition among startups for VC financing, that initiates higher effort from the entrepreneur. This approach has a limited application, as it has value only in case of staged financing.

Hochberg and Westerfield (2010) claim that as investors have limited time and abilities, there is a trade-off between portfolio size and scope. Narrower focus limits the diversification across industry, but increases payoffs from a particular industry. Wider portfolio focus increases return on investment, as investors make their choice from a wider pool of investments. The model of Hochberg and Westerfield (2010) claims that optimal

portfolios are larger and less focused if there are enough skilled partners to cover wider scope of investing.

3.4.2 Cross-border investing

Investing abroad has the risks due to distance, distinct legal and institutional framework, but in the same time it widens investment scope and can bring high returns in the aftermath.

Aizenman and Kendall (2008) show that such factors as geographic distance, common language and colonial ties are reliable indicators of high investment flows between countries. The US remains to be the biggest market for VC investing. Cross-border deals are typical for other markets, while it is rarely the case for the US. Aizenman and Kendall (2008) find that countries, which attract VC investments from abroad, tend to have high level of human capital, better business environments, and well-developed financial markets.

Hazarika et al. (2009) has an interesting observation about the cross-border investing with regard to cultural distance. Institutional differences imply higher risks and motivate VCs to conduct more diligent screening of the projects, therefore only very promising firms succeed in getting funded.

The study of Chemmanur et al. (2010) demonstrated that large distance between the VC and the investee firm has bad impact on company's performance, whereas the presence of local syndication partner was proved to have positive correlation with success.

Even though there are many theoretical implications drawn from the recent literature, VCs tend to keep their actual investment strategies secret, that is why little practical evidence is available to support these findings.

4. Value adding activities

In the following section we will discover in more details the VC value adding process, and provide a deeper review of the relevant literature. Our current aim is to find out how investors enhance the value in the investee firms.

Value adding investors provide more types of support to entrepreneurs than just financial resources. They strive to help the startup to achieve the maximum value and growth. Gompers and Lerner (1999), claim that VCs possess specialized industry knowledge, as well as wide network of contacts that they share with their affiliate companies.

Many well-known high tech companies, for example Google, Inter, Microsoft referred to the help of VC investors at the very start. Statistically, it is observed that the majority of investments go to such industries as computer electronics, telecom, nanotechnology, life science and bioscience (Cumming, 2010). In the same time, there are examples of conventional businesses such as Starbucks and Staples that also received VC funding. These great names are the ones who are incredibly successful and have grown enormously over the years, however, there are many others, that received VC support, but failed.

In the early works of Sahlman (1990) and Gorman and Sahlman (1989) there is evidence that VCs tend to spend much time with their investee firms. Gorman and Sahlman (1989) illustrate three main activities that VC investors provide in addition to financing: 1) building the investors group; 2) reviewing and helping to formulate the business strategy; 3) filling in the management team. Mason and Harrison (1999) write ‘venture capital firms typically also adopt a ‘‘hands on’’ investment style in order to limit risk and add value to their investments, requiring close contact to be maintained with investee companies’. Venture investing involves high uncertainty, because the startup environment is volatile, new information arrives often and important decisions have to be taken quickly. Therefore, both parties - investors and investees should realize all the compromises and risks while agreeing upon a deal. It is critical to take into account that active value-adding services from the investor’s side do not guarantee the success for a startup.

There are three main ways how investors can add value to the business. Firstly, the VCs provide advice of different kind, support the team with management expertise and industry contacts. Secondly, VCs can also add value by designing appropriate financing mechanisms (contracts for each particular investment case), by staging and syndication of

investments. And, finally, the third criteria of measuring added value is studying company performance upon VC exit, which is important, but lies outside the scope of the current work.

4.1 Screening and monitoring

Looking into the first way of adding value via coaching, support and guidance, there are two distinguished elements of this process highlighted in the literature: screening and monitoring. The true value adding can occur only on the post-investment stage, but the pre-investment stage, when screening of investments is conducted is critical for all subsequent stages.

During the screening procedure (so-called due – diligence), investors find the most promising startups, that have highest growth prospects. The study of Fenn, Liang, and Prowse (1995) illustrate the crucial importance of the screening process. Based on the American statistics they show that only 1% of all project applications received by VCs got funding

The next question is how VCs measure the prospects of a new venture and make their final decision. Kaplan and Strömberg (2004) demonstrate that VCs try to make a careful assessment of all potential risks involved. These risks are grouped in three categories: internal, external and execution risks. Internal risks include risks related to management processes and operations of the firm. External risks include exogenous factors, such as competition. The third type of risks involve problems related to complexity of project implementation. This study will be also relevant later on, when we address the issue of contracting. Because of the in depth assessment, VCs often manage to get a deep understanding of the startup's business, and bring large follow-up value to the firm, compared to banks, which only provide funding. According to Ueda (2004) even if startups have access to other sources of financing, they often prefer the help of VCs.

On the next stage, during the monitoring process investors put in their best effort and competence, in order to maximize the value of the startup and control its' operations. There is a slight difference between advising and monitoring. Advising involves purely supportive activities, whereas monitoring incorporate stricter control, and even intervention, arising in bad times. Hellmann and Puri (2002) show that VCs tend to alternate these two roles based on the situation in the firm. Findings of Hellman and Puri (2000,2002) justify that VCs also increase the speed and efficiency of bringing new products to the market. They found evidence of providing incentive-based contracts to the employees, as well as confirmed that VCs aim at professionalizing the management of investee firms.

The observations of Puri and Zarutskie (2008) based on Longitudinal Research Database (LRD) from the U.S. Census Bureau data, showed that the flow of VC money is bigger in the sectors with higher IPO activity. This study confirms the hypothesis about the critical importance of successful exit procedure for classical VCs. The research of Chemmanur, Krishnan, and Nandy (2008) being based on the same data source, benchmarks VC-based versus non-VC based firms analyzing productivity and operational efficiency. They also studied the same parameters in the VC-backed firms, looking into the value before and after gaining financing, therefore trying to extract the impact of screening and monitoring on the operating efficiency. In this study Chemmanur, Krishnan, and Nandy (2008) found the evidence, that based on total sales venture-backed firms are larger than non-venture backed, they also pay higher salaries and have higher skill levels, which are measured as a ratio of white collar workers to blue collar workers. This finding support the fact that generally VC goes to skilled entrepreneurs working in human capital intensive industries (Cumming, 2010). In the same study there is an important observation that venture-backed firms have higher Herfindahl index meaning that they operate in more concentrated industries.

The research of Chemmanur, Krishnan, and Nandy (2008) confirmed the fact that both screening and monitoring effects are present. They demonstrated that VC-backed firms have higher than average productivity even before the investment is made – which supports the argument about the importance of screening. Also, productivity continues to increase gradually after the investment is made, meaning that VC succeeds in the monitoring activity. It was observed that in the post-investment period both sales and costs show substantial growth, and the productivity improvement is reached by higher growth in sales compared to growth in costs.

Chemmanur, Krishnan, and Nandy (2008) found that general pattern is that VCs look for better firms and afterwards do the best to develop that potential. Also, they came to the conclusion that the highest increases in productivity happen during first two rounds of financing and later on the productivity remains stable.

In fact there is another characteristic of the VC that is important for the investment process – the reputation of a VC firm. High-reputation VCs can better perform monitoring activities than lower-reputation VCs. In this case reputation plays the role of a quality indicator that attracts the attention of startups. This finding of Chemmanur, Krishnan, and Nandy (2008) is also consistent with the work of Hsu (2004). The study suggests that startups are on average three times more likely to accept an offer from a high-reputation VC than a low-reputation VC. In the same time, high-reputation VC has more power in negotiating the deal terms with

startups. Also high reputation VC-backed firms show larger sales volumes compared to low-reputation VC backed firms.

4.2 Contracting

Contracting procedure is very important in structuring the VC deal and controlling for allocation of cash flow, liquidation and control rights between VCs and portfolio companies. The primary goal is to avoid potential conflicts of interests that may occur and minimize principal-agent risk. Good design of a contract is important in VC financing because of potentially large information asymmetries, moral hazard problems and opportunistic behavior that may arise between the two parties. Both entrepreneur and investor have their own goals to be met, but contracting helps to align their interests and structure their relationship in the best possible way.

Interestingly, agency problems might appear in both directions: 1) entrepreneur may act opportunistically with regard to VC, 2) VC may act in harmful way toward the entrepreneur. In the VC contract design it is likely that VC have stronger bargaining power, however it is arguable that such contracts are biased toward VCs (Cumming, 2010). Reputation is one the crucial elements that prevents VCs from strongly opportunistic behavior toward entrepreneurs, because it is a very valuable asset in this business. If reputation is lost or strongly damaged, VC will have problems co-investing with other VCs (syndicating investments with other VCs).

Technically, the key points in contracts between the VC and entrepreneur are cash flow and control rights. Kaplan and Strömberg (2003) came to the conclusion that cash flow, control and liquidation rights in VC contracting can be distributed independently, while in the standard financial contracts these rights are often bundled. Kaplan and Strömberg (2003) show that convertible preferred stocks are most widely used in VC transactions. Other mechanisms commonly used in this process are non-vesting stock options (with no voting rights), unvested stocks, explicit contracting on voting rights, securities with different voting and director election rights (Cumming, 2010).

Typically, VC contracts make cash flow and control right contingencies based on certain targets. This strategy is fully consistent with “informativeness” principal of Holmström (1979), where the principal should link payments to contractible signals, verifying that those signals are correlated with the agent’s initial effort level.

The allocation of control and voting rights is also dependent on the track record of the entrepreneur and the uncertainly about the future firm's prospects. Kaplan and Strömberg (2003) used their data to study uncertainty and potential conflict of interest. They came to the conclusions, which are in line with the work of Aghion and Bolton (1992). This study suggests, that in a VC deal an investor has the right for exclusively financial benefits, while an entrepreneur, besides all financial perks might also have private benefits from the project. That is likely to happen because he is running the firm and has decision making rights. In such a case, Aghion and Bolton (1992) see that the entrepreneur has made a decision on whether to give up the control rights to the investor or keep the control rights and give the investor a minimum required return.

When the stakes are high, the conflict of interest might arise, and entrepreneurs are likely to react in a suboptimal way. In such cases conflicts might occur, therefore it is better to allocate control rights to the investor. In the opposite case, when there is low likelihood of conflict of interest, therefore low uncertainty, it is better for an entrepreneur to keep those rights, as he is less likely to engage in opportunistic behavior.

In the works of Hellman (1998) and Hart (2001) there is also evidence, supporting the former finding. Hellman (1998) argues that it is optimal to allocate more control rights to the investor when the entrepreneur lacks experience and productivity, in order to make it possible to hire an experienced manager if any major problems arise. Hart (2001) argues that in the firms with low risk of conflict, the investor should receive a fixed compensation, while the entrepreneur will benefit from the residual cash flow and control rights.

Kaplan and Strömberg (2003) suggest that if the firm performance deteriorates, VC tend to claim more control and cash flow rights, as it became obvious that the entrepreneur does not succeed in managing the startup efficiently. Finding of Aghion and Bolton (1992) is consistent with this argument as it is more difficult to justify the VC control limitation over the startup firm.

In the latter study, Kaplan and Strömberg (2004) looked into how internal risks (moral hazard, information asymmetry, and the likelihood of future conflicts) and external risks (shifts in macroeconomic environment, changes in regulations) impact contracting terms. It was observed that internal risks tend to shift the demand for control rights toward the VC, while external risks which are equally relevant for the entrepreneur and the investor, still guarantee less compensation for the entrepreneur and grant the VC more control, liquidation right etc. Similar pattern apply to the risks, which equally involve the VC and the entrepreneur, however the entrepreneur might have more control over the situation as he possesses execution

rights. This case is also associated with higher control rights of the VC. Even though such findings might seem controversial, in the earlier study of Hart and Moore (1994) there is a relevant explanation for such paradox. They claimed that since the involvement of the entrepreneur is crucial in mitigating such risks, it is critical to reduce the degree of the entrepreneur's opportunistic behavior.

Signaling theory is closely related to the contracting phase. At this stage startups often face problems when they are required to show signs of collaboration and commitments from reputable industry players in order to get credibility and necessary resources for developing the project. Positive signals from the investors demonstrate that startup has good prospects and cause reduction of information asymmetry, anticipating positive reaction of the market.

Overall, Chemmanur and Chen (2008) created a very realistic theoretical framework that provides good justification for the previous findings on contracting. In this model the entrepreneur initially possesses more information about the startup than the VC, but after a while when the VC starts interacting with the firm, this information advantage gradually diminishes. Therefore, an equilibrium contract is designed in order to ensure the optimal effort level for both parties and maximize value addition.

4.3 Stage financing

The intuition behind the principal of stage VC financing is the following: order to conduct a regular monitoring and efficient control VCs are motivated to execute the investments in multiple rounds or stages. The study of Sahlman (1990) claims that staging is an important instrument for controlling VC risk. Therefore, staging is another defence technique against uncertainty and opportunistic behaviour of the entrepreneur. The VC can stop the investment process on the way if the entrepreneur does not meet the predefined milestones or shows weak commitment.

The study of Gompers (1995) empirically demonstrates the mechanism of stage investing. He stipulates the necessity of staging by opportunistic behavior from the entrepreneur's side. This could potentially involve hold-up problems and create agency costs. Before each investment stage, the VC agent gathers additional information about the performance of the firm and monitors the activity of the entrepreneur. When the investment is conducted on the very early stages of the company life cycle, total amount invested per stage is generally smaller. On the contrary, during later stages, when more tangible assets are already present in the company, investors are eager to invest more money per stage and require fewer

stages in total. That is the case, because if the startup fails, investors can recover larger portion of the initial investment upon liquidation of the assets.

The study of Tian (2011) has an interesting finding that staging decisions depend on the proximity between the VC and the company. VCs are more likely to use staging practices if the company is geographically remote from the VC. He also finds evidence, with regard to exit performance. The best exit performance is achieved by companies, which are most distantly located and received investments in several subsequent stages. A related research of Bienz and Hirsch (2011) weights the benefits of milestone financing, where investor makes a decision to invest at a pre-determined price, against round-based financing, where typically the price per share is set at a time of refinancing. They provide evidence that milestone financing, is beneficial for entrepreneurs with weak bargaining power.

Apparently, the presence of high R&D expenses also has impact on staging procedure. Gompers (1995) found the correlation between the funding duration and the R&D expenses incurred by the firm. High R&D increases asset specificity, which might stimulate the entrepreneur to engage in personal benefit-maximizing behavior. In this case VC funding duration should be diminished in order to avoid undesirable actions of the entrepreneur. In the same study Gompers (1995) demonstrates that high growth options result in more frequent financing. Industries that are highly volatile, but show big growth options, stimulate entrepreneurs to engage in personal benefit maximizing behavior.

The finding of Kaplan and Strömberg (2003) is in line with the previous observations about contracting, showing that successful track record help to reduce information asymmetry. Following the same intuition, investors tend to invest in such projects requiring less financing rounds. However, even if staging is a commonly used tool, that makes the position of the investor safer, there are certain critics of this technique. For example, Cornelli and Yosha (1997) provide evidence that in certain cases it may lead to window-dressing activities from the entrepreneur's side. Neher (1999) highlights another controversy that lies in the risk of entrepreneur's hold-up behavior. Nevertheless, despite the few theoretical findings underlying disadvantages of staging, it continue to be widely used in the VC investment practice.

4.4 VC syndication

For VC investing process, syndication means pooling resources of several funds or investors together for making investment in a particular company. In the prominent research conducted by Lerner (1994), there are several main reasons explaining wide use of syndicated investing.

First, syndication helps to verify the company's prospects – simply, the initial due diligence is conducted by several VCs simultaneously and becomes more reliable. In this process the experience and competence matters a lot. According to Lerner (1994) more experienced VCs tend to syndicate with other experienced VCs, keeping the high standard of assessment and producing more accurate results.

Casamatta and Haritchabalet (2007) constructed a theoretical model that is consistent with the finding of Lerner (1994). While discussing investment opportunities, investors are disclosing valuable information about the company, which may result in subsequent competition between the VCs for this investment opportunity. Therefore, in order to keep the opportunity to both consult and cooperate, VCs tend to form syndications.

Second, Lerner (1994) says that experienced VCs tend to sell overpriced securities to less experienced VCs. In the later rounds, investments are done in such a way that the fraction of ownership of the initial VC stays constant.

Brander, Amit, and Antweiler (2002) suggest an alternative approach toward syndication. They argue that major reason for syndication is the necessity for complementing management skills and competence. As far as it is rather common for VCs to specialize, polling resources of several Venture capitalists may significantly improve the overall effect of monitoring. In this study Brander, Amit, and Antweiler (2002) show that firms where syndicated investments are present, finally demonstrate higher financial returns due to improved monitoring.

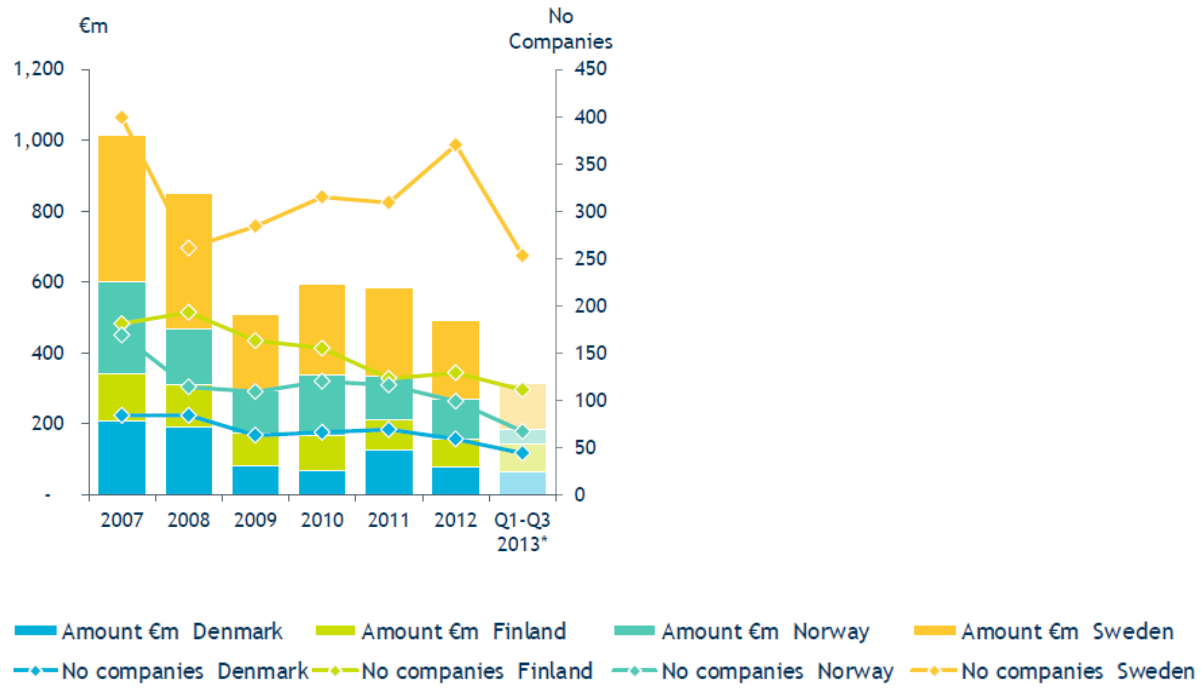
5. Overview of Norwegian VC and PE market

In this section of the theoretical part, we aim to briefly depict the positioning of the Norwegian VC and PE market on both Nordic and European scene. We also attempt to highlight the most significant dynamics, recently happening in the PE and VC industry in general in order to provide an up to date picture. However, primarily we will focus our attention the evolving trends in the VC segment in Norway in comparison to other segments and geographies.

Besides the fact that Norwegian economy is highly developed, the VC investment scene is considered as young and immature compared to the European leaders in this industry. Even within the Nordic region we can clearly see that Norway lags behind such VC pioneering country as Sweden, where the investment scene is better established.

Overall, the Norwegian state puts significant effort in developing investment initiatives and providing funding for the VC and PE market via such companies as Investinor and Argentum. However, the amount of institutional capital raised is lower in Norway than the average over European market (Thompson Reuters, 2013). This observation signals that the Norwegian VC market is very dependent on private and corporate capital providers, which are more subjected to diminish and cut Venture financing in periods of crisis, while institutional capital providers, such as pension funds and governments are generally less discouraged by short term economic slowdowns providing more stability for the investment environment.

On the graph below we can observe the evolution of the VC market in the Nordics over the seven-year period: 2007-2013.



*Data for 2013 is preliminary

Figure 5.1. VC activity in the Nordic region 2007-2013. Source: EVCA, 2014. Nordic Private Equity in the context of Europe, p.6

This graph indicates that the activity in the region has slowed down over the last years, especially after the financial crisis of 2008. The other potential reason is the fact that the market is slightly becoming more mature. In the same time we can also observe that Norway's contribution was following the general tendencies in the market.

However, the statistics from Norwegian Venture Capital Association (NCVA) demonstrates interesting results from year 2014, meaning that the situation has significantly changed from 2013. Venture investments in Norwegian companies almost doubled over this period. The research of NVCA also shows that foreign PE and VC firms show a growing trend for investing in Norwegian portfolio companies, which can be considered as one of the good signs for growing global competitiveness of Norwegian companies and openness of the business environment for foreign capital.

On the graph below we refer to the data from NVCA, summarizing the statistics on total amount invested by phase and number of investments per phase made only by Norwegian PE and VC firms in 2007-2014. NVCA uses a definition of a Norwegian PE or VC firm as a firm that is headquartered in Norway. In comparison to the amounts invested in Buyout segment, the amounts in Venture and Seed are much smaller. Analyzing the dynamics of total

quantity of investments by phase, we see that there is a tendency for making fewer deals, which is relevant for the Venture segment as well.

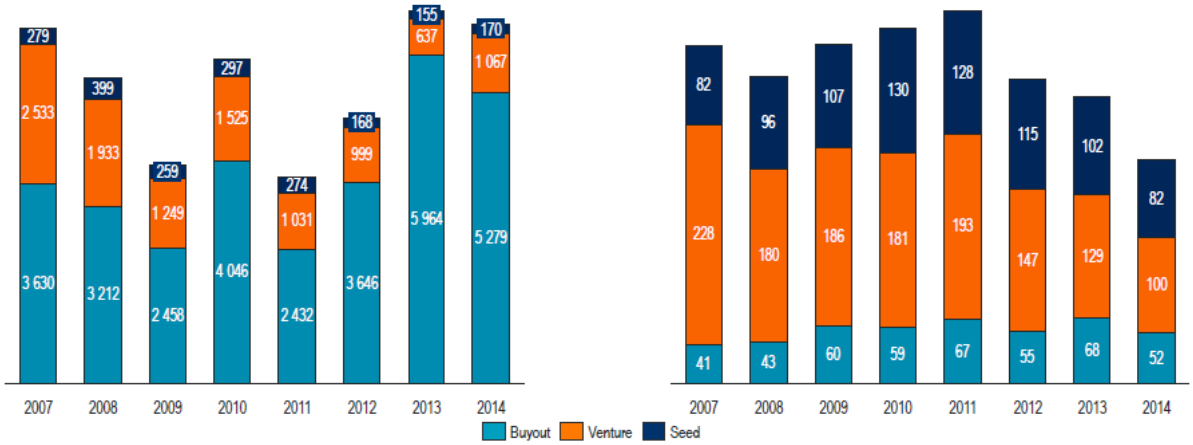
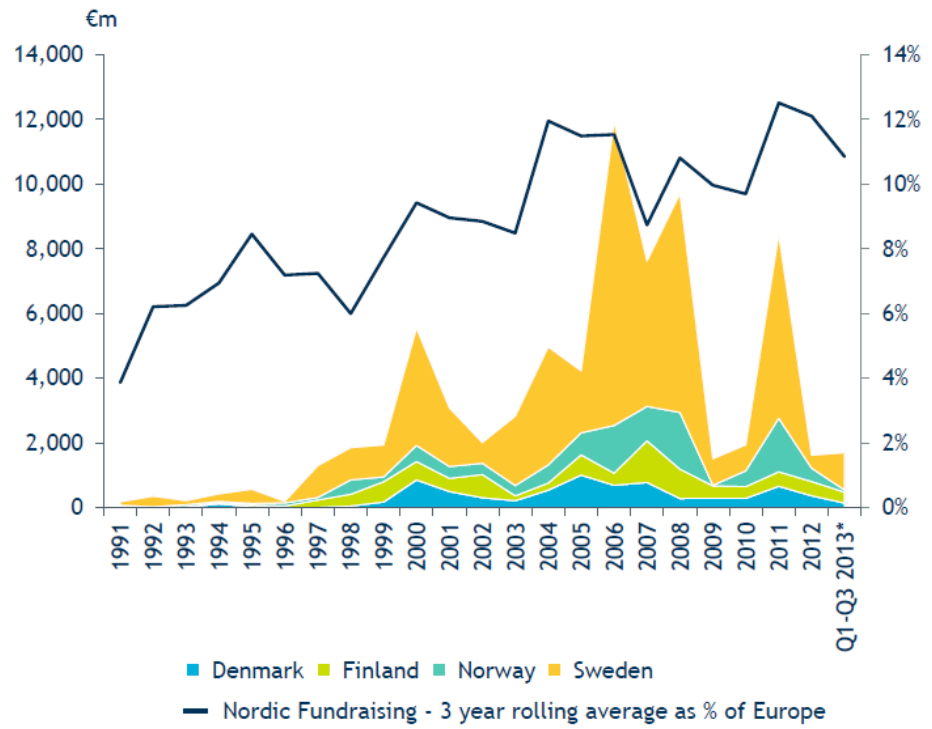


Figure 5.2. Amount invested by phase (million NOK) and number of investments by phase respectively. Source: NVCA, 2014. Private Equity Funds in Norway, activity report, p. 15

Covering the recent industry changes, we can highlight two main characteristics of the Norwegian VC market. There is a growing trend for making fewer but bigger deals, that was also justified in 2014. The amount invested per VC deal continued to be high, but the total number of VC investments in 2014 was even lower than in 2013.

With regard to the newest statistics on Norwegian VC activity from 2015, only preliminary conclusions can be made. Based on the data from Argentum for the first half of 2015 the number of investments slowed down, driven by a fall in venture activity, while the total amount invested returned back to the level of 2009. The similar slowdown tendencies can be observed in the fundraising market. However, according to the Nordic Private Equity report (Argentum, 2015) the pipeline remains to be strong and fundraising still has the potential to beat the amount of 2014 by the end of the year.

The illustration below demonstrates the fundraising dynamics in the Nordics VC market from 1991 to 2013.



*Data for 2013 is preliminary

Figure 5.3. Nordic Fundraising. Source: EVCA, 2014. Nordic Private Equity in the context of Europe, p.4

From this graph we can observe that in terms of total fundraising Sweden is a clear regional leader, followed by Norway which significantly lags behind. According to statistics of Argentum (2014), in terms of percentage contribution to the total European VC activity, the share of the Nordic countries remained fairly stable from 2010, amounting for around 10% of annual European fundraising.

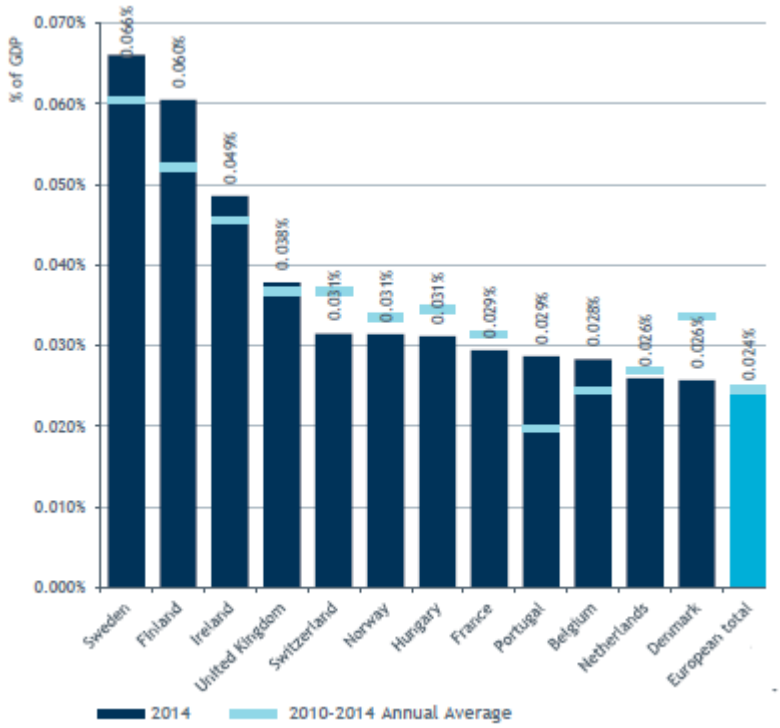


Figure 5.4. Venture Capital Investments as percentage of GDP. Source: EVCA, 2014. European Private Equity activity report, p.49

In order to benchmark Norway against the European counterparts, above there is statistics on Venture capital investment as a percentage of a country's GDP. We can observe that in 2014 Norway has demonstrated a bit lower indicator that the average for 2010-2014, but in general ranking it occupies 6th place according to this parameter, and falls behind two Nordic countries among others: Sweden and Finland. There can be numerous reasons and interpretations for this fact, but in any case, considering the strength of Norwegian economy, we can clearly say that the VC market has strong prospects for development and has good opportunities for future growth, even though currently it seems to lag behind European industry leaders. This observation is addressing the general potential, and therefore is disregarding cyclical economic slowdowns and does not take into account the current downturn that the Norwegian market is going through due to the oil crisis. However, in the current context it is also necessary to point out that large amount of risk money in Norway has been traditionally directed towards the oil related services, and as the investment potential in this industry might shrink, it can potentially have a significant impact on the overall performance of this investment segment. In the same time, this trend can stimulate the flow of private money into other segments, which were underfinanced earlier.

In order to show the contrast, we address the Buyout segment, depicted on the graph below. We can observe that in 2014 Norway is leading the European ranking, it holds the 1st place on percentage of Buyout investments of country's GDP, shows a significant increase in comparison to the average for the years 2010-2014. Other Nordic countries – Denmark, Finland and Sweden occupy respectively second, sixth and seventh places in this raking. In the same time if we address at the average indicator for 2010-2014, Sweden and the UK would turn out to be the leaders.

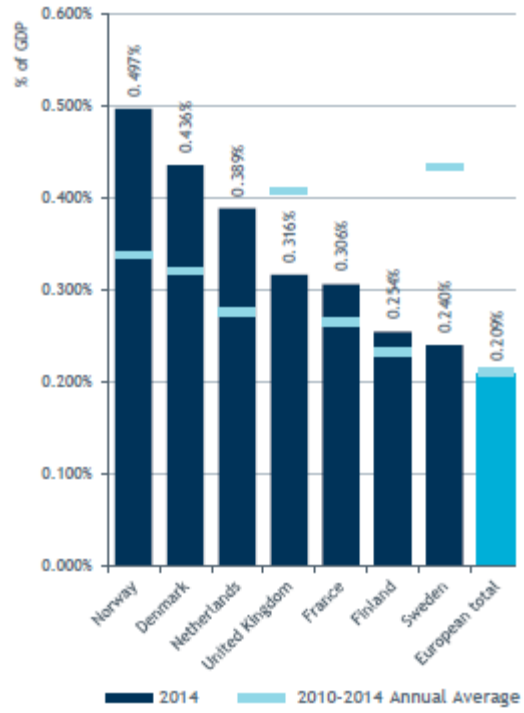


Figure 5.5. Buyout Investments as percentage of GDP. Source: EVCA, 2014. European Private Equity activity report, p.50

It was mentioned earlier, that the Buyout segment is much larger than the VC segment. The dynamics in the Buyout segment is also characterized by less, but bigger deals. At this stage an investor is mainly planning to buy a controlling stake in the company and often use a substantial amount of borrowed money too. In comparison to Venture, the Buyout segment is better represented in Norway. This type of PE investments is considered to be less risky, compared to the VC segment, and is often driven by purely financial or managerial control motives. In general, it can be concluded that at this point in time, Norwegian economic and business environment seem to have more stable and better developed market for later stage investments than for earlier stage investments.

6. Data and methodology

6.1 Data collection

The practical part of the current thesis is based on the data provided by Center for Service Innovation (CSI) at Norwegian School of Economics (NHH). This database on VC and PE investing covers a period from 1992 to 2013. In the subsequent analysis we will be utilizing only particular variables from the database, some of which have shorter time horizon of observations available. Therefore, we have no intention to make an exhaustive overview of the VC and PE activity for the whole period under research.

Here are the main properties of the CSI database that will be covered: the sources of data and terminology being used.

There are two main sources of data in the CSI database: 1) market data Argentum Private Equity and 2) accounting data SNF Center for applied research at NHH.

1) Established in 2001, Argentum is an asset managing company specializing in investments in Northern-Europe and energy-focused private equity funds. It is wholly-owned by the Norwegian Ministry of Trade and currently has NOK 17 billion under management (Argentum, 2015), whereof two thirds are managed on behalf of the Norwegian Government and one third on behalf of private investors. The company runs on commercial basis and contributes to efficient capital markets for unlisted companies. Argentum invests in the private equity market, conducting investments in other funds as well as direct investments. As part of argentum's mission, they collect open information on VC and PE in the Nordics and publish it in a market database, covering various aspects of the deals on VC and PE scene. The information that was requested by CSI from Argentum Private Equity is a market database covering various aspects of the deals on VC and PE scene.

2) SNF is one of Norway's leading research environments within applied economic administrative research. It is a company within the NHH group with an objective to initiate, organize and conduct externally financed research. SNF support the development and maintenance of a database covering corporate accounting data for all Norwegian companies for the period from 1992 to present time.

From SNF database we have picked data from Norwegian Corporate Accounts for the investee firms, being supported by VC and PE, which were identified with the help of Argentum's market data on funding and portfolio firms. Further, in the practical part when referring to different variables from the SNF accounting database, the special properties of each variable will be clarified.

In order to cover the potential terminological concerns with regard to data, such as definitions of investment stages: Seed, Venture and Buyout, it is highlighted that in the dataset under research we use the classification developed by European Venture Capital Association (EVCA) and utilized by Argentum.

6.2 Sample description

The current database includes substantial amount of information on VC and PE deals and contains information about 683 portfolio firms coded in different variables. In the CSI database the data being used is expressed in 1000 NOK, while the ratios are stated as decimals. However not all values for the whole list of variables are available for this list of firms, therefore in our analysis for particular cases we will take smaller number of observations. There are many VC and PE funds and fund managers, that conducted the investments and accomplished the deals, but among others, they include such players as Viking Venture, Verdane Capital, Sarsia Seed, Norvestor, Northzone, HitecVision, Herkules Capital, EQT etc.

The investment deals that are included in the database fall into the following broad sector classifications: Cleantech, Consumer goods, Energy, Health Care & Life Science, ICT and Industrial. Another major parameter that is critical for describing the data available is stage of investing that characterizes the fund's focus area and has the following classification: Seed, Venture, Small/Mid-Cap Buyout, Large-Cap Buyout and Secondary investing. The database does not contain any information about amounts invested in each firm, therefore analysing various segments and classifying the deals into sectors of investing we will be accessing the total number of investments made in each segment, not the total amount of capital invested.

With regard to geographical scope, it is necessary to point out that current dataset includes the information about portfolio companies of PE and VC funds having an office in Norway, therefore it includes several Swedish funds, which are present in Norway and invest in Norwegian firms. In terms of location of portfolio companies, no foreign portfolio firms are

included in the database. Conducting the subsequent analysis we will study the data in greater details and when necessary will provide clarifications and descriptions of additional data properties.

6.3 Research question

At the very beginning of this work, we set a priority to focus on the value-creating side of the investment activities. In the practical part we would like to address mainly the value creation on the firm level, generated by the injection of VC or PE money. More precise formulation of the research question is the following:

How does VC and PE investing affects the growth and performance of the investee firms?

In order to find an answer to the research question formulated above, we have chosen to study the following variables available in the CSI database: 1) sales revenues, 2) payroll expenses, 3) equity ratio, 4) patents, 5) R&D. We decided to focus our attention on these variables as we believe they can best demonstrate how the firm is evolving, and growing over time. The aim is to find out how the VC and PE investing impacts these variables, so that we can better understand overall effect of the investment activities on the economics of the investee firms.

Looking into sales revenues we will track the dynamics of how firm's operations were expanding, which will be our approximation for a financial indicator of firm's external growth.

When analysing payroll expenses we aim to approximate the social economic value that firm is generating, by employing more people and paying respective taxes.

Equity ratio variable is a particularly good illustration for the difference between Seed/Venture and Buyout investing, as it indirectly indicates how expansion is financed on these stages.

Addressing patents and R&D, we will concentrate more on internal development of the firm, of how it's quality is growing, accumulating more expertise and value inside the firm.

Overall looking into how these variables change with regard to VC and PE money injection we will understand the value creation impact on growth and performance of the investee firms.

Below we provide abbreviations for the variables being studies, which are used in Norwegian Corporate Accounts and concise descriptions from the accounting data provided SNF Center for applied research at NHH.

1) salgsinn

   Sales revenues show the value of goods and services sold during the period as a result of the company's ordinary main activities. Sales revenues are exclusive of tax and direct and indirect taxes, but include any grants or subsidies

2) lonnsos

   Payroll expenses comprise all forms of remuneration to the company's employees and executive personnel, both current and former. This comprises pay, fees, holiday pay, bonuses, gifts to personnel, company car, subsidised canteen, free newspapers, benefits of options and share purchase schemes, subsidised holiday homes, subsidised loans etc., and remuneration of the company's board of directors, employer's National Insurance contributions and pension expenses

3) ekandel

   Equity ratio shows equity as a share of total assets. Stated in decimals, not as a percentage.

4) patent

   Patents includes permits, patents, licences, trademarks, contract rights and copyright. The value is in the right to use or exploit what is covered by the contract.

5) fou

   Research and development concerns activities that aim to procure new knowledge, make research results commercially viable or to describe or design new products or production processes. Comprises the assessment, design, construction and testing of different types of prototypes (products, tools and production processes).

6.4 Research methodology

In order to study the chosen variables from the dataset, we conduct a descriptive statistical analysis using SPSS and STATA. As our aim is to discover and track major statistical patterns in value creation, and we were primarily focusing on utilizing Descriptive statistics in order to understand the key properties of the data. We also use Excel software for

computing the means and growth rates of variables and provide a comparison of these indicators.

The main approach to analysing the chosen variables is computing mean values for these variables and comparing the results of the two groupings:

1) before the investment is made and 2) after the investment is made. This way we will see how the injection of the private funding impacts the key characteristics of the firm. Also for the relevant variables we do a check for the short term affects of investing, looking at the means and growth rates for the short three year period after the investment is made. And, finally, aiming to understand the difference in the impact of VC investing on the performance of the firm compared to PE investing, which is conducted at later stage of the firm life cycle, and might have different implications for the firm, we will compare the samples of firms from the VC/Seed segment and Buyout segment.

6.5 Credibility of research findings

The credibility of data provided is supposed to be high. In this research, we are utilizing official accounting data for limited liability firms that have private investments. Public disclosure of accounting data is legally mandatory for such firms, also this data is subjected to auditing, therefore should be considered as credible and objective. The Argentum database that lies in the foundation of our dataset is based on open sources and covers most of the deals in the Nordic countries. This is the most trustful source available for market data in this segment of the financial market, but it can contain some missing data, due to investor's unwillingness for public disclosure of details on investments. However, neither external data providers, nor NHH is responsible for the implications drawn from this data and thereafter all the conclusions made by the author are fully independent and remain the author's intellectual property.

7. Analysis and findings

7.1 Data sample overview

In order to gain a better understanding of the data provided by CSI, we decided to start with looking into the categorization of investments for all 683 companies in the dataset. Before studying particular variables, which we chose for measuring growth and performance of the investee firms, we present several charts and graphs, which illustrate the overall properties of the data available.

Below we provide a distribution of total number of all investments included into the dataset (N=683), per sector, which has abbreviation “bransje” in the CSI database. We can observe that two segments clearly stand out: ICT (Information and Communication Technology) having 26,65% and Energy sector with 19,47%. Other sectors follow in the order of share size: Industrial (13,32%), Health Care and Life Science (11,86%), Consumer (9,66%), Cleantech (6,15%) and also other smaller sectors that cumulatively represent 12,88%.

Not surprisingly, ICT sector has the highest percentage, as it is one of the most attractive investment segments globally and has great growth prospects, due to the diffusion of digital technologies and Internet services. Second largest sector that attracts many investments in Norway is Energy sector. Taking into account the resource extraction orientation of Norwegian economy, big flow of PE and VC investments into energy-related companies with primary focus on oil and gas extraction is also intuitively predictable.

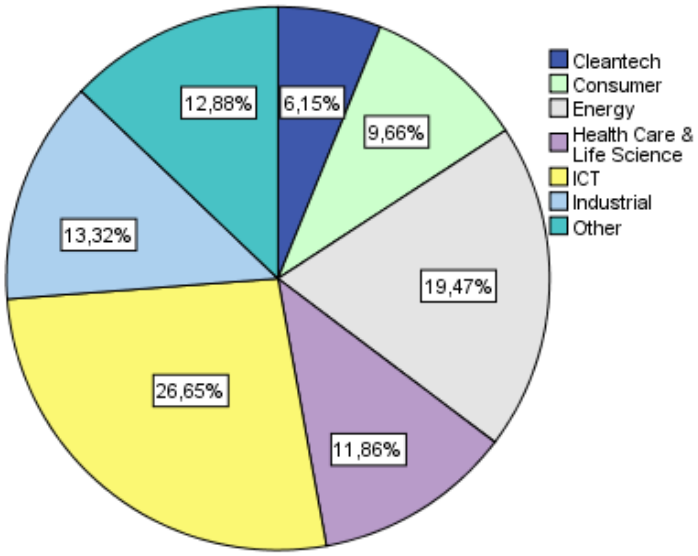


Figure 7.1.1. Distribution of investments by sector, N=683

We also addressed a more detailed sector subdivision of investments, using the Standard Industrial Classification (SIC) and the data from our dataset we observed that there are five specific industries which attract VC and PE money the most:

- Wholesale trade, except of motor vehicles and motorcycles;
- Publishing activities;
- Computer programming; consultancy and related activities;
- Architectural and engineering activities; technical testing and analysis;
- Scientific research and development.

The following chart is an illustration for the stage distribution of all investments included into the dataset (N=683), which is coded under “stadie” variable in the dataset. This division illustrates three major stages: Seed, Venture and Buyout. However, it is important to note, that each fund often invests several times in the same portfolio firm, but in our dataset only the first money injection is recorded. For example, if a VC fund brings money to the firm at the Seed stage, the investment will be counted as Seed investment, regardless the fact that the fund might continue investing on the Venture stage as well. On the contrary, NVCA statistics includes all funding at the actual stage when it takes place.

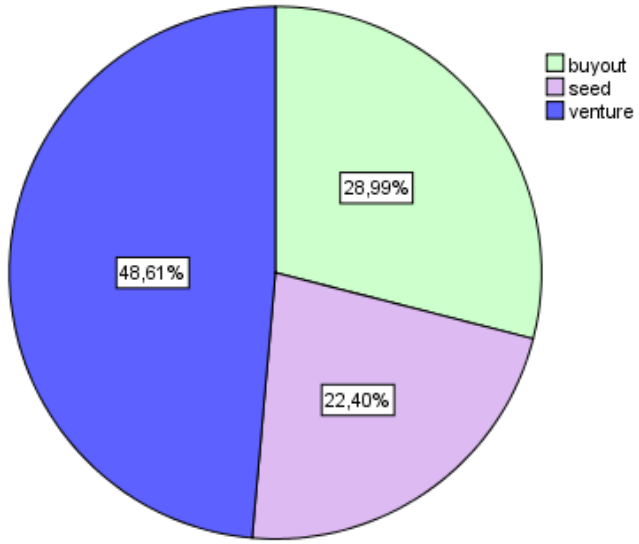


Figure 7.1.2. Distribution of investments by stage, N=683

We can observe that Venture stage (48,61%) clearly dominates Seed (22,4%) and Buyout (28,99%) stages and represents just a slightly smaller share than Seed and Buyout combined. The main inference from this result is that overall investors have a clear preference for Venture segment. In order to avoid confusion, it is worth pointing out that these amounts account for number of investments per stage, not total amounts of money invested.

When studying the investment preferences with regard to sectors and stages, it is also important to look into arguments for investing that are driving investment activity. The histogram below demonstrates the primary investor motivation for investing. The valid data on this parameter is available for 368 companies from CSI database. The qualitative data on this characteristic was gathered by CSI using a questionnaire, where companies with presence of VC and PE money were asked to rank five most important arguments for investing.

There is a big dispersion in numbers, but the key argument for investing in the majority of the cases is value creation through active involvement. Therefore, investors are aiming at bringing their competence and expertise to the investee firms, in order to develop them and enhance the growth. Second, third and fourth arguments are: value creation through active involvement and restructuring, value creating through pure restructuring and financial argument for investing. Therefore, it becomes clear that in majority of the cases of VC and PE

investors are eager to contribute through hands-on coaching and involvement into the company's operations in order to add value to the investee firm.

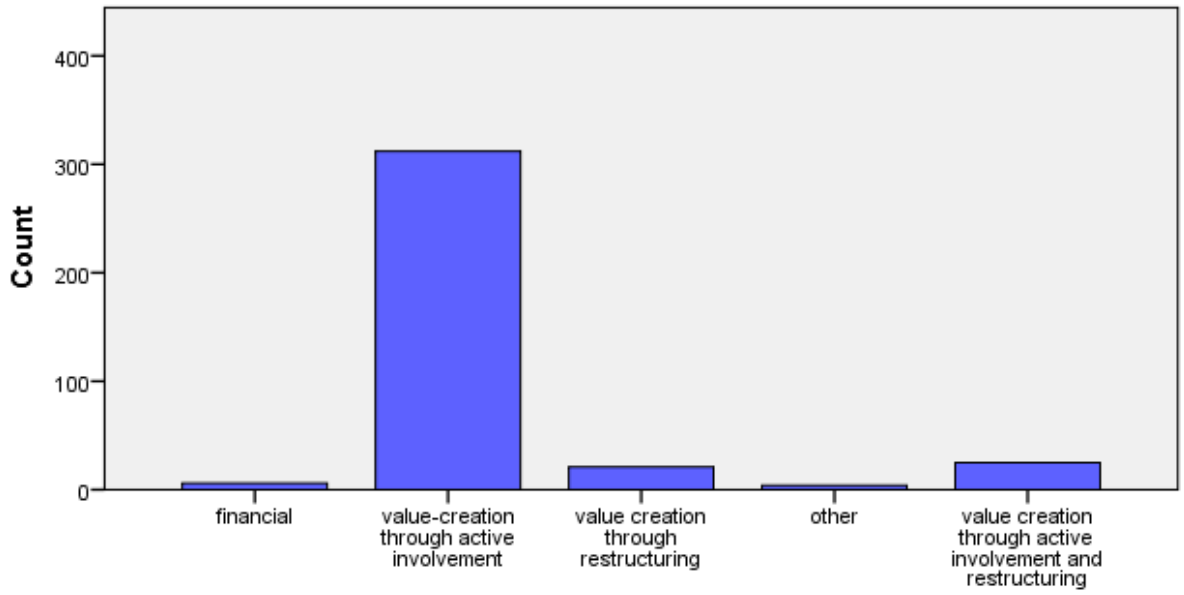


Figure 7.1.3. Primary argument for investing, N=368

We would also like also cover the importance of different firm specific characteristics for value creation. Within the CSI research project a quantitative survey was initiated. The funds that conducted investments where asked to complete the questionnaire (example provided in Appendix), where they were proposed to assess the most important reasons for investing by ranking the top five most important arguments for each portfolio firm. The two graphs below demonstrate the results of the survey. On the first graph, we see the distribution of responses for the request to mark the most important firm specific asset for value creation. The second graph shows responses on how investors perceive the second most important firm specific asset for value creation. The results of this survey are available for 292 firms.

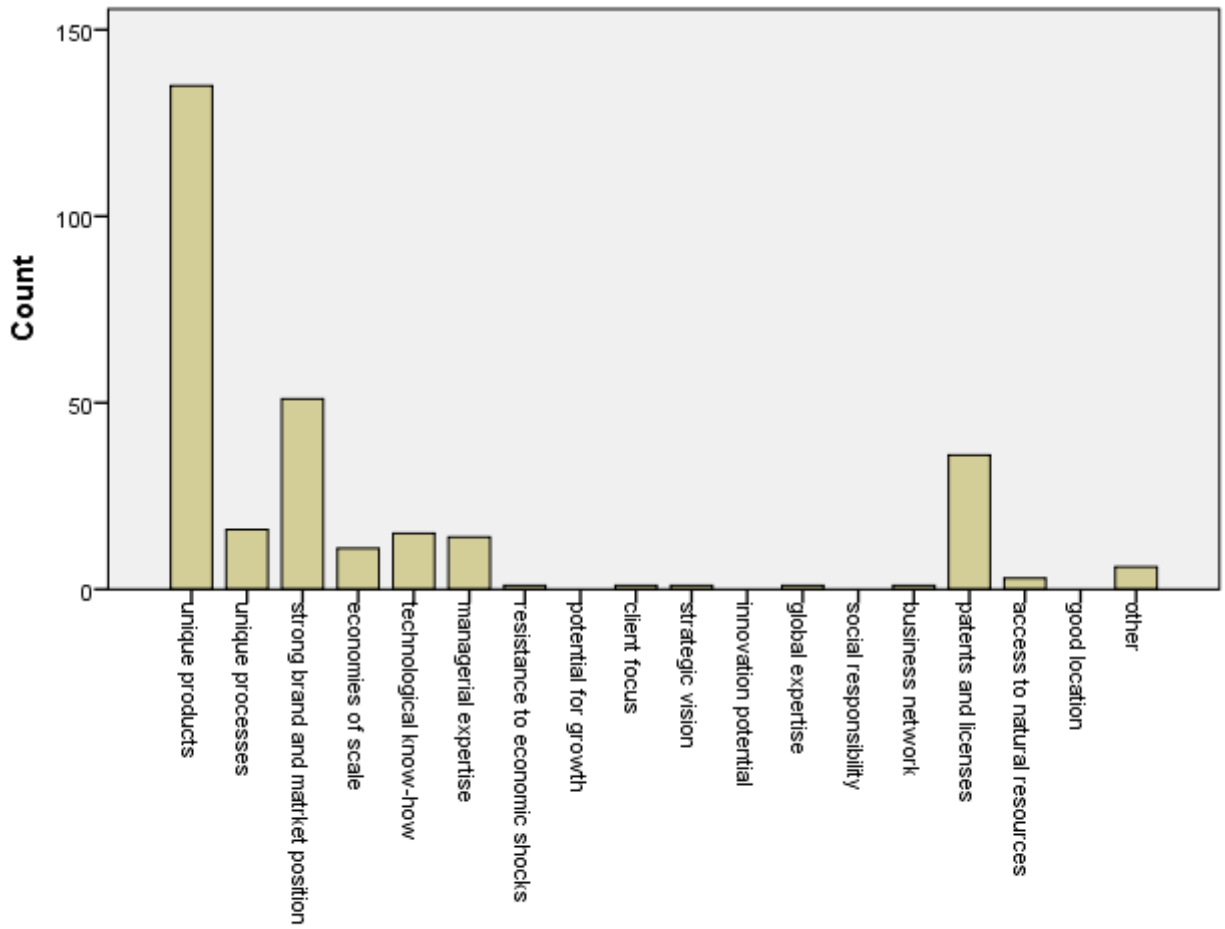


Figure 7.1.4. The most important firm specific asset for value creation, N=292

The previous graph depicts that investors value product uniqueness the highest. Therefore considering the investment opportunity this is the key driver that they assess. “Unique products” category is followed by “strong brand and market position” category, which still shows much lower value. We should also consider that these two characteristics are often interconnected so that product uniqueness leads to higher market position and brand recognition. This example demonstrates, that investors give more credit to the original driver.

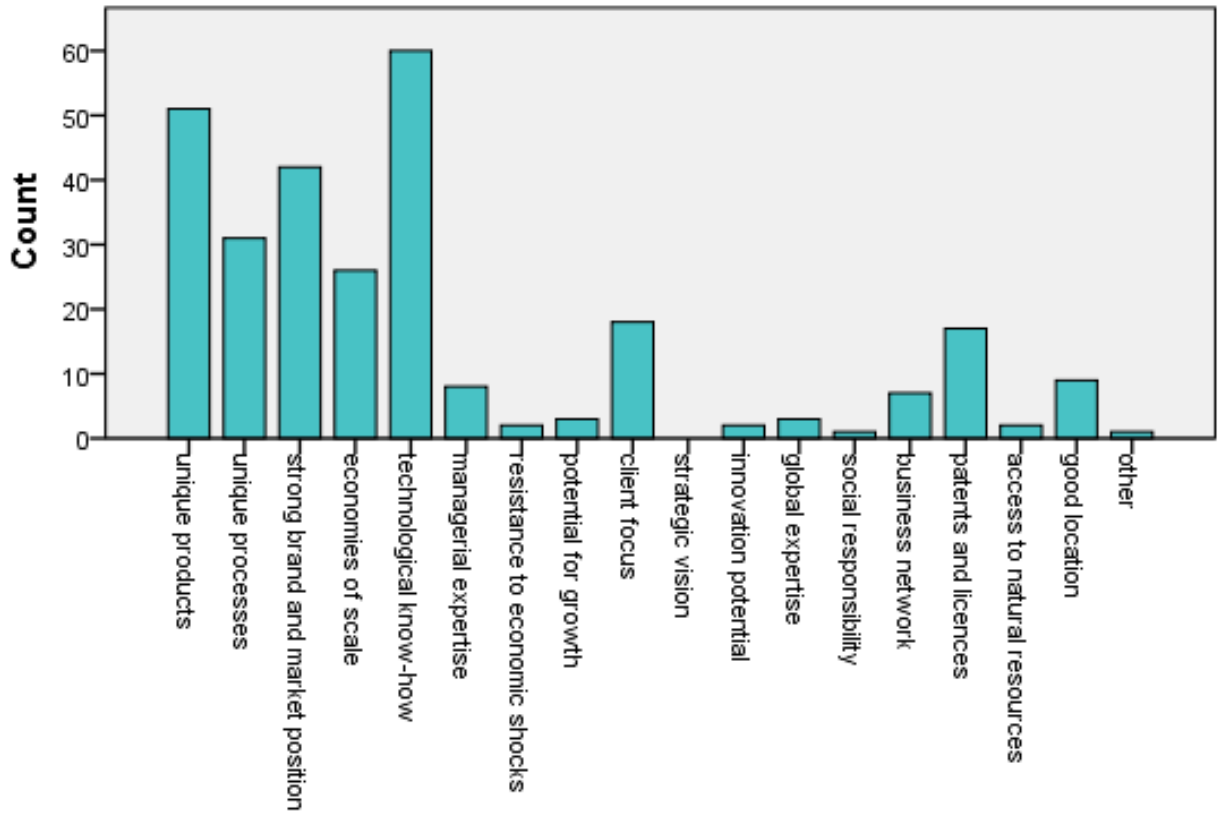


Figure 7.1.5. The second most important firm specific asset for value creation, N=292

According to this classification, we see that when investors were asked to rank the second most important firm specific asset for value creation they provided more diverse results. They think that the second biggest value creation potential lies in the new technologies, followed by intangible assets such as brand and unique product and service propositions. Therefore, we can anticipate that when investment decision is made, it is also significantly driven by the presence of firm specific assets depicted above.

Making the overview of the dataset we can approximate a picture of typical firm that might to get the most attention from VC and PE investors: it is likely to be ICT company, at a Venture stage of development that has unique products and possesses technological know-how. By bringing money to this company investors would be seeking to create value though active involvement, hands-on coaching and mentorship of the core team.

7.2 Variable analysis

7.2.1 Sales revenues

We start looking into particular accounting variables with analysing the variable "salgsinn" from the classification used in CSI database, which stands for sales revenues. For this variable we have the data available from 1992 to 2013. Aiming to avoid confusion, we will restate that the data we are using from the CSI database is expressed in 1000 NOK.

Analysing the sales revenues variable will help us to understand the dynamics of company's external growth and expansion of operations. Sales revenues account for economic value creation with regard to company's growth: the more it produces and sells, the more taxes are being paid and the higher is the company's contribution to country's GDP. We attempt to get a better picture of how the VC and PE investing impacts company's sales revenues. The data allow us to do a comparison over the whole sample of companies including both the VC and PE supported firms.

In order to clear up the dataset before analysis for getting more accurate results, we have gone through the following procedures: excluded companies with partially missing or incorrect data and checked for outliers. We decided to include only firms, which have consistent data available for at least one year before and one year after the investment is made. However, making this choice we are losing some of the Seed investments from our sample, which cover the companies that receive money in the same year as they were formed. For the purposes of this analysis, we find the current adjustment acceptable.

Having this data for the investee companies, we can check for immediate effect of investing. In total, at this stage, we obtained 296 observations. After, eliminating outliers that have sales revenues over 1000000, we ended up with the 290 observations. Below we present descriptive statistics for sales revenues under these three scenarios: one year before investment, one year after investment and three years after investment.

Table 7.2.1.1.Key descriptive statistics on sales revenues

	Mean	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
1 year before investing	68356.98	10417	136969.3	23	925366
1 year after investing	99652.49	17487	192449.4	11	1514832
3 years after investing	111725.4	20911.67	216936.6	31	1634717

From the comparative table presented above we can see that the mean value was continuously growing from the pre-investment period all over to 3 years post-investment, showing a larger relative change one year post investment. The same intuitive tendency is justified for Median, Standard Deviation and Maximum value.

Below we provided graphical illustrations for the initial distribution of sales revenues in the adjusted data sample one year before investing for companies and Seed/Venture and Buyout stages separately in order to observe the difference.

We can see that the distribution for Seed/Venture stage is very right skewed, so that nearly all observations lie within the revenue benchmark before 100000. Moreover, also see that pre-investment sales revenue is very concentrated as 80% of all observation lie in the lowest category.

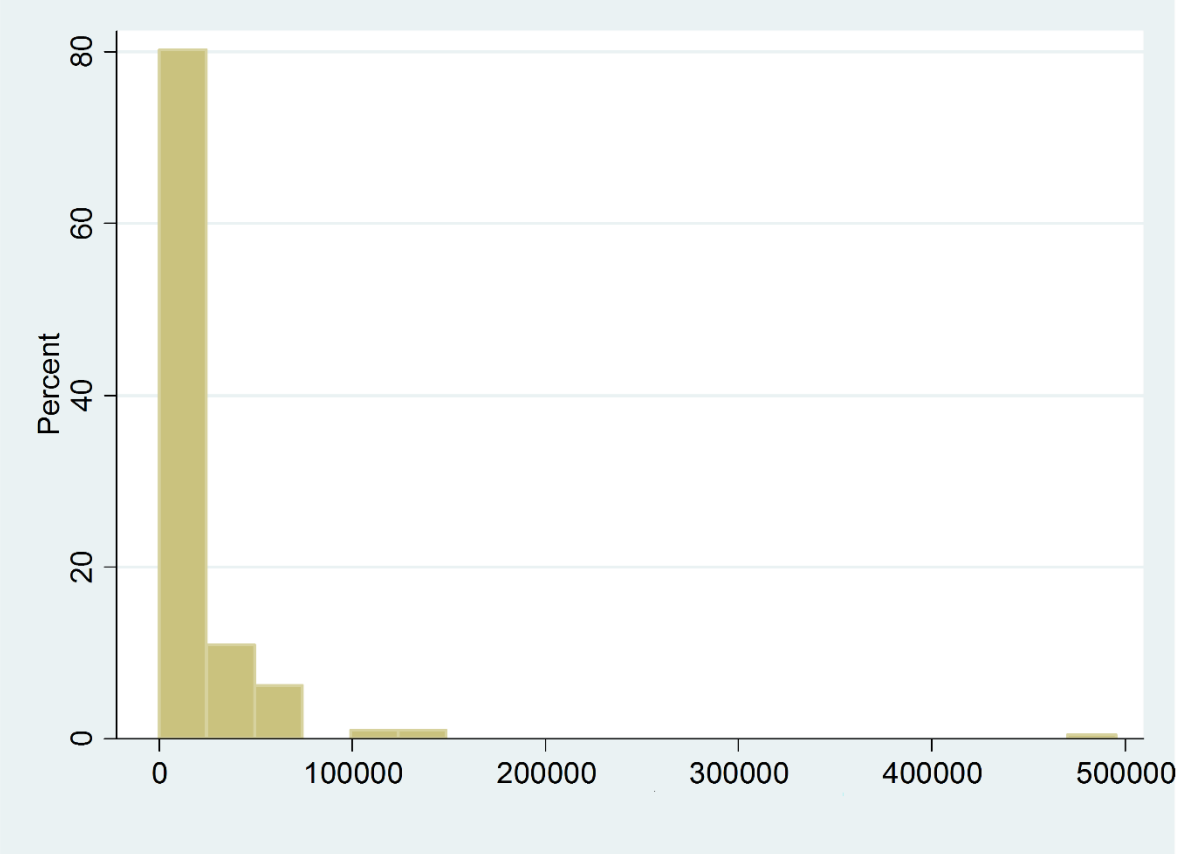


Figure 7.2.1.1. Distribution of sales revenues 1 year pre-investment for companies on Seed/Venture stage

The graph below shows the distribution for sales revenues for Buyout segment. We observe that even if over 30% of observations are concentrated in the lowest category, the other cases are more smoothly distributed compared to the Seed/Venture distribution.

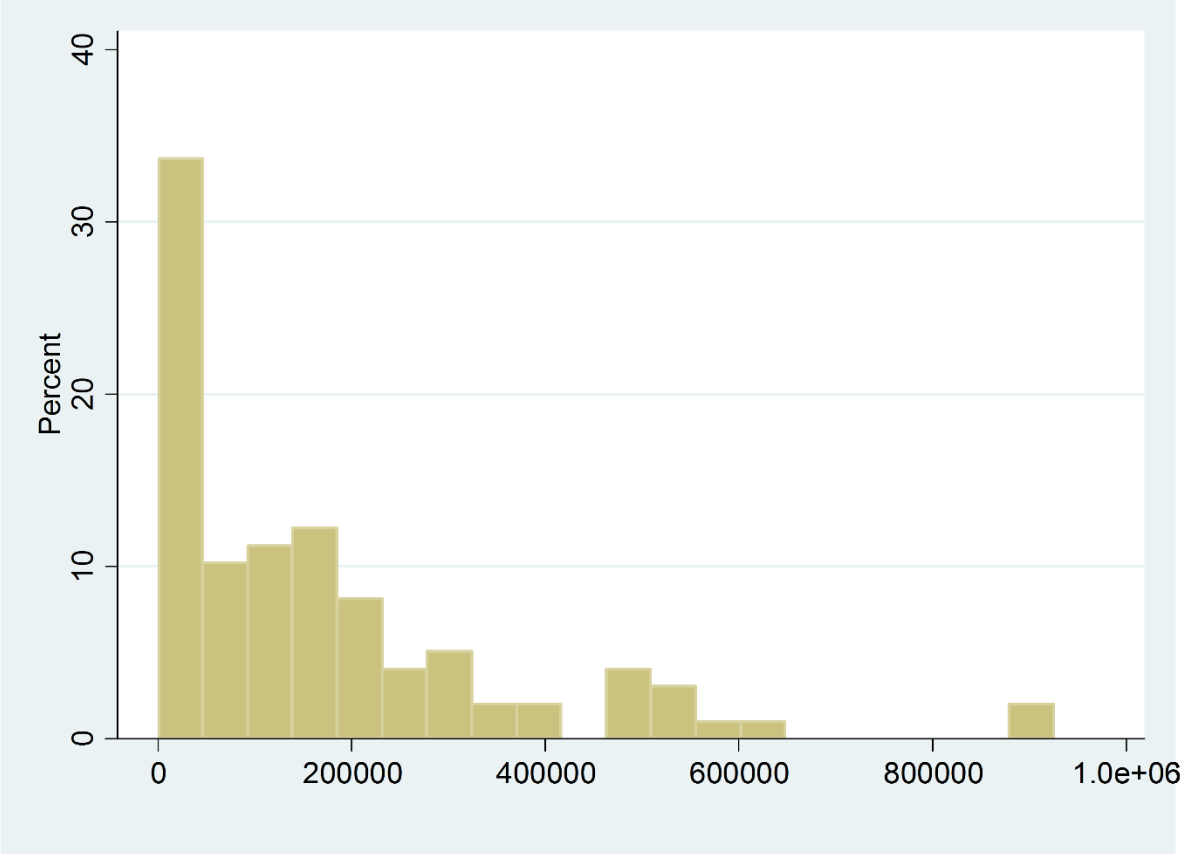


Figure 7.2.1.2. Distribution of sales revenues 1 year pre-investment for companies on Buyout stage

The graphical comparison of these two histograms makes shows that the average one-year pre-investment sales revenue is lower for Seed/Venture companies that for Buyout, which is intuitive as these companies are smaller, less experienced and are at an earlier development stage.

As a next step, in order to compare means we utilize Independent samples T-test. It is a common statistical technique applied in the case when there is a need to study whether two sets of data are significantly different from one another. P-value is the key characteristic indicating the significance and therefore validity of the outcome received. In this case we chose a 5% significance level.

We are computing the means for sales revenues for two distinct scenarios using the overall sample: 1) one year before and one year after the investment is made in order to understand the short term impact of investing; 2) one year before and three years after to understand the longer term impact.

Table 7.2.1.2. Statistics on mean sales revenues for 1 year before investing and 1 year after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
1 year before investing	68356.98	9808.28	6.969313	8.71E-12
Δ 1 year after investing	31295.51	13871	2.256182	0.024432

With high level of significance, we observe a large increase in the mean value for sales revenues one year after investing, compared to one year before investing. In absolute terms, the initial pre-investment mean value was 68356.98, it increased 31295.51 and resulted in 99652.49 one-year post-investment, therefore we also clearly observe a positive impact on expansion of sales revenues. In the same time, we can argue that as firms grow and scale up, the revenue is growing naturally, and as we do not decompose the effects causing this change, we take into account that it might not be caused by purely investment impact, but by natural expansion of the firm. The best way to test this assumption, would be to create a control group of firms that did not receive any VC or PE investing. However, due to time constraints and lack of data available we were not able to check for this effect.

In the same time, as we track the short term impact, it seems clear that developing naturally a firm would not receive such a rise in revenue, so the injection of private money has a partial impact on the observed growth in revenue.

Below we look into the longer time horizon and provide statistics on the mean values one year before investing and three years after. We can observe from the P-Value that the output is significant.

Table 7.2.1.3. Statistics on mean sales revenues for 1 year before investing and 3 years after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-Value**
1 year before investing	68356.98	10653	6.416691	2.9E-10
Δ 3 years after investing	43368.4	15065.61	2.878636	0.004142

We can see that three years post-investment there change in the mean value is higher, but this difference is not striking so, we believe that this effect can be credited towards the natural growth of the firm, and not that much to the investment impact. Therefore comparing the two situations it might be that first year post investment absorbs much of the effect of money injection with regard to growth in sales revenue. Another potential explanation could be the slow development of the new venture and a clear focus on restructuring at Buyout stage, which has a longer term impact on the firm, but might not have high impact on the 3 year horizon. Later in this section we address the differences observed between Seed/Venture and Buyout, therefore will try to have a more segmented and detailed look at this issue.

Willing to compare Seed/Venture stage to Buyout in terms of impact on sales revenues, we conduct a similar analysis. We study mean values for sales revenues under the following conditions 1) one year before the investment for Seed/Venture vs. one year before the investment for Buyout; 2) one year after for Seed/Venture vs. one year after for Buyout; 3) three years after for Venture/Seed vs. three years after for Buyout. In the final adjusted sample we have 192 companies on Seed/Venture stage and 98 companies on Buyout stage.

In order to separate the effects of money injection of investments made on different stages of company life cycle we compare the mean values for sales revenues for two groupings Seed/Venture versus Buyout investments.

Table 7.2.1.4. Statistics on mean sales revenues 1 year before investing for Seed/Venture and Buyout segments

	Coefficients	Standard Error	t-Stat	P-value
Seed/Venture - 1 year before investing	16131.69	8368.152	1.927748	0.05487
Δ Buyout - 1 year before investing	154544.2	14395.13	10.73587	7.74E-23

Table 7.2.1.5. Statistics on mean sales revenues 1 year after investing for Seed/Venture and Buyout segments

	Coefficients	Standard Error	t-Stat	P-value
Seed/Venture - 1 year after investing	36225.51	12338.31	2.936019	0.003593
Δ Buyout - 1 year after investing	187692.1	21224.7	8.843099	9.52E-17

Table 7.2.1.6. Statistics on mean sales revenues 3 years after investing for Seed/Venture and Buyout segments

	Coefficients	Standard Error	t-Stat	P-value
Seed/Venture - 3 years after investing	44654.89	14133	3.15962	0.001748
Δ Buyout - 3 years after investing	198473.9	24311.97	8.163627	1.03E-14

In this section we have observed several important implications on mean values sales revenues of the companies in our sample. With regard to change in scale, we can have a look at the table comparing pre-investment conditions of Seed/Venture and Buyout companies and observe that investments of Buyout segment are initially made into companies of approximately 10 times bigger than the investee firms in Seed/Venture segment. The first inference is that as far as the growth and expansion of revenues is a relative indicator, we see

that the companies in the Seed/Venture are showing more than 100% growth one year after investing, while companies on the Buyout stage demonstrate more moderate results, as they are already more mature at the time of investment. In this respect, we also have to take into account the fact that smaller firms have higher relative growth, while bigger ones have smaller relative growth even if the absolute values are much larger.

The second implication, is that besides the fact that a significant difference still remains present three years after investing we can see that the mean values for Seed/Venture and Buyout are converging, due to higher relative increases for Seed/Venture firms compared to Buyout. Our concluding observation after studying these examples is that the relative increase in sales revenues is not only correlated with the VC and PE investment itself, but also with the stage of the company's maturity.

7.2.2 Payroll expenses

In this part we will study the payroll expenses variable, which is marked as "lonnsos" in the CSI database and try to figure out how the VC and PE investing impacts this variable. The data on payroll expenses is available for the same time period as for sales revenues: from 1992 to 2013. The approach we are using for this analysis is similar to the one utilized in the previous section.

This variable account for the total amount of payroll, therefore the growth of this parameter comprises both the expansion in the number of staff and the increase in salary paid per employee. Compared to sales revenues, which is one of the main parameters for measuring company's size and growth, payroll expenses reflect the internal development of the company. In terms of value generated for the economy this parameter is not less important than sales revenues. Besides purely economic impact, it also indirectly reflects the effect on social value that company generates with regard to number of people employed, expressed in amounts of salary being paid. When company is expanding operations in order to increase sales revenues, often it will require more employees in order to respond the growing needs. Therefore, we expect that payroll expenses on average have positive correlation with sales revenues. However, that it is not always the case for particular industries such as ICT. Creation of IT solutions and many tech-products is labour intensive at the development stage, but when there is a finished product, often it does not require much additional personnel to scale the business further. In such a case, our payroll might not be growing proportionally to revenues.

Having the objective to receive as representative results as possible, we decided to clear up the data. Initially we had the accurate data available for 326 companies, but after excluding outliers which have payroll values higher that 200 000 (expressed in 1000 NOK) we ended up with a sample of 319 observations.

In the table below, we provide descriptive statistics on mean payroll expenses for three distinct cases: one year before investing, one year after investing, three years after investing. We can see that Mean, Median, Standard Deviation and Maximum values are growing, confirming our initial assumption about growth of payroll expenses with the maturity of the firm and injection of investment money.

Table 7.2.2.1. Descriptive statistics on payroll expenses

	Mean	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
1 year before investing	18137.75	4119	31710.39	2	198186
1 year after investing	25217	8079	39720.93	29	241964
3 years after investing	28358.18	9187.333	44553.27	29	300988.3

As a graphical illustration, below we provide a histogram on pre-investment payroll expenses one year before investing for Seed/Venture and Buyout stages.

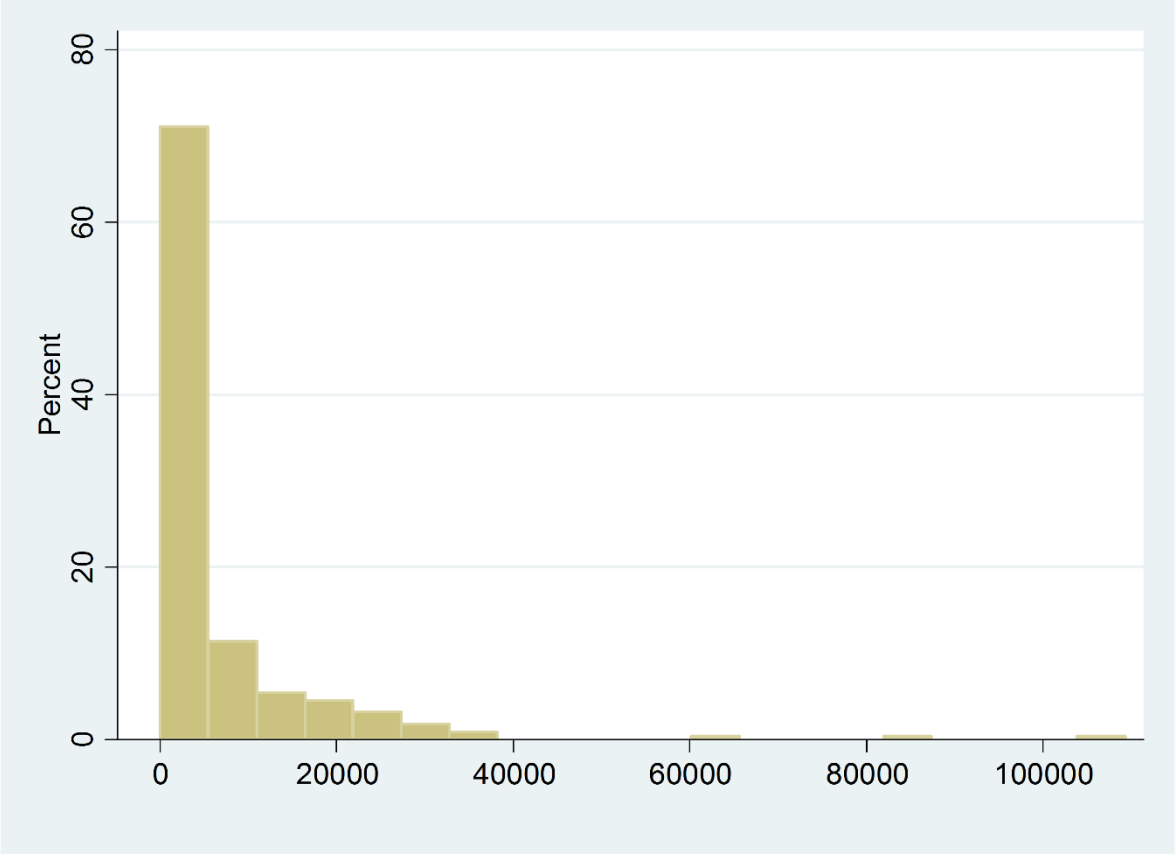


Figure. 7.2.2.1. Distribution of payroll expenses 1vyear pre-investment for companies on Seed/Venture stages

Looking at the graphs above below, we see that both distributions are right skewed, but the distribution for Buyout investments is less concentrated. The histogram covering Seed/Venture stages has a more smooth shape, compared to Buyout presented depicted on the following chart, and on average we can see that payroll expenses are higher at Buyout stage.

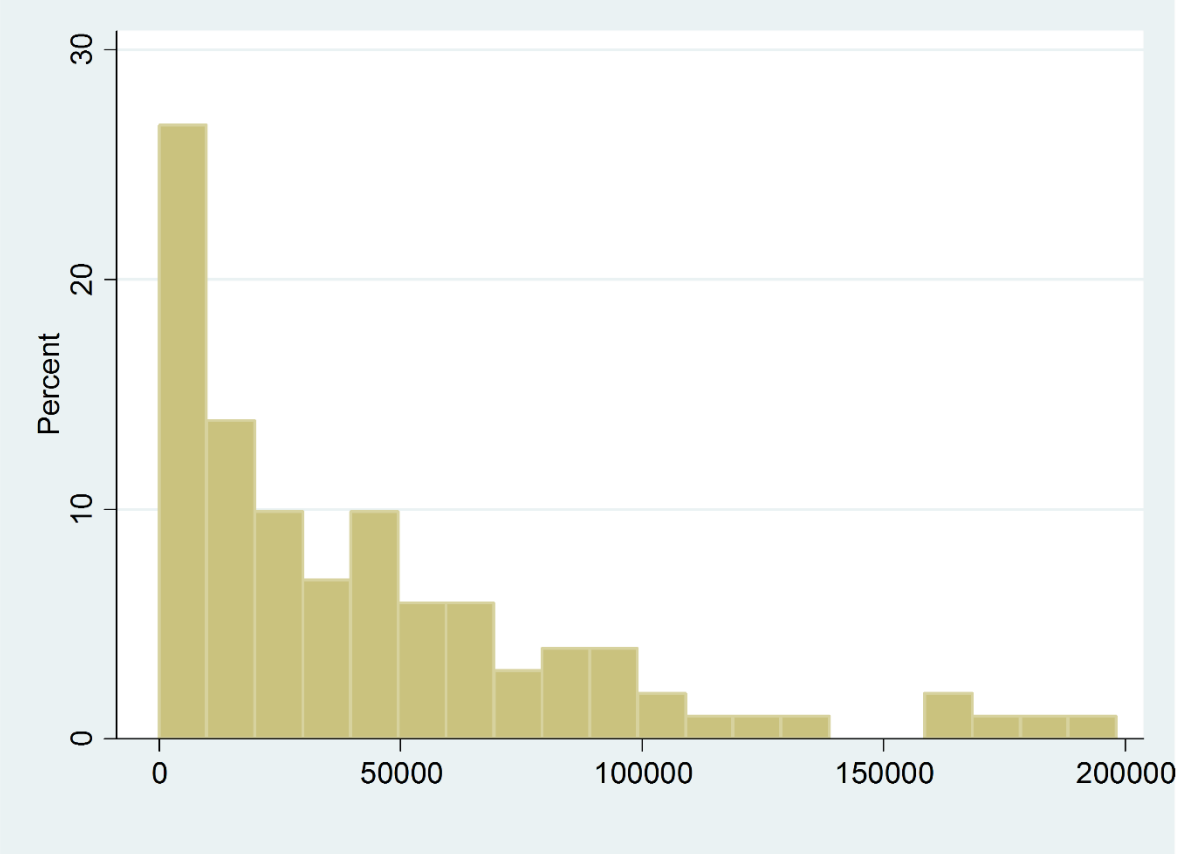


Figure. 7.2.2.2. Distribution of payroll expenses 1 year pre-investment for companies Buyout stage

Comparing the means for the payroll variable, we make calculations under two scenarios for the overall sample: 1) one year before and one year after the investment is made in order to understand the short term impact of investing; 2) one year before and three years after to understand for the longer term impact. The statistical output is provided below.

Table 7.2.2.2. Statistics on mean payroll expenses for 1 year before investing and 1 year after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
1 year before investing	18137.75	2773.256	6.540236	1.25E-10
Δ 1 year after investing	13652.36	3900.866	3.499829	0.000498

We observe a large increase in the mean value for payroll expenses one year after investing compared to one year before investing, which is statistically significant. This fact can be interpreted as an indication of expansion in the number of staff, meaning that growing company hired more people and created additional social and economic value. After getting sufficient funding many companies decide to hire professional management team, aspiring that it can significantly help increasing the growth in the firm. Such a decision may also case a rise in payroll expenses as professional managers often demand very high salaries.

Table 7.2.2.3. Statistics on mean payroll variables for 1 year before investing and 3 years after

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
1 year before investing	18137.75	3112.791	5.826844	8.93E-09
Δ 3 years after investing	17428.4	4378.457	3.98049	7.66E-05

Looking at the table above, we can observe statistics for the mean payroll expenses for one year before and three years after investing. Comparing these values, we see that the increase is almost as large as the initial value, meaning that the value doubles over the four-year period counting from the year before investing. However comparing the changes, we can see that the difference between one year after and three years after investment is made is not that large, therefore we can conclude that the biggest impact of investing on payroll expenses is concentrated on shorter time horizon.

Making the distinction between the stages and checking for the investment impact on Seed/Venture vs. Buyout stage we are applying the same procedure. In our dataset we have

218 companies on Seed/Venture stage and 101 on Buyout stage. The statistics output for three distinct cases is presented in the tables below.

Table 7.2.2.4. Statistics on mean payroll expenses 1 year before investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Seed/Venture -1 year before investing	6598.28	1816.709	3.631995	0.000328
Buyout - Δ 1 year before investing	36446.44	3228.644	11.28847	4.57E-25

Looking at the pre-investment condition we see that the mean payroll value for Seed/Venture stage is about seven times smaller than for Buyout, which can be an indication of both that earlier stage companies obviously employ less people and that on average they pay lower wages to employees.

Table 7.2.2.5. Statistics on mean payroll expenses 1 year after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Seed/Venture - 1 year after investing	10585.38	3690.32	2.868417	0.004396
Buyout - Δ 1 year after	64006.88	6411.52	9.983106	1.22E-20

Table 7.2.2.6. Statistics on mean payroll expenses 3 years after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Seed/Venture -3 years after investing	12517.13	4319.935	2.897527	0.004017
Buyout Δ- 3 year after investing	69573.9	7505.406	9.269839	2.69E-18

The two tables above exhibit the mean values for post-investment payroll expenses and show the comparison between Seed/Venture and Buyout for two time horizons: one year after investing and three years after investing. The main implications are the following: we observe that at the Buyout stage payroll expenses are higher than for Seed/Venture because the companies are generally bigger, more mature and consequently require more staff. We also see that the largest increase in the mean values for both Seed/Venture and Buyout happens within the first year after investing, while the value for three years post-investment years do not change much.

In this respect, we can conclude that the injection of VC and PE money definitely has a positive impact on this parameter, indicating that economic value is created via increasing company's payroll expenses, meaning that more staff is employed.

7.2.3 Equity ratio

For many companies getting funding through equity is an important type of raising capital for expansion. However, firms at the Buyout stage firms also have access to debt financing which is possible because of both investment of new additional equity and higher security and guarantees provided by PE management firm.

In this section we will study the variable called Equity Ratio, which shows equity as a share of total assets coded under "ekandel" in the CSI database. Observations on this variable are available for all years from 1992 to 2013.

In order to increase the accuracy of the results, we made some adjustments to the data available. We excluded the companies with missing values, eliminated negative values and made other minor adjustments in order to achieve higher accuracy of the analysis.

However, there was a challenge that not all companies had time series that are long enough to track the values up to three years post-investment. In order to solve this problem we created two separate samples for descriptive statistics for one-year post-investment and three-years post-investment, where the number of observations varied. The first sample contained total of 250 observations (out of which there are 152 marked as Seed/Venture and 98 Buyouts) and, while the other sample had only 191 observations (118 at Seed/Venture stage and 73 Buyouts). Below we provide the descriptive statistics for these two distinct cases.

Table 7.2.3.1 Descriptive statistics on Equity Ratio (1)

	Mean	Median	Standard Deviation	Minimum	Maximum	Count
1 year before investing	0.42352	0.38	0.257539	0.01	0.99	250
1 year after investing	0.48088	0.435	0.270164	0.01	0.99	250

Table 7.2.3.2 Descriptive statistics on Equity Ratio (2)

	Mean	Median	Standard Deviation	Minimum	Maximum	Count
1 year before investing	0.418482	0.38	0.263881	0.01	0.99	191
3 years after investing	0.491108	0.463333	0.259612	0.01	0.983333	191

Analysing the overall sample for one year pre- and one year post-investment we observe that the mean value for Equity ratio has nearly 6% increase post-investment, meaning that the share of equity in the total assets is growing. P-Value justifies that this result is statistically significant.

Table 7.2.3.3. Statistics on mean equity ratio for 1 year before investing and 1 year after investing

	Coefficients	Standard Error	t-Stat	P-value
1-year before investing	0.42352	0.016692	25.37228	8.94E-92
1-year after investing	0.05736	0.023606	2.429852	0.015457

We observe the same consistent trend also on the three-year post-investment horizon, which is also statistically significant.

Table 7.2.3.4. Statistics on mean equity ratio for 1 year before investing and 3 years after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
1-year before investing	0.418482	0.01894	22.09521	3.61E-70
Δ 3-years after investing	0.072627	0.026785	2.711452	0.007003

Addressing the differences in Seed/Venture and Buyout, we will look into the three cases: comparing the mean values one year before investing, one year after investing and three years after investing.

Table 7.2.3.5. Statistics on mean equity ratio 1 year before investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Seed/Venture - 1 year before investing	0.473684	0.020304	23.33015	1.72E-64
Δ Buyout - 1 year before investing	-0.12797	0.032429	-3.9462	0.000103

We see that even before investing the mean coefficient for Buyout stage is lower, than for Seed/Venture, meaning that proportion of equity capital in total assets is smaller. It might also be a signal that at the Buyout stage the debt is already present in the company.

Table 7.2.3.6. Statistics on mean equity ratio for 1 year after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Seed/Venture - 1 year after investing	0.488951	0.021251	23.00801	1.82E-63
Δ Buyout - 1 year after investing	-0.02293	0.035819	-0.6401	0.522697

In the table above we can see how the situation changed one year-post investment. However, as P-Value indicates the statistical insignificance of this test, we can not make any valid inferences from the generated output.

On the three years post-investment horizon we have obtained very interesting results, which are statistically significant.

Table 7.2.3.7. Statistics on mean equity ratio for 3 years after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Venture/Seed - 3 years after investing	0.549222	0.022728	24.16517	1.04E-59
Δ Buyout - 3 years after investing	-0.15633	0.037277	-4.19382	4.21E-05

Comparing the mean values for Equity Ratio for the Seed/Venture and Buyout three years post-investment, we came to the conclusion, that the share of equity capital in Seed/Venture stage is growing, while the Buyout segment demonstrates the relative drop. PE investing on Buyout stage is often characterised by utilizing the combination of equity and debt financing, and our observation justifies this fact. Often such process is happening in the following order: investors first increase credibility of the company by bringing into private money, and afterwards the company starts getting debt financing, that reduces the mean value for equity ratio.

7.2.4 Patents

It is often a matter of heated debate whether innovative companies have easier access to funding, or whether the opposite relation exists. If the latter is the case, as the company's level of innovation activity increases it gets addition financing and attract the interest from investors. This topic deserves a separate study, however within this work we attempt to enhance the understanding of what is the impact of VC and PE investing on indirect measures of innovative activity within a firm.

Here we will analyse whether there is a link between the VC and PE investment activity and mean value of patents per investee firm, which we approximated to be a measure of innovative activity. This variable coded as “patent” in the CSI database. This variable is used as a measure for intellectual property in wide, besides patents in also includes value for licences, trademarks etc. The data on this variable is available for 12 years from 1999 to 2011.

As the investment money in the company can be allocated differently, and therefore it can have different impact on the operations. In our case, it interesting to track the impact on intellectual property. We will study this parameter in two dimensions: first check for the mean value before and after the investing in order to discover the impact of investing and afterwards see how the patenting activity is different on the post-investment stage for Seed/Venture and Buyout stages. For the purposes of the current analysis we excluded inaccurate data, eliminated incorrect and missing values, in order to assure that we obtain valid results. Below we provide descriptive statistics on the patent variable before and after investing.

Table.7.2.4.1 Descriptive statistics on patents

	Mean	**Median**	**Standard Deviation**	**Minimum**	**Maximum**	**Count**
Before investing	9437.037	979.5	47808.12	10	434107	106
After investing	10945.99	1319.875	68715.55	10	880750.2	174

We proceed with analysing the pre- and post-investment cases looking into the mean value to patents.

Table 7.2.4.2. Statistics on mean number of patents before and after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-value**
Before investing	9437,037	5988,728	1,5758	0,116209
Δ After investing	1508,949	7596,945	0,198626	0,842701

Observing coefficients, we see that there is an increase in the mean number of patents after investment is made, compared to the pre-investment period, however, P-value signals

that this conclusion is statistically insignificant, which can be the case due to high dispersion of results on this parameter in the dataset being analysed. Therefore, we conclude that there is no statistically different changes in the number of patents per company.

Looking into the post-investment values for Venture/Seed and Buyout segments we observe that post-investment mean number of patents in Buyout is supposed to be lower than on Seed/Venture stage. However, the P-Value also indicates that this observation is statistically insignificant, therefore we can say that there is no valid difference between the patenting activity on Seed/Venture stage.

Table 7.2.4.3. Statistics on mean number of patents after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-Value**
Seed/Venture	11997,58	6237,548	1,923444	0,056076
Δ Buyout	-3518,78	11410,03	-0,30839	0,758156

We can conclude that there are neither valid differences in patenting activity between pre-investment and post-investment cases, nor with regard to Seed/Venture and Buyout stage segmentation. However, we discovered that with regard to the number of companies involved in the patenting activity, we observed a growing trend. While before investments only 106 companies had patents, this value increased to 174 companies on the post-investment horizon, which is a positive sign that over time with attracting investment resources number of companies involved in patenting activity is growing.

7.2.5 Research and Development

Looking at Research and Development variable (R&D), we will try to track how VC and PE investing impacts the innovating process. High R&D means that the company is eager to evolve and improve the existing model by putting effort in research activities.

For accomplishing our goal, we will study the variable “fou” from CSI database. We will compare means before investing, after investing and run the same procedure for

Seed/Venture and Buyout stage in order to understand the difference that might exist between these two stages. The data on this variable is available for 12 years from 1999 to 2011.

As we did for other cases, we excluded the missing and incorrect values, making adjustments to the initial dataset. In this case, we decided to take a slightly different approach to analysis and looked into the variable over the whole period before investing and after investing. Below we provided descriptive statistics on this variable.

Table 7.2.5.1 Descriptive statistics on R&D

	Mean	**Median**	**Standard Deviation**	**Minimum**	**Maximum**	**Count**
Before investing	3529.37	1473	5797.859	79	42710	97
After investing	8449.984	3303.833	16281.38	25	154250.3	138

In general proactive R&D activity is likely to happen when company is in a good financial state. It is linked to improving and modernizing the current business and is often capital intensive, therefore requires spare resources. Firms are not eager to spend money on R&D when they are facing operational challenges. On the other hand, these activities often create a good start for further quick expansion of the firm, making a technological improvement or qualitatively changing the core service or product.

In the next table we provide statistical output generated for the R&D variable in the two cases: before and after investing.

Table 7.2.5.2. Statistics on mean values for R&D before and after investing

	Coefficients	**Standard Error**	**t-Stat**	**P-Value**
Before investing	3529,37	1322,737	2,668232	0,008161
Δ After investing	4920,62	1726,108	2,850698	0,004754

This example is extremely valuable for our analysis, as the P-value indicates that results are statistically significant. We see that after investing the mean value for R&D is much

higher than before investing. There can be many potential reasons why it is the case, such as the fact that intensive R&D activities become key focus for the company only at a particular stage of the development as earlier it might not have the capacity for that. However, the fact that investment activities have a positive impact on R&D is a valid conclusion from our analysis.

Referring to the table below, we look into the post-investment situation in Seed/Venture and Buyout segment and observe that the mean R&D value for Buyout is smaller than for Venture segment, which can be the implication of the fact that companies are willing to emphasise this activity on the earlier stage. However, the indication for the P-value shows that this result is not statistically significant, therefore, this finding is not valid.

Table 7.2.5.3. Statistics on mean value for R&D after investing for Seed/Venture and Buyout segments

	Coefficients	**Standard Error**	**t-Stat**	**P-Value**
Seed/Venture	8790,797	1601,298	5,489796	1,91E-07
Δ Buyout	-1383,3	3226,058	-0,42879	0,668755

Making the conclusion about the mean R&D value, we see that it has significantly increased in the post-investment period, meaning that PE and VC investing has a positive impact on this parameter. Looking into how many companies had R&D activities pre and post investment we observe a significant increase in the total amount of firms involved in the R&D from 97 firms before investing to 138 after investing. Therefore, we can say that investment activity not only enhanced R&D in the firms that were already active in this field, but also attracted new ones.

7.3 Conclusion

In the empirical part we have analysed investment impact on the value creation in the investee firms considering five variables: sales revenues, payroll expenses, equity ratio, patents and R&D.

Our results tell that there is a statistically significant post-investment increase in sales revenues of the investee firm, therefore the trend of growing sales is justified. The impact on companies at Seed/Venture stage is bigger than on Buyout companies, as they are more mature and either use investment money differently, or just have more modest growth prospects.

With regard to payroll expenses we observed that the value creation is mostly concentrated on the short time post investment horizon as the value expands more one year post investment. Overall, it is clear, that the injection of VC and PE money has a positive impact on this parameter, indicating that economic value is created via increasing company's payroll expenses, meaning that more staff is employed.

Analysing the equity ratio we justified the theoretical implication, that it is supposed to be lower post investment on buyout stage, meaning that company besides equity financing is using debt financing, that can enhance even more value creation, whereas share of equity capital in Seed/Venture stage is growing.

With regard to patenting activity we did not find any statistically significant inferences on the correlation of patenting activity existing before VC and PE investing and the fact of money injection, but we realized found that the number of companies involved in the patenting activity, significantly increased post investment.

The mean R&D value significantly increased in the post-investment period, meaning that PE and VC investing has a positive impact on this parameter, the same trend was observed with number of companies – the amount of firms involved in R&D significantly increased on the post investment horizon.

Therefore, we confirmed that VC and PE investing has a positive impact on value creation in the investee firms. We found out that company's post investment performance regardless the stage of investing is generally better than pre investment. This finding justifies the fact that VC and PE investing is an effective mechanism for expanding the business. As discussed earlier, if we take into account that in comparison to many other European countries Norwegian VC and PE scene is rather underdeveloped, it seems clear that there is a big economic value to be captured on both company and country level if the potential of VC and PE activity will be utilized more efficiently.

7.4 Limitations and directions for future research

There are several limitations, that have to be mentioned with regard to the current research. Initially we made a choice to use exclusively the dataset provided by CSI, and therefore were restricted by the amount of data being analysed. Even though the initial amount of companies present in the dataset is 683, there was a smaller group of companies that had accurate data for all the variables analysed as well as for the time period required. In this case, we also encountered a problem of survival bias. Only the companies that were active and had the data for the whole period required were analysed. Due to this for each variable we used slightly different data samples, trying to increase the precision of our findings. In particular, limited amount of data was available for such variables as patents and R&D. Because of these limitations, we had to use a generally smaller data sample, with fewer observations, that might have an impact on generalizability of our findings.

Another constraint is connected to the choice of methodology and particular variables for measuring the company's performance and value creation. One might argue, that there are more precise and sophisticated techniques that can be used to analysis, but we decided to concentrate on the universal method of comparing means that was consistently used throughout the whole analysis and helped us to achieve the stated goals.

Conducting further research in this field it would be interesting to go beyond the differences between VC/PE supported firms on various development stages and address differences in performance and value creation between non VC/PE supported companies and the ones that do not have VC backing. As mentioned earlier, performing such analysis would require new data and for this purpose we would need to construct a separate control group of companies. The study of sectoral differences also deserves a separate research. The understanding of how value creation and growth potential of companies supported by VC and PE backing might vary with regard to the industry and sector will lead to having a more accurate picture of which industries gain the most from this type of financing and which need another financing model to enhance the efficiency.

References

Aghion, P., and P. Bolton. 1992. An incomplete contracts approach to financial contracting. Review of Economic Studies (1992) 59, 473-494.

Aizenman, J., Kendall, J. (2008). "The internationalization of venture capital and private equity". Unpublished working paper.

Argentum, 2015. Available at http://www.argentum.no/en/argentum/.

Berner E., Mjøs A. and Olving M. Working paper 10/14 on Norwegian Corporate Accounts, SNF Center for Applied Research at NHH, 2014.

Bienz, C., Hirsch, J. (2011). "The dynamics of venture capital contracts". Review of Finance forthcoming.

Black, B. S., and R. J. Gilson. 1998. Venture capital and the structure of capital markets: Banks versus stock markets. Journal of Financial Economics 47:243–277.

Bouillet-Cordonnier, G. 1992. Legal aspects of startup evaluation and adjustment methods. Journal of Business Venturing, 7: 91-101.

Brander, J. A., R. Amit, and W. Antweiler. 2002. Venture capital syndication: Improved venture selection vs. value-added hypothesis. Journal of Economics and Managements Strategy 11:422–452.

Busenitz, L. W., Moesel, D . D., & Fiet,J .0 . 2004. Reconsidering the venture capitalists' 'value added' proposition: An interorganizational learning perspective.

Casamatta, C., and C. Haritchabalet. 2007. Experience, screening and syndication in venture capital investments. Journal of Financial Intermediation 16:368–398.

Chemmanur, T. J., and Z.Chen. 2008. Venture capitalists and angels: The dynamics of private firm financing contracts. Working paper. Boston College.

Chemmanur, T. J., K. Krishnan, and D. Nandy. 2008. How does venture capital financing improve efficiency in private firms? A look beneath the surface. U.S. Bureau of Census, CES Working paper, CES-WP-08-16, 2008.

Chemmanur, T., Hull, T., Krishnan, K. (2010). "Do local and international venture capitalists play well together? A study of international venture capital investments". Unpublished working paper.

Cornelli, F., and O. Yosha (1997), Stage financing and the role of convertible debt. C.E.P.R. Discussion papers: 1735.

Cumming D.& Macintosh J., 2003. A cross-country comparison of full and partial venture capital exits Journal of Banking& Finance (27): 511-548.

Cumming D., 2010, Venture Capital: investment strategies, structures and policies.

Dirk De Clercq, Vance H. Fried, Oskari Lehtonen and Harry J. Sapienza, Academy of Management Perspectives, Vol. 20, No. 3 (Aug., 2006), pp. 90-112.

EVCA Yearbook 2012, Brussels. Available at: http://www.profisproject.eu/sites/default/files/documents/evca_yearbook_2012_presentation_all.pdf

EVCA, 2007. Guide on Private Equity and Venture Capital for entrepreneurs. Available at: http://www.fvca.fi/files/11/EVCA_PEVCGUIDE_Nov2007.pdf

EVCA, 2014. European Private Equity activity: Statistics on Fundraising, Investments and Divestments. Available at: http://www.investeurope.eu/media/385581/2014-european-private-equity-activity-final-v2.pdf

EVCA, 2014. Nordic Private Equity in the context of Europe. Available at: http://www.svca.se/wp-content/uploads/2014/03/Nordic-Presentation_5.02.2014.pdf.

Fenn, G., N. Liang, and S. Prowse. 1995. The economics of the private equity market. Board of Governors of the Federal Reserve System.

Fried, V. H., & Hisrich, R. 1994. Towards a model of venture capital investment decision making Financial Management, 23(3): 28-37.

Fulghieri, P., Sevilir, M. (2009). “Size and focus of a venture capitalist's portfolio”. Review of Financial Studies 22, 4643-4680.

Gifford, S. 1997. Limited attention and the role of the venture capitalist. Journal of Business Venturing, 12 : 459- 482.

Gompers, P. A. 1995. Optimal investment, monitoring, and the staging of venture capital. Journal of Finance 50:1461–1489.

Gompers, P., & Lerner, J. (1999). An analysis of compensation in the U.S. venture capital partnership. Journal of Financial Economics , 51, 3-44.

Gompers, P., and J. Lerner. 1999. The venture capital cycle. Boston, MA: MIT Press.

Gorman, M., Sahlman, W. (1989). “What do venture capitalists do?” Journal of Business Venturing 4, 231-248.

Hall, J., & Hofer, C. W. (1993). Venture capitalists' decision criteria in new venture evaluation. Journal of Business Venturing , 8 (1), 25-42.

Harrison, R. T., & Mason, C. 1996. Developments in the promotion of informal venture capital in the UK. Inter-national Journal of Entrepreneurial Behavioral Research, 2(2): 6-33.

Harrison, R.T., and C.M. Mason. 1999. An overview of informal venture capital research. Venture Capital 1: 95 – 100.

Hart, O. 2001. Financial contracting. Journal of Economic Literature 39:1079.

Hart, O. 2001., and J. Moore. 1994. A theory of debt based on the inalienability of human capital. Quarterly Journal of Economics 109: 841-879.

Hazarika, S., Nahata, R., Tandon, K. (2009). “Success in global venture capital investing: Do institutional and cultural differences matter? Unpublished paper.

Hellmann, T. 1998. The allocation of control rights in venture capital contracts. Rand Journal of Economics 29:57–76.

Hellmann, T., and M. Puri. 2000. The interaction between product market and financing strategy: The role of venture capital. Review of Financial Studies, 2000, vol. 13, issue 4, 959-84.

Hellmann, T., and M. Puri. 2002.Venture capital and the professionalization of start-up firms: Empirical evidence. Journal of Finance 57(1):169–197.

Hochberg, Y., Westerfield, M. (2010). “The size and specialization of direct investment portfolios. Unpublished working paper.

Holmstrom, B. 1979. Moral hazard and observability. Bell Journal of Economics 10: 74–91.

Hsu, D. H. 2004. What do entrepreneurs pay for venture capital affiliation? Journal of Finance 59: 1805–1844.

Hudson, E., & Evans, M. (2005). A Review of Research into Venture Capitalists' Decision Making: Implications for Entrepreneurs, Venture Capitalists and Researchers. Journal of Economic and Social Policy , 10 (1).

Inderst, R., Müller, H., Muennich, F. (2007). “Financing a portfolio of projects”. Review of institutional and cultural differences matter?” Unpublished working paper.

Kaplan, S. N., & Strömberg, P. (2000). Venture Capitalists As Principals: Contracting, Screening and Monitoring. Working paper No.8282. National Bureau of Economic Research.

Kaplan, S. N., and P. Strömberg. 2003. Financial contracting theory meets the real world: An empirical analysis of venture capital contracts. Review of Economic Studies (2003), 1-35.
Kaplan, S. N., and P. Strömberg. 2004. Characteristics, contracts, and actions: Evidence from venture capitalist analyses. Journal of Finance 59: 2177–2210.

Kaplan, S., and P. Strömberg. 2004. Characteristics, contracts, and actions: Evidence from venture capitalist analyses. Journal of Finance 59(5):2177–2210.

Landström, H., 2007, Institutional Venture Capital Research – the Past, the Present and the Future, 9th SNEE European Integration Conference, Mölle, 23-25 May.

Lerner, J. 1994. The syndication of venture capital investments. Financial Management 23:16–27.

Manigart, S., & Meuleman, M. (2004). Financing entrepreneurial companies: How to raise private equity as a high-growth company. Belgium: Larcier

Marco Da Rin M., Hellmann, T.F. & Puri, M. (2011). A survey on venture capital research. Cambridge, MA 02138.

Metrick A., Yasuda A., 2011. Venture capital and finance of innovation, Second Edition.

Neher, D. (1999). "Staged financing: an agency perspective". Review of Economic Studies 66, 255-274.

Norton, E .& Tenenbaum B, . H. 1993.Specialization versus diversification as a venture capital investment strategy Journal of Business Venturing, 8:, 431-442.

NVCA, 2014, Private Equity funds in Norway, Activity report. Available at: http://www.nvca.no/wp-content/uploads/2015/05/Private-Equity-Funds-in-Norway-Activity-report-2014.pdf.

Pratch, L . 2005. Value-added investing: A framework for early stage venture capital firms. Journal of Private Equity, 8(3): 13-29.

Private Equity in Norway, market and regulatory overview, 2015. Available at: http://uk.practicallaw.com/9-500-9675?service=crossborder#.

Puri, M., and R. Zarutskie. 2008. On the lifecycle dynamics of venture-capital- and nonventure- capital-financed firms. Working paper. Duke University.

Relander,K .-E., Syrjanen,A . P., & Miettinen,A . 1994. Analysis of the trade sale as a venture capital exit route, in W. Bygrave, M. Hay, and J. Peeters(eds.), Realizing investment value Review of Economic Studies 59: 473.

Sahlman, W. (1990). "The structure and governance of venture-capital organizations". Journal of Financial Economics 27, 473-521.

Sapienza, H . J. & Gupta, A . K, 1994. Impact of agency risks and task uncertainty on venture capitalist-CEO interraction. Academy of Management Journal, 3 7(6): 1618- 1632.

Sapienza, H. J. 1989. Variationsin the venture capitalist-entrepreneur relations: Antecedents and consequences. Unpublished doctoral dissertation, University of Maryland.

Sapienza, H. J., Manigart, S., De Waele, K., Wright, M., Robbie, K., Desbrières, P., et al. (2002). Determinants of required rate of return in venture capital investments: a five-country study. Journal of Business Venturing , 17 (4), 291-312.

Shane, S., & Cable D. 2002. Network ties, reputation and financing of new ventures. Management Science, 48(3): 364-381.

Siegel, R . 1988. Corporate venture capitalists, Autonomy, obstacles and performance Journal of Business Venturing, 3(3): 233-247.

Tian, X. (2011). "The causes and consequences of venture capital stage financing". Journal of Financial Economics 101, 132-159.

Tyebjee, T. and Bruno, A. 1984. A model of venture capitalist investment activity. Management Science, 30, 1066-1151.

Ueda, M. 2004. Banks versus venture capital: Project evaluation, screening, and expropriation. Journal of Finance 59(2):601–621.

Van Osnabrugge, M., & Robinson, R. J. (2001). The influence of venture capitalists' source of funds. Venture Capital , 3 (1), 25-39.

Zacharakis, A. L., & Meyer,G . D. 2000. The potential of actuarial decision models: Can they improve the venture capital investment decision? Journal of Business Venturing (Impact Factor: 3.06). 02/2000; 15(4):323-346.

List of figures and tables

Appendix

SNF
Et selskap i NHH-miljøet

Sample questionnaire for Fund X

1) Please consider the significance of the following investment criteria each portfolio company and choose the most relevant in the table below.

Company name	**Main argument for investing**			
	Financial	Value creation through active involvement	Value creation `through restructuring	Other
Company 1				
Company 2				
Company 3				
Company 4				
Company 5				
Company …				

2) In the table below we ask Fund X to specify why the particular investment was made. In the left column, we provide a list of arguments. For which company we ask Fund X to choose and rate the main reasons for investing / values, which are crucial for the development of the enterprise. For rating we use the following classification: 1 = Most important, 2 = Second most importance , 3 = Third most important, 4 = Fourth importantly , 5 = fifth most important. If you have other reason for investing that the ones provided, please select “Other” and specify.

Most important assets for future value creation
1. Unique products
2. Unique processes
3. Strong brand an market position
4. Economics of scale
5. Technological know-how
6. Managerial expertise
7. Resistance to economic shocks
8. Potential for growth
9. Client focus
10. Strategic vision
11. Innovation potential
12. Global expertise
13. Social responsibility
14. Business network
15. Patents and licenses
16. Access to natural resources
17. Good location
18. Other