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PRIVATAUS KAPITALO FONDŲ IR JŲ INVESTICINĖS VEIKLOS ANALIZĖ EUROPOJE	PRIVATE EQUITY FUNDS AND THEIR INVESTMENT ACTIVITY ANALYSIS IN EUROPE

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ABBREVIATIONS

AIF	Alternative Investment Fund
AIFMD	Alternative Investment Fund Managers Directive
AUM	Asset Under Management
PE	Private Equity
VC	Venture Capital
BO	Buyout
ICT	Information and Communications Technology
IRR	Internal Rate of Return
M&A	Mergers and Acquisitions
MIRR	Modified Internal Rate of Return
MoM	Money of Multiple
NAV	Net Asset Value
SPV	Special Purpose Vehicle
CEE	Central Eastern Europe
DPI	Distribution to Paid-in-Capital
RVPI	Residual Value to Paid-in-Capital
TVPI	Total Value to Paid-in-Capital
SME	Small and Mid-size Enterprise
EBITDA	Earnings Before Interest Tax Depreciation and Amortization
LPC	Listed Private Capital
TMT	Technology, Media and Telecom

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INTRODUCTION

Private Equity – is an industry into which sources of capital are invested, into non-listed companies, or also into any public company with a plan to make it private; it means that it's not available for public exchange. Capital is spent privately. At any given moment, companies will need an injection of capital in order to help them attain growth. Private Equity firms creates value over the long term by taking part in the company's capital but also bringing external management expertise. In the Private Equity industry, funds seek long term but high profile profit by creating value through different types of companies and different types of sectors of activity. Private Equity is part of an asset class which generate high returns. Moreover, the PE industry has increased with regards the AUM (Asset Under Management) and deal sizes in recent years.

Nine private equity definitions will be given in the first part of this study, in order to render a better interpretation of this industry. Below the definitions there will be a summary of concepts, characteristics, and mechanisms given by these definitions. Authors and texts that been studied include: France invest (2020); Steven N. Kaplan and Per Strömberg (2009); L'Autorité des Marchés Financiers (AMF) or (Financial Markets Regulator), (2013); Invest Europe (2020); ECB (European Central Bank) (2005); Guy Fraser-Sampson (2010); John Gilligan and Mike Wright (2020); PitchBook (2017); L'Association Française de la Gestion Financière.

The aims are, firstly, to analyse the Private Equity investment activity or volume in Europe. The second aim is to assess the performance of a set of Private Equity & Venture Capital funds split into different groups enabling an appropriate comparison and analysis.

The first stage of analysis will examine how much has been invested over the years in companies through PE funds in general but also breaking it down into segments such as Buyout, Total Venture, Growth Capital, Rescue / Turnaround, Replacement Capital and also by sectors. The range of years selected to assess the investment activity within this industry is from 2007 to 2018. The scope chosen is Europe including the EU28 (the UK was still a member within the range of years studied), Norway, Switzerland, Ukraine, Bosnia-Herzegovina, Macedonia, Moldova, Montenegro, Serbia, Iceland, Liechtenstein, San Marino and Vatican City.

The second stage of analysis will examine two sets of funds. Both selections are broadly different, geographically speaking as well as in terms of the content analysed. In the first set of funds, the focus will be on the fund size and capital overhang or dry powder within the fund's

vintage year amplitude comprised between 2017 and 2019 of some of the largest funds in CEECs region. The scope chosen is the CEECs, an OECD term. Funds selected are established in the following list of countries: Estonia, The Czech Republic, Hungary, Lithuania, Poland and Romania. Regarding the second set of funds, it will examine funds' general information, funds' performance and funds' preferred industry. The scope is different than the first set; a larger scope has been chosen, the whole of Europe in order to have no restrictions about funds and to have a large selection of funds. Funds are located in the following countries: Denmark, France, Germany, The Netherlands and The United Kingdom. Finally, these funds all have a buyout strategy, 2012 as a vintage year.

To analyse PE & VC funds as indicated above, thanks to these group peers the study will be able to compare and analyse the data. Peers will be mainly established according to vintage, preferred industry and fund type. In addition, the study will compute indicators showing the percentage of called down and the percentage of dry powder, Money of Multiples as DPI, RVPI and TVPI. The IRR metric already in the data set will then be considered. These metrics will be examined in greater depth, in the following parts of the thesis. Additional information within the assessment part will be given, regarding funds' characteristics, metrics used and peers. Regarding the first stage, the investment activity analysis will be considered thanks to indicators such as average proportion of investment by segments and sectors.

Motivation for having chosen the topics. Private Equity is an asset class which has not stopped growing in recent decades. The growth of investment into companies has become increasingly noticeable. The weight of this asset division is becoming larger and larger and is still pursuing its growing today. Hence, at a macro level interest has been taken in the investment activity. Moreover, private equity funding is a challenging and interesting topic which takes into account quantitative but also qualitative metrics. Thus, this has also oriented the second part of the analysis in assessing funds.

Work limitations have mostly been due to the lack of data. It has been complex to find and gather data at a micro or fund level. Indeed, private equity funds do not provide a lot of data about their working funds. At the macro level it has been easier to collect data thanks to the association Invest Europe who have shared a set of data with the investment activity analysis of the private equity industry in Europe.

The tasks:

1. Delimit scopes for private equity investment activity analysis as well as fund's analysis.
2. Determine metrics and indicators to calculate & gather data to analyse.

3. Rearrange data and compute metrics for analysis.
4. Analyse private equity investment activity.
5. Assess private equity funds, general information, performance and investment information.

Research methods: scientific literature, articles, papers, books, reports, synthesis analysis, multiples.

The APA referencing style will be used throughout the thesis for all citations.

The structure: In the theoretical section all the theoretical terms about Private Equity & its workings will be given. It will be divided into three sub-sections: Private Equity as an Alternative Investment, Private Equity's role in financing of firms, private equity fund's performance and industry growth in recent decades. The first sub-section will start by discovering what an alternative investment is and the place that PE investment occupies within this asset class. Subsequently, the PE industry with be looked at in greater depth, by giving definitions but also by explaining in what way this division differs from the others by talking about its abnormal returns but also main risks. Finally, this section will detail the entire PE structure including main actors leading in to the second sub-section: private equity role in financing of firms. The beginning will explore the method of financing used by corporations, moving on to examine the different segments of PE and highlight the main variances among them in general but also in terms of financing. Finally, the third sub-section will focus on the measure of performance of PE funds as well as the growth of the industry in recent decades. To appreciate the fund performance it is necessary to fully understand the approach in assessing and measuring the performance of PE funds. To understand how to appreciate the fund performance, different measures and metrics - both quantitative and qualitative – will be looked at by discussing the pros and cons and getting a deeper understanding of these measures. The second chapter of the thesis will be about the assessment and research methodology, in which the full process will be investigated in order to reach the final goal and make an analysis. The second chapter also contains a diagram to summarize the process. Finally, the last section is about the topic analysis broken down into two levels as illustrated above.

1. THEORETICAL CONCEPTS OF THE PRIVATE EQUITY INDUSTRY

The first part of the theoretical work consists of studying the private equity industry. Also providing definitions about Alternative Investment and Private Equity, looking for those different principles and frameworks and then describing more specifically the Private Equity environment and industry by providing definitions and discussing its characteristics. The second part will show the role of Private Equity in a financing company then examining the structure of PE firms. Finally, in the last part, it will look into how private equity funds' performance is measured as well as the private equity growth over recent years.

1.1. PRIVATE EQUITY AS AN ALTERNATIVE INVESTMENT

Alternative investment is a financial asset which is not part of conventional investments such as stocks, bonds & cash (also known as traditional investments). Alternative investments include financial asset such as Real Estate, Infrastructure, Private Equity or Venture Capital, Hedge Fund, Private Debt, Commodities and others like arts, antiquities & wine. One of the specific features of these assets is that they may be more illiquid than traditional assets. The term liquidity relates to the ability to buy or sell financial assets in large quantities, easily and quickly without affecting prices. Indeed, it is more complicated to sell land or a share in an unlisted company than a company quoted on an exchange market. Moreover, Alternative investment is in contrast to traditional asset classes due to the inconstant cash flows produced from their investments. Alternative Investments can be defined as "those which are not part of traditional asset classes such as cash, stocks, or bonds that retail investors are most familiar with. Such a definition would encompass investing in mainstream assets such as real estate or commodities or luxury goods in the likes of art or wine" (The World Economic Forum, 2015), (p. 2). Investment characteristics differ between alternative investment and investment as public stocks or government or corporate bonds. The World Economic Forum shows the characteristics as: long term, high risk, or illiquid investments that are associated with higher returns; low correlation with traditional assets to deliver diversification benefits; inflation-hedging benefits; and scalability (the ability to absorb large investment sums).

Directive 2011/61/EU (European Parliament and of the Council, 2011) provides a new regulatory framework for alternative investment fund managers in Europe. The main objective is to give an internal market and harmonized regulatory and supervisory framework for the activities within the EU of all AIFMs (Alternative Investment Fund Managers).

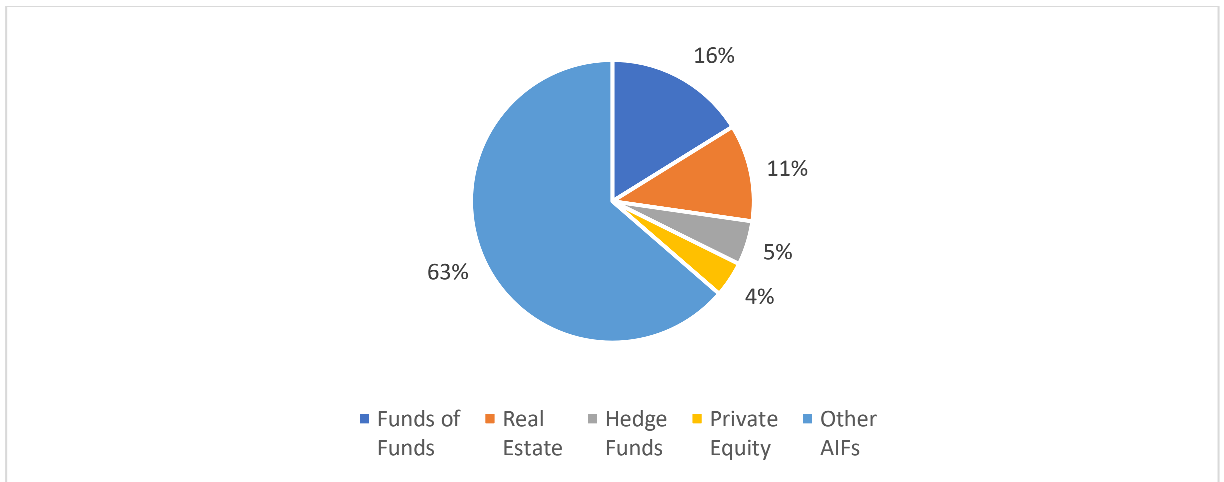
Based on AIFMD (Alternative Investment Fund Managers Directive) data and according to the organisation (European Securities and Market Authority, 2019), (p. 5), at the end of 2017, the EU Alternative Investment Fund industry net asset value (NAV) was €4.9tn. Net Asset Value shows the net value of funds. It is calculated as the total value of the fund's asset minus the total value of its liabilities. Greater detail about the NAV will be provided in the third part of the theoretical section.

Table 1. Essential Statistics – EU AIF 2017

Category	Funds of Funds	Real Estate	Hedge Funds	Private Equity	Other AIFs	All AIFs
Size						
Number of funds (Absolute number)	4,912	2,602	1,147	3,369	13,836	26,378
Net Asset Value (EUR bn)	776	524	264	204	3,103	4,909
Average fund size (EUR mn per fund)	160	200	230	60	220	190
Share of total market (NAV % of all AIFs)	16%	11%	5%	4%	63%	100%

AIFMD database, (European Securities and Market Authority, 2019), (Page 6), "Essentials statistics", Note: "All values at the end of 2017".

Figure 1. Net Asset Value (%) – EU AIF industry by type in 2017



Source: AIFMD database, (European Securities and Market Authority, 2019), (Page 14), "AIF industry by type".

The figure 1 above shows the percentage of NAV of all Alternative Investment Funds in Europe. The private equity industry represents 4 percent of the EU AIFs (Alternative Investment Funds) with a net asset value of €204bn. The "other AIFs" category is qualified as a residual category which covers a range of strategies, with fixed income and equity strategies accounting for 70 percent of the NAV and a national residual category amounting to 27 percent (European Securities and Market Authority, 2019). Other AIFs is the largest category in term of net asset value with 63 percent of the total market share. Funds of funds representing 16 percent constitutes the second largest category in terms of net asset value. Funds of funds can be defined as "investment vehicles that pool investor capital to invest across a range of funds according to a pre-agreed strategy. While many are generalist in nature, some, for example, specialise in venture capital, others may provide access to a range of mid-market funds, and others invest in a particular geographic region, such as Asia" (European Private Equity & Venture Capital Association, 2007), (p. 3). This type of fund develops a strategy consisting of investing in different kinds of underlying assets. A parent fund holds a portfolio with different types of funds. Hedge funds accounted for 5 percent of the NAV. The organisation (The European Central Bank (ECB), 2004), (p. 123) defined a hedge fund as "a fund whose managers receive performance-related fees and can freely use, and do use, various active investment strategies to achieve positive absolute returns, involving any combination of financial leverage, long and short positions in securities, derivatives or any other assets in a wide range of markets". The review adds that historically the term "hedge fund", as the first institutions of this kind, were engaged in the buying and short-selling of equities with the aim of eliminating (hedging) the risk of market-wide fluctuations (The European Central Bank (ECB), 2004). However, over time

hedge funds have started to employ different strategies without essentially involving hedging. The organization (Hedge Fund Research, Inc., n.d.) categorized seven main strategy types: “Equity Hedge”; “Event-Driven”; “Fund of Funds”; “Macro”; “Relative Value”; “Risk Parity”; “Blockchain”.

In conclusion, hedge funds, thanks to their unregulated or lightly regulated nature, are able to use any type of instruments or strategies making them more flexible as an alternative investment.

Private Equity as an alternative investment will be studied first, via the different definitions below.

Table 2. Private Equity Definitions

Author	Definition
(France Invest, 2020)	"The private equity industry consists of taking majority or minority stakes in the capital of generally unlisted small and medium-sized enterprises. This acquisition helps finance their start-up, growth, transmission, sometimes recovery and survival. This industry operates in four segments: Venture capital, Development Capital, Leverage Buyout (LBO) and Distressed Investing."
(Kaplan & Strömberg, 2009), (p. 123)	"A private equity firm raises equity capital through a private equity fund. Most private equity funds are "closed-end" vehicles in which investors commit to provide a certain amount of money to pay for investments in companies as well as management fees to the private equity firm. Legally, private equity funds are organized as limited partnerships in which the general partners manage the fund and the limited partners provide most of the capital. The limited partners typically include institutional investors, such as corporate and public pension funds, endowments, and insurance companies, as well as wealthy individuals. The private equity firm serves as the fund's general partner. It is customary for the general partner to provide at least one percent of the total capital."
(L'Autorité des Marchés Financiers, 2013)	Private equity can be qualified as "the acquisition of stakes in non-quoted companies."
(Invest Europe, 2020)	"Private equity is a form of professional investment that involves taking an ownership interest (equity) in a company and holding it private hands – as opposed to on a public stock exchange." "Private equity is typically a medium to long-term investment. The managers are actively involved in running the business they have invested in over many years. This business is called a portfolio company." "Private equity and venture capital provides capital and expertise for businesses, giving them all the tools they need to grow and prosper."
(ECB (European Central Bank), 2005), (p. 22)	"The private equity market provides equity capital to firms not quoted on a stock market. Its two major components are the venture capital and buy-out (e.g. management and leveraged buy-out (MBO/LBO)) segments."

(Fraser-Sampson, 2010), (p. 2,13)	"Any equity investment in a company which is not quoted on a stock exchange" (p. 2). It states that "there are four main types of what might be termed "pure" Private Equity investment at the company level: Buyout, Development (Capital), Growth (Capital) and Venture (Capital)" (p. 7). The authors also distinguish that "private equity investing can be divided generally into two streams: fund investing and company investing. Fund investing is essentially one level above company investing, as the fund will, in turn, invest in underlying portfolio companies. For this reason, company investing is often called "direct investing.""(p. 13)
(Gilligan & Wright, 2020)	"Private equity (PE) is risk capital provided outside the public markets. It is worth emphasising at this early stage that the word 'private' has nothing to do with secrecy. It simply contrasts with the 'public' quoted markets. Public markets offer shares to institutions and individuals and are accordingly regulated."
(PitchBook, 2017)	"Capital that is not noted on the public stock exchange. Private equity involves investors giving private companies capital in exchange for equity."
(L'Association Française de la Gestion Financière, n.d.)	"Private equity investment is defined as taking equity stakes in unlisted companies in order to finance start-ups, growth plans and buyouts. Private equity investors take equity interests (with no guarantees) with a view to realising a capital gain upon exit." "Their investment is primarily financial, but it may also include a strategic investment, such as a contribution of know-how or the use of a network." "Private equity entails investing at different stages in the life of a company: start-up, growth, crises, acquisition and buyout. Four types of private equity investment are generally identified: Venture capital, Growth capital, Buyout capital, Turnaround financing."

Firstly, it is worth considering that the word private from Private Equity arises from the concept of private as the opposite of the public quoted market (Gilligan & Wright, 2020). Private Equity is the industry in which private equity firms raise equity capital through a private equity fund (Kaplan & Strömberg, 2009) in order to invest that source of capital into unlisted or non-quoted companies - although not only. Public companies can also be acquired in public-to-private (P2P). The aim of such a transaction, known also as take-privates is to make a company private in order to reduce agency risks.

Main PE actors of the industry are:

- Limited Partners;
- General Partners;
- PE firm;
- PE fund.

PE has a specific, organised structure. Limited Partners or investors provide most of the capital needed to invest in PE funds. General partners who are liable to the managing part of the fund, can also provide a thin part of the capital. Regarding services provided by PE firms; the fee structure comprises management fees and carried interest. After a period of fundraising, the investment period follows. Stakes are taken in businesses. The PE fund then holds the company's shares until the divestment or exit period which consists of reselling stakes in order to earn return. According to Invest Europe's definition, Private equity builds better businesses by strengthening management expertise, delivering operational improvements and helping companies to access new markets. The organisation qualified the investment as a medium to long-term investment, characterized by active ownership. It is in the interests of a PE firm to provide expertise in order to improve its business valuation. (France Invest, 2020) states that this "acquisition helps finance their start-up, growth, transmission, sometimes recovery and survival" by operating in four segments: Venture capital, Development Capital, Leverage Buyout (LBO) and Distressed Investing. These activities are going to be studied in greater depth in the second section entitled "Private Equity role in financing of firms". These activities operate at different levels of the financing requirement. Its two major components are the venture capital and buy-out (e.g. management and leveraged buy-out (MBO/LBO)) segments according to the (ECB (European Central Bank), 2005). Leverage is one of the main characteristics in the PE industry, which is used to increase return. It occurs at different levels, such as: the quantity of debt issue in the LBO transactions is going to enable financial and taxation leverage by:

- Changing the proportion of debt into company's capital structure to obtain a higher return on equity;
- Increasing financial interest expense in order to reduce taxable income.

LBO represents a large part of PE industry. Contrary to VC or Growth/Expansion schemes, LBO scheme aims to take a majority stake (>50 percent) mainly financed with debt. According to (Kaplan & Strömberg, 2009), (Page 124), The Buyout is commonly funded with a degree of debt comprised between 60 to 90 percent with a senior and secured debt as a loan portion.

In order to fully understand the Stage 1 and especially the Stage 2 analysis, the following table summarises important terms which are frequently employed in relation to the PE and VC industry.

Table 3. Key Private Equity Fund Definitions

Vintage	It refers to the year where the PE or VC funds interrupt to take new LPs to finance the funds. Moreover the funds start to invest into businesses during the vintage year.
Committed capital	It is the amount that limited partners have consented to provide to the PE or VC fund.
Fund size	Can be defined as the entire amount of committed capital by LPs as well as the GP.
Closed Fund	"A fund that is finished taking commitment from limited partners and is ready to make investments" (PitchBook, 2017).
Fundraising	"When general partners ask for capital commitments from limited partners" (PitchBook, 2017).
Capital call	"When a general partners is ready to make an investment, it will ask its limited partners for the capital they've already committed to the fund" (PitchBook, 2017).
Dry Powder or **Capital Overhang**	"The amount of capital available in a fund for investors to invest" (PitchBook, 2017).
Vertical Industry	"An industry vertical, is more specific and describes a group of companies that focus on a shared niche or specialized market spanning

	multiple industries" (PitchBook, n.d.).

The definitions above are frequently used for private equity funds. They are referring to the funds' features and brought more insights on the funds' characteristics.

A form of public private equity named "Publicly-Traded Private Equity" also exists. It refers to quoted PE firms on a public stock exchange which invests into target companies. Three ranges of Publicly-Traded Private Equity Firms exist: PE firms managing funds and collecting management and performance fees. Companies investing their own capital in target companies. Finally, firms making debt and equity investments in private equity deals (Horizon Kinetics LLC, 2014). Publicly-Traded Private Equity Firms is part of Listed Private Capital (LPC). The report (Edison, 2018), (p. 1), based on their definition, estimated that "the European LPC sector is significant at 99 companies with around £130bn in market capitalisation, representing assets of £127bn". PE funds are vehicles with a lifespan of approximately ten years when making an illiquid investment. However, investing in LPC provides a greater liquidity due to tradeable security.

Abnormal return – is an additional characteristic of the private equity investment. According to the authors (Cuny & Talmor, 2006), (p. 1) there are three mechanisms as drivers as of abnormal returns in private equity transactions:

- Multiple arbitrage;
- (De)leveraging;
- Improving operations.

A multiple arbitrage means allowing a private company to be given back to the public domain, making value through a higher profit multiplier, the situation running counter to the market efficiency. The second driver, as studied before, is to refund the debt from internal profits in order to create more residual equity value, this is known as a financial leverage. The organisation (European Parliament, 2010) defined leverage as "using techniques to increase the returns offered by an investment strategy, for example investing borrowed money alongside capital. If the gains from investing the borrowed money are larger than the cost of borrowing, the leverage used pays off a profit". The purpose of this financial technique is to raise returns but also taxation incentives due to "interest payments" which "are deductible from the company's pre-tax profits, unlike dividend payments to shareholders" (European Parliament, 2010). Lastly, it can be a way to make significant investments without issuing new shares in order to keep the

company's control. However, if companies borrow too much, then they become "highly leveraged" and "can be vulnerable in the event of a crisis or downturn - or simply if their plans turn out to be over-optimistic" (European Parliament, 2010). The degree of debt has to be managed attentively by the company. Indeed, if the financial profitability rate is higher than the cost of debt rate, then the financial profitability is positively impacted. Otherwise, it would impact the company's wealth negatively with leverage as well.

As highlighted while giving the PE concepts, PE investments provide abnormal returns. It is an asset class which led to different risks, and this is what will be examined now. Risk in PE differs from risks in the public market. In private equity, companies are mostly new and also not listed on any stock exchange.

Three main risks exist by investing in PE fund (L'Autorité des Marchés Financiers, 2013):

- "Risk of capital loss";
- "Risk of illiquidity";
- "Risk related to the valuation of portfolio securities".

The organisation (European Private Equity and Venture Capital Association (EVCA), 2013), (p. 12-13) identifies four risks :

- "Funding risk";
- "Liquidity risk";
- "Market risk";
- "Capital risk".

The first risk raised by the AMF is the risk of capital loss arising due to the uncertain development prospects of the companies invested, there is a risk of a non-recovering of capital (partial or total loss). EVCA closely defines this risk as a "Capital Risk" meaning that at the moment of realisation a long term risk of not recovering the value of invested capital exists. The guidelines also state that the long term capital risk can be affected by two factors: "Manager quality" and "Equity Market Exposure". Both the AMF and the EVCA mention the risk of illiquidity. This is caused by the industry structure, investors are not able to sell their investment, they must wait until the divestment period at which point the PE Fund will be liquidated. At the end of this lock-up period, capital gains are shared between the holders. Indeed it is an illiquid risk due to the period of investment which is in relation to the lifecycle of the funds but also

because a fund composed of a portfolio of companies non-quoted on a stock exchange are consequently much less liquid and more complex to sell in order to generate cash flow. The French market regulator identifies a risk related to the valuation of an unlisted company held by a PE fund as estimated by the PE firm itself. The value is reliant on the reference to the latest notable transaction involving portfolio companies or comparable companies. This valuation process might not consider the price in return for a later sale of these shares. Moreover, investment may be subject to biases due to the valuation conduct by the General Partner (PE firms). The Limited Partners as investors could ask for a portfolio investment valuation organised by an independent party once or several times per annum. The association (European Private Equity and Venture Capital Association (EVCA), 2013), (p. 12) states two more different risks of investing in Private Equity. The first one, arises from "the unpredictable timing of cash flows poses funding risks to investors". The second one is "market risk" relating to "the fluctuation of the market" which affects "the value of the investments held in the portfolio". The fluctuation of the assets might be complicated to quantify and therefore does not represent the fair value of the investment.

According to the authors (Leslie & Oyer, 2009), (p. 8 - 10), private equity firms create value in companies that they acquire for "improving management". With a "higher debt level", "enhanced monitoring", and "increased incentives", PE moderates the "principal-agent problem" between managers and shareholders. This is the separation of interest between management, stockholders and other actors within the company. This division provokes conflict of interest between these parties. This situation is known as "agency problem", which incurs agency cost that will affect the value of the company. The most common agency problem is between managers and stockholders. By implementing processes in order to readjust the interests of the management, investors and owners, the corporate governance in the Private Equity industry helps to steer clear of these problems. Three Core Governance Principles in a Buyouts exist (Zeisberger, Prahl, & White, Mastering Private Equity, Transformation via Venture Capital, Minority Investments & Buyouts, 2017), (p. 137):

- "A sense of urgency";
- "An active ownership";
- "An alignment of interest between the PE fund and its management teams".

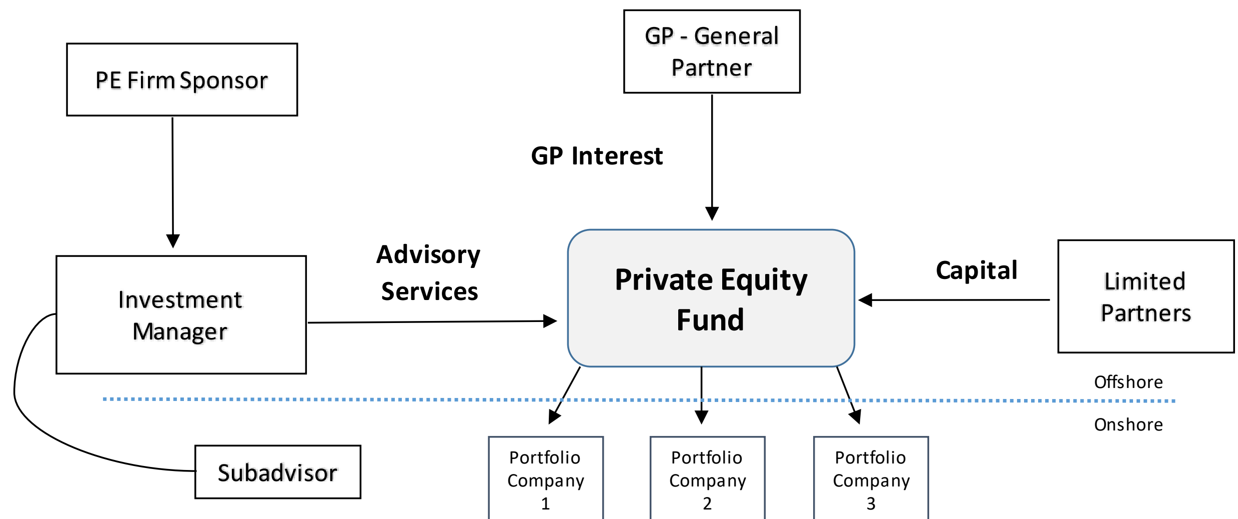
The fundamental part of PE's formula for success is that the governance effectively decentralizes decision-making, identifies appropriate performance measures and reward systems, and implements effective tools to monitor performance. A corporate governance framework is

necessary to supervise activities at a funds' investee companies (Zeisberger, Prahl, & White, Mastering Private Equity, Transformation via Venture Capital, Minority Investments & Buyouts, 2017), (p. 137).

Corporate governance is defined as "one key element in improving economic efficiency and growth as well as enhancing investor confidence. Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined" (The Organisation for Economic Co-operation and Development (OECD), 2004), (p. 11). This framework, by implementing these principles would improve coordination between actors, but also diminish the principal-agent conflict which is developing in many companies nowadays, to avoid destroying value. The OECD implemented principles of corporate governance in OCDE (2015), G20/OECD Principles of Corporate Governance, Éditions OCDE, Paris. Corporate governance is improving today. The organisation (The Organisation for Economic Co-operation and Development (OECD), 2004) defines the purpose of corporate governance in the following way: "to help build an environment of trust, transparency and accountability necessary for fostering long-term investment, financial stability and business integrity, thereby supporting stronger growth and more inclusive societies". The association (European Private Equity & Venture Capital Association (EVCA), 2005 update in 2010), (p. 6 - 7) established Principles of Good Governance for Private Equity and Venture Capital Investing which are: law and regulations, national and supranational corporate governance guidance, integrity, partnership, the long term view, respect for stakeholders, transparency and confidentiality. These principles help to strengthen the relationship between PE & VC industry actors by respecting some rules, in order to preserve value creation. Economically speaking, a company's value is created by mobilising payroll, technical resources and natural resources with its production. These are called "factors of production". These factors get a financial contribution in exchange for their participation. Two resources are identified as factors of productions: capital and labour. It's thanks to these factors that the company will be able to increase its value. As an example, a company will be hiring more employees in order to increase the capacity of production, or else boost research in the R&D department to expand a product line.

The diagram below shows the general structure of Private Equity funds. It represents the different actors and their relationships with each other.

Figure 2. Limited Partnership Private Equity Fund Structure



Source: (Zeisberger, Prahl, & White, Limited Partnership Private Equity Fund Structure, 2017)

The main actors around this structure are:

- A Private Equity Firm is a management company which is held to advise and raise the fund. The company provides investment strategies such as buyout, venture, growth or distressed investing. The firm can manage several funds. Throughout the world, the most known PE firms are for example: Blackstone, the Carlyle Group & KKR, all three of which are headquartered in the US. As for the ones based in Europe, we find CVC Capital Partners in London, UK, CVC then EQT in Stockholm, Sweden.
- Limited Partners are investors that provide the largest source of capital. They are not involved in the fund management, their goal is financial, and they bring the main sources of fund in order to receive returns. Limited partnerships are among the largest and most active shareholders in their portfolio of companies with significant means of both formal and informal control (Covitz & Liang, 2002), (p. 3). One of the universal contract provisions is to pay limited partners with a preferred return before general partners. A preferred return is the minimum rate of return. Examples of limited partners, include: pension funds, insurance companies, institutional accounts or wealthy individuals.
- General Partner has the responsibility of managing investment and divestment decisions about the fund. The authors (Covitz & Liang, 2002), (p. 1), state that general partners are specialists that find, structure, and manage equity investments in closely-held private

companies, and who gain their expertise by attaining a critical mass of investment activity that institutional investors could not attain on their own. They are also in charge of the capital call from the Limited Partners.

- An Investment manager manages day-to-day business, as an example the reporting for the Private Equity Firm. He has the responsibility to assist the portfolio companies by advising these and assesses potential investment opportunities. He is paid by management fee, which is fixed at around 1.5 percent – 2 percent. Agents and advisers are qualified as "information producers", their role consists of placing PE, raising funds for PE partnerships, and also evaluating partnerships for potential investors (Fenn, Liang, & Prowse), (p. 5). They reduce the costs related to the information problems in private equity investing. Their aim has increased in recent years. The advisory service eases the assessment by institutional investors of limited partnerships in which to go in for. The Agent's role is to make the seeking of equity capital by private companies accessible as well as the hunt by limited partnerships for institutional investors. Their aim consists of advising, timing and pricing of private equity issues regarding the structure and assisting negotiations (Fenn, Liang, & Prowse), (p. 5).
- The subadvisor has a more specific role than the investment manager, but both could be referred to as advisers. The subadvisor is in charge of evaluating and managing the investment portfolio. He is employed by the investment manager and paid using a part of the management fee for these services. Management fees are paid by the PE fund to the investment adviser for these services. A part of these management fees is paid to the subadvisor. As previously stated, management fees are usually laid down at around 1.5 or 2 percent. Finally, different types of subadvisors exist depending on their sector of activity, expertise or strategy.
- A Private Equity Fund is an independent investment vehicle handled by the Private Equity Firm. Capital is raised from the Limited Partners in order to acquire stakes in unlisted companies. The Limited Partnership Agreement is used as a key legal document for PE funds established as limited partnerships. The US commission (Securities and Exchange Commission (SEC), n.d.) added that a private equity fund "is a pooled investment vehicle where the adviser pools together the money invested in the fund by all the investors and uses that money to make investments on behalf of the fund". Private equity funds concentrate on long-term investment opportunities by taking a controlled interest in an operating company by guiding the company management and direction with a goal: to increase the company's value. This is done with an investment time horizon, typically of 10 or more years (Securities and Exchange Commission (SEC),

n.d.). PE fund structures are typically made up of LP (Limited Partners), as fund providers. In addition, GP (General Partners), from the PE firm, are in charge of the fund management, but also perform the PE valuation. Legally speaking, LP as investors, have limited liability which means that corporate loss will not exceed the initial amount invested in the PE fund - contrary to GP who are jointly liable for all fund debts.

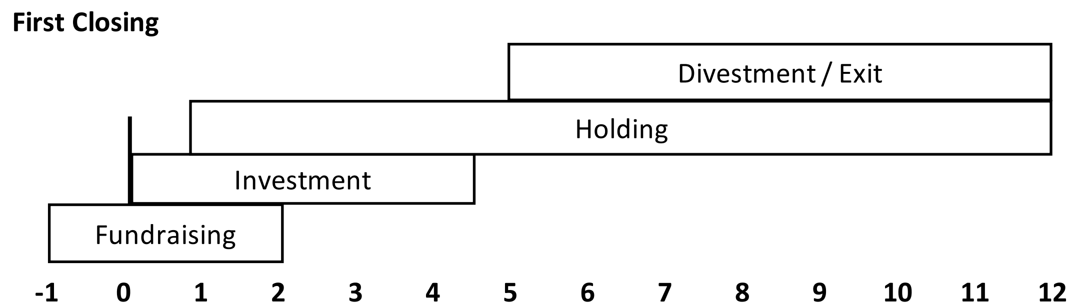
The fee structure has been shaped in order to adapt both economic interest of the PE firm and investors. There are two main fees:

- Management fee;
- Carried interest.

A PE fee's structure is generally called "2 and 20". The 2 percent is the management fee, which is paid by LPs to the fund to cover different expenses as offices or payroll, then the PE fund pays the investment manager for investment services. These fees are generally paid in advance either quarterly or biannually. Management costs are paid through committed capital during the investment period and with net invested capital after the investment period. The carried interest is a share of the PE fund's profit (if the fund is successful); 20 percent goes to the GP and 80 percent to the LPs.

The figure below shows the different stages of a PE fund through its lifecycle.

Figure 3. Lifecycle of a Private Equity Fund



A PE fund has a typical holding period of 10 years, sometimes with a 1-2 year extension, this is called a "10+2" model. There are four periods during the PE fund:

- Fundraising;
- Investment;
- Holding;
- Divestment or Exit.

There are many steps within fundraising, also known as a marketing period, which is the first part of the lifecycle. At the beginning, the PE firm determines the fund's size which includes the maximum amount raised in order to limit the investors demand, the capital raised is also called the fund's committed capital. Limited Partners must then contract with the PE fund. Finally, a GP can extend capital, this moment, known as "First Closing", is shown on the diagram above (Figure 3). The marketing period can last from 6 to 18 months between the phases of "first closing" and "final closing".

During the period of investment, the PE firm seeks and chooses target companies in which to invest and then calls the required capital from LPs to make these investments. Once at the end of the investment period, the fund is not allowed to run investments into new companies. Finally, the Portfolio company is shown to the LPs. However, the latter are not able to exit the investment.

For a PE fund, the holding period generally runs for around three to seven years. This period is linked to the time for which the investment is held in the portfolio. It can be shorter in

the case of profitable companies or, by contrast, longer in the case of unprofitable and ineffective companies.

Finally comes the divestment or exit period, this is the last part of the PE fund Lifecycle. Regarding this period, the authors (Cumming & Johan, 2013), (p. 35), stated that the divestment process can take place in five different ways. Firstly, the opening to the public market with IPOs, meaning new listings on a stock exchange. The second type is by an acquisition, a bigger firm purchases shares from the entrepreneur and PE fund. Secondary sales, when the fund's investments are sold to another firm or investor, but the entrepreneur does not sell. Buybacks is the term employed when the entrepreneur repurchases the interest of the fund. Finally, the exit may occur due to a liquidation: this is called a "Write-off".

1.2. PRIVATE EQUITY ROLE IN FINANCING OF FIRMS

To some degree, companies need a source of funding in order to observe considerable growth. Companies have two ways to finance themselves: internal financing and external financing.

Internal financing is achieved through self-financing. Self-financing ensures the independence of the company, it is a way to acquire growth without raising equity with an external entity. The funds come from the resources of the business activity and are preserved by it. This form of financing does not entail any financial costs and does not require the agreement of external actors; however, it remains limited. This type of financing will increase the company's equity. External financing, in general terms, involves external economic actors who are able to finance businesses. The two major external sources of financing come from financial institutions, firstly through borrowing and secondly through financial markets by issuing bonds.

An article published by a French journal (Cléon, 2015), illustrates that there are two main types of financing: equity and quasi-equity and external financing.

Equity and quasi-equity are sources of financing that includes capital and current account contributions made by the original partner but also investment grants. Funding from PE funds is part of this type of financing and represents capital contributions, completed with different objectives from those of the partners. The purpose is to increase the share capital, not the current account, made by companies to create value over years by reselling shares. In France, there are also, at a regional council level, companies with this sole purpose. The intention is for them to promote local economic development.

- The following are sources of financing in Equity and quasi-equity:
- Share capital;
- Current account of associated;
- Contribution from PE funds;
- Investment subsidy.

Financing in equity and quasi-equity is an effective way to considerably increase capital and enable the growth of the company by investing in the project. However, some constraints are met when raising funds in this way. The company control decreases. Moreover, profit is divided by the amount of equity. This means that the percentage of dividend could be lower. Finally, stakes between company and shareholders cannot be the same; the company would ideally

achieve growth by encouraging self-financing whereas shareholders prefer revenue. This could be a potential conflict of interest.

- In external financing, there are:
- Bank loans;
- Finance leases;
- Overdrafts;
- Supplier credits.

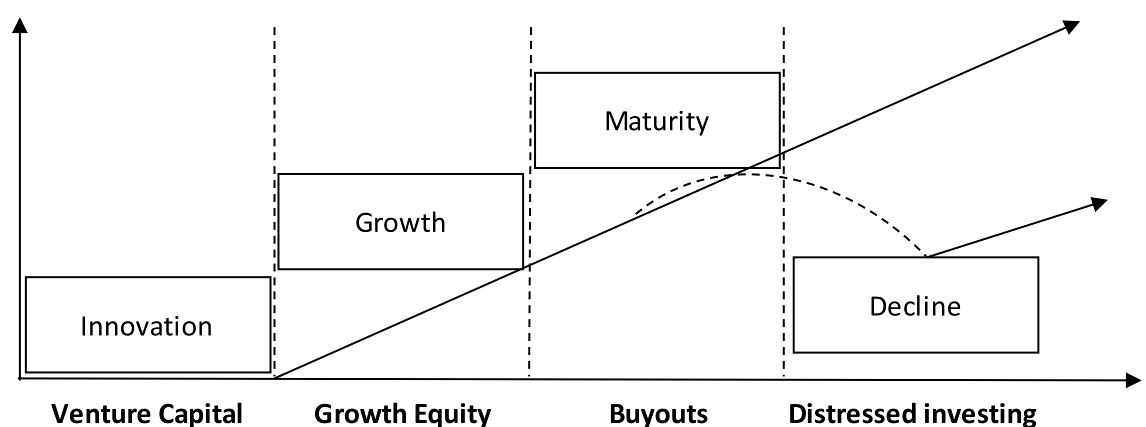
This section will focus on the study of contributions of private equity companies which are part of the mode of financing by equity and quasi-equity.

PE industry has many roles in financing and growing companies. To achieve their goals and creating value PE firms have many strategies, they can be divided into four areas:

- Venture Capital;
- Growth Equity;
- Leverage Buyout;
- Distressed Investing.

The following diagram illustrates the four main PE strategies:

Figure 4. Private Equity Segments



Source: (Association Française des Investisseurs pour la Croissance (AFIC))

These four activities will now be explained or subset in order to understand globally how the PE industry works and helps the companies to grow through financing. As seen before,

regardless of the strategy used, PE funds invest in non-listed companies by financing them in order to create value.

- In 1946, MIT president Karl Compton, General Georges F. Doriot, professor at Harvard Business School launched the first venture capital firm named American Research and Development (ARD) by making high-risk investments in emerging companies. Nowadays, venture capital is an integral part of the PE industry. Venture capital is the investment in the early-stages of a company in order to bet on their future growth. These companies can be qualified as start-ups. These are usually innovative or tech companies with a high potential VC represents an important source of financing for these companies. Venture Capital is defined as "the investment by professional investors of long-term, unquoted, risk equity finance in new firms where the primary reward is an eventual capital gain, supplemented by dividend yield" (Wright & Robbie, 1998), (p. 521). Regarding the return of investment, some capital gains can be significant. On the other hand it can be a risky investment, for example in the case of some early-stage companies who have yet to make a profit, declare a revenue and have sometimes yet to start production. Due to this, the result is that a valuation is quite difficult and reselling shares may not be possible. The venture capital demand depends on three groups of factors that are dependent on each other. "First, venture capital demand increases with individual incentives for entrepreneurship that determine investment decisions. Second, the innovation potential of the economy determines the number of innovative ideas and, thus, the number of venture-capital-backed enterprises that try to realize innovative ideas. Third, venture capital demand depends on the institutional environment determining the way in which innovative ideas are financed in order to realize them" (Schertler, 2003), (p. 3).
- Another activity from the Private Equity industry is "Growth Equity". The main aim of this strategy is to invest in fast-growing businesses. This segment is between venture capital and buyout investing. Growth Equity funds take minority equity stakes in order to exercise an operational and a strategic control. There is a special relationship between management, investors and owners due to the minority equity stakes. Different actors work around trust to achieve development in the company.
- The next strategy that is going to be studied is Buyout. Buyout is a strategy in which buyout firms take a controlling equity stake in companies. According to The Bank of France (La Banque de France, 2016), (p. 2), The Leverage Buy Out or LBO editing is generally part of the buyout strategy. It consists of repurchasing a target company mainly

financed by debt. It is fed by a buyout firm formation that borrows to acquire controlling equity stakes in the target company by buying shares. Cash flows generated by the company will finance the debt service meaning interest expenses and repayment of maturity. The target company must generate a significant enough level of cash flow to be able to cover the debt service but also in order to improve its value. One of the important characteristics of LBO is the leverage effect of the debt. Usually, a buyout firm has relatively low equity compared to the operation. It can also benefit from the leverage effects related to the legal organization of the funding and the taxation of the groups. Moreover, the repayment ability of this type of funding is quite sensitive due to the level of debt and any economic downturn or a decrease in the profitability of the target company. It means that these weaknesses can lead the buyout firm to bankruptcy. The authors (Zeisberger, Prahl, & White, 2017), (p. 51-53) show five strategies employed by buyout funds: "P2P (Public-to-Private)", "Carve-out", "Privatization", "Family Business", "Secondary Buyout". In US private equity buyouts, leverage levels reach record levels again. The author (Schwarzberg, 2019) states "Current leverage ratios are the highest debt-to-Ebitda levels seen since the second quarter of 2007, before the financial crisis, when leverage also averaged 6.8 times". As an example used in the article (Schwarzberg, 2019), "Travelport's loans had leverage of 7.6 times" (Moody's Investors Service). In terms of value, a leveraged buyout loan is provided to the travel commerce platform Travelport with $3.2bn. Leverage debt value increases, and conversely the amount of equity falls. It is shown that Equity checks have increased and accounted for about 35.7 percent in the first quarter of 2019, 38.7 percent in 2018 and 43.3 percent in 2017 (Schwarzberg, 2019). In the PE & buyout industry, EBITDA is used to measure leverage as a multiple, which then gives the ratio "Debt-to-EBITDA".

- Finally, thanks to their position in financing and helping company growth, they also support businesses in distress that have some financial difficulties. Distressed investing is a part of a private equity fund strategy. It consists of taking majority stakes in some distressed business in order to recover financially and find profitability again as well as short-term cash flow. In distressed investing the return is uncorrelated with the economic growth, unlike some other strategies in private equity. The report (Preqin, 2011), (p. 3), states that there are three types of private equity funds in "distressed private equity". The strategy of these funds is different depending on how much the company in which investments are made is struggling.

- "Distressed debt";
- "Turnaround";

- “Special situations”.

Firstly, distressed debt involves acquiring stakes in the debt obligation of struggling companies with financial distress. The goals are to generate returns through either restructuring the company or the recognition of debt. Due to the financial situation these debt securities are trading at a distressed level. Secondly, in a turnaround situation, a company incurs operating losses and has trouble in its cash flow management. The Funds take majority equity stakes in these companies which have these two operational financial issues. Distress funds must stabilise the financial health of the company quickly in order to avoid insolvency. Finally, the report defined special situations such as “investments focus on event-driven or complex situations, where a fund manager may be able to exploit pricing inefficiencies due to an expected or actual significant event” (Preqin, 2011). In this field, the legal environment is important because it can affect the restructuring choices about to be made, or the actions taken.

1.3. PRIVATE EQUITY FUND'S PERFORMANCE AND INDUSTRY GROWTH IN RECENT DECADES

This section is going to explore how PE funds' performance is measured by looking into metrics as Internal Rate of Return IRR and Multiples of Money, and also discuss value creation in the private equity industry. It will also examine the change in the private equity industry as well as its evolution over recent years.

As examined above, private equity investment exposes investors to several risks. One of those risks highlighted by the French market regulators is the risk related to the valuation of portfolio securities, meaning that the fund's portfolio companies might be difficult to assess since the portfolio companies are not listed. Additionally, the companies' valuation is given at a specific time but changes constantly over the rest of the fund's lifetime. Hence, it is important to correctly value the fund and especially the fund's NAV, in order to appreciate its performance in computing metrics. A fund's performance is an essential tool in giving limited partners reliable information regarding the fund in which they have invested. Private Equity is an illiquid investment, since it usually does not provide cash flow return to investors at the beginning of the fund's life. The updated fund's net asset value is an important indicator to LPs. Indeed, it gives an overview of the fair value of the fund. This metric also gives insights into the fund's performance. Several methods exist which are used in the PE industry to measure and assess the performance of a fund. Over the fund's life, limited partners obtain the fund's net asset value from the PE firm every quarter. As briefly defined above the NAV shows the net value of funds. It is calculated as the total value of the fund's asset minus the total value of its liabilities. The association (Institutional Limited Partners Association (ILPA), 2020) gives a global definition of the Net Asset Value (NAV): "NAV is calculated by adding the value of all of the investments in the fund and dividing by the number of shares of the fund that are outstanding. NAV calculation are required for all mutual funds (or open-end funds) and closed-end funds. This NAV definition mostly refers to mutual funds. In private equity, the NAV reflects the value of all investments, it is also called the fund's residual value. This fund's residual value is also used as a performance metric to gauge the value created based on the amount contributed to the initial investments.

This leads to additional important metrics in PE which are the Money of Multiples. The three MoM are: DPI (Distribution to paid-in-capital), RVPI (Residual value to paid-in-capital) and TVPI (Total value to paid-in-capital). According to the organisations (BVCA's Limited Partner Committee and Investor Relations Advisory Group, 2015), (p. 5), MoM "measure returns from an investment, providing a cash-on-cash measure of how much investors are

receiving”. They are computed “by dividing the value of the returns by the amount of money invested”. These multiples give investors the information about the value created over what they have invested. In other words, the money of multiple reflects the return generated by the capital invested into the fund. As with multiple metrics, they are useful for comparing funds among peers in order to find out which fund outperforms. The BVCA report also states that these metrics “are often used in the PE industry as they offer an easy way to show the scale of the returns an investment has given” (BVCA’s Limited Partner Committee and Investor Relations Advisory Group, 2015), (p. 5). However, by simply observing the MoM with no information about the amount contributed, distributed and the residual value, the metric does not inform us about the range of the project. Additionally, one more drawback of these metrics is that they don’t take into account the time value of money. In order to assess the fund performance with a metric which does not overlook the time value of money, it has to examine the Internal Rate of Return (IRR). The author (Tankler, 2018) gives a brief definition of the metric IRR: “It indicates the comparative profitability of a possible investment by taking into account all outgoing and incoming cash flows from an investment over the investment period”. Indeed, the IRR is the discount rate which makes a series of cash flows equal to zero. It is mainly used for capital budgeting purposes - to decide which project is worth investing in. It is a time value concept. This metric also represents the expected compound annual rate of return from an investment. The main advantage of the IRR is probably the fact that it takes into account the time value of money. Therefore, in the PE industry, the IRR measure takes into account the timing of cash contributions and distributions and residual value (NAV) of the funds. Private equity funds are examined through their “Net IRR”. It computes the IRR after fees and carried interest. However, this measure has several limits. One of the main IRR weaknesses is “the built-in “reinvestment assumption” that capital distributed to LPs early on will be reinvested over the life of the fund at the same IRR as generated at the initial exit” (Albers-Schoenberg, 2019), (p. 2). To illustrate this issue, the author takes as an example the fact that if a successful exit can be realised at an early stage of the fund’s life it results in a high IRR. It might be more complicated to get the same investment in the future. The modified IRR is able to solve this issue by “assuming that positive cash flows to LPs are reinvested at a more realistic expected return (such as the average PE asset class or public market benchmark); it also accounts for the cost of uncalled capital, unlike the standard IRR model” (Albers-Schoenberg, 2019). According to the authors (Goedhart, Levy, & Morgan, 2015), (p. 7), “disaggregating” the IRR can offer a better perspective of the source of the performance. According to the article, “Strategic repositioning. Repositioning an investment strategically” refers to investing in a new busines with innovation or in a different market with a new product to launch. This strategy could provide a value to the fund. It would also improve the

diversification by transferring risk and avoiding dependence on one or fewer product portfolios or markets. The authors also insist on the "Effect of leverage". Stating that "Understanding what part of an investment's IRR is driven by leverage is important as an element of assessing risk-adjusted returns" (Goedhart, Levy, & Morgan, 2015), (p. 7). As examined in the previous section, the level of debt used in a PE scheme is high. Moreover, leverage can have both positive and negative effects.

Assessing the fund's performance with all these metrics may raise the question: which measurement represents and gives a better interpretation of the fund's performance? The metrics examined here give reliable insights to investors. It is therefore better to interpret the results by combining all the metrics in order to have a better illustration of the fund's performance. Indeed, a fund may obtain a very high IRR and get a smaller TVPI by receiving CFs earlier than a fund which obtains a larger series of CFs later. The question then, is how s should LPs interpret quarterly results given by the GP? One more important concept is the value creation. As seen above the PE fund creates value over the long term, but what does it mean exactly?

Value creation is a commonly used term in the private equity industry. It refers to actions which would enhance the firm's value. Companies increase value creation by performing financially as well as upgrading products and services in a sustainable way. Different drivers, levers and strategies exist which would improve the value of a business. According to the authors (Zeisberger, White, & Prahl, Value Creation 2.0 - A Framework for Measuring Value Creation in Private Equity, 2016), (p. 5), "the three main drivers of value creation in private equity" are: "Change in annual operating cash flow at entry and exit, change in the valuation multiple applied to operating cash flow at entry and exit, and the net cash flow generated by shareholders during the holding period". These measures of value creation are purely financial and accounting metrics enable us to consider performance in terms of how much is returned to investors. The author (Morris, 2016), (p. 8) discusses the "value bridge" as a measure of value creation in private equity. According to the author, this measure is based on accounting metrics as the company's EBITDA (earnings before interest, tax, depreciation and amortization), valuation multiple, but also the amount of debt paid back by the company. The value bridge as a value creation approach takes into account essential accounting metrics. It enables us to appreciate the business's ability to face its highly leveraged structure by paying back its debt as well as measuring any change in the company's profitability. However, this approach is purely accountancy related and does not take into account other metrics. The organisation (PWC, 2018), (p. 3), with the figure 2, "Value creation levers – Tech product company example" shows two different levers as drivers: The "Strategic levers, drives multiple and transforms the business

model and the Operational levers, drives EBITDA margin and transforms execution of business model". Strategic levers act as actions taken over the long term and which have a major impact on the business. While the operational can be taken on a day-to-day basis or over the mid-term to appreciate the impact quicker.

To generate value over the fund's life, high MoM as well as fund's profitability are essential. To generate high metrics, the GP needs to make the right investment choice in investing in companies which also create high value. Acquired businesses create value by being profitable and generating cash-flow, also in developing new products and markets for business development. The qualitative approach is highly important. Profitability and cash generating is essential to running a sustainable and growing company , but the qualitative aspect and especially ESG approach is equally as important as the profitability. The company creates value through taking care of its employees.

As raised previously, the end of the part of the study is going to focus on the changes in the private equity industry as well as its evolution over the recent years.

Fifteen years ago, alternative investments accounted for 6 percent of the global investible market for an amount of $4.8tn. Alternative investments represented 12 percent of the global investible market reaching $13.4tn at the end of 2018 (Black & Filbeck, 2020). According to the report, (Black & Filbeck, 2020), (p. 5), "By the end of 2018, the size of the global markets had doubled, but alternative investments had almost tripled". Alternative investments allocation has grown considerably in recent years.

Private Equity evolution and change over the years will now be discussed.

BPI France published a report that shows the PE evolution between 1994 and 2014 in France. BPI is a French government-owned organisation. Its core role is in developing and financing companies, especially medium and small business, but also innovative companies. According to the organisation (BPI France, 2014), (p. 17), from 1994 and 2013 the PE market has four main features:

- The Activity was in rapid growth;
- Highly contrasting developments took place according to the intervention segments;
- The first level of maturity from 2005 was achieved;
- Significant changes in the nature of investors occurred from 2005;

From 1994 to 2014, funds raised and amounts invested by French PE funds had increased nearly four-fold. In 2014, funds raised amounted to €2.6bn, and capital invested €1.8bn followed

by an figure four times larger twenty years later, with fundraising of €8.5bn and €6bn invested by the French PE funds. In 2005, the PE market reached a first level of maturity. From 2005, there is a correlation between GDP trends and fundraising. Finally, from the same year, it a significant change is noted in the nature of investors who subscribed to PE funds (BPI France, 2014), (p. 17). To conclude, the paper observed that concerning PE activity, the most significant period is between 2005 and 2008, and is referred to as the "golden age" (BPI France, 2014), (p. 19). In addition, fundraising and investment rose strongly between 2004 and 2005 and every PE segment was noticeably affected by the dynamism. Buyout activity also witnessed the most significant increase at this time. In that segment: 78 percent of the amount invested in 2005 finance LBO operations and 66 percent of the capital raised was allocated to the buyouts segment in 2006 (BPI France, 2014), (p. 25).

The author (Feliz, 2019) defined "Dry Powder" as the capital available for fund managers to deploy. At the end of June 2018, the private capital dry powder had reached $2.099bn (Feliz, 2019), (Figure "Global Private Capital Dry Powder ($bn), 2006 - 2018"). PE firms receive funds faster than they invest in companies. The report (McKinsey & Company, 2019), (p. 23) states that "dry powder has grown at a rate of 14 percent since 2012, driven mainly by PE". Since 2016, dry-powder stocks have increased by 22 percent. The report (McKinsey & Company, 2019), (p. 23) adds that if growth in dry powder continues to outdo deal volume in a strong market, this may produce a whirlwind for multiples. However, if the market slows down, then this considerable war chest may subsidise, at least for a certain period, downward pressure on fundraising.

To conclude, private Equity, as an alternative investment asset generates high return. Funds create value by investing in companies in order to earn returns by selling those companies after a long holding period. Due to this holding period which can last up to 10 years, it makes it illiquid. Moreover, different issues around PE fund valuation exist. Indeed, PE firms carry out their own valuation, which is not conducted by an independent party. AMF (Financial Markets Regulator in France) describes a risk related to the valuation of portfolio securities. The private equity industry has witnessed successes over the years as well some changes. The BCG report (Hammoud, Brigl, Oberg, Bronstein, & Carter, 2017), (p. 2, Exhibit 1 "Both the Number of Firms and Asset Under Management Are at Record Levels") shows that during the period 2000 – 2016 the numbers of private equity firms have substantially increased numbering 4.719 in 2016 versus 1.608 in 2000. In addition, the asset under management has also strongly risen over this time period. It reached $2.486bn in 2016 versus 577 billion dollars in 2000.

2. METHODOLOGY FOR ANALYSING THE PRIVATE EQUITY INVESTMENT ACTIVITY IN EUROPE AS WELL AS ASSESSING PRIVATE EQUITY FUNDS

In this section, the ways in which analysis will be conducted will be described.

The following two stages of analysis are to be emphasised:

- Stage 1: Private Equity Investment activity analysis in Europe;
- Stage 2: Private Equity Funds analysis in Europe and CEECs over two different scopes & vintage amplitudes.

2.1. METHODOLOGY - STAGE 1: ANALYSIS OF PRIVATE EQUITY INVESTMENT ACTIVITY IN EUROPE

Stage 1 is going to focus on the private equity & venture capital investment activity in Europe from 2007 to 2018. "Markets statistics" will be looked at – these are data by country of portfolio company. The evolution into all private equity will be analysed, as well as broken down into investments strategies such as total venture, growth capital, rescue / turnaround, replacement capital and buyout. The investment activity by sectors of activity will then be considered. As previously stated, the scope selected is Europe, including the EU28 (the UK was still a member within the range of years studied), Norway, Switzerland, The Ukraine, Bosnia-Herzegovina, Macedonia, Moldova, Montenegro, Serbia, Iceland, Liechtenstein, San Marino and Vatican City.

The data set analysis reports investment data in terms of value as well as in terms of number of companies invested in over the ranged chosen (2007 - 2018). The data has been provided by Invest Europe in the form of an Excel Microsoft file. Invest Europe is the association representing the private equity community across Europe. The set of data covers investing activity in Europe from 2007 to 2018 at a European level.

To analyse the data two table will be included. In the first table, the first indicator will compute average proportion of investment broken down by private equity segments over the range of years chosen : 2007 – 2018. The average investment activity by segment is computed as well as the total investment activity. The average of each segment is divided by the average of the total investment activity. The lowest and highest points display, also by segment, the points where the investment proportion has been the lowest as well the highest over the same range. Finally, the last indicators show the evolution of the value invested in percentage between 2007

and 2018. The second table illustrates the top four most invested sectors of activity by calculating their averaged proportions. It computes the average of the investment activity by sector of activity as well as the total investment and divides the average of each sector of activity by the average of the total investment activity in value but also in number of companies invested. It then highlights the top four most invested sectors, with their proportions in terms of value invested.

Formulas:

- Average proportion of investment (%) = Average of the investment activity by segment or sector / Average of the total investment activity * 100

The **Method** to analyse stage 1 is:

To analyse the PE investment activity the following actions have been performed:

- Reorganising and rearranging data with Excel;
- Computing indicators:
  - Average proportion of investment by segments and sectors;
  - Calculating the PE segment proportions each year over the period 2007 – 2018 to find the lowest and highest points.
- Determining minimum and maximum amounts of investment over the years;
- Measuring the evolution of the investment: 1 year, 5 years and 10 years.

The following basic Excel functions have been employed: “MIN”, “MAX”, “AVERAGE”, and “XLOOKUP” as well as the Pivot Table functionality.

2.2. METHODOLOGY - STAGE 2: PRIVATE EQUITY FUNDS ANALYSIS IN EUROPE AND CEECs OVER TWO DIFFERENT SCOPES & VINTAGE AMPLITUDES

As defined in the introduction, this study is going to consider funds located in the CEECs region as well as funds established in Europe and in particular in Western Europe. The idea is not to compare funds within both the regions stated but to look at two different analysis.

The first fund analysis will look at the largest fund in the CEECs region by examining metrics as the fund size and dry powder. Interest will also be shown in the funds’ preferred sectors. The first selection is called “recent largest private equity funds in CEEC – fund size & dry powder indicators”.

The second selection will focus on PE funds' performance of funds based geographically within Europe and principally in western Europe. Several funds with the same vintage year have been selected, as well as investment preferences to deliver a better interpretation of the analysis. The second funds' selection is entitled "Buyout funds in Europe – performance analysis".

It is important to note that the data set of funds do not fully inform us about those funds, several funds have no information about specific characteristics which does not enable a full analysis of these. The access provided by the PE platform was a limited one meaning that it has met with restriction regarding data searching. To gather the data needed for analysis purposes, for both selections a limited access platform has been used, enabling the searching and the extracting of funds data. The searching of both selections has been performed with the "advanced search" functionality enabling full data selections sought regarding the scope and characteristic chosen. An extraction of the data from the platform to an Excel Microsoft file has then been performed for analysis purposes.

2.2.1 RECENT LARGEST PRIVATE EQUITY FUNDS IN CEEC – FUND SIZE & DRY POWDER INDICATORS (METHODOLOGY)

Characteristics of the fund set analysis:

- Fund Types: Buyout, Growth / Expansion, Restructuring / Turnaround, Venture – General;
- Fund Vintage Year Amplitude: from 2017 to 2019;
- Fund status: Closed.
- Scope: CEEC region.

Data needed to set up the analysis includes:

- Fund size and dry powder in value;
- Funds preferred industry;

Geographically, the funds selected are established in the following list of countries: Estonia, Czech Republic, Hungary, Lithuania, Poland and Romania. Slightly more than half of the funds selection are based in Poland.

Before extracting data from the platform to an excel file, the funds have been ranked according to size, in order to keep the largest funds. Data has then been organised and analysed with Microsoft Excel pivot tables, in order to build the final analysis file.

To analyse data, funds will be classified in subgroups, in order to compare them appropriately. The entire list will then be analysed, by splitting the funds into three groups:

Group 1: Vintage years:

- Vintage Year 2017;
- Vintage Year 2018;
- Vintage Year 2019.

Group 2: Fund's Category:

- Private Equity;
- Venture Capital.

Group 3: Fund's Type:

- Buyouts;
- Growth/Expansion;
- Venture – General;
- Venture – Early stage.

Formulas:

- Average size of fund;
- Average of dry powder in value;
- Average of dry powder as a percentage = Average of dry powder to deploy in value / Average of fund size * 100

2.2.2 BUYOUT FUNDS IN EUROPE – PERFROMANCE ANALYSIS (METHODOLOGY)

Characteristics of the fund set analysis:

- Fund Type: Buyout;
- Fund Vintage Year: 2012;
- Fund status: Closed & fully invested;
- Scope: Europe;
- Funds preferred industry: Business Product and Services (B2B), Commercial Services, Information and Communication Technology (ICT).

Data needed to set up the analysis includes:

- Fund size and dry powder in value;
- IRR (Given by the extracted data);
- Contributed (paid-in-capital) in value;
- NAV (residual value) in value;
- Distributed in value;
- Funds preferred industry;
- Funds total number of investments.

Geographically, the scope is not at a CEECs level. To get a greater number of funds to make peers and avoid any barriers, a reflection at European level has been chosen. Funds selected are located in the following countries: Denmark, France, Germany, The Netherlands and The United Kingdom.

The **Methods** used to assess funds' performance are multiples calculations as well as IRR (Internal Rate of Return) metrics. To compare funds' performance it is adequate to consider peers with the same fund vintage, geographic and comparable investment strategy.

The calculation of multiples called multiples of money (MoM) has been chosen here. This is also known as Multiple on Invested Capital (MOIC). These computed MoMs are:

- **Distribution to paid-in capital** (DPI): it represents the cash-on-cash returns produced by funds' investments at a valuation date. DPI constitutes the amount of capital returned to investors divided by a fund's capital calls at the valuation date. This multiple is observed once funds start exiting investment. If the exit process hasn't yet started, then DPI stands at zero.
- **Residual value to paid-in capital** (RVPI): it represents the unrealised funds' value part. At the beginning of the fund's life the RVPI is higher when funds value its investee companies. It decreases to zero progressively once the fund has exited its investment. This is calculated as the fair value or net asset value (NAV) of fund's investment portfolio divided by its capital calls at the valuation date.
- **Total value to paid-in capital** (TVPI): it represents the fund's RVPI and its DPI. It is the total fund's value which includes the distributed (D) and the residual value (RV) divided by the contributed (paid-in-capital).

MoM formulas:

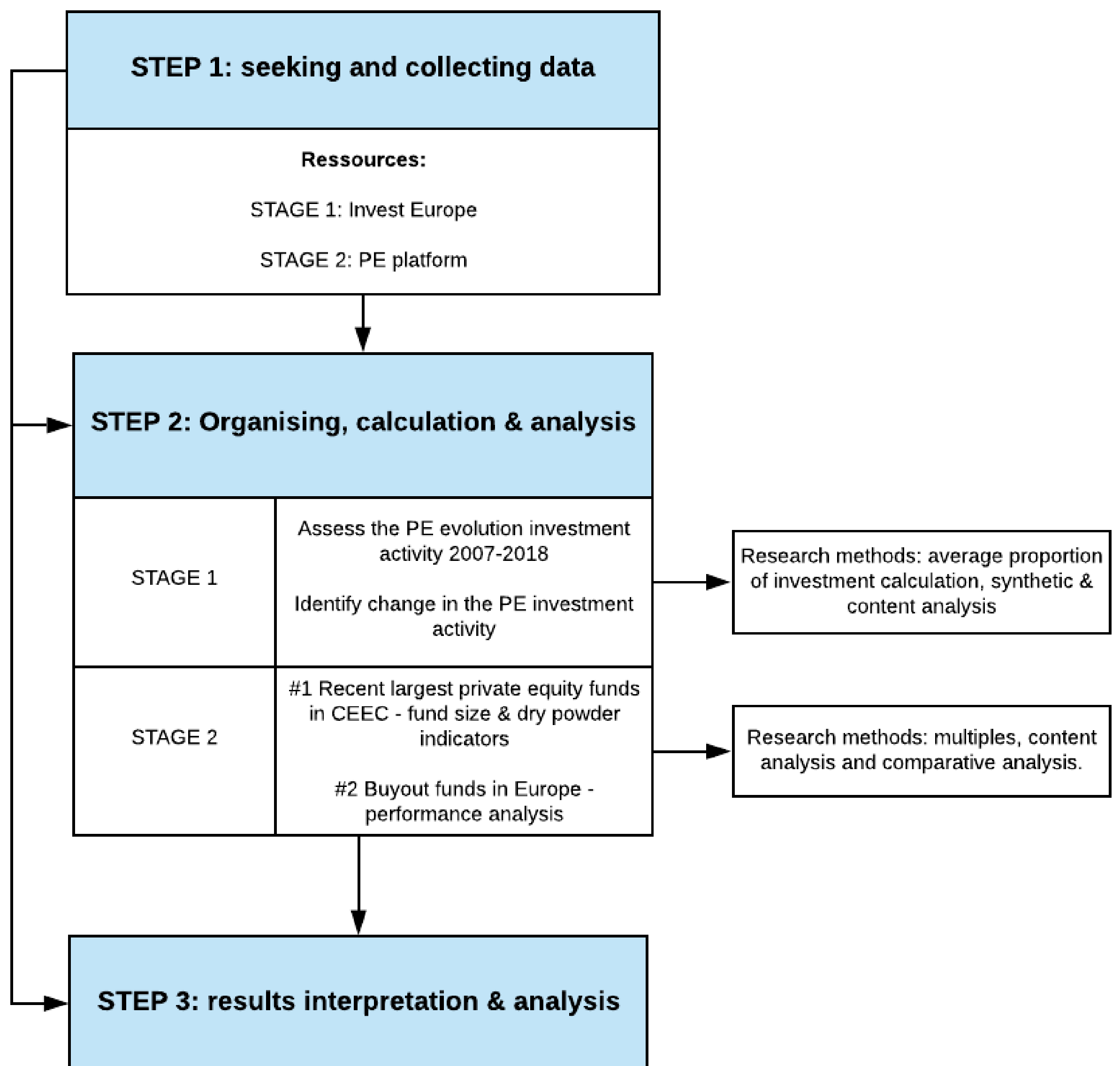
- DPI = Distributed / Contributed

- RVPI = Residual Value / Contributed
- TVPI = DPI + RVPI

Two more indicators have also been computed, showing the percentage of called down and the percentage of dry powder. This is useful to determine if a fund has more dry powder to invest and how much it has already injected into portfolio companies.

- Called down (%) = Contributed / Fund size
- Dry powder (%) = Dry powder / Funds size

Figure 5. Analysis Process



3. PRIVATE EQUITY INVESTMENT ACTVITY ANALYSIS & PRIVATE EQUITY FUNDS ASSESSMENT

This section provides the main analysis which includes the two stages of analysis as explained in the previous sections. The analysis is broken down into two parts:

1. Stage 1: All Private Equity, Venture Capital, Growth Equity, Buyout Investment activity analysis in Europe;
2. Stage 2: Private Equity Funds analysis in Europe and CEECs over two vintage year amplitudes.

The two main analysis cover, firstly, the investment activity between 2007 and 2018 in Europe and secondly, at a fund level, the analysis of the fund's performance over two different vintage year ranges and two scopes. In addition, the beginning of this section will look briefly into the three main activities of Fundraising, Investment and Divestment thanks to two reports made by Invest Europe. The association (Invest Europe, 2020) has produced research entitled "Investing in Europe: Private Equity Activity 2019, Statistics on Fundraising, Investments & Divestments". This report has been made by Invest Europe based on data collected as part of the European Data Cooperative (EDC) and other third-party information. The research's scope "Europe" includes the following countries: The United Kingdom, Belgium, France, The Netherlands, Luxembourg, Spain, Switzerland, Finland, Italy, Norway, Greece, Germany, Austria, Denmark, The Ukraine, Poland, The Baltic countries: Lithuania, Latvia and Estonia, Romania, Sweden, Hungary, Portugal, Ireland, Other CEE: Bosnia-Herzegovina, Croatia, Macedonia, Moldova, Montenegro, Serbia, Slovakia and Slovenia, Bulgaria and The Czech Republic. A second report, also created by the association (Invest Europe, 2020) , has also been referred to: "2019 Central Eastern Europe, Private Equity Statistics". The CEE region includes the following countries: Bosnia and Herzegovina, Bulgaria, Croatia, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia and Ukraine.

According to their website, Invest Europe is the European association in charge of representing private equity, venture capital and infrastructure firms. EDC or European Data Cooperative is a data base of European private equity and venture capital statistics. This data base gathers the following activities for Europe: Fundraising, Investment and Divestment.

These reports will serve as an introduction to the following contents of the analysis as well as discovering what Private Equity and Venture Capital activities are through Europe and

Central and Eastern Europe. The main figures and key elements of all Private Equity will be given, but also Venture Capital, Growth Equity and Buyout in 2019 year-on-year. The main variances in 2019 will be highlighted, as well as observing and discussing the main changing elements over the last decades according to these reports, by summarising and extracting the main figures and valuable data from them.

Fundraising refers to the activity of raising money which will be used or injected into companies later. PE firms basically raised funds from actors as pension funds, banks or insurance companies. Investment activity is the phase in which the fund finances target companies. Hence the capital is deployed into portfolio companies offering liquidity to the businesses to develop a market, financing new capital expenditure, or many more actions to create value on a long term basis. Finally, the funds proceed to the last part of its life in divesting or exiting its stakes by selling them. These are the three phases which will be looked at in the European scope over the years.

In 2019, fundraising reached €109bn, increasing by 6 percent compared to 2018 - recording the greatest level over the past decade. The total equity amount invested in European companies is the highest level of investment ever recorded with an increase of 10 percent (from 2018) to €94bn in 2019. The investment in small and medium-sized enterprises (SMEs) in all private equity, in terms of number of companies were 84 percent in 2019, a percentage which serves to highlight the significance of this particular group of companies. In 2019, the main European institutional investors were pension funds, fund of funds and insurance companies with 29 percent, 13 percent and 11 percent of the total amount raised respectively. In 2019, 45 percent of the total amount of fund raised came from outside Europe for all private equity. Split by segments, 55 percent of the total amount of fund raised in buyout and only 14 percent in venture capital came from non-European investors. 2019 has been a record year in terms of Private Equity fundraising and investment. In 2019, €94bn was invested in Europe, showing an increase of 10 percent year-on-year. It is also the highest level ever recorded at this date. In total, 7,902 companies were invested in. It is important to note that 84 percent of those companies are SMEs (small-to-medium enterprises). The three main sectors of activity that received the most significant investment with 27 percent, 23 percent and 19 percent respectively, (by amount) are ICT, consumer goods & services and business products and services. Regarding divestment, Invest Europe's report states that a decrease of 11 percent occurred compared to 2018 with 3,533 European companies exiting in 2019. Divestments at cost (or by amount of initial equity invested) declined by 16 percent to €31bn. According to Invest Europe's data, Venture divested the highest total in 2019, since 2011, for a total amount of €3bn, an increase by 10 percent year-

on-year. In terms of value, the sale to another private equity firm – with 34 percent – which was the major exit route in 2019. Another valuable piece of data is the average holding period. The report discloses an average holding period reaching almost 6 years over the period 2015 – 2019. Regarding sectors of activity in all private equity, the three biggest sectors divested in 2019 at a cost are: business products & services (€7.2bn), consumer goods & services (€7.2bn), followed by ICT (6.6 billion euros).

The main segments will now be split. Starting by Venture capital, this shows strong growth as well with a 17 percent increase over 2018 to reach €15bn of funds raised. Capital invested into venture capital reached €11 billion euros to attain an inexperienced high, a rise of 19 percent compared to 2018. In terms of number of companies, venture divested a total of 1,242 companies, a decrease of 5 percent from 2018. Growth fell by 11 percent year-on-year to stand at 9 billion euros. The Invest Europe report states that the 2019 Growth fundraising activity ‘‘remained about 50 percent above the average for the previous five years, and the per fund amount of capital raised remained in line with recent history’’. 1,530 companies were divested in 2019 in Growth activity to reach €5bn, a drop of 38 percent year-on-year. Buyout fundraising also strongly increased by 15 percent year-on-year to 79 billion euros. Buyout investment achieved 65 billion euros, a boost of 8 percent. In 2019, the amount of buyout divestments fell by 8 percent year-on-year to 23 billion euros with a total of 819 companies divested which represents a decrease by 11 percent from the previous year.

In the CEE, in 2019, fundraising was subject to a decrease of 47 percent compared with 2018, reaching 1.4 billion euros. The source of funds raised for CEE in 2019 strongly decreased from outside Europe to reach only 4 percent versus 37 percent the previous year. In 2019, according to the Invest Europe statistic report, government agencies and corporate investors were both the largest contributors to CEE fundraising with 38 percent and 20 percent of the total funds raised. Private individuals, banks and funds of funds account for 12 percent, 10 percent and 8 percent of the total CEE fundraising. In 2019, the main source of funds raised was CEE-based investors with 73 percent of the total capital raised in 2019 versus 32 percent in 2018. European investors from outside the CEE region represent 22 percent of the total CEE fundraising in 2018 as well as in 2019. However, investors from outside Europe accounted for only 4 percent of funding in 2019 versus 37 in 2018. Private equity as well as venture capital investment in the CEE region attained €2.95bn in terms of value and 464 invested companies. Value and number of invested companies rose by 7 percent and 10 percent year-on-year. In 2019, Estonia had the biggest annual investment value with €683m invested, representing 23 percent of the total value invested in the CEE region, followed by Poland and Romania with 20

percent and 19 percent. The CEE region Investment to GDP attained 0.175 percent. Estonia, Serbia and Lithuania had the biggest private equity investments as a percentage, with 2.462 percent, 0.905 percent and 0.683 percent respectively. Estonia and Serbia are both ranked at the highest point in Europe and Lithuania occupies the eighth place as well in Europe in terms of percentage of GDP. Regarding sectors of activity, ICT represents 43.6 percent of the investment with a total value of €1.287bn and 206 companies invested in, followed by financial and insurance activities (22.4 percent) and consumer goods & services (15.3 percent). CEE private equity exits decreased of 20 percent compared to 2018. In terms of value, CEE Private Equity divestment amounted to €946bn, for 104 companies divested in 2019 - about 29 percent below the previous year, according to the Invest Europe statistical report. The value is measured as a historical investment cost. Regarding the sector of activity, ICT dominates in 2019 with €325m or 34.3 percent divested, 31 in terms of companies. This is followed by consumer goods (€246m for 26 percent), services and business products and services (€148m for 15.6 percent). In 2019, the most common way of exit was trade sale, defined by Invest Europe as "the sale of a company's shares to industrial investors". The trade sale exit route accounted for 41 percent of the CEE divestment with a value of 391 million euros. Followed by the sale to another private equity (34 percent) firm which was the main exit way in 2018. Public offering appears as the third exit route with 8 percent of the total CEE in terms of value. Geographically, Serbia as well as Poland had the two largest divestment values in 2019 with €357m and €349m respectively - representing 38 percent and 39 percent of the CEE region total. The report adds the importance to note that the annual investment results in the CEE region and also individual CEE countries can be influenced by large single investments in particular markets. Invest Europe statistics show that in 2016 the four largest transactions counted for 51 percent of the total CEE exit value. These transactions have been carried out in The Czech Republic, Lithuania and Poland.

Regarding the segments, Venture capital investment set a new record in 2019 with €338 million euros invested by stage for a total of 369 companies invested. Seed was the largest stage in terms of number of companies with 202 capitalised, followed by start-up stage (151) and later stage venture (27). In value terms, the Start-up investment reached €185 million euros in 2019, surging by 74 percent compared to 2018. With regards sector of activities, information and communication technology accounted for 53.3 percent of funds invested representing a value of €180.25 million euros for 184 invested companies (49.9 percent). Business products and services as well as consumer goods and services were the second and third largest sector of activity with €63.7 million euros (18.8 percent) and €37.80 million euros (11.2 percent) of funds invested. Financial and insurance activities ranked in the fourth place and accounted for €23 million euros

(6.8 percent) invested in CEE region companies in 2019. In the venture capital segment, the most common way to exit was management / owner buy-back which consists of the repurchasing of shares by the team management company. In 2019, this exit route accounted for €23.89 million euros - 50.1 percent of the total CEE region exit value, followed by trade sale with 19.9 percent and other means with 19.4 percent.

Both European total fundraising and investment reached record levels in 2019. Fundraising reached its topmost point over the past decade including 45 percent of the total value raised coming from non-European investors. Investment activity hit a record highest ever level with €94 billion euros of capital invested. In terms of number of companies, 7,902 companies were invested, mainly into SMEs. It also reached a high in terms of number of companies into which investments have been made. Whereas in the CEE region fundraising fell sharply by 47 percent compared to 2018, investment increased both in value and number of invested companies by 7 percent and 10 percent year-on-year. In Europe, buyout investment represents the largest stage with 69.2 percent of the total amount invested into companies in 2019 while it counts 16.3 percent of the total number of European companies invested. Buyout funds commonly have the biggest fund size among the rest of the PE segments. By equity bracket, “mega”(>€300m) which is the largest and “Mid-market” (€15m – €150m) both are the categories with the highest investment. A large portion of capital from investors is needed to take the majority interest into target companies. Additionally, buyout funds take the majority of stakes into invested companies , even if the buyout structure contains a large portion of debt, the amount of equity is large. 2019 activity divestment decreased both in terms of cost as well as number of companies exited year-on-year within the PE industry. Whereas venture capital divestment increased by 10percent at cost to reach the highest total since 2011. Geographically, UK & Ireland are the biggest regions in terms of investment according to the private equity firm’s location with 39 percent of investment versus 25 percent of investments in terms of the portfolio company’s location. The CEE region represents the smallest one with only 1 percent in terms of the private equity firm’s location and 3 percent in terms of the portfolio company’s location. Finally, ICT are the most popular sectors of activity who invest both in the whole of Europe and The CEE region. However, in The CEE it is important to note that two major investments have driven the value of fund invested into this sector.

3.1. STAGE 1: ALL PRIVATE EQUITY, VENTURE CAPITAL, GROWTH EQUITY, BUYOUT INVESTMENT ACTIVITY ANALYSIS IN EUROPE

Investment activity represents the sum of invested funds into companies, or in terms of number of companies, how many companies have been invested in during a year. Investment (in terms of period) means the time period over which dry powder is invested into portfolio companies. Market statistics investment are represented by country of portfolio company. Investment data is also categorised into sectors of activity in the 12 following components: Agriculture, Business Products and Services, Chemicals and Materials, ICT (Communications, Computer and Electronics), Construction, Consumer Goods and Services, Energy and Environment, Financial and Insurance Activities, Real Estate, Biotech and Healthcare, Transportation, and Other.

Two main tables will illustrate the stage one analysis. The first table, broken down into private equity segments will show their average proportions of investment in terms of value invested as well as in terms of number of companies into which invested has been made. The second table, will highlight the top four most invested sectors of activity in terms of value by displaying their average investing proportions. The time frame of the analysis is between 2007 and 2018.

Table 4 - Private Equity Segments Overview

All Private Equity	Avg. Prop. Investment Value (%)	Avg. Prop. Number of Companies Invested (%)
Total venture	9%	53%
Growth capital	16%	28%
Rescue / Turnaround	1%	2%
Replacement capital	3%	2%
Buyout	71%	16%
Total Investment	100%	100%

In 2018 the total investment reached €80.6bn, an increase of 96 percent during the past five years and an increase of 35 percent during the ten past years. Total Investment recorded in 2018 is the highest point between 2007 and 2018. By contrast, 2009 was the worst year in terms of investment plunging by 57 percent to €25.8bn year-on year and 66 percent compared to 2007, highly affected by the financial crisis. Proportionally, the three most invested in segments between 2007 and 2018 were Buyout, Growth equity and Venture capital. Geographically speaking, in terms of investment in Europe, by country of portfolio company, The United Kingdom, France and Germany are the largest three. The UK comes top with an average of €13.3bn during 2007 - 2018 invested into businesses, it accounts for 24 percent of the total average. France as well as Germany represent respectively 19 percent and 14 percent of the total average.

In terms of value invested, Buyout is the largest segment with an average investing proportion of 71 percent, followed by growth capital and total venture. However, in terms of number of companies invested in, buyout ranks third place, behind venture and growth, with an investing average proportion of 16 percent. In addition, it is important to notice that buyout in 2009 recorded its smallest investment amount between 2007 and 2018 with €13.5bn invested into buyout funds representing 52 percent of the total investment value, this was also its smallest investment proportion. Buyout deals as highly leveraged models were heavily hit during the financial crisis as a result of the lack of financing. Contrary to rescue / turnaround and replacement capital segments which both recorded, in 2009, their largest investment proportion over the range of years analysed. They accounted for 3 percent and 6 percent of the total investment value, significantly higher than their average proportion of investment which was 1 percent for the rescue / turnaround and 3 percent for the replacement capital segments. In terms of number of companies invested in, those same two segments are non-significant and both got an average proportion of investment of 2 percent, the lowest among all the segments. Growth Capital investment reached €11.9bn in 2018, its highest amount ever recorded over the range studied. It accounted for 7 percent of the total investment value of 2007, its smallest percentage between 2007 and 2018. The segment obtained an average proportion of investment of 16 percent. While its largest proportion ever recorded in the same range was in 2009 which accounted for 25 percent of the investment value this year. In venture, the highest investment value was reached in 2018 with €8.2bn (10 percent of the total investment in the same year), and 2012 appears as the smallest total venture amount invested with €3.2bn (8 percent of the total investment in the same year). Proportionally, venture recorded the lowest in 2007 (7 percent) and the highest in 2009 (13 percent), and the venture capital average proportion of investment is

about 9 percent, which is the third segment in terms of investment value behind buyout and growth. However, in terms of number of companies invested in, venture capital takes the lead investing in more than half of the total number of companies computed as the average proportion of investment is at 53 percent.

Table 5 - Top Four Investing Average Proportion by Sectors (2007 - 2018)

All Private Equity		**Venture**		**Buyout**		**Growth**	
Sectors	Avg. Prop. (%)	Sectors	Avg. Prop. (%)	Sectors	Avg. Prop. (%)	Sectors	Avg. Prop. (%)
Consumer goods and services	23%	ICT	41%	Business products and services	25%	ICT	22%
Business products and services	22%	Biotech and healthcare	28%	Consumer goods and services	24%	Consumer goods and services	22%
ICT	19%	Consumer goods and services	8%	ICT	16%	Business products and services	18%
Biotech and healthcare	12%	Energy and environment	8%	Biotech and healthcare	11%	Biotech and healthcare	11%

The table above shows sectors of activity such as consumer goods and services, ICT (Communications, Computer and Electronics) and biotech and healthcare which are among the top four in all private equity but also in venture, buyout and growth. In 2018, the amount invested into companies within those three plus business product which is another popular invested sector reached almost €62 billion euros.

In all private equity, the four most popular sectors of activity invested in are consumer goods and services, business products and services, ICT (Communications, Computer and Electronics), and Biotech and Healthcare with an average proportion of investment of 23 percent, 22 percent, 19 percent and 12 percent respectively between 2007 and 2018. These four

sectors are quite significant because they account for 77 percent of the value invested over a total of twelve sectors of activity over the range analysed.

Venture is largely dominated by two main sectors of activity invested in which are ICT (Communications, Computer and Electronics) with an average proportion of investment of 41 percent and Biotech and Healthcare with 28 percent. The investment value for these two sectors represents an average of €3.3bn each year over the timeframe analysed. According to the data, energy and environment has an average proportion of investment of 8 percent in the venture segment just like consumer goods and services. The energy and environment sector appears in the top four only within the venture segment. Buyout segment is more business products and services and consumer goods and services orientated. These are the two main sectors of activity of the segment invested in with an investing average of 25 percent and 24 percent, followed by ICT with 16 percent and biotech and healthcare with 11 percent. The growth segment got the same average proportion of investment of 22 percent for both ICT and consumer goods and services.

To conclude with regards sectors of activity, in terms of number of companies taken out, ICT is the most popular with an average of approximately 2070 companies invested in between 2007 and 2018, representing 30 percent of the total amount of companies invested in. In 2018, 7816 companies have been invested in throughout the entire industry including 4437 companies capitalised in venture capital representing both the highest number of companies invested in within the range chosen.

Investment activity as the value of invested in companies or the number of companies invested in has grown considerably over the range of years analysed. It witnessed a strong collapse in 2009 after the financial crisis bringing the investment level to its worst level within the timeframe chosen. However, the investment activity level recovered pretty well after the crisis until the second crisis of 2011 leading to a slight decrease between 2011 and 2012 and a stagnation of investment between 2012 and 2013. Indeed, the financial crisis directly affected the investment activity. It is also important to remind ourselves that the investment activity is strongly driven by the buyout segment. Buyout investment accounts for almost ¾ of the amount invested into companies (calculated as the average proportion of investment over the range). Whereas in terms of the number of companies invested in, the average proportion of investment of venture capital amounts to more than half. Buyout as a highly leveraged strategy was the first segment hit by the financial crisis and affected by the lack of financing. However, Rescue / Turnaround investment is the only one which increased between more than double of its value between 2008 and 2009. It might be due to the increase in invested in companies having

difficulty with the objective to save them and create value. Additionally, Rescue / Turnaround recorded its highest percentages of investment between 2007 and 2018 with respectively 3 percent of the total investment value in 2009 vs an average proportion of investment of 1 percent between 2007 and 2018. Regarding the sectors, Consumer Goods and Services, Business Products and Services, ICT (Communications, Computer and Electronics) are the most popular gathering more than 3/5 of the total investment value computed as average proportion of investment in all private equity. For number of companies invested in, venture capital largely dominates taking more than half the companies in the whole PE industry. Two main sectors of activities are mainly invested in venture: ICT (Communications, Computer and Electronics) and Biotech and Healthcare. Indeed, venture capital deals mainly with early innovative companies and allocates investment mostly to the general technology environment. Typically they mostly invest in companies qualified as start-ups usually having a smaller valuation than any mature companies. These kinds of companies, are in certain cases not profitable, generating no revenue or even do not have any clients yet.

3.2. STAGE 2: PRIVATE EQUITY FUNDS ANALYSIS IN EUROPE AND CEECs OVER A TWO VINTAGE YEAR AMPLITUDE

Stage 2 of the analysis focuses at a fund level, breaking it down into two parts relative to the two sets of funds:

1. Recent largest private equity funds in CEEC – fund size & dry powder indicators;
2. Buyout funds in Europe – performance analysis.

The first selection includes a total of 24 funds within the CEECs scope displayed in the methodology part. It is emphasised that funds have a vintage year range between 2017 and 2019. They have several different preferred industries as well as 3 different fund types. The purpose is to look at the largest recent fund established in the CEECs region by examining metrics as the fund size and dry powder. Interest will also be taken in the funds' preferred sectors.

The second selection has a different purpose, indeed many funds have been selected by assembling peers. Buyout funds within the same vintage year and preferred industry have been selected in order to calculate metrics concerning its performance.

3.2.1 RECENT LARGEST PRIVATE EQUITY FUNDS IN CEEC – FUND SIZE & DRY POWDER INDICATORS

Within this selection, the platform displays data called “Fund category”. This category comprises private equity and venture capital. Indeed, here venture capital is a category apart and does not belongs do the private equity category.

Within the following section five tables will be shown. The first three tables display the average fund size in terms of value, the dry powder average in terms of value and the average dry powder to be deployed, as a percentage. They are divided into the following subgroups: vintage year, fund category and fund type. The fourth table shows the proportion of the total fund size value each year and as a total, split by the fund category as well as the fund type. Finally, the last table gathers the funds’ preferred industry, splitting by fund type.

Here fund size can be fully examined because the chosen fund sets are closed, meaning that the fund size is fixed and LPs have committed themselves to providing cash to PE and VC funds in order to start deploying the capital into future investee companies. However, it is important to note that here the average dry powder to be deployed is represented by the average value that funds have available to deploy. The calculation of the average dry powder to be deployed as a percentage is in this case complex due to a lack of information concerning how much has been invested into portfolio companies so far but also how much the fund has raised from the LPs so far on the total commitment.

Table 6. Average of Dry Powder in Percentage by Vintage Year

Vintage Year	Average of Fund Size (€ M)	Average of Dry Powder (€ M)	Average of Dry Powder (%)	Fund (Volume)
2017	105.71	54.62	52%	9
2018	106.52	95.30	89%	6
2019	57.21	51.43	90%	9
Grand Total	87.72	63.59	72%	24

2017 and 2018 achieved almost the same funds’ average with €105.7m and €106.52m respectively. While 2019 was smaller with an average of €57.21m, far below the total average fund size representing €87.72m. 2017 funds vintage year has an average of dry powder to deploy of 52 percent representing €54.62m. Funds had probably already started to invest in businesses

at this stage. Whilst the 2018 and 2019 vintage groups still had the majority of their dry powder to deploy in their hands with an average of 89 percent and 90 percent deployable dry powder.

Table 7. Average of Dry Powder in Percentage by Fund Category

Fund Category	Average of Fund Size (€ M)	Average of Dry Powder (€ M)	Average of Dry Powder (%)	Fund (Volume)
Private Equity	**149,61**	**105,86**	**71%**	**12**
2017	213,18	106,62	50%	4
2018	192,82	175,23	91%	3
2019	72,82	63,63	87%	5
Venture Capital	**25,84**	**21,33**	**83%**	**12**
2017	19,73	13,02	66%	5
2018	20,22	15,36	76%	3
2019	37,69	36,19	96%	4
Grand Total	87,72	63,59	72%	24

In terms of average fund size, private equity reaches almost six times the average of Venture Capital. Here each category counts 12 funds and the PE category is composed of funds with Buyout and Growth / Expansion types. It is obviously the highest category in terms of fund size due to the amount invested in more mature target companies representing a higher value.

In PE, 2019 also had a lower average of fund size attaining only €72.82m compared to 2017 which is the highest average with €213.18m, followed by 2018. It is to be noted that the average in 2017 is driven by the biggest PE fund sizing of €594m and in 2018 by the second largest fund with €301m of total committed capital. For venture capital funds the opposite is witnessed, the 2019 average fund size is about €37.69m versus €19.73m and €20.22 in 2017 and 2018 respectively. The year 2019 is driven by the largest venture capital fund sizing at €110.59m which is more than twice as much as the second biggest fund in the selection.

Concerning the dry powder, venture capital has an average dry powder to deploy of €21.33m representing 83 percent of the total average fund size over the three years, which is 12 percent more than the dry powder average to deploy within the PE selection. Indeed, the private equity average dry powder to deploy represents 50 percent versus 66 percent for venture in 2017. The PE average of dry powder to deploy is larger in 2018 than in 2019 which is the opposite for venture. It is recalled that no information is provided about the allocation of that portion of dry powder.

Table 8. Average of Dry Powder in Percentage by Fund Type

Fund Type	Average of Fund Size (€ M)	Average of Dry Powder (€ M)	Average of Dry Powder (%)	Fund (Volume)
Buyout	213,65	152,36	71%	7
Growth/Expansion	59,95	40,76	68%	5
Venture - General	25,84	21,33	83%	12
Grand Total	87,72	63,59	72%	24

Data is represented here by fund type taking into account the three vintage years. As the table above shows, buyout fund type considerably exceeds growth/expansion as well as venture - general with an average fund size of €213.65m. Growth/expansion and venture – general have €59.95m and €25.84m as total committed capital. Capital overhang reached an average of 83 percent of the total fund average in venture capital and it is the largest one within the fund type range, followed by buyout with 71 percent and growth expansion with 68 percent. As has been illustrated in the previous tables, the average dry powder to deploy varies in function of the fund's life progression and here the average dry powder to deploy cannot be fully calculated.

Table 9 - Fund size overview (in percentage)

Fund Category & Type	Vintage Years			
	2017	2018	2019	All
Private Equity	90%	91%	90%	85%
Buyout	77%	91%	77%	71%
Growth/Expansion	12%	NA	12%	14%
Venture Capital	10%	9%	10%	15%
Venture - General	10%	9%	10%	15%

This fund size overview is split by fund category as well as fund type through the three vintage years and gives insights as to the weight of segment activity per vintage year. Firstly, it shows that the private equity category is the largest one representing 85 percent of the total fund size over the three years. Analysing by fund type, it can be noted that Growth/Expansion and Venture are closely linked, counting for 14 percent and 15 percent respectively. Indeed, the

private equity category comprises both buyout segments as well as Growth / Expansion and is strongly driven by the buyout segment. Over the three years, fund size proportions by type are almost the same except for buyout which is much higher in 2018 and easily affected by a small amount of funds.

It is important to notice that here, industry rather than sectors of activity will be dealt with. Indeed, the term "industry" diverged from "sectors" as a more specific group of companies. In order to render a better interpretation of industries, it has been decided to merge several industries with each other. This results in the following merged groups: Healthcare & Healthcare Services assembled as well as Software & Financial Software combined. Finally, a fund can invest in many industries, which is why it assesses preferred industries by number of funds rather than fund size. In addition, some of those funds don't provide the preferred industry information. Within the selection a total of three funds don't provide any information concerning preferred industry. But a fund can invest in different industries.

Table 10. Preferred Industry by Fund Type

All Preferred Industry / Fund Type	Venture Capital - General	Growth/Expansion	Buyout	Total
Alternative Energy Equipment			1	**1**
Automotive			1	**1**
Business Products and Services (B2B)		1	1	**2**
Commercial Services	1		2	**3**
Commercial Products		1	1	**2**
Commercial Transportation	1			**1**
Consumer Durables		1		**1**
Consumer Non-Durables		1		**1**
Consumer Products and Services (B2C)	1			**1**
Financial Services			2	**2**
Healthcare & Healthcare Services		2	2	**4**
Information Technology (IT)	1	1		**2**
Rail			1	**1**

Retail		1	2	**3**
Software & Financial Software	4			**4**
Other Services (B2C Non-Financial)		1		**1**
Total	**8**	**9**	**13**	**30**

Industries which have the most investment in terms of number of funds are Healthcare & Healthcare Services and Software & Financial Software with four funds investing in each respectively. Following on from this, Commercial Services and Retail are both the second preferred industries with three funds invested in each. Software & Financial Software is only invested in by Venture Capital – General fund type, whereas Healthcare & Healthcare Services are driven by PE funds, with two funds in Growth / Expansion and two more in Buyout. Moreover, IT is invested in by one VC funds as well as one fund in Growth / Expansion took stakes in an IT firm. Regarding the second most popular industries, the retail industry has been invested in uniquely by PE funds including one in Growth/Expansion and two in Buyout. At the same time, Commercial services is invested in by one fund in Venture Capital – General as well as two in Buyout. Despite a lack of data regarding the preferred industry by fund, it can be observed that Buyout funds have taken stakes in several industries against a small number of funds within the selection. A similar situation is noted for the Growth / Expansion segment. This means that PE funds have invested in more than one industry, while Venture Capital funds are more focused in few industry for investment and especially software & financial software.

This selection of funds reaches a global average fund size of €87.72m and an average dry powder of €63.59m - 72 percent of the average of the fund size. The vintage years 2017 and 2018 both appear as the largest average of fund sizes nearly double that of 2019. Unlike when we split the funds according to fund category, the average of venture capital funds is higher in 2019. The average fund size for 2017 and 2018 is driven by the private equity funds. Indeed, the vintage year of 2017 gathers the largest buyout fund of the selection at €594.2m, followed in 2018 by another buyout fund based in Poland with a fund size of €301.2m. The vintage year 2019 is composed of the third largest fund of the data set – it is however much smaller than the top two with a fund size of €182.7m established in Lithuania. The dry powder to deploy is higher by 12 percent in venture than in private equity and above the general average of dry powder. The 2017 average of PE dry powder to deploy is the lowest level with 50 percent of the global average of the private equity category. When displayed by fund type it initially showed buyout as the largest one, then growth / expansion as the smallest type of fund venture. It is to be

noted that growth / expansion type is closer to venture than buyout in terms of average fund size. Indeed, as examined in the research section above, buyout fund type raised and leveraged a greater quantity of funds to take the majority of the business stake but also invested into mature companies unlikely to witness growth equity. This is interesting when we take a minority of equity stakes to apply an operational and strategic control as an example. Additionally, growth equity target companies are situated between venture capital and buyout meaning and they are financing companies at not too early a stage nor at a mature stage, such as buyout. With regards the dry powder, the average is the same for venture and still above the general average of dry powder unlike the other two types of fund which have an average standing below the general average. Finally, the CEECs funds selection have a preference in company industries such as Software & Financial Software, Information Technology, Healthcare & Healthcare Services, Retail and Commercial Services. The ICT sector is essentially invested in by Venture Capital funds.

3.2.2 BUYOUT FUNDS IN EUROPE – PERFOMANCE ANALYSIS

Within the selection "Buyout funds in Europe – performance analysis", there are two fund status taken; closed and fully invested. It has been decided that both fund status will be considered due to the complexity and the lack of information in gathering funds with the same characteristics such as preferred industry, vintage year, fund type. However, it does not affect the analysis because closed funds are almost fully invested in thanks to the last two metrics calculated. These two metrics enable evaluation and analysis of the fund advancement in terms of whether or not capital has already been deployed.

The Second and last selection of Stage 2 is composed of nine European PE funds employing buyout and having 2012 as the vintage year . The funds are divided into three main groups by preferred industry:

- Business Product and Services (B2B);
- Commercial Services;
- Information and Communication Technology (ICT).

As previously covered, the funds are located in Denmark, France, Germany, the Netherlands and the United Kingdom.

These three industries represent preferred sectors within the set of funds #2. These preferred industries will permit a better interpretation of the assessment but also allow fair comparison of funds with each other.. This will, in turn, reveal which buyout fund performs the

most investment in the same preferred industry as well as consider whether an industry outperforms one more than another . In addition, some funds provide information about their preferred vertical enabling them to sharpen the analysis. The fund vertical preference, it is known, will provide the niche or specialized market of that in which the fund is interested . This is valuable information for assessing the fund's performance. These funds which employ buyout segments, are located in Europe and have the same vintage year. Unfortunately, there is little information available about geographical preferences. This would have been useful for comparisons and to render a better interpretation of the performance analysis.

The next three tables will disclose funds through their computed performance metrics (MoM).

Table 11. G1 – B2B Preferred Industry

Fund Name	Group	Fund Status	Fund Size Group	Fund Country	IRR	DPI	RVPI	TVPI	Dry Powder in %	Called down in %
Fund 3.1	G1	Fully Invested	1B - 4.99B	France	12%	1.15x	0.44x	1.59x	0%	95%
Fund 3.2	G1	Fully Invested	100M - 249M	Denmark	50%	0.79x	0.54x	1.34x	0%	88%
Fund 3.3	G1	Closed	1B - 4.99B	United Kingdom	15%	0.87x	0.9x	1.77x	8%	92%

Group number 1 gathers buyout funds with a preferred industry in business product and services (B2B). Funds 3.1 and 3.2 are fully invested with no more dry powder to deploy whereas the fund located in the UK is closed but with 8 percent of dry powder remaining to inject into future targets. Regarding the size, funds 3.1 and 3.3 are in the same range which is between €1B – €4.99bn, and fund 3.3 has a smaller range comprised between €100m – €249m. These three buyout funds have called down almost 100 percent of their capital. The entire selection has TVPI multiples more than 1 meaning that so far they all have a largest total value than amount contributed. Fund 3.3 reaches the highest TVPI with a strong RVPI. Despite the smallest TVPI of the G1, the Danish fund attains the highest IRR (50 percent). The fund located in France has the highest DPI multiple (1.15 times), meaning that the distributed worth is 1.15 times the contributed one. As additional information, fund 3.1 emphasises industrial sectors as verticals preference and has 53 investments for an European scope preference. Whereas fund 3.2 has two more preferred industries which are consumer non-durables and consumer products and services (B2C) and manufacturing as verticals. Finally, fund 3.2 has a total amount of 11 investments in

the portfolio. Finally, fund 3.3 has made 46 investments, a preferred geography in The Netherlands, Norway and Sweden and has one more preferred industry which is information technology. Fund 3.2 outperforms with a high IRR. However, it reaches the lowest TVPI multiple money of multiple of the G1. No information is given about its geographical preferences unlike in terms of preferred industry and vertical which are more diversified than the other funds. The Danish buyout fund's size is much lower than the other funds. Moreover, due to its small amount of number of investments, the fund's performance is more sensitive and could shift brutally if a portfolio company succeeds or on the contrary fails. Funds 3.1 and 3.3 offer the ability to appreciate comparison due to their number of investments which is close to equal, as well as the same fund size range. Fund 3.3 outperforms fund 3.1 in terms of return as well as TVPI thanks to a higher residual value whereas the fund located in France distributed more cash to LPs with a residual value tow time less than fund 3.3. Moreover, it is known that the funds located in the UK are interested in targets situated in the Netherlands, Norway and Sweden and information technology targets whereas the fund 3.1 has a larger scope and no additional preferred industry but industrial as vertical.

Table 12. G2 – Commercial Services Preferred Industry

Fund Name	Group	Fund Status	Fund Size Group	Fund Country	IRR	DPI	RVPI	TVPI	Dry Powder in %	Called down in %
Fund 3.4	G2	Closed	250M - 499M	Germany	12%	0.95x	0.43x	1.38x	9%	91%
Fund 3.5	G2	Fully Invested	500M - 999M	United Kingdom	27%	0.87x	0.99x	1.85x	0%	92%
Fund 3.6	G2	Fully Invested	500M - 999M	United Kingdom	2%	0x	1.15x	1.15x	0%	98%

Group number 2 gathers buyout funds with a preferred industry in commercial services. It is to be seen that fund 3.6 has a preferred vertical in TMT which refers to Technology, Media and Telecom. No information is given about the geographic preferences within this group. Funds located in the UK have a size range comprised between €500m – €999m. The German fund has a smaller fund size comprised between €250m – €499m. The German fund is closed and has 9 percent of dry powder to deploy. Funds 3.5 and 3.6 have called down in 92 percent and 98 percent and have no more dry powder to deploy. Regarding performance, fund 3.5 performed the best with IRR equal to 27 percent as well as the highest TVPI of 1.85 times. However, fund 3.6 has the lowest IRR within the peers (2 percent) and its DPI is 0x, meaning than any distribution to LPs have been made so far, but the residual value is slightly higher than the amount

contributed which leads its RVPI multiple equal to 1.15 times. Funds based in Germany have the highest DPI multiple reaching 0.95 times and a RVPI of 0.43 times which leads at a TVPI of 1.38times for an IRR attaining 12 percent. In terms of investments, this same fund took majority stakes into only 10 companies which is significantly less than fund 3.5 with 27 investments and fund 3.6 with 50 investments.

Table 13. G3 – ICT Preferred industry

Fund Name	Group	Fund Status	Fund Size Group	Fund Country	IRR	DPI	RVPI	TVPI	Dry Powder in %	Called down in %
Fund 3.7	G3	Fully Invested	500M - 999M	United Kingdom	23%	1.39x	0.66x	2.04x	0%	90%
Fund 3.8	G3	Closed	5B+	United Kingdom	18%	1.36x	0.23x	1.6x	5%	95%
Fund 3.9	G3	Closed	0 - 99M	Netherlands	30%	0.77x	2.13x	2.91x	10%	97%

The table above displays buyout funds which have a preference for ICT businesses as a general industry. Here however, software is of interest to each fund and TMT (Technology, Media and Telecom) is the preferred verticals industry. Only fund 3.7 has one additional preferred industry which is IT services. The fund located in the Netherlands does not provide any information about its preferences. The first British fund has an extended scope and invests in companies in the whole of e Europe. Contrastingly, the second British fund leads buyouts in smaller areas in countries such as France, Germany, the Netherlands and the United Kingdom.

Two large funds come from the UK, including one with a fund size group of €5bn. The other British fund varied between €500m - €999m and the Dutch one was much smaller between €0m - €99m. Only fund 3.7 is fully invested the others are closed. All the funds are profitable so far and have returned cash flows. Indeed, the two British funds have a DPI higher than 1 times, meaning that so far they have distributed more than the amount contributed. The fund from the Netherlands is the most profitable getting the highest IRR reaching 30 percent as well as TVPI of 2.91 times driven by a high residual value. Indeed, the high TVPI is due to its high net asset value measured with the RVPI of 2.13 times. It has a total value worth of almost 3 times the amount it contributed. However, its DPI multiples amounted to 0.77 times the smallest among the group. This fund is the smallest one among the peers in terms of value as well as in terms of number of investments made with a total of 15 investments made versus 24 for fund 3.7. Fund 3.7 is the medium one and the largest one is fund 3.8 with a total of 131 investments made. They

haven’t called down the totally and fund 3.8 and 3.9 still have dry powder to deploy. It should also be noted that the Dutch fund has raised more funds from its initial fund size. The amount contributed is very close to its fund size (97 percent) and its dry powder represents 10 percent of its size. It exceeds its fund size by almost €3.77m.

As raised before, both Business Product and Services (B2B) and the Information and Communication Technology (ICT) sectors are among the top most invested in sectors, according to the Invest Europe data. Here, no funds get an IRR below 0. Buyout funds investing in ICT businesses perform the most versus funds investing in Business Product and Services and Commercial Services in terms of IRR as well as MoM. Funds’ TVPI in ICT are much higher than the other sectors.

CONCLUSION

Private equity as an alternative investment, is not part of the traditional investments such as stocks, bonds and cash. Private equity is known as an illiquid investment, indeed the PE funds as a special purpose vehicle usually have a fund life of ten years in which investors cannot usually exit the funds before the end of the fund's life. Returns in this industry are known to be high, and this type of investment exposes investors to several risks such as a risk of capital loss, a risk of illiquidity and a risk related to the valuation on portfolio securities. The risk concerning the valuation is a well-known risk in private equity due to the specificity of the asset class. To value a private equity fund it is necessary to first assess its portfolio companies which might be complex since businesses are not listed on any stock exchange. One of the main objectives of private equity funds is to create value over the fund's life. A wide range of literature exists about private equity fund's valuation as well as value creation. To create value, the private equity firm as a general partner needs to run a successful fund. To succeed, the private equity fund has to be profitable and generate cash-flow to return to investors. The private equity funds' performance is typically measured with metrics such as IRR and MoM. The private equity firm also succeeds in making correct investment choices investing in target companies but also by giving them the expertise to help them to attain sustainability and growth. As with funds, portfolio companies create value by being profitable and generating cash-flow. To achieve this, GP may use levers in order to improve the value of the business. For example, developing new products and markets for business expansion.

In recent years the alternative investments allocation has grown considerably. Among alternative investments, private equity appears as one of the main asset allocations. Over the years Private Equity has become a popular investment, mostly supported by institutional investors as LPs. The low interest rate environment has driven the high leveraged schemes employed by buyout funds. The industry has witnessed significant increases and it is still increasing in terms of AUM but also in terms of the number of private equity firms running in the industry. Hence, this industry is becoming more and more competitive and targeting good businesses is getting harder. New technology is bringing new opportunities with a large amount of new companies to invest in.

Funds invested in, as well as the number of businesses acquired in Private Equity have experienced major changes between 2007 and 2018. These changes started in 2007 with the second highest investment level within this range of years and fell afterwards due to the crisis of

2008 and 2011, reaching their worst level ever recorded in 2009. Following on from 2009 a slight recovery was made until the 2011 crisis. Notably, the 2011 crisis had much less of an effect on the investment levels than 2009 – a slight decrease in value can be observed leading to a stagnation for 2012 and 2013. PE investment has since increased yet again to reach its highest ever recorded level in 2018. Buyout investment was the most affected in 2008 and 2009, falling by 69 percent, whereas rescue / turnaround investment has surged by 147 percent year-on-year recovering from a decrease of 63 percent between 2007 and 2008.

2019 was a record year both in terms of funds raised as well as in terms of funds invested. Europe recorded a high level in terms of value, mainly driven by the increase of buyout investment, accounting for 69 percent of the total value invested in, but also thanks to the strong increase in venture capital investment despite it representing a smaller impact. In Central and Eastern Europe, even in 2019, fundraising activity fell sharply by 47 percent year-on-year following a high decrease in funds raised outside Europe. These external funds had been higher in the past. However, according to the Invest Europe data, 2019 venture capital fundraising is the second highest value ever recorded representing 45 percent of the total capital raised. At a fund level, it has been noticed that the 2019 vintage year is twice as low as 2017 and 2018 vintage years in terms of the average fund size. Indeed, 2017 and 2018 vintage years have been driven mainly by the three largest BO funds of the data set including two established in Poland and one in Lithuania. Whereas Venture Capital funds in 2019 got the highest average fund size.

The CEE region investment activity also increased in value as well as in terms of the number of companies invested in. Going back to a European level, SMEs have been the most significant group for investment, in terms of number of companies over the last 4 years. Also in Europe, the 2019 PE divestment decreased both by cost as well as number of companies exiting compared to 2018, whilst the venture divestment increased by cost reaching its highest level since 2011. At a fund level, the dry powder remaining to deploy is greater by 12 percent in venture compared to private equity . Moreover, the average of the PE dry powder in 2017 is about 50 percent, the lowest level which affects the global average of the PE category.

Regarding the different sectors of activity, Consumer Goods and Services, Business Products and Services, ICT (Communications, Computer and Electronics) account for more than 3/5 of the total investment value as an average between 2007 and 2018. ICT dominated also as the most invested sector both in the whole of Europe and CEE in 2019. CEECs funds have a preference in company industries such as Software & Financial Software, Information Technology, Healthcare & Healthcare Services, Retail and Commercial Services. The ICT sector is the most significant sector and is mainly invested in by venture capital funds. It has been

witnessed that companies operating in ICT sectors are largely invested. IT companies, but also Software or Biotech early stage companies represent valuable targets for private equity firms especially firms with a venture capital segment. These are types of companies which may reach a high valuation in a quick way but also taking many risks. Within the western Europe set of funds, a better performance has been observed among BO funds investing in ICT sectors in comparison to Business Product and Services and Commercial Services. They got the highest IRR as well as MoM. The funds' TVPI in ICT preferred industry are much higher than the other peers. Moreover, within the three sets of funds none of them have a negative IRR.

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PRIVATE EQUITY FUNDS AND THEIR INVESTMENT ACTIVITY ANALYSIS IN EUROPE

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MASTER THESIS

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SUMMARY

65 pages, 5 figures, 14 tables, 53 references.

This master thesis is divided into three main parts which are the theoretical and research part, the assessment methodology and the analysis as well as the conclusion.

The aims of the thesis are articulated around two stages. The first stage examines the evolution of the private equity investment activity in Europe over the following range 2007 - 2018. The private equity investment activity will be examined in terms of value as well as in terms of the number of companies over this same range. The analysis will investigate how much has been invested over the years in companies through private equity funds in general but also breaking it down into segments and sectors of activity. The second stage looks at private equity funds. A first analysis focuses on the fund size as well as the dry powder of funds located in CEEC countries, while the second assesses funds regarding their performances. To perform the analysis, indicators and metrics such as average proportion of investment and multiples of money have been computed.

The first research part discusses private equity as an alternative investment, private equity's role in the financing of firms and private equity fund's performance and industry growth in recent decades. It also considers ten private equity definitions and discusses them in order to have a better overview of this industry. Moreover, additional definitions related to the private equity industry and especially connected to PE funds are given. The second section, as the assessment methodology section goes deeper into the concept and metrics used for the analysis, but also defines the scope and what is looked at precisely. The analysis section displays the results. Finally, the conclusion gathers the important concepts of the theoretical part but also the results of the analysis performed.