VILNIUS UNIVERSITY
FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION
DEPARTMENT OF FINANCE

FINANCE AND BANKING PROGRAMME

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MASTER'S THESIS

ANALYSIS OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE POLICIES IN EUROPEAN PRIVATE EQUITY FIRMS

APLINKOSAUGOS, SOCIALINES IR TVARAUS VALDYMO POLITIKŲ ANALIZĖ EUROPOS PRIVATAUS KAPITALO ĮMONĖSE

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Vilnius, 2022

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INTRODUCTION

Relevance and novelty of the topic. Private equity firms (further – PE firms) have grown in popularity since the 1980s and have become one of the most important sources of corporate funding in the last 40 years. PE firms, mostly venture capital (further – VC) firms, provide financial and intellectual capital to start-ups, small and medium-sized businesses, and other businesses that are unable to issue their own securities or bonds or borrow from a bank due to a lack of financial data and operating history, as well as the risks associated with insufficient collateral and cash flows. Although investing in these companies is risky, high-potential private companies have a strong track record of success and return on investment, which explains why new, risky or negative revenue-generating but viable enterprises are in high demand among investors. In general, the research suggests that VC investors are interested in small and medium-sized businesses that offer innovation, that is, businesses that introduce new products or services to the market for the first time and for which there is no close replacement. As National Venture Capital Association (2021) states, venture-backed companies accounted for five of the six largest publicly traded companies by market capitalization at the end of 2018: Microsoft ($780B), Apple ($746B), Amazon ($737B), Alphabet ($727B), and Facebook ($374B). On the other hand, once the PE firms finalize their fundraising, investors have limited power to make investment or management decisions as the PE firm is fully authorized to make decisions on its own and on behalf of the investors. Furthermore, since investments in private equity are less regulated and transparent than other asset class, investors are not fully informed regarding the PE firm’s investments (Appelbaum and Batt, 2016).

Currently investors not only seek for increased transparency and better financial reporting of PE firms, but there is a growing demand from investors and society to contribute to sustainable investing and implementation of environmental, social and governance (further – ESG) factors as well. Additionally, the government institutions are introducing stricter ESG and socially responsible investing requirements in financial sector, i.e. in the last few years, European Union has introduced several regulations (the Sustainable Finance Disclosure Regulation and EU taxonomy) which will require more reporting from the participants of financial market, including PE firms. There is a need to examine ESG implementation in PE firms, particularly European PE firms, because the ESG topic is in great demand but still relatively new in terms of PE firms and their incorporation of ESG considerations in their investing decisions.

During the analysis of current literature concerning ESG incorporation, it was noticed that there is quite limited number of researches analysing the implementation of ESG factors in the investing process of PE firms. Furthermore, in most cases, the related evaluations are based on a case study of one or a few specific PE firms and their ESG investment practices, or on interviews with more than a few PE firms. While the respective literature provides an in-depth understanding of ESG incorporation in specific firm or certain group of firms, such analysis neither provides a full view of ESG incorporation in certain region or regarding larger group of PE firms nor objective results of ESG implementation based on the financial or other measurable and comparable metrics. Therefore, the aim of this paper is to provide an analysis of ESG implementation in European PE firms from different perspective in order to provide a better and broader understanding of ESG implementation and analysis if there is any better financial or risk management performance of European PE firms which have implemented ESG factors in their investing decisions.

Problem. What is the scope of ESG incorporation in European PE firms and whether the PE firms which incorporate the ESG factors have greater financial performance while investors have better risk management investing in such firms than firms and investors that invest in them which do not incorporate such factors?

Research object – Analysis of ESG implementation in European PE firms and comparison of financial ratios and risk management ratios from investors' perspective between United Nations Principles for Responsible Investment (further – UNPRI) signatory PE firms and non-signatory firms in Europe.

Aim of research – identify the scope of ESG implementation in PE firms in Europe, analyse the implementation from different perspectives and compare financial and risk management ratios from investors perspective of European PE firms, which implemented ESG factors, with the ratios of firms which did not implement ESG.

To reach the aim of the research, the following **tasks** shall be performed:

1. Review and evaluate the theorical aspects of PE firms and ESG incorporation in PE firms, including a review of scientific articles related to ESG implementation and PE firm topics.
2. Compile a dataset based on the list of UNPRI signatories, identified as general and limited partners of PE firms, and gather further information reported in the transparency reports published by UNPRI.
3. Determine the list of European PE firms based on criteria that the internally managed private equity assets of the European PE firm shall make up at least 50% of its total assets and analyse and compare the European PE firms from different perspectives based on the geography of the headquarters, ESG reporting to investors and general public, and information provided to these groups of stakeholders.

4. Determine the list of listed UNPRI signatory PE firms and listed non-signatory European PE firms and gather information regarding their share price, financial information (ratios) and investor's risk management ratios for period from 2010 to 2020.
5. Perform a comparison of share price returns of listed UNPRI signatory PE firms and non-signatory firms covering the period from 2010 to 2020 and conduct the regression analysis to determine if there is correlation between being UNPRI signatory and better financial and risk management ratios from investor's perspective.

In order to reach the aim of this research and perform the tasks indicated above, firstly, the paper will review the literature covering PE firms as alternative source for investing and financing, the structure and relevance of PE firms, main investors and the reasons that force the PE firms to implement the ESG factors in their investment decisions. As the goal is to analyse the PE firms in Europe, the work examines the newly implemented regulations of European Union which have already entered into force and covers the responsible investing and ESG factors in financial market. The database of UNPRI signatory PE firms, which is composed of UNPRI reports, will provide accurate data for further assessment of their ESG policy and the incorporation of ESG into their monitoring and investing decisions. Further UNPRI signatories will be analysed and compared from various standpoints. Lastly, the returns of listed UNPRI signatory PE firms and non-signatory firms will be compared for the period from 2010 to 2020 and the analysis of company's financial and investor's risk management ratios will be performed for the same analysing period.

Structure of Thesis. The master's thesis consists of three parts: analysis of academic literature, methodology and analysis of the results. In the first part of this paper, the following information was reviewed, analysed and presented: the increasing interest in private equity markets, structure and strategies of PE firms and pressure from investors and governments to incorporate ESG factors in PE firms' investment decisions. The methodology part determines the research methods of other papers and academic literature while analysing the ESG incorporation in PE firms and reviews how the information required for analysis was collected and dealt with issues encountered during the collection of information. The methodology part also states the hypothesis raised for this work, overview the selected analysis method and interpretation of results. The last, third part of this paper analyses and evaluates the ESG implementation in PE firms in Europe by breaking down firms into separate groups based on the internally managed private equity assets, geography, transparent reporting and involvement in socially responsible investing and further compares the returns of stock prices of UNPRI signatory firms with non-signatory and analyses the relationships between financial performance and being UNPRI signatory.

1. ANALYSIS OF LITERATURE REGARDING THE PRIVATE EQUITY FIRMS AND ENVIRONMENTAL, SOCIAL AND GOVERNANCE POLICY INCORPORATION

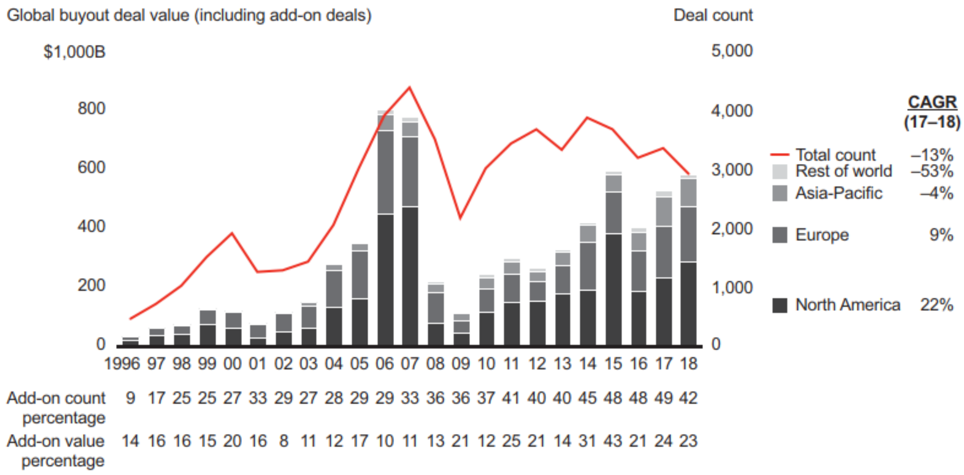
Financial institutions raise funds available for investing in fixed income assets such as bonds, listed securities, or alternative investments, where funds might be invested in commercial real estate or private equity. Among all those alternative investments, this paper concentrates on the PE firms which invest in privately held, unlisted companies or listed companies with the aim of making them private when PE firm acquires a controlling stake (more than 30% of all shares) or all the shares in the company and makes those acquired companies private. Please note that in a short time, investments in private equity have risen to unprecedented heights and, according to Bloomberg (2019), the private equity industry has achieved more than $ 4 trillion assets under management (further – AUM) in 2019. Considering the impressive interest in private equity industry, this part of the work provides a summarized overview of the growth of PE firms, the increasing fundraising, scope of activities, structure and strategies of PE firms. Further, this section of study states ESG requirements and tries to explain why PE firms experience such pressure to incorporate ESG considerations into their investment decisions.

1.1. The rise of private equity funds and private equity in Europe

The first leveraged buyouts began when Kohlberg Kravis Roberts & Co. (KKR), a well-known PE firm, made its first leveraged buyout in 1964. However, interest in PE funds has grown strongly in the last decades of the twentieth century. According to Acharya, Franks and Servaes (2007), the total value of new private equity transactions (authors considered private equity funds to be exclusively leveraged buyout funds) was $ 10 billion in 1991, while the total value of new deals reached as high as $ 500 billion in the end of 2005 and the beginning of 2006, thus the value of transactions has increased 50 times over the period of 15 years. Bain & Company has illustratively presented how the value and volume of transactions of leveraged buyouts have changed from 1996 to 2018 in their 2019 report (Figure 1 below). It could be noticed that the value of leveraged buyouts deals has significantly grew from less than $ 50 billion in 1996 to more than $ 800 billion in 2007 in Figure 1, which was the peak of the leveraged buyouts during more than last twenty years. Due to global financial crisis in 2007, the deal value has sharply declined in 2007-2009 period, yet the private equity market quickly recovered, and the deal value of leveraged buyouts has again reached a significant value of almost $ 600 billion.

Figure 1.

Value and volume of global leveraged buyout transactions from 1996 to 2018



Source: Bain & Company, 2019

In parallel with the value of transactions, the annual volume of leveraged buyout transactions has also increased and reached its highest volume of more than 4,000 transactions per year in 2006 and 2007. The above presented Figure 1 shows that the value and count of concluded transactions mainly increased in the presence of economic bubbles, i.e. the highest value and volume of leveraged buyout transactions were reached in 2000 at a time when the Dot-com bubble was forming in the economy and, further, the highest value of leveraged buyout transactions was reached so far in 2007, when the real estate bubble formed in United States (US) and the global economy crisis took place. There were also noticeable plunges in deals value and volume after Dot-com bubble in 2000 and a sharp fall in 2007-2009 with the onset of the financial crisis. The volume of deals followed nearly the same pattern as deal value. As Crifo and Forget (2012) quotes Boucly et al. (2009), the competition rapidly grew after the financial crisis in 2008-2009 and the PE firms changed its strategy from value creation with financial leverage to investing into underdeveloped companies and helping those companies to grow.

According to the latest McKinsey & Company Global Private Markets Review 2020, the PE firms have raised an impressive amount of $ 555 billion in 2019. The respective review shows that in 2019, the PE funds fell 4.0% overall compared with the funds raised in 2018, mainly due to a sharp decline of 22.5% in Asia, while fundraising in North America continued to slightly grow (2.8%) and raised the total amount of $ 350 billion, which concludes that North America raised 3.5 times more funds than in Europe in the same year. Based on the geographical allocation of PE funds, it was identified that the PE firms, established in US, raised 63% of the total funds in 2019, while European PE firms raised nearly 18% of total AUM and PE firms established in Asia and the rest of the world raised 17% of AUM and just over 2% of AUM, respectively. Generally, the

AUM of private equity in 2019 amounted to $ 3,853 billion, where the annual growth of AUM was as high as 16.7%. Full information on the fundraising of the PE firms in 2019, the change in funds raised and the annual growth in each region is presented in Table 1 below.

Table 1.

Changes in funds raised by PE firms in 2019

Region		**Funds raised in 2019**
North America	Total, $ billion	**350**
	Change between 2018 and 2019, $ billion	9.4
	Year to Year change (%)	2.8
Europe	Total, $ billion	**99**
	Change between 2018 and 2019, $ billion	0.6
	Year to Year change (%)	0.6
Asia	Total, $ billion	**94**
	Change between 2018 and 2019, $ billion	-27.3
	Year to Year change (%)	-22.5
Rest of world	Total, $ billion	**12**
	Change between 2018 and 2019, $ billion	-5.9
	Year to Year change (%)	-32.5
Global	Total, $ billion	**555**
	Change between 2018 and 2019, $ billion	-23.2
	Year to Year change (%)	-4.0

Source: McKinsey&Company, 2020

It should be noted that Bain & Company (2019) singles out strong competition and rising asset prices as the main reasons why the number of leveraged buyout funds itself has decreased in 2018 compared to 2017, but the value of leveraged buyout funds increased. Similarly to 2018, McKinsey & Company (2020) evaluated the results of fundraising in 2019, arguing that even though 2019 was one of the strongest fundraising year so far, it is becoming increasingly difficult for PE firms to find and acquire high-potential and out-of-market firms, leading to a slight decline in PE market in 2019. Furthermore, according to McKinsey & Company (2020), mega funds (which raise funds of more than $ 5 billion) accounted for more than 50% of the capital raised by leveraged buyout funds, and while the total share of mega funds in total fundraising slightly increased, there was a significant increase in funds that raised over $ 10 billion: in 2018, these funds raised 23% of the total fundraising, whereas in 2019 these funds have raised 35% of the total amount. As the respective report draws attention, this growth in mega funds might be due to the fact that investors see these huge capital funds as safer choices compared with small or new PE funds since the mega funds have well-known names and may borrow with low interest rates. Therefore, investors expect to receive higher returns on mega funds than on stock exchanges. However, there are other risks to consider related with the growth of mega funds: with growing competition, it is becoming increasingly difficult for PE firms to invest all the funds raised and maintain the double-digit returns. According to CNBC, Preqin (2020) announced that PE firms had nearly $ 1.5 trillion of uninvested funds in 2019 which means that the respective amount of funds does not generate any return for the investors.

New Capital Management LP (2020) provides a list of the largest PE firms that have raised the most funds over a 5-year period (from 2015 to 2020). As mentioned above, as much as 63% of PE funds were raised in the North America in 2019, thus the list of firms provided in Table 2 also confirms the idea that the private equity market in US is the largest private equity market in the world. Accordingly, this table shows that as many as eight PE firms out of the 10 largest worldwide PE firms were US-based firms. According to New Capital Management LP (2020), the largest 25 PE firms raised $ 795.8 billion over a 5-year period, $ 561.2 billion (70.52%) of which was raised by the firms established in US, $ 136.6 billion (17.17%) raised by firms established in Europe and $ 17.9 billion (2.25%) by Asia-based PE firms.

Table 2.

PE firms that raised the largest amount of funds within 5 years period (2015-2020)

PE firms	**Established in**	**Funds raised in 5 years (2015-2020), $ billion**
The Blackstone Group Inc	US	95.9
The Carlyle Group Inc.	US	61.7
KKR & Co. Inc.	US	54.8
TPG Capital	US	38.7
Warburg Pincus	US	37.6
Neuberger Berman	US	36.5
CVC Capital Partners	Luxembourg	35.9
EQT Partners	Sweden	34.5
Advent International	US	33.5
Vista Equity Partners	US	32.1
Total		**461.2**

Source: New Capital Management LP, 2020

Going even further into the fundraising of PE firms, according to Invest Europe (2021) report, PE firms managed to achieve total fundraising of EUR 101 billion in Europe during 2020 which is 12% less than the amount raised in 2019. As the fundraised amounts in Europe for 2019 slightly differ according to Invest Europe (2021) and McKinsey&Company (2020), the respective difference may occur due to several reasons: countries assigned to the European region may vary, the definition of private equity firm might be different, and so on. Please note that Invest Europe considered venture capital, buyout, growth, mezzanine and generalist funds as PE funds whereas according to the academic literature or reports only the venture capital, buyout funds and growth funds are considered as the main categories of PE funds. The Invest Europe (2021) report also includes useful up-to-date information on PE investors, broken down by type and geographic. Based on the split of investors by type, the greatest categories of investors include pension funds

(29% funds raised), fund of funds (13% funds raised) and insurance companies (10% funds raised). In 2020, pension funds mostly invested in buyout funds (37% of funds raised by buyout firms came from pension funds) and growth funds (22% raised from pension funds). These funds are less risky than venture capital funds, thus pension funds were the largest investors in these groups of funds. Please notice that in all three PE categories, fund of funds and insurance companies account for approximately the same share of money raised. The venture capital funds receive 30% of their funds from government agencies, thus this government agencies are the largest investors in venture capital funds. During the whole 2016-2020 period, pension funds were the greatest investors in buyout funds and government agencies into venture capital funds. However, it was not the case for growth funds – the largest investors in growth funds varies from year to year: sovereign wealth funds were top investors in 2016, family offices and private individuals were in 2017 and 2019 and pension funds were in 2018 and 2020. The attention shall be drawn that according to Invest Europe (2021), academic institutions and capital markets are the smallest investors in PE funds in European region, where the funds provided by these groups represents nearly 0% and 1% of total fundraising respectively. A full breakdown of PE investors by type is provided in Table 3 below:

Table 3.

Breakdown of investors in European PE funds by type and PE strategy

Type of investors	All Private Equity	Venture Capital funds	Buyout funds	Growth funds
Academic institutions	0%	1%	0%	1%
Banks	5%	4%	4%	5%
Capital markets	1%	0%	2%	2%
Corporate investors	3%	10%	2%	4%
Endowments and foundations	3%	3%	3%	6%
Family offices	7%	7%	5%	10%
Fund of funds	13%	12%	14%	10%
Government agencies	7%	30%	2%	9%
Insurance companies	10%	8%	9%	12%
Other assets managers	6%	4%	5%	11%
Pension funds	29%	9%	37%	22%
Private individuals	7%	11%	6%	5%
Sovereign wealth funds	9%	1%	12%	4%

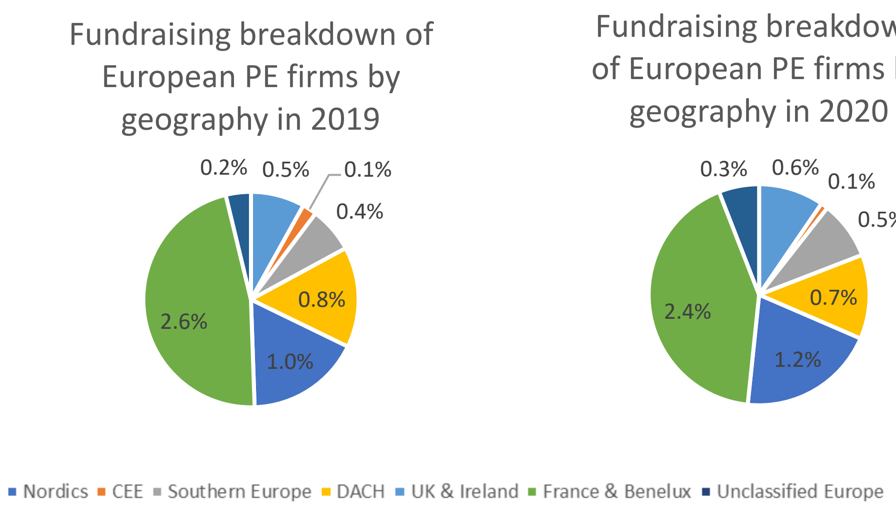
Source: Invest Europe, 2021

The geographical distribution of investors is also significant. According to Invest Europe (2021), the percentage of funds raised from outside of Europe has slightly decreased in 2020 compared with funds raised in 2019: 42.3% of total funds were committed by investors from outside of Europe in 2020 (25.9% from North America, 15.1% from Australia and Asia and 1.3% from the rest of the world) compared to 44.3% of total funds raised by foreign investors in 2019

(27.2% from North America, 16.1% from Australia and 1% from the rest of the world). The distribution of remaining 56% of funds raised in 2019 and remaining 58% of funds raised in 2020 are presented in Figure 2 below.

Figure 2.

Fundraising breakdown of European PE firms based on the geography



Source: Invest Europe, 2021

The most funds raised in 2019 and 2020 by European investors are from France and Benelux (Belgium, Netherlands and Luxembourg), United Kingdom and Ireland, and DACH (Germany, Austria and Switzerland). Based on the abovementioned information, North America accounted for the highest proportion of total fundraising both in 2019 (investors from North America raised 27.2% of total funds while France and Benelux accounted for 26.0%) and in 2020 (investors from North America raised 25.9% of total funds while France and Benelux accounted for 24.4%). If we split down the funds raised by the European and non-European investors further, the following observations on venture capital and buyout funds raised separately may be found in the study:

- The distribution of total venture capital funds significantly differentiates from the distribution of total buyout funds and overall PE funds: non-European investors make 15.7% of total funds raised in 2019 and only 13.8% of total funds raised in 2020, while the most funds of venture capital are committed by investors in France and Benelux, Southern Europe and UK and Ireland;
- Non-European investors account for 54.8% of buyout firms' total funds raised in 2019 and 54.3% in 2020. Despite the fact that European investors account for less than half of buyout funds, the UK and Ireland, France and Benelux, and DACH correspondingly have committed the greatest funds.

Furthermore, for comparison of investments based on different investment class, the historical performance of investments in global stocks, bonds, hedge funds, PE funds and venture capital presented in the Duhon et al. (2017) where the average annual returns and standard deviations are compared (Table 4). It is first observed by analysing the results presented in Table 4 that the private equity and venture capital investments are separated. Further, it was noticed that these investment groups had the best annual returns over the entire 25-year period (during 1990-2014), however the standard deviations of these investments are substantially larger than those of the other investments, with venture capital funds having a standard deviation of approximately 50%. Such high standard deviation suggests that the private equity investments, and particularly venture capital investments, are riskier investments than the rest of traditional investment classes as the PE returns fluctuate widely. Table 4 also highlights the returns and standard deviations during the period of 2007-2009 – the global financial crisis. During this period, the performances of global stocks, private equity and venture capital classes are quite similar, where investments were falling by approximately 10% each year on average with standard deviations of more than 24%. These investments, out of all those shown in the table below, suffered the most during the 2007-2009 period. However, according to CFA (2017), private equity and venture capital investments have rebounded quickly from the crisis, with an average return of more than 20% per year from 2010 to 2014 and an average return of 15% per year from 1990 to 2014. Additionally, even though the hedge funds are considered involving a high level of risk the same as PE funds and venture capital funds, neither the returns were as high as PE funds and venture capital funds during the whole 25-year period, nor the standard deviation of hedge funds was as high as those funds. Please note that it is the latest comparison of global stocks, bonds, hedge funds, PE funds and VC funds of CFA Institute, therefore the comparison of the respective instruments for period later than 2014 was not obtained.

Table 4.

Historical investment results for the period from 1990 to 2014

Index	**1990-2014**		**2007-2009**		**2010-2014**	
	Mean	**Standard deviation**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Global stocks	6.9%	16.5%	-10.8%	24.2%	10.7%	15.9%
Global bonds	6.3%	5.8%	6.7%	9.0%	2.6%	4.8%
Hedge funds	7.2%	6.0%	-4.9%	8.0%	3.4%	4.1%
Private equity funds	15.4%	20.3%	-10.0%	27.8%	20.7%	19.4%
Venture capital funds	15.0%	47.2%	-9.5%	29.9%	33.6%	35.3%

Source: CFA Institute, 2017

Taking into consideration the growth of value and volume PE firms' transactions and the funds raised during the period from 1996 to 2019, private capital markets are receiving more and more attention from investors compared to public markets. PwC (2021) report predicts that the private equity assets will increase by approximately 30-40% by 2025, which means that globally managed private equity assets would range from $ 7.6 trillion to $ 8.3 trillion in 2025. Due to rapid growth in the fundraising of private equity funds and the growth of the private equity market itself, it is useful to understand and assess the PE firms and their capabilities not only for private fund managers and financial market analysts, but also for investors and academics. Accordingly, the essence of following sections is to present the structure, opportunities, risks and trends of PE funds.

1.2. The structure and definition of private equity firms and private equity investors

Typically, the legal status of a private equity fund is a limited partnership consisting of limited partners, which provide the funds for PE firms, and general partners (PE firms), which manage the fund (Kaplan and Stromberg, 2008). However, not only the size of the capital invested by partners differs, but also the risk distribution between the partners in PE fund - the maximum losses that limited partners may incur are the loss of all their invested capital whereas the general partner is liable not only with all its invested capital, but also has a commitment to cover all possible debts and liabilities of the fund to other parties (CFA, 2008). In the past, the general partner was a natural person, but the natural person has unlimited civil liability, therefore nowadays it is usual that the PE firm, a legal person, acts as a general partner since the firm has limited civil liability and, in this case, it reduces the potential losses and risks of the general partner.

According to Frontier Economics (2013), the following activities are mainly performed by PE firm:

- Attracts investable funds – the very first action of any PE firm. Once the funds are attracted, they are invested in companies across the economy. Respectively, the PE firm increases capital investments that the firms shall carry out. PE firms contribute considerably to economic growth by investing in start-ups and growing enterprises.
- Offers investors alternative investment opportunities – PE firms propose to invest into relatively complex, long-term and patient investment. As a result, PE investing offers saving investors a new investment option with potentially substantial returns when compared to other long-term asset types.
- Invests in small, medium and larger companies to support their start-up, growth, recovery or succession stage – PE firms provide capital to companies to expand or

access new markets and provide the required expertise in corporate recovery or succession planning which ensures the business sustainability. The outcome of this activity is a new businesses and new jobs or the preservation of existing jobs.

- Provides managerial functions, business standards and know-how (corporate governance, management and industry expertise) – PE managers are prone to be more involved in management of the company while providing extensive value-added post-investment support. PE management may have a positive impact on the operating performance of invested companies in terms of profitability and/or growth. Further, private equity management may help companies in distress to implement restructuring measures to enhance their productivity and thus help them to survive.

It is important to note that when a fund finishes its fundraising, limited partners have limited power to make any investment decisions, as all management of fund and investment decisions are made by an authorized general partner (Kaplan and Stromberg, 2008). As the general partner actively manages a PE fund, it should be noted that the general partner's compensation in PE funds differs from the fees received by general partners in investment funds: the PE firm typically receives two types of fees, with some firms receiving a third type of fee, therefore the general partner's total return is disproportionate to the capital it has invested. Firstly, according to Appelbaum and Batt (2016), the general partner receives a management fee, which is typically between 1.5% and 3.5% per annum and based on the amount of funds raised. Secondly, the carried interest is received by general partner when the net asset value (the value of the assets managed by the fund less the liabilities associated with those assets) exceeds the funds raised by the PE firm. Although the general partner's investment represents only 1-2% of the fund's AUM (Appelbaum and Batt, 2016), in most cases this fee is 20% and is calculated on the basis of the excess of the net asset value (i.e. the difference between the net asset value and the firms' funds raised). Finally, some PE funds that carry out leveraged buyouts (further – LBOs) receive a third type of fee, a transaction fee, which depends on the terms of each fund and received when the target company is purchased (Appelbaum and Batt, 2016). According to Appelbaum and Batt (2016), a PE firm receives fees directly, not through a fund, and these firms are not required to disclose all information to investors, therefore the limited partners are unaware and are not informed regarding the actual fees paid to the firm. Respectively, it cannot be determined whether PE firm received a fair amount of fees. As PE firms are less regulated, they also have no obligation to provide information publicly, and there is a risk that these funds may not comply with accounting requirements as well. Andrew J. Bowden, director of the U.S. SEC's Compliance and Examination Department, said more than half of the 150 investigations conducted towards PE firms identified violations in the handling of expenses and benefits to limited partners in 2014

(Appelbaum and Batt, 2016). And although Institutional Limited Partners Association (ILPA) developed and published a standard template for fees reporting in 2016 in which PE firms should provide information on costs incurred, fees received and the general manager's share of profits with a goal to increase the transparency of PE firms in such way, this report was not mandatory and most of the firms do not submit this report.

Moving forward, it shall be noted that one of the main features of investing in these funds is that the investments are illiquid, as PE funds are usually closed-ended and investors cannot withdraw from the funds before the set time (Kaplan and Stromberg, 2008). The illiquidity factor increases the overall financial risk of a PE fund, which is higher than the financial risk of traditional investment funds which invest in listed companies and have a higher level of liquidity. Because PE funds are more risky, least regulated, and least transparent in the financial sector (Appelbaum and Batt, 2016), these funds are only available to professional investors, such as pension funds, insurance companies, mutual funds, and to accredited (sophisticated) investors who meet the minimum investment requirements concerning individual’s assets or other country-specific requirements when investing in a PE fund. According to the information provided on the official website of the US Securities and Exchange Commission (US SEC), an accredited investor in the context of a natural person is a person:

- Whose income during the previous two years exceeded $ 200 thousand (or $ 300 thousand with the spouse) and has a reasonable expectation of earning the same amount in the current year, or
- whose net worth exceeds $ 1 million alone or with a spouse (excluding the value of the person’s primary residence).

In Europe, in accordance with the Directive 2014/65 / EU of the European Parliament and of the Council Annex II issued on 15 May 2014, a natural person may be considered as a professional investor and is able to invest in PE funds if the person meets at least two of the following criteria and the investment firm is satisfied that the client can make investment decisions and understand the emerging risks:

- the client has executed 10 large transactions on average per quarter in the relevant market during the last four quarters of the year.
- the client's portfolio of financial instruments, which determines its cash deposits and financial instruments, exceeds EUR 500 thousand.
- the client has worked or is working professionally in the financial sector for at least one year and has the necessary knowledge of the expected transactions and services.

Considering the requirements of the US and the European Union for professional (accredited) investors, it is obvious that the requirements of the European Union are stricter, as a natural person must have a larger amount of money and shall have experience in investing and perform investing regularly. It should be noted that professional investors are subject to higher requirements than retail investors because they receive a lower level of protection and private equity funds are less regulated, as mentioned above.

PE firms can be divided into different groups depending on the strategy, institution or country (or region) chosen. Depending on the stage of investment into the target company and type of investment of funds, the European Venture Capital Association, as quoted in the CFA training material (2008), distinguishes the following types of PE funds based on their investing strategy:

- Leveraged buyout funds (LBOs)
- Venture capital funds (VC)
- Growth funds
- Mezzanine funds
- Other funds.

It is important to note that although, in theory, the LBOs and VC funds are different types of PE funds' strategies, given that VC generally accounts for a small share PE funds in the world, Acharya et al. (2007), Kaplan and Stromberg (2008) and Gompers, Kaplan, and Mukharlyamov (2015) separate LBO funds and VC funds by treating LBO funds as PE funds and VC funds as a separate type of funds without classifying them as PE funds. Meanwhile, Gompers and Lerner (1998), Bernoth, Colavecchio and Sass (2010), Seretakis (2013), Frontier Economics (2013), Roggi et al. (2019) and Crifo and Forget (2012), consider both LBO and VC funds as PE funds.

When it comes to performing due diligence prior to acquiring a target company, there are various options for valuing private equity firms: the Discounted Cash Flow Method (DCF), earnings multipliers (share price to earnings ratio (P/E), company value to EBITDA ratio, and company value and sales ratio) and the replacement value or replacement cost. These methods could be applied considering the business continuity of the target company. The discounted cash flow method is the most used and most accurate method, but in order to objectively determine the expected cash flows, firstly, the target company shall have a sufficient history and assurance that the company will be going concern. Due to the lack of assurance of company continuity in the early phases of a company and the high level of uncertainty regarding prospective operating revenue after more than a few years, VC funds rarely utilize this strategy, although LBO funds do (Harvard Business Review, 2021). Gompers, Kaplan, and Murkharlyamov analysed the practical evaluation of the target companies in more details. Gompers et al. (2015) conducted a survey that collected the information from 64 PE firms with the total AUM of $ 600 billion and found that firms generally follow the calculations of internal rate of return and invested capital multipliers when evaluating the target company, but apply the calculations of these ratios to each company differently according to their level of risk. Since employees of PE firms have a strong financial knowledge and financial education, the results of this survey show that PE firms do not use theory-based discounted cash flows, net present value of investments, and capital pricing asset models to calculate the return on investment (Gompers et al, 2015). This can be explained by the fact that in assessing potential investments, private equity firms review and evaluate many private companies, even though they make a decision to invest in only a few companies (Jurevičienė and Martinkutė, 2013). Accordingly, firms have simplified the company valuation process to be able to value large numbers of companies without investing too much time and effort in valuing a single private company. Furthermore, since there is less transparency and publicly available information in the private equity market, PE firms with high bargaining power are able to buy the company cheaper and sell more expensive over time, considering that they have created added value for the private company (Kaplan and Stromberg, 2008).

Since PE funds have a finite lifespan (usually from 7 to 12 years), it is crucial for them to obtain capital and do due diligence on which firms to invest in and it is also essential to consider the opportunities and risks of the exiting investments. According to Kaplan and Stromberg (2008), LBO funds have 3 most common exit options: the sale of a company to a strategic buyer (38% of all cases uses this exit), a secondary leveraged buyout when the company is bought out by another PE fund (24% of all cases), or an initial public offering (IPO) (14% of all cases). Very similar results were obtained by Gompers et al. (2015) in their survey, where their results showed that 50% of exits occur specifically through a sale to a strategic buyer, 30% of exits at the time of an initial public offering, and 20% of exits when another PE firm buyout the target company. However, it is important to note that there is an increasing number of exits from investments through secondary leveraged buyouts and less through initial public offerings. As Gompers and Lerner (1998) stated, VC funds typically withdraw from investments several years after the successful initial public offering of shares, but not during the offering due to restrictions of stock exchange, therefore the exit from the investment may be prolonged. The rest of the funds opted for another "unknown" method or, at some point, private companies default and the funds withdraw from their investments.

From practice, the exit value or residual value of a project is determined by PE firms in three possible ways: (1) using the discounted cash flow and perpetuity model, (2) in comparison with a similar listed firm, or (3) in comparison with the acquisition value of similar target companies (Kaplan and Stromberg, 2008). Gompers et al. (2015) indicated that the vast majority of PE firms (more than 75% of firms surveyed) determine the exit value of an investment by comparing the portfolio firm with a quoted company or similar transaction value and only one-third of firms use a discounted cash flow model. Also, more than 15% of firms use an EBITDA multiplier at the time of acquisition and calculate an output multiplier.

The PE firms are also analysed in greater depth based on their investment strategy (LBO funds and VC funds are presented below).

Leveraged buyout funds (LBO funds)

The aim of LBO funds is to acquire a whole target company or controlling stake in a company, which is privately owned and has already started operations and launched its products on the market, or a publicly listed company that would be transformed into a private equity firm after the acquisition. Accordingly, acquisitions of such companies require a significant amount of fundraising, and therefore, according to Kaplan and Stromberg (2008), LBOs are financed from 60% to 90% by the debt received from the commercial or investment banks. In all cases, PE firms set up a new company, which participates in the auction for the acquisition of a controlling stake in the target company. This new company is a special purpose vehicle (SPV) whose sole purpose is to participate in the betting on the target company, while SPV will cease to operate if the deal fails (Axelson et al., 2008). The SPV is created to protect a PE firm from potential financial risks, as well as to take advantage of tax benefits as the debt required for a leveraged buyout transaction is obtained at the level of the special purpose vehicle (Axelson et al., 2008). It should be noted that the debt of LBO funds is usually complex and consists of many components. A good example to illustrate the complexity of leveraged buyout fund debt could be the Kwit-Fit case when the company was acquired by the PAI fund in 2005. Based on the academic article by Axelson et al. (2008), the size of this transaction was £ 773.5 million, where the fund's capital amounted to £ 191 million (25% of the fund) and £ 582.5 million was debt (75% of the fund). The acquisition was interesting due to the structure of debt in the fund: 70.39% of the debt was senior loans, 12.88% was subordinated loans and 16.73% was mezzanine. The senior debt consisted of 3 separate loans: one loan required to repay the principal amount over the term of the loan and two loans required principal repayments in a single instalment at the end of the loan term (i.e. bullet loan). In their study, Axelson et al. (2008) stated that the average debt-to-earnings before interest, tax, depreciation and amortization (EBITDA) ratio for the period from 1998 to 2006 was very high, reaching - 4.7. Meanwhile, the Corporate Finance Institute (n.d.), argues that, as a general rule, the debt-to-EBITDA ratio is considered acceptable if it does not exceed 3. Therefore, after acquiring the private capital company (Kwit-Fit) through leveraged buyout transaction, the debt-to-EBITDA ratio became exceeding the acceptable ratio. It should be also noted that leveraged buyout transactions are often divided into two groups based to the management of the target company (Mayer et al., 2003; CFA, 2017): 1) Management buyouts (MBOs), where the existing management of the target company participates in the buyout and acquires part of the company, and 2) Management buy-ins (MBIs) organized by indirect managers, where the existing management of the target company is replaced by new management after the acquisition.

One of the strategies of leveraged buyout funds is to invest in market leaders in a particular region who are already in the late stage of development and who have high growth potential or the potential to merge with a market competitor (Kaplan and Stromberg, 2008), thus LBO funds do not typically invest into seed or early stage of the target company.

Venture capital funds (VC)

Unlike LBO funds, the strategy of VC funds is to invest in high-potential, innovative products or new technologies by providing start-ups with the necessary funding and intellectual capital. In contrast to LBO funds, VC funds invest in companies that are still in the seed or early stages of business cycle (Jurevičienė and Martinkutė, 2013). Accordingly, the earlier the VC funds invest, the higher risk they take and the higher returns are expected by VC funds. Also, VC funds seek to provide funding and oversee their investments, but do not participate in the management of the company. It is important to note that according to Jurevičienė and Martinkutė (2013), VC funds review and evaluate only 10 out of 100 possible investments in detail until they finally invest in only one business plan or private company. From this point of view of careful selection, it could be argued that VC funds carry out a greater selection or audit before investing than LBO funds.

Jurevičienė and Martinkutė (2013) presented in their article that the expected return of VC funds depends on the investment stage, therefore the internal rate of return (IRR) may vary from more than 30% for the late-stage investments to 60% for the investments at an early stage, when a company is just established or even existing company, yet only with a business plan. As the target companies in which venture capital funds seek to invest are usually newly established, the VC funds do not have or have very limited ability to assess the financial condition of the companies, i.e. the target companies do not have much assets and income in the early stages but have relatively high level of liabilities and expenses (Jurevičienė and Martinkutė, 2013). As the financial analysis does not show the company's perspective for VC funds, in addition to the financial analysis, venture capital funds also evaluate qualitative and qualitative indicators, development plan and further opportunities.

A study conducted by Gompers and Lerner (1998) found that inflows into venture capital funds have an important impact on the valuation of PE investments, but higher inflows into a fund do not increase investment prospects, i.e. inflows do not increase the chances of a successful exit from the investment. The study found that the rating of companies that had received funding from VC funds for two consecutive years increased by an additional 8-9%. In the course of Gompers and Lerner (1998) study, it was singled out that the increase in the fundraising of leverage buyout funds does not affect the value of companies managed by venture capital funds, the value is changed only by the increased funds in VC funds. It is important to note that the regulatory framework, tax incentives and changes during the season create demand for venture capital funds, which in turn leads to more fundraising and higher valuations for companies due to increased demand (Gompers and Lerner, 1998).

Table 5 below summarizes the main differences between LBO funds and VC funds.

Table 5.

Comparison of LBO and VC funds

	Leveraged buyout fund	**Venture capital fund**
Stages of the target company in which PE firm invests	Expansion	Seed stage Early development stage Expansion
Target company	The company has a good position in the market and is expected to acquire or merge with a competitor or otherwise	A new company that does not have its position in the market, but has a good business plan and great potential
Financing	Main financing is debt	All funds are investors' capital
Internal rate of return (IRR)	20% < IRR < 25%	30% < IRR < 60%
PE role after acquisition of target company	Actively manages the decisions made, shares their experience and knowledge	Provides funding, oversees investments, shares experience and knowledge

Source: Kaplan and Stromberg, 2008, and Jurevičienė and Martinkutė, 2013

It should be highlighted that just a small portion of the studies and publications examine what actual actions are performed and what added value is made by PE firms that invest in private enterprises. Kaplan and Stromberg (2008) singled out three engineering tools which PE firms use to improve the performance of portfolio firms and thus create added value: financial, corporate governance, and operations engineering tools. As quoted by Kaplan and Stromberg (2008), Jensen (1989) also analysed PE firms' engineering tools and pointed out that financial and corporate governance engineering tools are mainly related to changes in private capital. Because it is crucial for a PE firm that the target business's management has an interest in working in the best interests of the shareholders, the executives and management team must make a major contribution to the company by purchasing the target company's shares. As the management will only be able to sell these investments together with the PE firm during the exit from the investment, management team will have an interest in pursuing long-term goals opposite to the management of a publicly listed company, where the management usually aims to show good financial performance in the short term. The second aspect related to the financial and corporate governance engineering tools is debt for the acquisition of a portfolio company (Kaplan and Stromberg, 2008). A significant amount of loan obtained at the time of a leveraged buyout becomes the debt of the acquired target company, which the acquired company has to pay to the financial institution that granted such loan to the PE firm. In this case, managers of this company have an interest in repaying debts and use the free cash flow efficiently. Please note that Kaplan and Stromberg (2008) stressed that leverage can not only increase the value of a company because debt interest is considered as allowable deductions for tax purposes, but excessive leverage can also increase the likelihood of financial difficulties, thus the debt transferred after leveraged buyout forces target companies to use their free cash flows in efficient way in order to repay the debt. Yet on the other side, such debt creates various difficulties, including the financial ones, to the target company if the debt level is high in the company, thus PE firms should assess the capital structure in the target company before and after the planned transaction. Gompers et al. (2015) survey showed that most often, the debt-to-equity ratio of the target companies is about 60%, and the debt-to-EBITDA ratio is 4 times. Further, about 66% of PE firms follow a post-acquisition capital structure trade-off theory in assessing the tax benefits of debt and default risk, but PE firms also increase debt in the target company as much as possible while the company is capable. Finally, PE firms manage portfolio companies much stricter than the board of listed companies. As Kaplan and Stromberg (2008) indicate, Acharya and Kehoe (2008) found in their study that as many as one-third of top executives are replaced within the first 100 days of acquiring a private company. Finally, PE firms add value to target companies through the operational engineering tools - by leveraging their expertise in managing other companies, PE firms help companies first and foremost increase their sales and reduce costs. According to Gompers et al. (2015) survey, when investing in private companies, the most essential factor is the private company's business model or competitive position in the market. However, management and the PE firm's capacity to add value to the target company are also important. The results of this survey provided practical observations that are rarely found in empirical analyses of scientific articles – the relationship between the experience of the founders of a PE firm and their chosen strategy, i.e. founders with experience in finance focus on the financial engineering of the portfolio company, while founders with prior experience in PE firms focus on the application of operational engineering tools.

Bernoth et al. (2010) conducted an empirical study that collected information on the impact of changes in the economy, labour costs, bank lending, trade unions, business confidence, interest rates, and corporate taxes on private equity funds in Western Europe and Central and Eastern Europe (CEE). In both regions, it has been observed that the increase in commercial bank lending relative to gross domestic product (further – GDP) and the increasing market capitalization have a positive impact. Although most academic articles have found a link between economic growth and inflows into private equity funds, however, Bernoth et al. (2010) showed that this relationship does not exist in Central and Eastern Europe. Another important observation was that rising labour costs had a negative impact on fund inflows in Western Europe, but no impact in Central and Eastern Europe, while rising corporate taxes had a negative impact in Central and Eastern Europe and no impact in Western Europe. This finding that corporate tax increases have a negative impact in Central and Eastern Europe is in line with the United Nations (2004) report that Central and Eastern European countries are working to attract investors with low corporate tax rates and various tax incentives. Bernoth et al. (2010) provided an interesting insight that growing unions had a completely different impact in these regions - in Western Europe, growing unions had a negative impact, while in Central and Eastern Europe they even had a positive impact.

1.3. Sustainability and environmental, social and governance implementation in private equity firms

However, the return of PE firms is related not only to the business cycle of the target company and the added value created by the PE firm for the acquired company, but also to the values and internal policies of the industry in which the company operates and its strategy. As public interest in sustainability, corporate social responsibility and environmental, social and governance (ESG) issues grows rapidly, PE firms are also moving towards investing in socially responsible companies in response to the investors' needs. Based on Bain & Company Global Private Equity Report (2021), European LPs are looking forward to when the funds will implement the ESG objectives, such as environment, labour and human rights, ethics and sustainable procurement. However, the report shows that so far PE portfolio companies do not take the environmental measures in consideration. According to K. Gečas (2019), in Lithuania it is still believed that a company must engage in philanthropy in order to be considered socially responsible. However, in essence, social responsibility and the management of ESG factors are related not only to the sustainability of the company, but also to the risk management, opportunity exploitation and business management discipline. And not only the customers' demand, but the employees' demands to work for more purpose-driven companies and investors needs to invest into such companies force companies to include ESG factors in their strategies (Reynir Indahl and

Hannah Gunvor Jacobsen, 2019). Thus, non-financial ESG elements may affect the value of a business and investment even if they do not directly affect sales. ESG inclusion may lower the expenses that the company presently incurs on a regular basis or reduce the chance of incurring future costs.

As mentioned by Crifo and Forget (2012), Cumming and Johan (2007) were the first ones which considered the direct relationship between the socially responsible investing and private equity. As Crifo and Forget (2012) state, since one of the PE tools is governance engineering and one of the ESG factors is governance, PE firms just need to implement environment and social aspects in their strategies and policies to have full ESG implementation. According to their findings, the amounts invested by the institutional investors shall increase in the socially responsible PE investments. Furthermore, even though the PE firms aimed to create value for best possible price before the financial crisis, the competition and returns from the value creation significantly increased after the financial crisis (Crifo and Forget, 2012). As the aim of this report to analyse the European PE firms in regard to the ESG implementation, further the sustainability and ESG requirements, implementation and tendencies towards PE firms will be reviewed.

According to Harvard Kennedy School (2020), more than 70% of institutional investors included ESG factors in the selection and management of their investments in 2018, mainly in publicly traded companies, private equity, real estate, bonds and commodities. Due to a lack of information available in the seed or early stages of investment, and the ESG benefits and risks are not relevant in the early investment stage, it is more difficult for VC funds to incorporate ESG factors into their investment valuation, publish ESG reports, or implement other aspects specific to socially responsible businesses. In the seed stage, most businesses fail due to the financial and commercial aspects, so these factors are considered to be the most important (Harvard Kennedy School, 2020). Harvard Kennedy School (2020) systematized CBInsights (2019) information and identified that less than 10% of VC fund investments in seed stage fail precisely because of ESG issues such as maintaining product integrity, stakeholder interest management, and corporate governance issues. Based on information from Harvard Kennedy School (2020) and CBInsights (2019), Table 6 below highlights the key ESG factors associated with a company's success or failure.

Table 6.

ESG factors that determine the success or failure of a new company

ESG success factors	**ESG determinants of failure**
Long-term positive impact on reputation as customers	Focus and statements that create pressure to produce or launch a product faster

and investors value socially responsible and ESG implemented companies	For technology companies, transparency and clarity of their artificial intelligence decisions
	Legal and regulatory factors that may have financial or product launch consequences
	Challenges to a sustainable business model where business does not consider possible changes in circumstances or regulations
Partnership with third parties (customers, suppliers, distributors, etc.), which require social responsibility from the company	Opposition by related parties seeking to shape company's practices or cause financial or reputational damage to the company
	Size, expertise and diversity of management board
	Lack of strategy and diversity of company policy, code of conduct and culture
	Weak management of human resources, ethical marketing and fair competition, possible fraud or embezzlement

Source: Harvard Kennedy School, 2020

BlackRock, the world's largest investment manager in terms of AUM, conducted a sustainability survey in 2020 that surveyed 425 investors from 27 countries with total AUM of $ 25 trillion in 2019. Given that respondents account for 28% of global AUM (according to Boston Consulting Group, total global AUM reached $ 89 trillion in 2019), this survey captured a considerable portion of investor demands and interests. BlackRock (2020) survey found that 96% of investors in the Europe, Middle East and Africa (EMEA) region are interested in sustainable investment and that investors in this region are taking sustainability factor into consideration during the assessment of investment, while as many as 86% of investors in EMEA region say that sustainability is or will be key factor of their investment strategy in the near future. It is important to mention that investors in the EMEA region are more interested in increasing sustainable investment, not only because of the risk reduction, but also due to the region's stricter sustainability and ESG requirements – in December 2019, according to the Goldman Sachs Investment (2020) survey, there were 338 separate ESG regulations in force in the EMEA region, compared to 79 in Asia and only 23 in North America.

Accordingly, although the Asia-Pacific region and the North and South American region are just beginning to include sustainability in their assessments of investments, about half of their correspondents said that sustainability is in the centre of their investment strategy now or will be in near future. In general, correspondents responded that they expect to double investments in sustainability by 2025, where the investors in EMEA region expect as much as 47% of AUM to be sustainable investments by 2025, compared to 21% of AUM today. As BlackRock (2020) survey was conducted in the second half of 2020, it is important to note that only 3% of respondents said that they will have to delay the sustainable investment plan for some time due to the COVID-19 pandemic. In 2019, KPMG (2019) conducted a survey of 468 private equity investors, in which 81% of respondents confirmed that ESG factors: help identify risks (69% of respondents), help identify opportunities to add value (62%) and give up on potential investments (49%). In addition, Crifo and Forget (2012) indicated that ESG integration in acquisition stage or due diligence analysis helps to reduce information asymmetry. Also, KPMG (2019) noted that 69% of PE firms has formally included commitment provisions for responsible investments in limited partnership agreements or additional letters to investors. Investors and PE firms should analyse and make investment decisions based on available information on sustainability, social responsibility, and target assessments of ESG criteria. The Governance & Accountability Institute (2020) has announced that as many as 90% of S&P 500 index companies have published their sustainability reports for 2019, which is an impressive result compared to 2011, when their sustainability reports were published only by 20% of S&P 500 companies. However, according to the BlackRock (2020) survey, the vast majority of respondents identify that ESG data and analytics are of poor quality or difficult to access, thus it is a drawback for investors which discourage to invest in sustainability. The same fact regarding the poor quality of information on sustainability is confirmed by Alliance for Corporate Transparency report (2020). According to the respective report, only 16% of 300 companies from Central, Eastern and Southern Europe report their climate change targets and the specific risks, where 25% of South European companies clarifies the alignment of their goals to the science-based climate goals and only 4% of Central and Eastern European companies do the same. In this case, investors agree that a standardized ESG measurement and methodology would be the most required tool for investment. It is important to mention that ESG factors and tools are important not only in the evaluation of investments stage, but also in the management of the acquired target company stage. Crifo and Forget (2012) indicate the main drivers for PE firms to implement socially responsible investing: 1) shareholders demand and 2) need for value creation sources, risk management tools and diversification. Further, Dunfee (2003) indicated that socially responsible investing becoming an ordinary practice for majority of investors and Louche and Lydenberg (2006) added that this tendency is more visible in European rather than United States' financial markets. As mentioned by PwC (2021) in its report, PE funds assess the application of ESG measures from two perspectives: 1) whether the assessed company is already socially responsible and applying ESG measures, or 2) whether the acquired company can be restructured by applying ESG measures and thus improving the company's results. As for PE firms, the Blackstone, the largest PE firm in the world, has set itself the goal of reducing emissions in newly acquired companies by 15% according to the information provided in their official website whereas the KKR firm is also working to contribute to socially responsible investment - in the beginning of 2020, it raised $ 1.3 billion for the Global Social Impact Fund, which aims to invest in companies that can provide solutions to environmental or social problems (Bloomberg, 2020).

In order to promote corporate social responsibility, sustainability and international sustainable development, the United Nations (UN) has declared 17 universal goals for sustainable development in 2015 which should be achieved by 2030. Although these objectives provide specific actions for developing and developed countries, covering environmental, social and economic areas, companies and investors are also guided by these objectives. To provide a guidance for governments, companies, investors and other stakeholders, the United Nations provides a certain number of specific targets for each goal. The United Nations Sustainable Development Goals and their brief explanations are set out in Annex 1.

The United Nations (2020) has recently published a separate report for PE, debt and VC funds which seek to contribute to sustainable investing and achieve the sustainable development goals. The report provides 4 standards where the key aspects of the standards are:

- make a positive contribution to sustainable development and the pursuit of sustainable development goals, which
- cannot be achieved without showing respect for human rights, and so on responsible business practices, and
- is realized through effective impact management and decision making.

The United Nations has set the specific standards for PE firms to encourage firms to start or to increase their focus and activities which address economic, social and environmental issues and allow to avoid greenwashing. Along with these standards, the United Nations provides specific targets and indicators – the same approach as with sustainable development goals. The United Nations' (2020) 4 standards are as follows:

1. **Strategy:** Embedding foundational elements into purpose and strategy
2. **Management Approach:** Integrating foundational elements into operations and management approach
3. **Transparency:** Disclosing how foundational elements are integrated into purpose, strategy, management approach and governance, and reporting on performance
4. **Governance:** Reinforcing commitment to foundational elements through governance practices.

Accordingly, BlackRock (2020) in its survey also assessed the need for investors to achieve the United Nations-announced sustainable development goals. Thus, 60% of all respondents (70% of respondents from the EMEA region) have already aligned their investments or planning to align them with these United Nations' goals. Of these correspondents, 51% said that combat with the climate change (United Nations' goal no. 13) and 50% of correspondents indicated the access of reliable, sustainable and modern energy for all (United Nations' goal no. 7) are the key United Nations' goals for sustainable development. Thus 88% of investors see the environmental factor as the most important of the three environmental, social and governance ESG factors. Investors in the EMEA region said that the following aspects of the sustainable investment are most important: it is simply the right thing to do (51% of respondents), better risk-adjusted return (49%), implementation of mandatory ESG requirements (44%), to reduce investment risk (37%) and customer preferences (34%). In summary, investors have the most sustainable investments in listed stock (approximately 63% of assets in this class are sustainable), whereas only 42% of fixed income investments are sustainable, and just 36% of illiquid alternative investments are considered sustainable. In the future, investors intend to raise mainly sustainable investments in fixed income assets and alternative investments by increasing these investments to up to 61% and 56%, respectively.

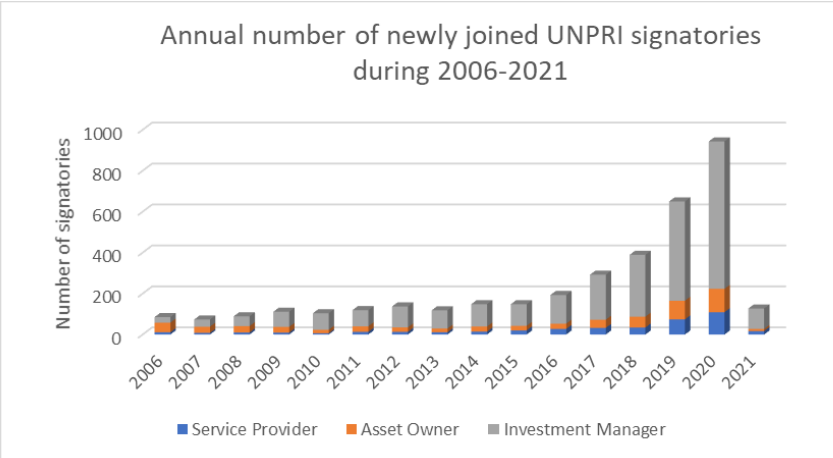
Furthermore, the United Nations established Principles for Responsible Investing (further – UNPRI) and invited investors, financial services providers, investment managers and asset owners to join this initiative. The UNPRI was introduced to New York Stock Exchange (NYSE) in April 2006 and from this moment the number of UNPRI signatories has increased exponentially. The UNPRI organization presents 6 principles of responsible investment that signatory companies shall follow:

1. Integrate ESG factors into investment analysis and decision-making processes
2. Be active owners and incorporate ESG issues into their ownership policies and practices
3. Ensure that investees properly disclose ESG issues
4. To promote the adoption and implementation of the Principles of the initiative in the investment sector
5. Work together to increase effectiveness in implementing the Principles
6. Everyone shall report on their activities and progress in implementing the principles.

It should be noted that while PE firms and foundations are not required to declare their non-financial investments and activities, companies that have signed up to the UNPRI are required to report on their activities and progress in implementing 6 abovementioned Principles. According to the information published by the UNPRI Association, in the beginning of February 2021, 3,711 companies and organizations had signed up and joined the UNPRI initiative: 405 investment service providers, 599 asset managers and 2,707 investment managers. According to the database published by the UNPRI association, the increase of signatories was not steady during the whole period from 2006 until February 2021 - from 2007 to 2009, from 2010 to 2012 and from 2013 to 2016 – the number of companies that adhered to the UNPRI increased, i.e. growth ranged from 14% to 30% per year. While it is noted that in the periods of 2006-2007, 2009-2010, 2012-2013 and 2014-2015 there was a decrease from 0 to 14% in the number of new companies that joined UNPRI compared to the previous year. From 2017 to 2020, the number of new companies and organizations that joined the UNPRI grew from 33% to 67% per year. On average, the growth since 2006 until 2015 reached 10%, while the average annual growth from 2017 until 2020 is exponential and reaches 49% of growth. It is important to note that although the UNPRI association has attracted the greatest interest among asset managers in 2006, from 2010 until 2020 there is a tendency that the majority of newly joined companies or organizations (more than 70% of all joined) is investment managers, which include VC and PE funds. Figure 3 below shows the number of new signatories that have joined the UNPRI from 2006, when the Principles were established, to 2021 (since the analysing period will cover 2010-2020). Please note that the graph below shows that the greatest interest in the UNPRI is prevalent among investment managers, i.e. between private equity funds, venture capital funds and hedge funds, which are the least regulated by institutions and regulated by law. While it appears that the VC or PE funds, hedge funds and ETFs are actively joining UNPRI initiative, the following statement might be supported by UNPRI (2021), which announced that PE firms are making progress in regard to the socially responsible investing and ESG and indicated that 90 PE firms, which have more than $700 billion AUM in total, have signed for new environmental initiative created specifically for private equity - Initiative Climate International (iCI).

Figure 3.

New UNPRI signatories that have joined the association from 2006 to beginning of 2021



Source: UNPRI database, 2021

While it might appear for the public that the most of PE firms are ‘greenwashing‘ – providing false impression that the firms are concerned regarding the environmental and social problems and it is more of a public relations (PR) stunt – part of PE firms (most likely, PE firms in Europe) will be one way or another forced to implement ESG factors in their investments. While sustainability and responsible investment have been a recommended or encouraged factor in the past, yet still an optional one, the European Union is taking seriously the importance of sustainability and social responsibility in the financial sector. Accordingly, the European Parliament and the Council of the European Union published Regulation No. 2019/2088 (Sustainable Finance Disclosure Regulation (SFDR)) on 27 November 2019 towards sustainability disclosure requirements in the financial services sector, where the regulation entered into force on 10 March 2021 and is obligatory for asset managers and other financial markets participants (further - FMP), including PE firms. While the SFDR is directly applied to EU asset managers, FMPs and financial advisers, Baker McKenzie (2020) states that the SFDR will be applicable to non-EU firms in indirect way as well: either directly through the national legislation if non-EU firm sells fund to European Economic Area (EEA) investors or indirectly through relationships with regulated EU firms if non-EU firm sub-manages for EU firm for which SFDR requirements are applicable. Furthermore, the European Banking Authority has published regulatory technical standards (RTS) which will be required to be followed by financial market participants and financial advisers working with the end-investors. The SFDR will provide more transparency in financial markets since the asset managers will be liable to provide the disclosure of information on how ESG factors are implemented at both an entity and product level (PwC, 2020). Please note that the implementation of SFDR is divided into 2 stages:

- Level 1 – implementation of text of SFDR, which entered into force on 10 March 2021.
- Level 2 – implementation of Delegated Regulations or RTS, which according to Commission Delegated Regulation (EU) 2021/70 shall enter into force on 1 February 2022.

As Nordea (2021) states, the SFDR sets different definition criteria for products (i.e. funds), thus the asset managers, financial market participants and financial advisors will be obliged to separate their products into 3 categories:

1. Products with sustainable investments, which have specific sustainable goal and follow the concept of ‘do no significant harm’
2. Products which advocate environmental and/or social characteristics and only invest in companies that follow good governance practices
3. Products which do not fall into first or second group and are considered as out-of-scope products, i.e. non-sustainable products.

According to the Wall Street Journal (2021), when EU introduced the SFDR requirements for s reporting of environmental and social impacts of investments based on 18 metrics (12 environmental and six social metrics), asset managers and financial market participants were frustrated that the proposed SFDR requirements were too demanding and that ESG data on 18 metrics was unreliable. The respective concerns led EU to delay the implementation of Level 2 of SFDR. However, as Nordea (2021) and Baker McKenzie (2020) noted, the requirement for asset managers and financial market participants to comply with SFDR from 10 March 2021 while the SFDR itself is still incomplete and will be completed only after the implementation of Level 2 creates confusion for both EU and non-EU firms – firms have to disclose investments to public and EU Authorities whereas there are no official standards which should specify what kind of information shall be disclosed. Thus, at the moment SFDR creates more confusion to firms in financial sector than benefits to the investors. Furthermore, EU introduced one more Regulation towards sustainable investing – Regulation (EU) 2020/852 (Taxonomy Climate Delegated Act), which entered into force on 12 July 2020. The aim of the respective regulation is to provide a common and clear definition of 'sustainability' by providing a common classification system for sustainable economic activities (European Commission, 2021).

The EU Taxonomy tool shall help investors to understand whether the economic activity is environmentally sustainable and whether the investments of asset managers, financial market participants and other companies are compliant with stringent environmental requirements and high-level policy agreements such as the Paris Climate Agreement. To make the usage and reporting in accordance with EU Taxonomy easier, Technical Expert Group (TEG) published an extensive guidance on sustainable finance for the companies and assets managers. As European Commission (2021) states, the 593 pages report provides technical screening criteria for 70 climate change mitigation and 68 climate change adaptation activities, covering the criteria for 'do no significant harm' to other environmental goals. Such tool will prevent companies, asset managers and other financial market participants from 'greenwashing'.

To summarize the material presented above, it is clear that PE firms that have grown in recent years have faced significant problems, particularly in Europe, where new required reporting obligations will take effect. The PE firms are the least transparent and regulated by government authorities among other financial institutions, therefore PE firms are used to disclose only the mandatory items and do not publish any additional information or report regarding their investments voluntarily. However, as PwC (2020) reviewed, PE firms have noticed an increased investor focus on the issue of social responsibility and ESG matters, i.e. investors and other institutions request to provide both non-financial reports and reporting on ESG incorporation on investments and target companies. As a result, PE firms recognize the rising investor interest in this area and evaluate the possible return on investment and performance of ESG-aware companies in PE funds. As Reynir Indahl and Hannah Gunvor Jacobsen (2019) observed from PE firm

(Summa Equity) perspective, the more company is interested in meeting UN Sustainable Development Goals, the more positive externalities the company creates which further leads to the outperformance of the market, increased revenues and margins. And even though the ESG related matters are quite new for PE firms, PE firms which fail to implement ESG in their investing policy and monitoring will suffer the consequences such as lower exit valuations and create lower value to companies and investors (Reynir Indahl and Hannah Gunvor Jacobsen, 2019). On the other hand, Cowton (2004) states that socially responsible investments can hardly generate higher than average returns since wherever a socially responsible investing fund can invest, the non-socially responsible fund can also invest, at least in theory. As Crifo and Forget (2012) concludes, several academic articles and literatures written by Orlitzky et al. (2003), Portney (2008), Reinhardt et al. (2008), Margolis et al. (2009) and Forget (2010) advocate that the socially responsible investing slowly yet still moves towards over-performance. In the light of recent EU legislation focusing on sustainability and ESG requirements, this paper further reviews the integration of ESG factors in European PE firms.

2. METHODOLOGY OF ANALYSIS OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE POLICY IN EUROPEAN PRIVATE EQUITY FIRMS

In this section of the academic work, the importance of the issue will be provided, the goal will be stated, and the research duties will be outlined. In addition, the key steps of information gathering will be discussed, as well as the research model. Furthermore, alternative research methods will be offered, as well as methodologies used in other academic publications and analyses, in order to justify the research method chosen for this paper's applicability.

2.1. The aim of the research

As indicated in the overview of PE firms in Europe and ESG integration, the incorporation of ESG is quite new topic yet it has received a lot of attention during the recent years and became a mega trend as it represents environmental, social and governance issues. Royal London report (2020), as indicates Private Equity International (2021), reviewed 500 studies analysing ESG performance and concluded that no evidence shows any downside of ESG integration into investing whereas often show an upside effect. The respective Private Equity International report (2021) indicates that there are more than several reasons which drives PE firms to implement ESG policy in their investments:

- Firstly, and most importantly, PE firms have a need to create value in invested companies and ESG investing provides a long-term value by investing in underdeveloped companies or companies which requires investments to accelerate their growth.
- PE firms are in competition for more capital and ESG implementation assist to raise larger funds
- Investors (limited partners) request for more transparency in regard to investments, outcomes and value creation
- Regulatory scrutiny has increased towards PE firms and ESG implementation

McKinsey (2019) reported that global sustainable investment reached $ 30 trillion in 2019 by rising nearly 68% since 2014. Furthermore, McKinsey (2019) stated that out of more than 2,000 studies, 63% studies found a positive impact on value creation, for instance higher equity returns, better management of downside risk, higher credit rating. And only 8% of studies had negative findings of ESG impact on equity returns. According to EY global private equity leaders, ESG issues are going to impact all industry sectors over the next 10 years, thus it shows that ESG topic is not only relevant now, but it is going to be relevant for the next decade as well whereas currently only limited number of academic papers analyses ESG topic from PE perspective. Moreover, according to the 2019 Bank of America Merrill Lynch Global Research, as EY (2021) points out, companies that are well rated on ESG implementation have outperformed the market by nearly 3% per year over the past five years. As Europe was chosen for this analysis, the Sustainable Finance Disclosure Regulation and EU Taxonomy regulations shall be taken into consideration – the respective regulations will further reduce the greenwashing of financial market participants, introduce standardized reporting obligations and framework and will require asset managers and financial market participants (including PE firms) to disclose their products as sustainable and non-sustainable products based on the ESG factors. The mentioned regulations shall significantly increase the interest of PE firms into ESG implementation and disclosure.

Despite the limited number of articles written on this topic, most of the academic papers focus on conducting separate case studies, interviews or surveys, therefore their insights and conclusions are mostly dawned based on a limited number of PE firms or case studies. Due to limited number of academic articles and researches in regard to ESG implementation by PE firms, the aim of this paper is to present the relevance of ESG factors and ESG incorporation in European PE firms. Contrary to the previous articles and analyses, this analysis shall provide more broad view in regard to ESG implementation as the conclusions will be drawn based on the larger population of European PE firms compared to other researches. The goal of this research is to gather as much information as possible on each PE firm in Europe or to obtain aggregated information on PE firms in Europe in order to draw conclusions about all European PE firms, as the goal is to cover European PE firms in general rather than analyse individual firms. Respectively, both quantitative and qualitative research methods shall be used in this analysis.

Research object – Analysis of ESG implementation in European PE firms and comparison of financial and investor's risk management ratios between UNPRI signatory PE firms and non-signatory firms in Europe.

Aim of research:

- Identify the scope of ESG implementation in PE firms in Europe and analyse the implementation from different perspectives by performing comparative analysis of the gathered information.
- Compare financial and investor's risk management ratios of European PE firms, which implemented ESG factors, with the returns and ratios of firms which did not implement ESG.

In order to achieve the aim of the research indicated above, the following **tasks** should be implemented:

1. Compile a dataset based on the list of UNPRI signatories, who have been identified as general partners and limited partners of PE firms, and gather further information about the

establishment of headquarters and internally managed asset classes based on the transparency reports published by UNPRI.

2. Determine the list of European PE firms based on criteria that the internally managed PE assets of the firm shall make up at least 50% of its total assets and the headquarters of firm shall be registered in Europe.
3. Analyse and compare the European PE firms from different perspectives based on the geography of the headquarters, ESG reporting to investors and general public, and information provided to these groups of stakeholders.
4. Determine the list of listed UNPRI signatory PE firms and listed non-signatory European PE firms and gather the information regarding their share price and financial information (ratios) for period from 2010 to 2020.
5. Perform a comparison of returns on share price of listed UNPRI signatory PE firms and non-signatory firms covering the period from 2010 to 2020 and conduct a regression analysis to determine if there is correlation between being UNPRI signatory and better financial and risk management from investor's perspective ratios.

Please note that the vast majority of the data will be presented in the tables and graphs during the study while the linear regression with one regressor analysis will be used to investigate the dependence of financial and investor's risk management ratios on being UNPRI signatory. The following research methodologies will be utilized to achieve the above study objectives:

- Data and information systematization, comparison
- Quantitative research by performing regressions

2.2. The gathering of information and research method

As mentioned in the first part of the paper, the PE firms are less regulated and less transparent than mutual or investment funds which led that the reporting obligations for PE firms are quite loose. Subsequently, majority of the PE firms do not report additional information, which is not mandatory, thus it creates difficulty to obtain relevant and consistent information for the research. It is worth to draw the attention that any more detailed information concerning each PE firm or any specific topic shall be either purchased from the trustworthy source or obtained through the association, which means that most of the information related to the PE firms are not available to the general public. Therefore, the first step in obtaining the relevant information was contacting the associations which may provide the aggregated data or information on each PE firm level. For this purpose, the following associations were identified as the most suitable ones:

- Invest Europe – the world‘s largest PE association which represents Europe‘s private equity, venture capital and infrastructure investment firms.

- Europe Venture Philanthropy Association (EVPA) – community of organisations (including PE firms) which promotes social investing across Europe by providing both financial and non-financial assistance.
- Lithuanian Private Equity and Venture Capital Association (LT VCA) – association which unites 40 active private equity and venture capital firms in Lithuania.
- UNPRI – independent association presented above in the first part of the paper, which acts in a long-term interest of its signatories and seeks to achieve sustainable global financial system.

As the abovementioned associations either do not gather information related to ESG investing or did not responded to the request for assistance, the alternative approaches were identified:

- Gathering publicly available and relevant information from variety of sources and reports to form a database which will be used further for observations regarding the PE firms in Europe
- Conducting interviews with the representatives of PE firms to form a database based on the responses receives during interviews and conducting analysis of the respective database.

Both of the abovementioned alternatives have their own limitations: gathering of information from various sources may provide limited or superficial information regarding each PE firm yet it allows to gather large scale information in terms of number of PE firms whereas the interview alternative may provide in depth information and insights of each private equity firm yet the number of interviews may be limited to quite small amount due to extensive communication required to set up and conduct the interview.

As the goal of this paper is to analyse the ESG incorporation of European PE firms, the interview alternative was rejected due to the fact that the number of interviewed PE firms may not fully represent the ESG incorporation in European PE firms. Thus, the database used for qualitative analysis (systemization of information and comparison) will mostly consist of information gathered from publicly available UNPRI and additional information and reports provide by Bloomberg and Yahoo Finance. UNPRI is the worldwide leading independent organisation which provides trustworthy information, thus it is safe to rely on the information provided by UNPRI and draw conclusions based on the respective information. Furthermore, as the UNPRI requires implementation of ESG factors into investing policy and decision-making process, the association provides extensive information with regards to the ESG implementation by UNPRI signatories. Hence, the database for comparison and evaluation will be constructed based on the list of UNPRI signatories identified as entities investing in private equity and transparency reports published by UNPRI for each signatory separately.

Further, Refinitiv Eikon will be used to determine a final list of PE firms listed on stock exchange in Europe and obtaining the financial information required for the quantitative research (regressions). The final list of firms will be split based on whether the firm is UNPRI signatory. Thus, a dataset for the regression will be established based on the financial information of listed PE firms which will be further analysed to determine if implementation of ESG policy has impact on a firm's financial performance and investor's risk management. The following null hypotheses were raised for this study in order to determine whether being UNPRI signatory has any correlation with better financial or risk management:

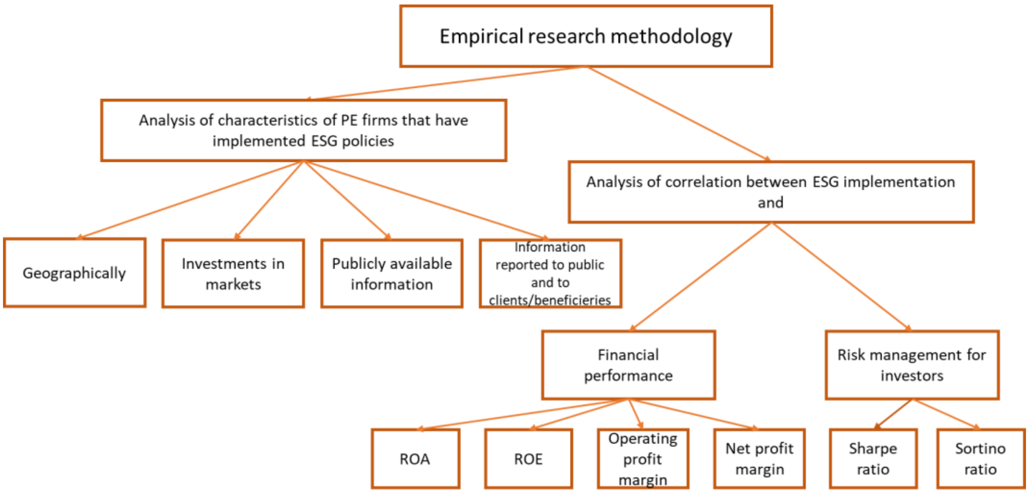
- Being UNPRI signatory does not have any correlation with better financial performance
- Being UNPRI signatory does not have any correlation with the better overall risk of the company
- PE firm, which is UNPRI signatory, does not have any correlation with better risk management from investors perspective

For the determining the financial performance of PE firm, the following ratios will be obtained from Refinitiv Eikon terminal: return on assets (further – ROA), return on equity (further – ROE), operating profit margin and net profit margin which are the main financial ratios of PE firms provided by Refinitiv Eikon. For determining the overall PE firms' risk, the beta value from Capital Asset Pricing Model will be obtained from Refinitiv Eikon terminal and Yahoo Finance whereas for determining risk management from investors' perspective, the Sharpe and Sortino ratios will be obtained. Since neither Refinitv Eikon terminal nor Yahoo Finance provide the information on Sharpe and Sortino ratios, the respective ratios will be calculated by the author based on the share prices and their standard deviation during the period from 1 January 2010 to 31 December 2020. The risk-free rate is taken as the yield of country's 1-year government bonds, provided by Investing.com.

Figure 4 below presents the sequence and elements of the empirical analysis.

Figure 4.

Sequence diagram of the empirical analysis steps



2.3. The suitability of research method

As the ESG incorporation in PE firms is quite a new topic, there is a lack of academic papers analysing PE firms with regards to the ESG aspects. Several research papers have performed case study analysis to provide in-depth insights how the ESG factors are implemented and what is the ESG framework in PE sector. Such analysis was conducted by INSEAD's Global Private Equity Initiative (GPEI) (written by Bowen White, under supervision of Claudia Zeisberger), while Reynir Indahl and Hannah Gunvor Jacobsen (2019) performed several case studies of ESG investing yet with a single PE firm.

It is noteworthy that it might be a case that the academic papers mentioned above choose to conduct the case studies and interviews rather than to gather information towards large number of PE firms due to the extensive number of firms and the amount of input required to construct the database. Furthermore, every year PE firms are either mandatory required to publish more information regarding their investing policies and pre-investment and post-investment information or PE firms voluntary publish such information in order to increase their transparency which, subsequently, improves their reputation.

Since the research of this paper will be based on the information provided by UNPRI, Refinitiv Eikon and Yahoo Finance, the information is trustworthy and further analysis may rely on such database. As indicated above, the official full list of all UNPRI signatories indicates only the country where the head office is established, years when the signatory joined UNPRI initiative and the category of signatory, i.e. whether the signatory is service provider, asset owner or investment manager. In order to identify PE firms in the list of 1919 European signatories, the

UNPRI report (2018) was used which provided a list of PE respondents. Although the report was based on the corresponds which identify themselves as general partners (GP) or limited partners (LP) in 2018, it is the latest UNPRI report which provides a list of PE firms. According to the respective report, 303 European signatories may be identified as GP or LP in private equity. Further, the task was to assure which companies may be considered as PE firms that directly invest into private equity assets at least 50% of their assets and separate companies which provides their funds to PE firms which will take care for the investment. Please note that the majority of UNPRI signatories submit their transparency reports to UNPRI and the UNPRI publishes these reports in UNPRI official website, thus the respective information is available to general public. The information in transparency reports is provided in the official template, therefore the formed database will keep the consistency of information. These transparency reports provided the core information – the reports allowed to confirm which signatories are indeed PE firms, further, which have implemented ESG policy in their investment decisions and provided detailed information on the signatories' transparency and approach towards ESG matters. Moving forward, its essential to mention that the socially responsible investing and green funds shall not be considered as synonyms, e.g. a green fund investing in renewable energy does not necessary means that the fund is fully compliant with ESG requirements and has performed the ESG risk analysis (Crifo and Forget, 2012). Therefore, only PE firms which has implemented specifically ESG policy or ESG factors in their evaluation of investments shall be considered as incorporated ESG.

3. ENVIRONMENTAL, SOCIAL AND GOVERNANCE POLICY IMPLEMENTATION IN PRIVTE EQUITY FIRMS IN EUROPE

3.1. Determination of private equity firms in Europe which implemented environmental, social and governance policy

As BlackRock (2020) identified, 96% of correspondents from EMEA region indicated that socially responsible investment is important and investors of EMEA take social responsibility metrics into consideration of investments. In addition, according to the survey performed by Goldman Sachs Investment, in the end of 2019, 338 separate ESG regulations were in force in EMEA region compared with 23 ESG regulations in US. As EMEA region has significantly more ESG regulations in force, it is expected that EMEA will have a higher number of PE firms which have implemented ESG in their investment process, however, EMEA itself is extremely large region and includes three large groups of countries in Europe, Middle East and Africa, which have little in common considering the political, economic, linguistic, cultural, religious and climatic aspects. As mentioned above, majority of the PE firms do not report the additional information which is not mandatory and therefore create a difficulty to obtain relevant and consistent information for the research. Taking into consideration the newest EU regulations (Sustainable Finance Disclosure Regulation and EU Taxonomy) as well as the serious approach of investors in EU towards socially responsible investing, Europe was chosen as a region for this analysis. To ensure the consistency of the research, it is necessary to determine which countries will be regarded as Europe and which PE firms will be included in the research. Please note that besides European Union, the following countries will be included in European area according to UNPRI list of PE firms: Guernsey, Jersey, Russian Federation, Switzerland and United Kingdom. Even though other countries, for instance Belarus, Ukraine, Serbia, etc., belong to the Europe, no UNPRI signatory PE firms were identified from these countries. Furthermore, only PE firms, which have their headquarters located in Europe will be analysed in this research.

Since most information about private equity firms is either unavailable to the general public or only available at outrageous prices, and because such information is typically used by investors, determining the ultimate number of PE firms established in Europe is difficult. Only three sources provided the general information on the number of European PE firms. According to:

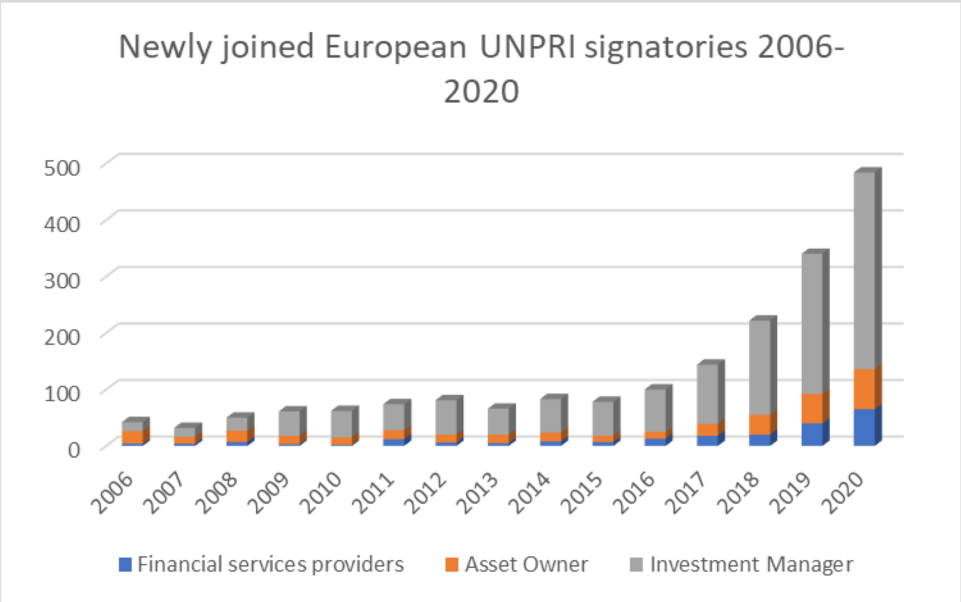
- Invest Europe (2021), there were more than 1,600 PE and VC firms established in Europe in 2020, however, the full list of PE firms is not available to public.
- Crunchbase Inc. website (2021), there are 1,809 PE firms established in Europe at the moment, however, the full list of PE firms is not available to public.

- Private Equity List (2021), currently, there are 1,520 PE firms established in Europe, yet the full list is not available.

Since the full list of PE firms is not available for public, the database will be constructed based on the information provided by UNPRI association. It should be noted that as many as 1,919 European companies and organizations joined the UNPRI initiative by the end of 2020 and represents over 53% of the total number of UNPRI signatories by end of 2020. Figure 5 below presents the growth of European UNPRI signatories from 2006 to 2020 by indicating the number of newly joined European UNPRI signatories and visually presents the distribution of financial services providers, investment managers and asset owners. Based on the graph below, the greatest interest in the UNPRI is prevalent among investment managers, i.e. the PE firms, VC funds and hedge funds, which are the least regulated by institutions and legislations.

Figure 5.

European entities newly joined UNPRI from 2006 to 2020



Source: UNPRI database, 2021

A list of PE firms provided by the UNPRI was used as the starting point in determining which UNPRI signatories are PE firms. In 2018, UNPRI has published an interactive report 'PRI Reporting Framework 2018. RI Practices in Private Equity' which is based on the responses on the responsible investing activities from 1,449 signatories. It should be noted that 6 out of 10 the largest private equity funds listed in Table 2 (Kohlberg Kravis Roberts & Co. L.P. (KKR), TPG Capital, Neuberger Berman, CVC Capital Partners, EQT Partners and Vista Equity Partners) are signatories of the UNPRI. Please note that the respective UNPRI report on the PE responsible investment practices is the latest available, thus the respective list of correspondents was taken as the base for the data analysis. According to the information provided by the UNPRI association (2018), 303 correspondents who had joined the UNPRI initiative were identified as European PE firms, where 216 out of 303 were general partners based in Europe and 107 out of 303 were limited partners established in Europe. Please note that more than several entities were identified as both the general partners and limited partners since have both internally and externally managed funds. It is also important to note that 70 out of 216 European general partners provide reports on climate change as well. Considering that the total number of worldwide general partners which have joined UNPRI initiative is 317 while 216 of them are in Europe, it is worth to note that over 68% of all general partners investing responsibly are in Europe. According to the information disclosed by UNPRI (2019), 15 general partners have not disclosed their investment strategies, while 11 firms out of all the disclosed ones are VC funds and 110 funds are LBO funds, thus general partners with LBO strategies are significantly more likely to join UNPRI which actively promotes social responsibility and implementation of responsible investment principles. The remaining 80 respondents indicated that their investment strategy was either a growth capital, other strategy than listed or a mixture of all of the strategies listed. Thus, please note that only 4% of all 303 signatories indicated that their strategy is venture capital, which corresponds to the observation provided initially that it is though for venture capitals to incorporate ESG factors into their investment process since these firms invest in the seed or early stage of the target company and there is a lack of information available in such stage. Or, as Harvard Kennedy School (2020) noted, VC investments may fail due to implementation of ESG to soon. Furthermore, based on the analysis of the data provided by the UNPRI association (2019), 86% of general partners who have signed up to the UNPRI use references to responsible investing in their private placement or private placement memorandum and indicate that the firms will use the principles of responsible investing in the fund's policies to attract the investors. However, only 69% of these general partners have a legal commitment to formally include provisions on responsible investment in their regulations. According to the information provided by UNPRI (2019), the vast majority of general partners carry out an analysis of ESG factors, but not all carry out full follow-up on the compliance of their target companies with the principles of responsible investment. Although the general partners indicated that they pay more and more attention to ESG factors and responsible investment, 96% of respondents answered that they feel a positive impact on investment financial indicators in 2015, while 94% of respondents confirmed this positive impact in 2018. Given the fact that only 24 respondents answered this question in 2015, whereas 62 correspondence responded in 2018, this significant difference of respondents may be the reason why a lower percentage of respondents noticed a positive impact on financial indicators in 2018. From the perspective of limited partners, this UNPRI (2019) survey showed that investors are mainly interested in:

- how the investment is made and how the objectives of the ESG are achieved

- the quality of investment policy and references to ESG issues
- team experience in ESG, overseeing and ensuring ESG implementation.

The main objectives of investors are the implementation of the ESG policy and the restrictions related to the investment of the ESG, while more than a third of all investors that participated in the survey requested that the reporting would be performed on the annual basis and less than a third of correspondence requested quarterly reporting.

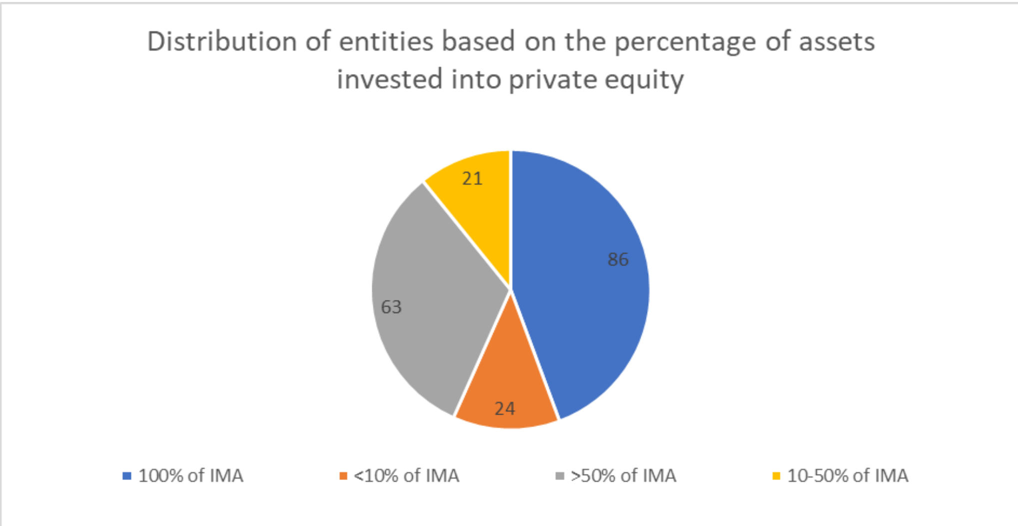
Furthermore, the legal status of 303 European PE correspondents was reviewed and identified that 14 out of 303 correspondents are publicly listed companies and 289 are private ones. Since the aim of this research is to analyse the PE firms which actively manages their funds and investments made into companies that shares are not publicly listed, the list of 303 European entities that are reported as general partners or limited partners according to UNPRI (2018) report shall be reviewed separately. Please note that UNPRI signatories are required to submit their annual transparency reports regarding the responsible investment activities to UNPRI. The respective reports are publicly available, therefore these reports were used for further gathering of information. Once the list of transparency reports for 2020 were reviewed, it was identified that 31 companies did not submit their reports to UNPRI since those entities were delisted from UNPRI list during 2018-2020 period and 1 company (Berkeley Partners LLP) has changed its headquarters' address to Mauritius, thus the respective company is excluded from the list of European PE firms as non-European firm. Respectively, the list has decreased to 272 European firms. Since UNPRI does not provide any summarized information or possibility to export transparency reports to more user-friendly format, each transparency report shall be reviewed in order to extract the information required for further analysis. Please note that all transparency reports are based on the standardized reporting framework, therefore the information gathered from transparency reports will be consistent. The first task of the work is to gather the data regarding the establishment of headquarters and the internally managed asset classes. Going further, the second task is to identify the entities that internally manages their funds and determine the percentage of their funds (assets) invested in private equity. Since Section OO 06.1 of the transparency reports require to report the internally and externally managed assets based on the investment class, all entities that do not manage PE funds internally and outsource this function to the external investment managers were excluded from further analysis according to the information provided in this section. Once the respective procedure was conducted, 77 entities were identified as fully outsourcing their private equity investments to investment managers and, subsequently, excluded from the further analysis as not PE firm. Furthermore, the percentage of total assets under internal management was determined which are allocated to private equity: 86 out of 194 entities reported that their assets are 100% invested in private equity. Whereas only 30 entities out of remaining 108 reported their precise percentage of assets allocated to private equity, hence the whole population of firms was divided into 4 major groups:

- entities which have less than 10% (<10%) of their internally managed assets (IMA) invested into private equity
- entities which have between 10% and 50% (10-50%) of their IMA invested into private equity
- entities which have more than 50% (>50%) of their IMA invested into private equity
- entities which have 100% of their IMA invested into private equity.

Based on the Figure 6 presented below, it is notable that 149 entities may be considered as PE firms since more than 50% of their internally managed assets are invested into private equity which indicates that more than 76% of entities that internally manage private equity investments, have allocated more than 50% of their assets to private equity. A full list of 194 entities which have any internally managed assets in Private equity in provided in Annex 2.

Figure 6.

Distribution of entities based on their percentage of internally managed assets (IMA) allocated to private equity



Source: author's database based on the information from UNPRI, 2021

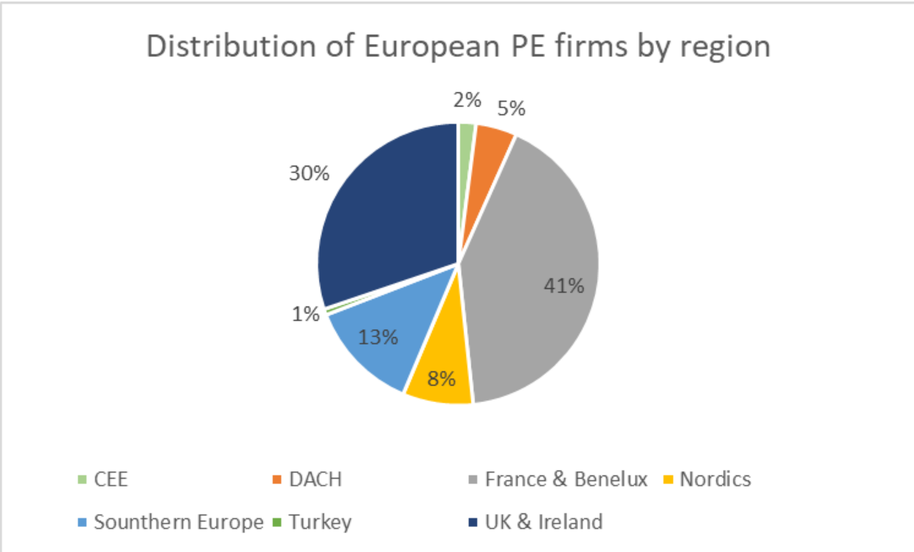
Based on the tasks performed above, it was determined that only 149 entities are indeed PE firms which manage at least 50% PE are indeed PE firms from 303 initially obtained list of entities investing in private equity. Further, the respective information is analysed from different perspectives based on the information provided in the transparency report.

3.2. Breakdown and analysis of United Nations' Principles of Responsible Investing signatory PE firms

Moving further with the analysis, the respective 149 European PE firms will be analysed comprehensively. Firstly, it was identified that only 4 European PE firms out of 149 were publicly listed (3i Group plc, EQT, Eurazeo and Ratos AB) which were identified as listed based on the information provided by Bloomberg and Yahoo Finance. Further, according to the country of headquarters, the regional distribution of European PE firms presented in Figure 7 corresponds to the breakdown of general fundraising by geography presented in Figure 2: nearly half (approx. 41%) of European PE firms which are UNPRI signatories are registered in France and Benelux region, secondly, United Kingdom and Ireland have 30% of PE firms, Southern Europe – 13%, Nordics – 8%, DACH – 5%, CEE – 2% and less than 1% (only 1 out of 149 PE firms) is based in Turkey. Based on their strategy, 59% of European PE firms are the LBO funds, 22% - growth funds, 5% - VC firms and 13% are either mix of strategies, undisclosed or use other strategies. Please note that only 5% of PE firms are venture capital firms, thus as per analysis of literature, it indicates that the venture capital firms are not interested in ESG incorporation as much as PE firms with other investing strategies.

Figure 7.

Distribution of European PE firms based on the region



Source: author‘s database based on the information from UNPRI, 2021

Please note that out of 149 PE firms, 46 firms are outside European Union since their headquarters are registered either in UK (including Jersey and Guernsey), Switzerland or Turkey, thus 103 firms (69% of all European PE firms) of European PE firms are established in European Union. It was necessary to determine which PE firms established in the European Union joined the UNPRI initiative prior to the implementation of the Sustainable Finance Disclosure Regulation (SFDR) or EU Taxonomy in order to determine whether the implementation of the SFDR or EU Taxonomy had any impact on the increase of PE firms joining the UNPRI initiative. Please note that the SFDR was introduced on 27 November 2019 whereas the EU Taxonomy on 12 July 2020, therefore, it was assessed that only 1 PE firm established in European Union became UNPRI signatory after introduction of SFDR and other 102 joined much earlier than EU introduced new

ESG related regulations – only 3 PE established in European Union firms joined the UNPRI before the global financial crisis and other joined between 2008 and 2017. Even though the initial list of companies was based on the UNPRI report published in 2018, the respective analysis indicates that vast majority of firms have already joined the UNPRI prior the implementation of ESG regulations.

Furthermore, the following information was gathered from the transparency reports:

- The percentage allocation of investments based on markets (developed, emerging, frontier or other)
- Whether the entity has an investment policy that covers the responsible investment approach and what proportion of AUM is covered
- ESG incorporation into entity's investment decisions
- Whether responsible investing (i.e. ESG) reporting is publicly available
- Whether the PE specific information is reported only to the clients/beneficiaries or to the public as well and, if the information is reported to the public, whether the same information is reported to the clients/beneficiaries and to the public

The list of abovementioned information will provide a broader view of ESG implementation into PE firms investments and their transparency in ESG implementation.

Firstly, it was observed that all 149 PE firms indicated that they all do have an investment policy which covers their responsible investment approach, and they all incorporate ESG in their decisions making process. Since the UNPRI association unites organizations that have publicly declared their responsible investing initiative, the abovementioned outcomes are reasonable and consistent with the expectations. Further, the firms had to indicate whether such investment policy covers minority, majority or all assets under management (AUM). Vast majority of signatories (87%) indicated that all AUM is covered and only 13% indicated that the majority of AUM are covered by investment policy, i.e. none of the firms indicated that responsible investing policies cover only a minority of AUM. However, not all PE firms publicly disclose their responsible investing components. Based on the information gathered from the transparency reports, the PE firms may be divided into 3 separate groups based on their reporting: 1) firms that publicly provide their responsible investing reports and provide other information regarding their investment policy (Group 1), 2) firms that do not publicly provide their responsible investing reports yet provide other information regarding their investment policy (Group 2) and 3) firms that neither publicly disclose responsible investment policy nor provide any other relevant information regarding their investment policy (Group 3). A very similar number of PE firms fall to the first (44%) or second group (40%) which indicate that there is no clear trend among PE firms to publish their responsible investing reports publicly whereas 16% of PE firms even fall under the third group – these PE firms do not report any relevant information towards their responsible investing publicly. Please note that based on the UNPRI transparency report framework, this section indicates only whether responsible investing reports are publicly available while the respective reports might be not a full length ESG, CSR or sustainability reports which provide full disclose on investments, returns, key performance indicators yet short disclosure on ESG focus areas and issues which taken into consideration by firm.

While all three groups invest more than 85% of their investments into developed markets, the investment preferences of the second group (PE firms that publicly provide other investing information than responsible investing report) and third group (PE firms that do not publicly disclose any investment policy information) markets differ. Those PE firms that do not publicly provides their responsible investing reports yet provide other information regarding their investments, tend to choose emerging markets as their secondary market preference and invest only 1.5% into frontier markets or other markets. Please note that according to Investopedia (2021), a country is considered as frontier market if it is more established than the least developed countries but is not as well established as the emerging markets due to its size, level of inherent risk or high illiquidity. Other markets are considered as the least developed countries and, usually, UNPRI signatories which invest into other markets provide additional comments in which specific countries they invest. Those firms which publish their responsible investing reports, they tend to invest into emerging and frontier markets similarly and invest largest proportion of their funds into other markets among all three groups indicated above excluding developed countries. And the PE firms which do not publicly disclose any investment policy information, is mainly investing into developed markets and as their secondary preference is frontier market while almost no investments made into emerging and other markets. A summarized information on the average PE firms' investments by markets are provided below in Table 7:

Table 7.

Investments into markets based on the reporting level of PE firms

	Developed markets	Emerging markets	Frontier markets	Other markets
PE firms that publicly provide their responsible investing policy reporting	88.54%	6.36%	3.61%	1.49%
PE firms that publicly provide other investing information than investing policy reporting	87.89%	10.53%	0.68%	0.93%

PE firms that do not publicly disclose any investment policy information	91.27%	0.35%	8.33%	0.00%

Source: author, information provided by UNPRI, 2021

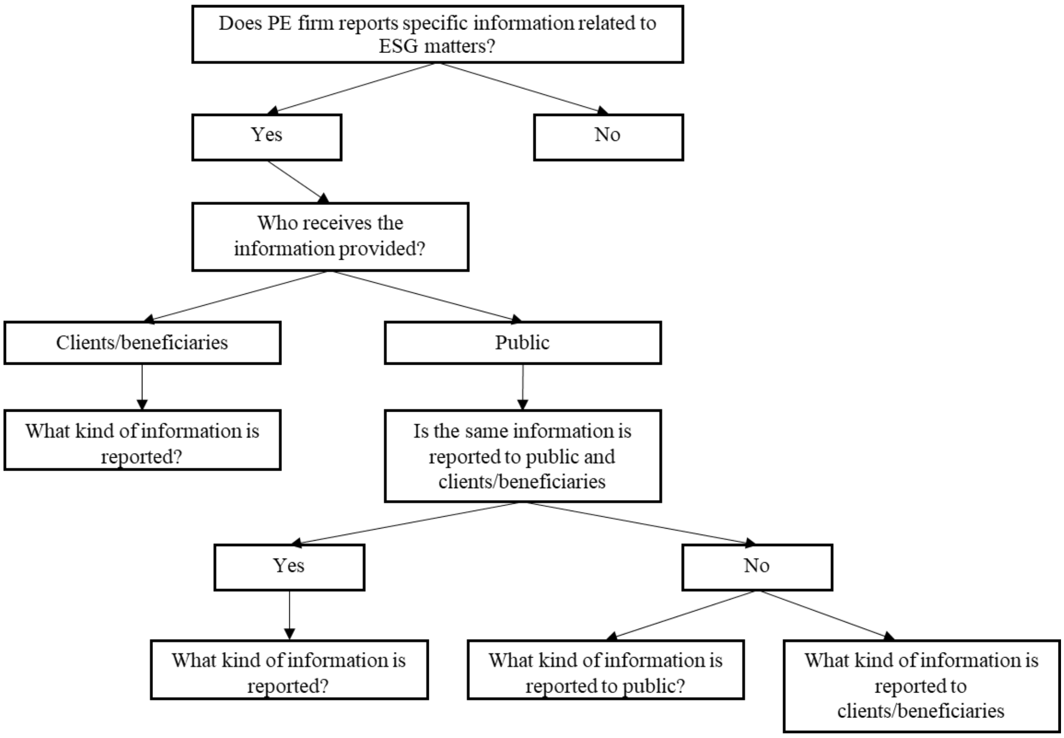
Since the investments into developed markets exceed 85% in all PE firms regardless of their type of reporting, no significant trends of investments into emerging, frontier and other markets have been observed based on type of reporting. Only minor tendencies are identified if the developed markets are not taken into consideration:

- Firms that publish their responsible investing reports invest into all other markets than developed ones quite similarly
- Firms that publicly provide other investing information but do not publish their responsible investing report invest into emerging markets mainly
- Firms that do not publicly disclose any investment policy information, tend to invest into frontier markets which may indicate that the PE firm is willing to take additional risk.

As mentioned, further section of transparency report indicates whether responsible investing reports of the PE firm are publicly available. As a result, the next task was to divide those PE firms that publicly provide their responsible investing reports into separate groups based on whether specific ESG information is reported by the firm and, if reported, to what extend it is available: only to clients/beneficiaries (i.e. investors and related parties) or to the general public. Please note that even if the PE firm chooses to report specific ESG related information to public, the scope of information provided to investors and to public may differ. If signatory indicates that it reports PE or any other asset class specific information to the investors or to the public, UNPRI framework requires to generally indicate the type of information reported. Therefore, the information on specific ESG reporting matters was gathered in the following way as presented in Figure 8.

Figure 8.

The arrangement of data collection for specific ESG reporting matters



Source: author

Prior to evaluating the data, it was assumed that PE firms who released their responsible investing policy reports would also provide ESG-specific information, and that PE firms that do not publicly disclose any investment policy information would not provide such specific information. After gathering the information according to the scheme above, the following discrepancies between the expectations and reported information were identified:

- Accent Equity Partners AB and Litorina, which published their responsible investing reports do not disclose the specific information related to ESG matters either to clients/beneficiaries or the public. The respective firms publicly provide one of the following reports: Sustainable Investment Policy covering Sustainable investment guidelines, ESG integration and monitoring and responsible Investment Framework report, however these reports are not considered as the responsible investing reports by UNPRI.
- Summa Equity, which do not publicly disclose any investment policy information reports, not only provides information to the public, but also on a large scale as well – the firm provides the ESG information in relationship to the pre-investment, post-investment monitoring and ownership activities, and portfolio companies' ESG performance.

Further observations were more or less in line with the expectations:

- those firms, which publish responsible investing reports, tend to report ESG specific information to the public (62%) while those PE firms, which do not provide such reports (Group 2 and 3), tend to not to report ESG information either (73%).
- Out of those 62% of PE firms which publicly report ESG related information, only 40% of firms report the same information to investors and to public while majority tend to disclose more information to the investors rather than to the public – these PE firms mostly published ESG information in relationship to their post-investment monitoring and ownership activities.
- Only 6 PE firms report nearly all ESG related information publicly (1) ESG information in relationship to the pre-investment, 2) post-investment monitoring and ownership activities, 3) portfolio companies' ESG performance and 4) other relevant information), which report the same scope of information to investors as well. However, 14 private equity firms publish all four types of data to investors but do not report the entire spectrum of data to the public.
- Even though half of these PE companies publish ESG/sustainability reports publicly, the discovery that 27 (18%) signatory PE businesses do not report any of the above-mentioned four forms of ESG related information to their clients and/or beneficiaries is impressive.
- Furthermore, 28% of PE firms that publish publicly available ESG/sustainability reports do not report any of the above-mentioned four forms of ESG-related data to the public.
- Another finding is that the majority of companies chooses to report information on post-investment monitoring and ownership actions rather than other type of information.

Annex 3 provides a full list of UNPRI signatory PE firms while indicating the type of information reported by each of 149 PE firm.

3.3. Comparison of financial performance of United Nations' Principles of Responsible Investing signatory and non-signatory European PE firms

According to McKinsey (2019), roughly 68% of more than 2,000 research suggest that ESG has a favourable influence on equity returns. Furthermore, according to the analysis, ESG implementation not only increases equity returns but also lowers downside risk. According to these words, one of the goals of this research is to see if ESG implementation has any impact on financial performance of European PE firms and risk reduction from the perspective of the investor. Consequently, the ESG impact will be tested on four financial ratios (ROA, ROE, operating profit margin and net profit margin), one indicator of company's systematic risk (beta indicator) and two investor's risk management ratios (Share and Sortino ratios).

For further regression analysis, a list of European PE firms listed on stock exchange shall be determined. The respective information is obtained from Refinitiv Eikon terminal which provided a list of European PE firms listed on stock exchanges. According to this list and a list of UNPRI signatories, 61 PE firms were identified as non-UNPRI signatory firms (further – non-signatory firms) and 12 PE firms as UNPRI signatories. However, the lists shall be adjusted due to the following aspects:

- 3 PE firms from non-signatory list and 1 PE firm from UNPRI signatory list have performed initial public offering only in 2021, thus these firms shall not be included in the analysis among other listed PE firms as the analysing period is from 1 January 2010 to 31 December 2021.
- The financial reports of 10 PE firms from non-signatory list are not publicly available according to the database of Refinitiv Eikon, Wall Street Journal, MarketWatch and Morningstar. Thus, the respective 10 firms shall be excluded from further analysis.
- 2 PE firms became UNPRI signatory firms in 2021 whereas this analysis covers a period from 2010 until 2020, therefore these firms shall be considered as non-signatory firms.

Upon these rearrangements, the final list for the regression consists of 50 listed PE firms which are non-signatories and 9 listed PE firms identified as UNPRI signatories. The full initially obtained list and adjustments made in the list are provided in Annex 4. Further the following information was obtained to fulfil the dataset for analysis:

- Two dates are significant for this dataset: a date when a PE became publicly listed to determine from which year information will be used for analysis and a date when a PE became UNPRI signatory to determine until when the PE shall be considered as non-signatory firm. If the firm became listed or became UNPRI signatory during the first half of the year, the firm will be considered as publicly listed and/or UNPRI signatory for the whole year. Otherwise, if the company became listed and/or UNPRI signatory during the second half of the year, the firm will be considered as publicly listed or UNPRI signatory only as of next year. Since being a UNPRI signatory is categorical data (either the company is UNPRI signatory or it is non-signatory company), the dummy variable UNPRI_Signatory will represent this feature. Respectively, if the dummy variable is 1, it indicates that the firm is UNPRI signatory whereas if the dummy variable is 0, the firm is non-signatory.
- the financial reports of each PE firm were obtained starting from 2010 or the year when PE firm became publicly listed until 2020, since only few PE firms have already provided

their financial reports for 2021. The respective time period should be sufficient to make conclusions regarding the findings from the analysis and it excludes the great financial crisis of 2007-2009 which may provide the invalid results.

The aim of this analysis is to perform several linear regressions with one regressor and correlations to determine the relationship (the correlation and the degree of such correlation) between the implementation of ESG policy (being the UNPRI signatory) and the following significant financial ratios:

- return on assets (further - ROA) which may indicate if the UNPRI signatory PE firm manages company's assets more efficiently while generating earnings
- return on equity (further – ROE) which may indicate if the UNPRI signatory PE firm is more efficient by turning investors' (limited liability partners') investments into earnings
- operational profit margin which may indicate if UNPRI signatory PE firm is more efficient in reducing variable costs (e.g. wages, rent of premises, administrative costs) before interest and taxes while generating profits
- net profit margin which may indicate if UNPRI signatory PE firm is more efficient in generating overall net profit.

Furthermore, it is also crucial to understand if there is a relation between being an UNPRI signatory and riskiness of the PE firm, therefore the linear regression with one regressor will be performed to determine the degree of relation between being an UNPRI signatory and PE firm beta from Capital Assets Pricing Model. Furthermore, it is relevant to analyse if there is any correlation between implementing ESG policy and the risk management from investors perspective, thus the correlation between being UNPRI signatory and the following ratios will be tested:

- Sharpe ratio, which assist investors in determining the return on an investment in relation to the risk involved by calculating the ratio of average excess return (the risk-free rate is deducted from the return) per unit of standard deviation of the excess of share price.
- Sortino ratio, which is similar to Sharpe ratio and evaluates the return on an investment in relation to the risk involved, however, taking only the downside of the standard deviation.

To demonstrate that incorporating ESG factors into investment decisions and monitoring produces meaningful results, a comparison will be made between the share price returns of European PE firms that are UNPRI signatories and have incorporated ESG factors into their investment decisions and monitoring and those European PE firms that are non-signatories, assuming that the respective firms have not included ESG factors. As mentioned above, only 9 publicly listed European PE firms have joined the UNPRI initiative: 3i Group plc, EQT AB, Eurazeo SA, Ratos AB, Wendel SE, Partners Group Holding AG, Shareholder Value

Beteiligungen AG, CapMan Oyj and Hitecvision AS. The headquarters (HQ) of these firms are registered in the following countries: United Kingdom (1), Sweden (2), France (2), Switzerland (1), Germany (1), Finland (1) and Norway (1). Please note that Yahoo Finance has additional section which provided information regarding the listed company's sustainability. This section is divided into two components: ESG risk rating and controversy level and both measures are determined by Sustainalytics, Inc, a company which is part of Morningstar Group and provides high-quality ESG and corporate governance rating, analysis and research firm. According to Yahoo Finance (2021), the ESG risk rating assesses the level of risk to a company's business value where the risk is based on the environmental, social and governance position. Each environmental, social and governance score is determined based on the industry-specific risks and how the company is managing risks in each sphere while the final ESG score indicates the unmanaged ESG risk on a scale from 0 to 100, where the lower the rate – the better managed risk. Other indicator, controversy level, indicates the level of company's involvement in various negative incidents or events which have impact on stakeholders, the environment or operations (Yahoo Finance, 2021). The controversy level is measured from 0 to 5, where 0 indicates that the company had none of negative incidents or events while 5 indicates that the company was involved in the severe incidents or events, thus the same as with ESG score – the lower score is better. Please note that Yahoo Finance provided information regarding the ESG risk score and controversy level only for 4 PE firms out of 59 publicly listed firms. According to Yahoo Finance, PE firms manage the environmental risk the best – the total score for environmental part is 19,4 of all 4 firms. Whereas the social risks are managed at worst – total score is 30. On the other hand, the total score for the management of governance risks is 27.9 which is slightly better than the score for social risk. However, as mentioned in the literature part, one of the main PE management tools is governance, thus it was expected that the PE firms will have better score for the management of these risk. Wendel SE has the best ESG score (9/ Negligible risk) since the environment risk score of Wendel SE is 0.1, social risk score is 2.9 and the governance risk score is 10.0, which indicate that Wendel SE reduced environmental risk level at the lowest possible point, social risk is reduced to indeed low level (lower than 3i Group plc) while the governance is the weakest point and could be managed at the better level. Furthermore, 3i Group plc is the only PE firm that has a controversy level of 0 in Yahoo Finance which indicates that 3i Group plc had no events or incidents which could negatively affect the company, their shareholders, stakeholders or other related parties. Please note that the peer's (PE firms) average is 1.7 score. EQT has a controversy level of 1 and, on the contrary of 3i Group plc, Welden SE and Partners Group Holding AG have a score of 2 which indicates that the firms had several negative events or incidents and has moderate controversy level. All scores of 4 PE firms are provided in the Table 8 below.

Table 8.

ESG risk score split and controversy level of listed European PE firms, UNPRI signatories

PE firm	Total ESG Risk score	Environment Score	Social Score	Governance Score	Controversy score
3i Group plc	12 / Low risk	0.1	6.5	5.0	0
EQT AB	37 / High risk	18.7	10.6	7.6	1
Wendel SE	9/ Negligible risk	0.1	2.0	6.5	2
Partners Group Holding AG	20/ Medium risk	0.5	10.9	8.8	2

Source: Yahoo Finance, 2021 (as of 18 December 2021)

Sustainalytics, Inc has available ESG ratings for other companies as well even though the scope of publicly available information is extremely limited. Therefore, the total ESG risk score and the rating in industry group were determined for more listed European PE firms. Table 9 indicates the total ESG risk rating and rating of the firm between other peers for 11 out of 59 listed European PE firms. Please note that according to Sustainalytics, Inc, Aurelius Equity Opportunities SE & Co KGaA and Ratos AB have the highest ESG scores which mean the highest level of risks related to ESG which. As Ratos AB is the UNPRI signatory, it is kind of odd that Ratos AB have one of the highest ESG risks compared to non-signatory firms. The total ESG risk score of Wendel SE is 8.9 – the lowest score among all listed European PE firms (both UNPRI signatories and non-signatories), therefore the ESG risk of Wendel SE is negligible and it could be concluded that Wendel SE is the leading listed PE firm in ESG incorporation and manages the ESG risk the best even though Wendel SE joined UNPRI only on 6 May 2020. Please note that only 3 out of 50 listed PE firms which are non-UNPRI signatories are rated by Sustainalytics, Inc which clearly have higher ESG risk scores than UNPRI signatories. On average, UNPRI signatories have a rating of "Low" risk score of ESG risk whereas non-signatories have "Medium" or "High" score for ESG risk. Since Sustainalytics, Inc provides information only for larger listed PE firms, the ESG risk scores cannot be assessed for other European PE firms which are private or listed yet small firms.

Table 9.

ESG risk score of listed European PE firms

PE firm	Total ESG Risk score	Industry Group (Diversified financials industry)

3i Group plc	11.6/ Low	20 out of 933
EQT AB	18.7/ Low	121 out of 933
Eurazeo SA	19.5/Low	133 out of 933
Ratos AB	31.3/High	565 out of 933
Wendel SE	8.9/Negligible Risk	6 out of 933
Gimv NV	11.1/Low	16 out of 933
Rocket Internet SE	27.6/Medium	845 out of 994*
Deutsche Beteiligungs AG	26.8/Medium	343 out of 933
Partners Group Holding AG	20.2/Medium	147 out of 933
Aurelius Equity Opportunities SE & Co KGaA	31.4/ High	572 out of 933
MedCap AB (publ)	24.6/ Medium	103 out of 1027**

*According to Sustainalytics, firm belongs to Software & Services industry

** According to Sustainalytics, firm belongs to Pharmaceuticals industry

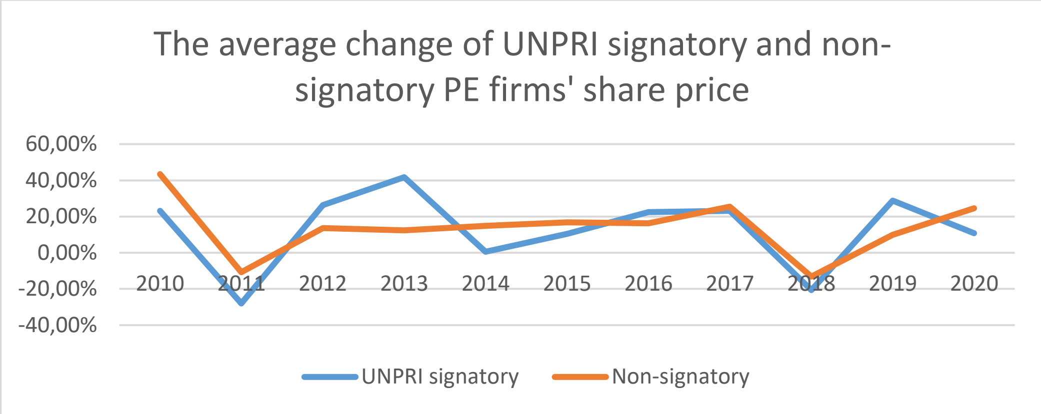
Source: Sustainalytics, Inc, 2021 (as of 18 December 2021)

As the list of UNPRI signatory PE firms and non-signatory PE firms has been established, the returns of these groups may be compared. To compare the changes in share prices of European PE firms, the comparison should be made over a long period of time, such as 10 years. The historical share prices from 1 January 2010 until 31 December 2020 were obtained using Yahoo Finance and Refinitiv Eikon terminal. Out of 59 firms, 14 PE firms were listed on stock exchanges later than 1 January 2011: 1 UNPRI signatory (EQT (listed on 16 October 2019) and 13 non-signatories. After review of information and calculation of standard deviation, it was noticed that the growth of PE firms' share prices is unstable – while PE firms manage to achieve a decent increase in share price in one year, the share prices fall as sharply the next year as increased in the previous year. Please note that the average standard deviation of annual PE firms' share price is 39.80% which points how greatly the share prices of listed European PE firms fluctuate. As Fidelity (2021) indicates, usually the high volatility is associate with the high risk and uncertainty, however, if investors focus on the long-term performance, such investor is less concerned with the short-term volatility. Even though the listed PE firms provide an opportunity for the investors to withdraw from the investment at the most convenient time for them, as mentioned in the first part of paper, the main investors in PE firms are pension funds which take long-term investments, thus, such investors shall not be concerned regarding the high volatility if the share price of PE firm increases over the long-term. The highest average return per year on share price was achieved by KlickOwn AG (83.23%, non-signatory), Heidelberger Beteiligungsholding AG (68.20%, non-signatory) and EQT AB (58.06%, UNPRI signatory) whereas the lowest average return per year had AdCapital AG (-8.76%, non-signatory), Trade & Value AG (-11.22%, non-signatory) and Sociedade Comercial Orey Antunes SA (-18.15%, non-signatory).

If we compare the average growth of PE firms during the period from 2010 to 2020, firstly, it is very clear that the changes in share prices of UNPRI signatory and non-signatory PE firms have similar patterns. As we may see, the share price of both signatory and non-signatory PE firms had a significant drop in share price during 2011 whereas both had achieved great returns during 2010. Both groups of PE firms have recovered in 2012 and had great decrease in 2018 as well. The main differences appeared: 1) in 2013 as the growth of share price of UNPRI signatory PE firms continue to increase whereas the growth rate of non-signatory PE firms slightly decreased, 2) in 2014 when the growth rate of UNPRI signatories' share price was nearly zero percent (0.56%) while non-signatory firms had an average growth rate of 14.93% and 3) in 2020 when the growth rate of UNPRI signatories decreased nearly 20%, however, the growth rate of non-signatory firms increased nearly 15%. Even though the non-signatory PE firms have provided better results than UNPRI signatories from the perspective of growth of share price, the ESG factors are only gaining the growth and acceleration, thus the returns of UNPRI firms may exceed the returns of non-signatory PE firms in due course. Please note that few PE firms, which were non-signatory PE firms during the analysing period, have joined UNPRI initiative during 2021, thus the respective PE firms may have already implemented ESG factors in their decision-making process during 2010-2020 before joining UNPRI. To support such statement, the financial reports of more than several non-signatory PE firms were reviewed and it was identified that part of them have already implemented ESG factors in their decision-making process even though they were not UNPRI signatories during analysed period – for instance, HarbourVest Global Private Equity Ltd, BMO Private Equity Trust, Deutsche Beteiligung, NB Private Equity Partners Limited and Pantheon International PLC. To conclude, the overall average growth of share price during the period from 2010 to 2020 was higher by non-signatory firms as the growth rate for the whole period would be 280.24% while the growth rate of UNPRI signatory firms during the same period was 150.71%. While the comparison of average annual growth of UNPRI signatory PE firms and non-signatory PE firms indicates that non-signatory firms have slightly better growth rates, it should be noted that in 2010 only 2 PE firms were UNPRI signatory and the number increased up to 9 in 2020. Therefore, the conclusions on the UNPRI share price growth are drawn on quite small sample. The average annual return of UNPRI signatory and non-signatory firms are provided in Figure 9 below.

Figure 9.

The average annual change of share price of UNPRI signatory and non-signatory PE firms during period from 2010 to 2020



Source: author, information from Yahoo Finance, 2021

Further, the financial ratios (ROA, ROE, operating profit margin and net profit margin) were obtained for period from 2010 (if the PE firm became publicly listed after 1 January 2010, then from the date it became publicly listed) until 31 December 2021 for each PE firm using Refinitiv Eikon terminal to do a linear regression with one regressor analysis and examine the association between being a UNPRI member and the PE firm's financial performance. While Refinitiv Eikon provided information on ROA and ROA for all 59 PE firms, Refinitiv Eikon had no information regarding the operating profit margin and net profit margin of the following PE firms: NB Aurora SA SICAF RAIF, Elbstein AG, Spobag AG and AB Effectenbeteiligungen AG. The remaining firms provided information on the respective financial ratios, however, in some cases the information was missing yet only for one or few years. The size of sample for ROA regression is 562 observations and for ROE regression – 558, for operating profit margin (OPM) and net profit margin (NPM) - 516. After performing the linear regressions with one regressor, it was determined that the null hypothesis for ROA is rejected by all three tests – Student test (T test) has a result of 2.9037 whereas the critical value is 1.647, Fisher test has a result of 8.4316, thus it also exceeds the critical value of 3.8415 and the p-value of this regression is way below 0.01, which indicates that the null hypothesis may be rejected with less than 1% possibility of error. Nonetheless, R^2 of this regression is 0.0148, thus being UNPRI signatory may explain only 1.48% of changes in ROA ratio. Therefore, it may be concluded that being UNPRI signatory has a correlation with better ROA ratio. However, the remaining 3 regressions did not provide such results as regression on ROA. None of 3 performed regressions rejected the null hypothesis due to absence of evidence (neither values of Student (T test) exceeded the critical value of 1.647 for T test nor values of Fisher test exceed critical value of 3.8415 for F test (both with the probability of 0.05). The p-value is also significantly higher than 0.05 value to reject the null hypothesis). The p-value for regressions performed on ROE, operating profit margin and net profit margin are nearly or already exceeding 0.5 value. Thus, it may be concluded that being UNPRI signatory has significant correlation with higher ROA, however, has no correlation with ROE, operating profit margin or net profit margin. Results of discussed regressions provided in Table 10 below.

Table 10.

Results of regressions performed on ROA, ROE, OPM and NPM ratios

	r	R^2	β	β²	$T_{calculated}$	$T_{critical}$	$F_{calculated}$	$F_{critical}$	p-value
ROA	0.1218	0.0148	0.0456	0.0800	2.9037	1.647	8.4316	3.8415	0.0038
ROE	0.0334	0.0011	-0.0530	0.2724	0.7871	1.647	0.6195	3.8415	0.4316
OPM	0.0173	0.0003	8.0803	-7.6646	-0.3933	1.647	0.1547	3.8415	0.6943
NPM	0.0208	0.0004	17.6607	-17.2902	-0.4726	1.647	0.2233	3.8415	0.6367

Source: author

It is important to draw the attention that the PE firms invest in private equity targets (companies), including small and medium companies, thus the investments and financial goals are set for a long-term. Respectively, the aim of investors and PE firms is to receive their invested money with a considerable profit within 10 years period (CFA Curriculum 2022, 2021). The regressions which provided results that there is a significant correlation between being UNPRI signatory and higher ROA ratio yet there are no correlations between being UNPRI signatory (having ESG policy implemented) and better ROE, operating profit margin and net profit margin, were performed based on the annual financial ratios. However, the annual financial ratios of PE firms are unstable which may not differ depending on whether or not the PE firm is a UNPRI signatory and, subsequently, may not provide a complete picture of PE firm’s performance. For instance, the annual change in ROA varies from decrease of -16,950% (change of ROA between 2019 and 2020 of Gozde Girisim Sermayesi Yatirim Ortakligi AS) to increase of 4,200% (change of ROA between 2018 and 2019 of Airesis SA). Large variations can also be caused by inconsistencies in reporting or information that isn't tailored to the needs of private equity firms. Thus, to avoid these fluctuations, analogous regressions were performed, however taking the average ROA, ROE, operating profit margin and net profit margin of each firm. The sample size dropped to 59 observations for ROA and ROE regressions and 55 observations for operating profit margin and net profit margin, nonetheless, it is still quite large samples to perform regressions. The PE firm was considered as UNPRI signatory if most of the analysed time (2010-2020) the PE firm was UNPRI signatory. Based on newly compiled data, out of 59 observations for ROA and ROE and 55 for operating profit margin and net profit margin, only 4 PE firms will be taken as UNPRI signatories. After performing new regressions, nearly the same results were received – null hypotheses that being UNPRI signatory has no correlation with ROE, operating profit margin and net profit margin are not rejected as none of the three tests provide results which allow to reject the hypothesis - p-values (0.4901 for ROE regression, 0.8586 for operating profit margin and 0.7203 for net profit margin) were no close to 0.05 threshold and T test and Fisher test results did not exceed the critical value. However, it is important to mention that in this case the results of regression performed on average ROA did not allow to reject null hypothesis as well. Results of discussed regressions provided in Table 11 below.

Table 11.

Results of regressions performed on average ROA, ROE, OPM and NPM ratios per PE firm

	r	R^2	β	β²	$T_{calculated}$	$T_{critical}$	$F_{calculated}$	$F_{critical}$	p-value
ROA	0.2339	0.0547	0.0455	0.0866	1.8161	1.671	3.2982	4.0012	0.0746
ROE	0.0916	0.0084	-0.1244	0.3969	0.6947	1.671	0.4826	4.0012	0.4901
OPM	0.0246	0.0006	5.171	-4.7625	-0.1791	1.671	0.0321	4.0012	0.8586
NPM	0.0494	0.0024	15.2236	-14.8773	-0.3599	1.671	0.1296	4.0012	0.7203

Source: author

After performing more than several regressions, only the regression on annual ROA provided the highly statistically significant correlation with being UNPRI signatory. Whereas all other obtained results do not allow us to reject null hypotheses, thus it may be concluded that there is no correlation between being UNPRI signatory (which implemented ESG policy) and financial ratios such as ROA, operating profit margin and net profit margin of PE firms.

According to W. Sharpe's Capital Asset Pricing Model (CAPM), the beta of securities may reflect the systemic risk of the instrument: stocks with a beta greater than one are considered aggressive instruments since they are riskier than the market index while stocks with a beta less than one, on the other hand, have less systemic risk and are said to be defensive. Thus, to determine the strength of relationship between being UNPRI signatory and lower systematic risk, the beta of each PE firm shall be determined. Such information may be obtained from Yahoo Finance or Refinitiv Eikon terminal. As Refinitiv Eikon provides information on more PE firms, information on beta was obtained from Refinitiv Eikon. Nevertheless, beta indicator was not obtained for the following PE firms: Hitecvision AS, NB Aurora SA SICAF RAIF, Flexdeal SIMFE SA, AB Effectenbeteiligungen AG, Etrinell AS and Sociedade Comercial Orey Antunes SA. As information regarding beta indicator was obtained as of 27 December 2021 and Refinitiv Eikon tool does not provide retrospective information on betas, for this regression Gimv NV and Deutsche Beteiligungs AG are taken as UNPRI signatories since these PE firms has joined UNPRI association by 27 December 2021. The regression was performed with 53 samples. After running a linear regression with one regressor, it was determined that R^2 is 0.1690 and P-value is 0.0022 which means that being UNPRI signatory may explain the 16.90% of beta variance. Since P-value is between 0.001 and 0.01, there is strong evidence to reject null hypothesis that there is no relationship between being UNPRI signatory and systematic risk of the PE firm‘s shares (beta indicator). Both calculated values for T test and Fisher test exceeds critical values (T test critical value of 2.40 and Fisher test critical value of 7.077, both with the probability of 0.01), thus these tests also indicate that the null hypothesis shall be rejected since being UNPRI signatory has a significant impact on the change of systematic risk (beta). However, the coefficient of this regression is 0.5014, which indicates that being UNPRI signatory increases beta value. Such conclusion that UNPRI signatory PE firms have higher systematic risk by having higher beta value would contradict the above literature analysis of this work, which stated that firms implement ESG policies to reduce company risks. As mentioned by McKinsey (2019) in their report, only 8% out of 2,000 studies found negative ESG's influence on equities returns. Because the purpose of this study was not to investigate further what might be the cause of the relationship between being a UNPRI signatory and the independent variable, it did not investigate further what might be the cause of the regression's results. To determine if the rationale for the results received is due to the firm's investment strategy (i.e. VC or LBO) or a result of the small number of UNPRI signatory firms, a separate analysis should be conducted. Results of discussed regressions provided in Table 12.

Table 12.

Results of regression performed on beta indicator

r	R^2	β^1	β^2	$T_{calculated}$	$T_{critical}$	$F_{calculated}$	$F_{critical}$	p-value
0.4111	0.1690	0.6321	0.5014	3.22	2.40	10.3691	7.077	0.0022

Source: author

The Sharpe and Sortino ratios are used to evaluate the return on investment compared to the risk taken by the investor. Sharpe and Sortino ratios were calculated for period from 2010 (if the PE firm became publicly listed after 1 January 2010, then from the date it became publicly listed) until 31 December 2021 for each PE firm by using information on the share price from Yahoo Finance and Refinitiv Eikon terminal. In some cases, it was not possible to calculate the Sharpe or Sortino ratios as the standard deviation was equal to zero, so respectively, the sample size for regression analysis on Sharpe ratio is 559 and the sample size for regression analysis on Sortino ratio is 546. The conclusions of the regression analyses reveal that R^2 is 0.0037 which means that being UNPRI signatory may explain the 0.37% of Sharpe ratio variance and being UNPRI signatory may explain the 0.02% of Sortino ratio variance. Furthermore, all three tests (Student test, Fisher test and p-value test) evidence that there is no correlation neither between being UNPRI signatory and Sharpe ratio nor between being UNPRI signatory and Sortino ratio (T test critical value is 1.647 while the calculated value for Sharpe is 1.4316 and for Sortino is 0.3094.

For critical value for Fisher test is 3.8415, yet the calculated value for Sharpe is 2.0494 and for Sortino – 0.0957), consequently, these results do not reject both null hypotheses. Results of discussed regressions are provided in Table 13.

Table 13.

Results of regression performed on annual Sharpe and Sortino ratios

	r	R^2	β	β²	T_{calc}	$T_{critical}$	F_{calc}	$F_{critical}$	p-value
Sharpe ratio	0.0605	0.0037	4.1825	4.5523	1,4316	1.647	2.0494	3.8415	0.1528
Sortino ratio	0.0133	0.0002	10.7568	2.3256	0.3094	1.647	0.0957	3.8415	0.7571

Source: author

As mentioned above, the investments and financial goals of PE firms are based on long-term, thus PE firms are not oriented into short-term returns. Respectively, the annual returns on stock prices are highly volatile, e.g. the annual stock return of Wendel SE varies from -38.91% of loss to 43.23% of return during the period from 2010-2020. To eliminate the effect of these large fluctuations on the results obtained, additional regressions were performed while taking the average Sharpe and Sortino ratios of each firm during the period 2010-2020. The obtained sample size was 59. The same as with the average ratios of ROA, ROE, operating profit margin and net profit margin, the PE firm was considered as UNPRI signatory if most of the observation time the PE firm was UNPRI signatory. Based on results of performed linear regressions with one regressor on the average Sharpe and Sortino ratios, the results of the newly performed regressions are slightly better for Sortino ratio and slightly deteriorated for Sharpe ratio compare with the previous regressions. However, the respective results still lead to the same conclusions that there is no correlation between being a UNPRI signatory and better Sharpe or Sortino ratios. Therefore, the null hypotheses that there is no correlation between being UNPRI signatory and higher Sharpe and/or Sortino ratio may not be rejected. Results of these regressions are provided in Table 14.

Table 14.

Results of regression performed on average Sharpe and Sortino ratios per PE firm

	r	R^2	β	β²	T_{calc}	$T_{critical}$	F_{calc}	$F_{critical}$	p
Sharpe ratio	0.1799	0.0324	3.7716	5.9962	1.3808	2.40	1.9065	7.077	0.1727
Sortino ratio	0.0990	0.0098	9.5586	4.2341	0.7512	2.40	0.5643	7.077	0.4556

Source: author

After performing multiple regression to evidence a correlation between being UNPRI signatory and better financial performance or investor's risk management, it is difficult to reject the null hypotheses which state that there are no correlations. The only found correlation which is significant is the correlation between UNPRI signatories and ROA ratio. Although the correlation between being UNPRI signatory and beta indicator was found, the respective results provide mixed signals as it indicates that UPRI signatories have greater systematic risk (beta) than non-signatory firms. This relationship contradicts the findings of other studies which argue that ESG implementation reduces risk of the company, therefore further studies should be performed to analyse the relationship between ESG implementation (being UNPRI signatory) and higher beta indicator. Further, listed PE firms, which are not UNPRI signatories, may have integrated ESG factor as well as European PE firms increasingly implements ESG policy in their investment decisions and publicly disclosure the respective implementation. Thus, their share price and ratios might be affected by this matter as well. And even though the share price of non-signatory PE firm have better performance, the share prices of each PE firm may be affected by various factors: as Manuela Tvaronavičienė and Julija Michailova (2006) specifically indicated, monetary and fiscal policies, interest rates, inflation, the economic and external events, business cycles, technical factors. Lastly, even though Refinitiv Eikon provided 59 PE firms established in Europe, we cannot be sure that this number is indeed final. Thus, the percentage of European PE firms which are UNPRI signatories and have implemented ESG in their investing decision could not be determined. Regardless of all limitations stated above, this work achieved its aim to review and analyse European PE firms, which are UNPRI signatories and have implemented ESG factors in their investing decisions, from different perspectives (geographically, publicly available information, ESG implementation in investing decisions) as well as analysed whether there is a correlation between the financial and investor's risk management ratios and being UNPRI signatory using linear regressions with one regressor.

4. CONCLUSIONS AND RECOMMENDATIONS

This paper concentrates on the European PE firms and their ESG implementation in monitoring and decision-making process. In the last few years, European Union has introduced Sustainable Finance Disclosure Regulation and EU Taxonomy which increased the pressure for PE firms to incorporate ESG factors in their investments. Since the respective topic is quite new, the ESG implementation is not fully analysed in terms of PE firms. Therefore, the aim of this paper was to review the ESG incorporation in European PE firms based on several different criteria and concentrating mainly on the firms which are UNPRI signatories. Other research papers have used case study analysis or conducted interviews with the PE firms to provide in-depth insights into ESG incorporation in the PE market. Yet the interview and case study research methods severely limit the number of firms reviewed and analysed, and such analysis usually does not provide a complete picture of ESG incorporation in a given region. The research of this work might be divided into two parts. The first section of the report scrutinizes 149 PE firms that joined the UNPRI initiative to identify characteristics of PE firms that have embraced ESG policies. The second part of the research explored the link between being a member of UNPRI and better financial performance and better investor's risk management through regression analysis. First part of work initiate analysis with the list of 303 firms and based on certain assumptions and analysis performed, the number of PE firms was reduced to 149. The respective number of firms may provide a more comprehensive insights regarding the incorporation of ESG in Europe rather than an interview or case-studies. This paper indicates how the European PE firms are distributed geographically, to which markets PE firms invests and which firms and the percentage of total PE firms provide information to the public or at least investors regarding the responsible investment policy and information regarding ESG matters. The analysis of 149 UNPRI signatory PE firms confirmed the breakdown of general fundraising by geography presented in Figure 2: nearly half of European PE firms which are UNPRI signatories are established in France and Benelux region, 30% in United Kingdom and Ireland and 13% of PE firms in Southern Europe. Further it was determined that all PE firms, regardless of their level of ESG and sustainability reporting to the public, invest primarily in developed markets. However, PE firms that publicly disclose their responsible investing policy reporting do not avoid investing in least developed markets, while PE firms that publicly disclose other investing information than investment policy choose to invest in emerging markets, and PE firms that do not publicly disclose any investment policy information choose frontier markets. Lastly, the analysis of UNPRI signatories' characteristics is finalized by identifying that only 40% of the PE firms that publicly report ESG data (62% of all PE firms report such data) do so in the same way to investors and the general public, with the majority disclosing more information to investors than to the general public – these PE firms mostly published ESG data in relation to their post-investment monitoring and ownership activities.

Further, it is extremely difficult to obtain information regarding the list of listed PE firms in Europe and even more difficult to obtain the financial information of PE firms for 10-years period. Nonetheless, using Refinitiv Eikon terminal, a large scale of samples (final list of 59 PE firms after adjustments) were prepared for the regressions in order to determine whether being UNPRI signatory has a significant correlation with the financial performance ratios, PE firm‘s overall systematic risk and risk management ratios from investor‘s perspective. After running multiple regression, it is difficult to argue that there are respective correlations between being a UNPRI signatory and financial ratios such as return on equity, operating profit margin, and net profit margin, or investor’s risk management ratios, as Sharpe and Sortino ratios. However, a relationship with 1% significance was identified between being a UNPRI signatory and better return on asset ratio, thus it may be concluded that UNPRI signatories have better return on asset ratio. Furthermore, a significant relationship between being UNPRI signatory and firm’s systematic risk was identified. The regression revealed that being a signatory to the UNPRI raises beta indicator, nevertheless, this contradicts to all of the material studied in this study, which claims that companies control their risks by implementing ESG policies. Such results might be received due to various circumstance, e.g. firm’s investment strategy (VC or LBO) or quite small size of UNPRI signatories, therefore, a similar analysis of relationship between being UNPRI signatory and firm’s systematic risk should be conducted after a while when more PE firms join UNPRI initiative and larger number of samples will be obtained. Moreover, it is recommended to find other ways of gathering information and building databases, or to find other ways of comparing PE firms in the future since the PE market is the least transparent, and all specific information regarding PE firms or their groups is either not publicly available or only available to investors.

It shall be noted that only in the recent years the number of UNPRI signatory firms increased significantly, consequently, it is hard to draw conclusions when only several PE firms were UNPRI signatory in the beginning of 2010’s. As a result, conducting a similar research of UNPRI signatories after a few or several years, when more PE firms join the initiative and more accurate results may be produced, is highly suggested. Overall, this work provides key insights regarding the European PE firms, which joined UNPRI initiative and implemented ESG policies in their investing decision process. The scope of this work is much broader than other studies that conduct interviews or case studies, thus this work allow to draw conclusions regarding European PE firms that implemented ESG policies in general.

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6. APPENDIXES

Annex 1. Sustainable Development Goals of the United Nations

No.	Sustainable Development Goal	No.	Sustainable Development Goal
1.	End poverty in all its forms everywhere	10.	Reduce inequality within and among countries
2.	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	11.	Make cities and human settlements inclusive, safe, resilient and sustainable
3.	Ensure healthy lives and promote well-being for all at all ages	12.	Ensure sustainable consumption and production patterns
4.	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	13.	Take urgent action to combat climate change and its impacts
5.	Achieve gender equality and empower all women and girls	14.	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
6.	Ensure availability and sustainable management of water and sanitation for all	15.	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
7.	Ensure access to affordable, reliable, sustainable and modern energy for all	16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	17.	Strengthen the means of implementation and revitalize the global partnership for sustainable development
9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		

Source: compiled by author using information provided by United Nations, 2015

Annex 2. List of UNPRI signatories which internally managed assets in PE is at least 50%

Name	**Headquarters in**	**IMA in PE**	**In developed markets (%)**	**In emerging markets (%)**	**In fontier markets (%)**	**In other markets (%)**	**Legal status**
123 IM	France	>50%	100	0	0	0	Private
21 Partners	Italy	100%	91	9	0	0	Private
3i Group plc	UK	>50%	99	1	0	0	Listed
A Plus Finance SAS	France	10-50%	100	0	0	0	Private
AAC Capital Benelux	Netherlands	>50%	100	0	0	0	Private
AB Max Sievert	Sweden	100%	100	0	0	0	Private
Abac Solutions Manager S.à r.l.	Luxembourg	100%	100	0	0	0	Private
Abenex Capital	France	>50%	100	0	0	0	Private
Abris Capital Partners	Jersey	>50%	0	70	30	0	Private
Accent Equity Partners AB	Sweden	100%	100	0	0	0	Private
Access Capital Partners	Belgium	>50%	100	0	0	0	Private
Actera Group	Turkey	100%	1	99	0	0	Private
Actis	UK	10-50%	1	75,1	22,5	1,4	Private
Activa Capital	France	>50%	100	0	0	0	Private
Adelis Equity Partners	Sweden	100%	100	0	0	0	Private
Alder Funds	Sweden	100%	100	0	0	0	Private
Alpha Private Equity Fund 6 Management Company SARL	Luxembourg	100%	100	0	0	0	Private
Alpina Capital Partners LLP	UK	100%	100	0	0	0	Private
AlpInvest Partners B.V.	Netherlands	10-50%	64	12	1	23	Private
Alter Equity	France	>50%	100	0	0	0	Private
Altor Funds	Sweden	>50%	99	1	0	0	Private
Ambienta SGR SpA	Italy	100%	100	0	0	0	Private
Andera Partners	France	>50%	100	0	0	0	Private
AP6	Sweden	10-50%	99	1	0	0	Private
APAX PARTNERS LLP	United Kingdom	100%	85	15	0	0	Private
Apax Partners MidMarket SAS	France	100%	100	0	0	0	Private
Apis Partners LLP	United Kingdom	>50%	0	100	0	0	Private
Ardian	France	10-50%	90	10	0	0	Private

ARX Equity Partners	Czech Republic	100%	0	100	0	0	Private
Astorg Partners	Luxembourg	100%	100	0	0	0	Private
Atlantic Bridge Capital	Ireland	100%	79,3	17,9	2,8		Private
Aurica Capital	Spain	100%	100	0	0	0	Private
Axcel	Denmark	>50%	100	0	0	0	Private
Azulis Capital	France	100%	100	0	0	0	Private
B & Capital	France	100%	100	0	0	0	Private
Baird Capital Partners Europe Limited (BCPE)	United Kingdom	100%	100	0	0	0	Private
BaltCap	Estonia	>50%	100	0	0	0	Private
Bamboo Capital Partners	Luxembourg	>50%	5	85	10		Private
Baring Private Equity Partners España	Spain	100%	100	0	0	0	Private
BC Partners	United Kingdom	>50%	100	0	0	0	Private
Bencis Capital Partners	Netherlands	100%	100	0	0	0	Private
Birta lifeyrissjodurinn	Netherlands	100%	100	0	0	0	Private
BlackFin Capital Partners	France	100%	100	0	0	0	Private
BlueGem Capital Partners LLP	United Kingdom	100%	100	0	0	0	Private
BlueOrchard Finance	Switzerland	<10%	0	80	20	0	Private
Bpifrance Investissement	France	10-50%	99,5	0,5	0	0	Private
Bridgepoint	United Kingdom	>50%	98	2	0	0	Private
Bridges Fund Management	United Kingdom	10-50%	100	0	0	0	Private
Capital Croissance	France	100%	100	0	0	0	Private
CapMan Plc	Finland	10-50%	95	5	0	0	Listed
CapVest Partners LLP	United Kingdom	>50%	100	0	0	0	Private
Capvis Equity Partners	Switzerland	100%	100	0	0	0	Private
Capzanine	France	>50%	100	0	0	0	Private
Castik Capital S.à r.l.	Luxembourg	>50%	100	0	0	0	Private
CDC - Caisse des dépôts et consignations	France	<10%	99	1	0	0	Private
CDC Group plc	United Kingdom	10-50%	0	43	48	9	Private

Cerea Partenaire	France	10-50%	100	0	0	0	Private
Charterhouse Capital Partners LLP	United Kingdom	100%	100	0	0	0	Private
Chequers Capital	France	>50%	100	0	0	0	Private
Cinven	United Kingdom	>50%	95	5	0	0	Private
Citizen Capital	France	100%	100	0	0	0	Private
Clessidra SGR S.p.A.	Italy	>50%	100	0	0	0	Private
Columna Capital	United Kingdom	100%	95	3	1	1	Private
Convent Capital Management BV	Netherlands	100%	100	0	0	0	Private
Corpfin Capital Asesores, S.A., S.G.E.C.R.	Spain	100%	100	0	0	0	Private
CVC Capital Partners	Luxembourg	100%	80	15	5	0	Private
Danske Bank	Denmark	<10%	95	5	0	0	Listed
Demeter Partners	France	>50%	100	0	0	0	Private
DPI	United Kingdom	100%	0	33,1	66,9	0	Private
Earth Capital Partners LLP	United Kingdom	>50%	55	20	0	25	Private
Edmond de Rothschild Private Equity S.A. (EdR PE)	Luxembourg	>50%	60	9	30	1	Private
Egeria	Netherlands	>50%	100	0	0	0	Private
Ekkio Capital	France	100%	100	0	0	0	Private
EnerCap Capital Partners	Guernsey	100%	0	70	28	2	Private
EQT	Sweden	>50%	99	1	0	0	Listed
Ergon Capital Partners	Belgium	100%	100	0	0	0	Private
Espiga Capital	Spain	100%	100	0	0	0	Private
Eurazeo	France	>50%	99	1	0	0	Listed
Evolem	France	>50%	100	0	0	0	Private
Explora S.A.	Luxembourg	>50%	2	46	0	52	Private
Folksam	Sweden	<10%	95.4	4.61	0	0	Private
Foresight Group LLP	United Kingdom	10-50%	100	0	0	0	Private
G Square	United Kingdom	100%	100	0	0	0	Private
Generation Investment Management LLP	United Kingdom	<10%	88	12	0	0	Private
GENUI	Germany	100%	100	0	0	0	Private
GHO Capital	United Kingdom	>50%	100	0	0	0	Private

Growth Capital Partners LLP	United Kingdom	100%	100	0	0	0	Private
Halder Beteiligungsberatung GmbH	Germany	100%	100	0	0	0	Private
Hermes GPE	United Kingdom	>50%	93	7	0	0	Private
HgCapital LLP	United Kingdom	>50%	100	0	0	0	Private
HPE Growth Capital	Netherlands	>50%	100	0	0	0	Private
IDI EMERGING MARKETS	Luxembourg	100%	0	100	0	0	Private
Idinvest Partners	France	10-50%	99	1	0	0	Private
IK Investment Partners	United Kingdom	100%	100	0	0	0	Private
Impax Asset Management	United Kingdom	<10%	89	11	0	0	Private
Innova Capital	Jersey	100%	7,9	77,2	14,9	0	Private
Intermediate Capital Group plc	United Kingdom	10-50%	99	1	0	0	Listed
Investindustrial	United Kingdom	100%	100	0	0	0	Private
Investisseurs & Partenaires	France	>50%	0	0	30	70	Private
iXO Private Equity	France	100%	100	0	0	0	Private
Karmijn Kapitaal	Netherlands	100%	100	0	0	0	Private
Keensight Capital	France	100%	100	0	0	0	Private
Keva	Finland	<10%	85,4	13,7	0,9	0	Private
Keyhaven Capital Partners Limited	United Kingdom	100%	100	0	0	0	Private
KLP	Norway	<10%	90	10	0	0	Private
Kreaxi	France	>50%	100	0	0	0	Private
Latour Capital Management	France	>50%	100	0	0	0	Private
LBO France	France	>50%	100	0	0	0	Private
LFPI Gestion	France	>50%	100	0	0	0	Private
Life Sciences Partners (LSP)	Netherlands	>50%	100	0	0	0	Private
Lion Capital	United Kingdom	100%	100	0	0	0	Private
Litorina	Sweden	100%	100	0	0	0	Private
Livonia Partners	Latvia	100%	0	0	100	0	Private
Magnum Capital Industrial Partners	Spain	100%	100	0	0	0	Private
Main Capital	Netherlands	100%	100	0	0	0	Private
Maj Invest	Denmark	<10%	91	8	0	1	Private
MBO Partenaires	France	100%	100	0	0	0	Private
MCH PRIVATE EQUITY	Spain	100%	100	0	0	0	Private

INVESTMENTS, SGECR, SAU							
Mediterrania Capital Partners	Malta	100%	0	100	0	0	Private
Mid Europa Partners LLP	United Kingdom	>50%	0	43	57	0	Private
Mirabaud	Switzerland	<10%	85	15	0	0	Private
Miura Private Equity	Spain	100%	100	0	0	0	Private
Montagu Private Equity	United Kingdom	100%	98	2	0	0	Private
Montefiore Investment	France	100%	100	0	0	0	Private
Motion Equity Partners	France	>50%	100	0	0	0	Private
Munich Venture Partners	Germany	100%	100	0	0	0	Private
Naxicap Partners	France	100%	100	0	0	0	Private
NAZCA CAPITAL	Spain	100%	100	0	0	0	Private
Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V. (FMO)	Netherlands	<10%	0	28,91	24,32	46,77	Private
Nest Sammelstiftung	Switzerland	<10%	90	10	0	0	Private
NextStage AM	France	>50%	100	0	0	0	Private
NorthEdge Capital LLP	United Kingdom	100%	100	0	0	0	Private
Nykredit Realkredit Group	Denmark	<10%	96,6	3,4	0	0	Private
Oakley Capital Limited	United Kingdom	100%	100	0	0	0	Private
Omnes Capital	France	>50%	100	0	0	0	Private
OpCapita LLP	United Kingdom	>50%	100	0	0	0	Private
PAI Partners	France	100%	100	0	0	0	Private
Palatine Private Equity LLP	United Kingdom	100%	100	0	0	0	Private
Palero Capital GmbH	Germany	>50%	100	0	0	0	Private
Panoramic Growth Equity	United Kingdom	100%	100	0	0	0	Private
Paragon Partners	Germany	100%	100	0	0	0	Private
Parquest Capital	France	>50%	100	0	0	0	Private
Partech	France	100%	97,01	2,73	0,26	0	Private
Partners Group AG	Switzerland	10-50%	87	12	1	0	Private
Permira Holdings Limited	Guernsey	>50%	95	5	0	0	Private
PFA Pension	Denmark	<10%	95	5	0	0	Private
Portobello Capital	Spain	100%	96,5	3,5	0	0	Private

PRIMARY CAPITAL PARTNERS LLP	United Kingdom	100%	100	0	0	0	Private
Priveq Advisory AB	Sweden	>50%	100	0	0	0	Private
Procuritas Capital Investors	Guernsey	>50%	100	0	0	0	Private
Quadriga Capital	Jersey	100%	100	0	0	0	Private
QUALITAS EQUITY PARTNERS, S.A., SGEIC	Spain	100%	100	0	0	0	Private
Qualium Investissement	France	100%	100	0	0	0	Private
Quilvest & Partners	Luxembourg	10-50%	90	10	0	0	Private
Railways Pension Trustee Company Limited	United Kingdom	<10%	90	10	0	0	Private
RAISE	France	>50%	99,5	0,5	0	0	Private
Ratos AB	Sweden	>50%	100	0	0	0	Listed
Realza Capital S.G.E.I.C., S.A.	Spain	>50%	100	0	0	0	Private
Rothschild Merchant Banking	France	10-50%	100	0	0	0	Private
Segulah Advisor AB	Sweden	100%	100	0	0	0	Private
Silk Invest Ltd.	United Kingdom	10-50%	18,34	2	50,3	29,41	Private
Silverfleet Capital Partners LLP	United Kingdom	100%	100	0	0	0	Private
Siparex	France	100%	100	0	0	0	Private
Skandia	Sweden	<10%	95	5	0	0	Private
Skandinaviska Enskilda Banken (SEB) AB	Sweden	<10%	96	3	1	0	Listed
Suma Capital SGECR	Spain	>50%	100	0	0	0	Private
Summa Equity	Sweden	>50%	91	8	0	0	Private
SwanCap Partners (SwanCap Investment Management S.A. and SwanCap Partners GmbH)	Luxembourg	10-50%	100	0	0	0	Private
Swedfund International AB	Sweden	10-50%		7	13	80	Private
Swen Capital Partners	France	<10%	85,3	0	0	14,7	Private
Swiss Re Ltd	Switzerland	<10%	91	6	1	2	Listed
Synova Capital LLP	United Kingdom	100%	100	0	0	0	Private

Terra Firma Capital Partners	United Kingdom	>50%	100	0	0	0	Private
Tikehau Capital	France	<10%	90	5	5	0	Listed
Trecento	France	>50%	99	1	0	0	Private
Trilantic Capital Partners Europe	Guernsey	100%	100	0	0	0	Private
Triodos Investment Management B.V.	Netherlands	<10%	74,9	7,88	1,91	15,31	Private
Triton Investment Management Limited (TIML)	Jersey	>50%	100	0	0	0	Private
Truestone Impact Investment Management	United Kingdom	>50%	0	0	100	0	Private
Truffle Capital	France	>50%	100	0	0	0	Private
Turenne Capital Partenaires	France	>50%	100	0	0	0	Private
UFG Asset Management	Russian Federation	10-50%	0	85	0	15	Private
UI Gestion	France	>50%	100	0	0	0	Private
Unigestion	Switzerland	<10%	99	1	0	0	Private
Universities Superannuation Scheme - USS	United Kingdom	<10%	87	13	0	0	Private
Vaekstfonden	Denmark	10-50%	100		0	0	Private
Vallis Capital Partners	Portugal	100%	100	0	0	0	Private
Varma Mutual Pension Insurance Company	Finland	<10%	91	9	0	0	Private
Vision Capital LLP	United Kingdom	100%	100	0	0	0	Private
Waterland Private Equity Investments	Netherlands	100%	100	0	0	0	Private
Weinberg Capital Partners	France	100%	100	0	0	0	Private
Wermuth Asset Management	Germany	>50%	99,6	0,4	0	0	Private
Wise SGR	Italy	100%	100	0	0	0	Private
Ysios Capital	Spain	100%	100	0	0	0	Private

Source: Yahoo Finance, 2021

Annex 3. Information reported by UNPRI signatory PE firms regarding information provided to public and clients/beneficiaries

Signatory name	The information disclosed to clients/beneficiaries is the same	1	2	3	4	1	2	3	4
123 Investment Managers (123 IM)	No	Yes	Yes	No	No	Yes	Yes	No	No
21 Partners	No	No	Yes	Yes	No	Yes	Yes	Yes	No
3i Group plc	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
A Plus Finance SAS	Yes	Yes	No	No	No	Yes	No	No	No
AAC Capital Benelux	No	-	-	-	-	No	Yes	Yes	No
AB Max Sievert	Yes	Yes	Yes	No	No	Yes	Yes	No	No
Abac Solutions Manager S.à r.l.	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Abenex Capital	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Abris Capital Partners	No	No	Yes	No	No	Yes	Yes	Yes	No
Accent Equity Partners AB	No	-	-	-	-	-	-	-	-
Access Capital Partners	No	-	-	-	-	No	Yes	Yes	No
Achmea Investment Management	No	-	-	-	-	-	-	-	-
Actera Group	No	-	-	-	-	No	Yes	Yes	No
Actis	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Activa Capital	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Adelis Equity Partners	No	-	-	-	-	No	Yes	No	No
Alder Funds	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Alpha Private Equity Fund 6 Management Company SARL	No	-	-	-	-	Yes	Yes	Yes	No

Alpina Capital Partners LLP	No	-	-	-	-	Yes	Yes	Yes	No
AlpInvest Partners B.V.	No	No	No	No	Yes	Yes	Yes	No	Yes
Altamar Capital Partners, S.L.	No	-	-	-	-	-	-	-	-
Alter Equity	No	-	-	-	-	Yes	Yes	Yes	Yes
Altor Funds	No	-	-	-	-	Yes	Yes	Yes	No
Ambienta SGR SpA	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Andera Partners	No	-	-	-	-	No	No	Yes	No
AP1	Yes								
AP2	Yes								
AP3	**Do not report to either group**								
AP6	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
AP7	**Do not report to either group**								
APAX PARTNERS LLP	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Apax Partners MidMarket SAS	**Do not report to either group**								
APG Asset Management	**Do not report to either group**								
Apis Partners LLP	No	-	-	-	-	Yes	Yes	Yes	No
Arcano Group	**Do not report to either group**								
Ardian	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
ARX Equity Partners	No	-	-	-	-	-	-	-	-
ASR Nederland N.V.	**Do not report to either group**								
ASR Vermogensbeheer N.V.	**Do not report to either group**								
Astorg Partners	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Atlantic Bridge Capital	No	-	-	-	-	-	-	-	-
Aurica Capital	No	-	-	-	-	Yes	Yes	Yes	No

AXA Group	**Do not report to either group**								
Axcel	Yes	No	Yes	Yes	No	No	Yes	Yes	No
Azulis Capital	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
B & Capital	No	-	-	-	-	No	No	Yes	No
Baird Capital Partners Europe Limited (BCPE)	No	-	-	-	-	-	-	-	-
BaltCap	No	-	-	-	-	Yes	Yes	Yes	No
Bamboo Capital Partners	No	-	-	-	-	-	-	-	-
Baring Private Equity Partners España	No	-	-	-	-	No	No	No	Yes
BC Partners	No	-	-	-	-	Yes	Yes	Yes	No
Bencis Capital Partners	No	-	-	-	-	Yes	Yes	Yes	No
Birta lifeyrissjodurinn	No	-	-	-	-	Yes	Yes	Yes	No
BlackFin Capital Partners	No	-	-	-	-	No	Yes	Yes	No
BlueGem Capital Partners LLP	No	-	-	-	-	Yes	Yes	Yes	No
BlueOrchard Finance	No	-	-	-	-	Yes	Yes	Yes	No
Bpf AVH	**Do not report to either group**								
Bpf Bouw Stichting Bedrijfstakpensioenfonds voor de Bouwnijverheid	**Do not report to either group**								
Bpifrance Investissement	Yes	Yes	No	No	No	Yes	No	No	No
BPL Pensioen									
Bridgepoint	No	No	Yes	No	No	No	Yes	No	No
Bridges Fund Management	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BT Pension Scheme	**Do not report to either group**								
Capital Croissance	No	-	-	-	-	No	No	Yes	No
Capital Dynamics	No	-	-	-	-	-	-	-	-

CapMan Plc	No	No	Yes	Yes	No	Yes	Yes	Yes	No
CapVest Partners LLP	No	-	-	-	-	Yes	Yes	No	No
Capvis Equity Partners	No	-	-	-	-	Yes	Yes	Yes	No
Capzanine	No	-	-	-	-	No	Yes	Yes	No
Castik Capital S.à r.l.	No	-	-	-	-	No	No	Yes	Yes
CDC - Caisse des dépôts et consignations	Yes	Yes	Yes	No	No	Yes	Yes	No	No
CDC Group plc	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Cerea Partenaire	No	-	-	-	-	Yes	Yes	Yes	No
Charterhouse Capital Partners LLP	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Chequers Capital	No	-	-	-	-	No	No	No	Yes
Church Commissioners for England	**Do not report to either group**								
Church Pension Fund	**Do not report to either group**								
Cinven	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Citizen Capital	No	-	-	-	-	No	No	Yes	No
Clessidra SGR S.p.A.	No	-	-	-	-	Yes	Yes	Yes	No
Coller Capital									
Columna Capital	No	-	-	-	-	Yes	Yes	Yes	No
Committed Advisors									
Convent Capital Management BV	No	-	-	-	-	Yes	Yes	Yes	No
Corpfin Capital Asesores, S.A., S.G.E.C.R.	No	-	-	-	-	No	Yes	Yes	No
CVC Capital Partners	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Dansk Vaekstkapital	**Do not report to either group**								
Dansk Vaekstkapital II	**Do not report to either group**								
Danske Bank	No	-	-	-	-	Yes	Yes	Yes	No

Dasos Capital Oy	**Do not report to either group**								
Demeter Partners	No	No	Yes	Yes	No	Yes	Yes	Yes	No
DPI	No	-	-	-	-	Yes	Yes	Yes	No
Earth Capital Partners LLP	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Edmond de Rothschild Private Equity S.A. (EdR PE)	No	-	-	-	-	No	No	No	Yes
Egeria	No	-	-	-	-	No	Yes	Yes	No
Ekkio Capital	Yes	No	Yes	Yes	No	No	Yes	Yes	No
Elo Mutual Pension Insurance Company	**Do not report to either group**								
EnerCap Capital Partners	No	-	-	-	-	No	Yes	No	No
Environment Agency Pension Fund	**Do not report to either group**								
eQ Asset Management Ltd	No	-	-	-	-	-	-	-	-
EQT	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Ergon Capital Partners	No	No	No	No	Yes	No	Yes	Yes	No
Esmee Fairbairn Foundation	**Do not report to either group**								
Espiga Capital	No	-	-	-	-	No	Yes	Yes	No
Eurazeo	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Evolem	Yes	Yes	No	No	No	Yes	No	No	No
Explora S.A.	No	-	-	-	-	-	-	-	-
Folksam	Yes	Yes	Yes	No	No	Yes	Yes	No	No
Fondinvest Capital	**Do not report to either group**								
Fonds de réserve pour les retraites - FRR	**Do not report to either group**								
Foresight Group LLP	No	Yes	Yes	No	No	Yes	Yes	Yes	No
G Square	No	-	-	-	-	-	-	-	-

Generali Group	**Do not report to either group**								
Generation Investment Management LLP	No	No	No	Yes	No	Yes	Yes	Yes	No
GENUI	No	-	-	-	-	No	Yes	Yes	No
Gestión de Previsión y Pensiones E.G.F.P	**Do not report to either group**								
GHO Capital	No	-	-	-	-	Yes	Yes	Yes	No
Global Crop Diversity Trust	**Do not report to either group**								
Golding Capital Partners	**Do not report to either group**								
Growth Capital Partners LLP	No	-	-	-	-	Yes	Yes	Yes	No
Halder Beteiligungsberatung GmbH	No	-	-	-	-	-	-	-	-
Hermes GPE	No	-	-	-	-	Yes	Yes	Yes	No
HgCapital LLP	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HPE Growth Capital	No	-	-	-	-	Yes	Yes	Yes	No
HQ Trust GmbH	**Do not report to either group**								
IDI EMERGING MARKETS	No	-	-	-	-	No	No	Yes	No
Idinvest Partners	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
IK Investment Partners	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Impax Asset Management	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Innova Capital	No	No	Yes	Yes	No	Yes	Yes	Yes	No
Intermediate Capital Group plc	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Investindustrial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investisseurs & Partenaires	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No

Ircantec	**Do not report to either group**								
iXO Private Equity	Yes	Yes	Yes	No	No	Yes	Yes	No	No
Karmijn Kapitaal	No	-	-	-	-	Yes	Yes	Yes	No
Keensight Capital	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Keva	No	-	-	-	-	-	-	-	-
Keyhaven Capital Partners Limited	No	-	-	-	-	Yes	Yes	Yes	No
KLP	No	-	-	-	-	-	-	-	-
Kreaxi	No	-	-	-	-	Yes	Yes	No	No
Länsförsäkringar AB	**Do not report to either group**								
Latour Capital Management	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
LBO France	No	-	-	-	-	Yes	Yes	Yes	No
LFPI Gestion	No	-	-	-	-	Yes	Yes	Yes	No
LGT Capital Partners Ltd	**Do not report to either group**								
Life Sciences Partners (LSP)	No	-	-	-	-	No	Yes	No	No
Lion Capital	No	-	-	-	-	No	Yes	Yes	No
Litorina	No	-	-	-	-	-	-	-	-
Livonia Partners	No	-	-	-	-	Yes	Yes	No	No
Loreto Mutua, M.P.S.	**Do not report to either group**								
Lothian Pension Fund	**Do not report to either group**								
MACIF	**Do not report to either group**								
Magnum Capital Industrial Partners	No	-	-	-	-	-	-	-	-
MAIF	**Do not report to either group**								
Main Capital	No	-	-	-	-	No	No	Yes	No

Maj Invest	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mandatum Life Insurance Company Limited, Wealth and Investment Management	**Do not report to either group**								
MBO Partenaires	No	-	-	-	-	No	Yes	Yes	No
MCH PRIVATE EQUITY INVESTMENTS, SGECR, SAU	No	-	-	-	-	No	Yes	Yes	No
Mediterrania Capital Partners	No	-	-	-	-	Yes	Yes	Yes	No
Merseyside Pension Fund	**Do not report to either group**								
Mid Europa Partners LLP	No	No	No	No	Yes	No	No	Yes	No
Mirabaud	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Mistra	**Do not report to either group**								
Miura Private Equity	No	-	-	-	-	No	Yes	Yes	No
MN	**Do not report to either group**								
Mode Interieur Tapijt & Textiel (MITT)	**Do not report to either group**								
Montagu Private Equity	No	No	Yes	Yes	No	No	Yes	Yes	No
Montana Capital Partners AG	**Do not report to either group**								
Montefiore Investment	No	-	-	-	-	Yes	Yes	Yes	No
Motion Equity Partners	No	-	-	-	-	-	-	-	-
Munich Venture Partners	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Naxicap Partners	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
NAZCA CAPITAL	No	-	-	-	-	Yes	Yes	Yes	No
Nederlandse Financierings-Maatschappij voor	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No

Ontwikkelingslanden N.V. (FMO)									
Nest Sammelstiftung	Yes	No	Yes	Yes	No	No	Yes	Yes	No
NextStage AM	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Nordea	**Do not report to either group**								
Nordea Life & Pensions	**Do not report to either group**								
NorthEdge Capital LLP	No	-	-	-	-	Yes	Yes	Yes	No
Nykredit Realkredit Group	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Oakley Capital Limited	No	No	No	Yes	No	No	No	Yes	No
Obviam AG	**Do not report to either group**								
Oikocredit International	**Do not report to either group**								
Omnes Capital	No	-	-	-	-	Yes	Yes	Yes	No
OpCapita LLP	No	-	-	-	-	No	Yes	Yes	No
PAI Partners	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Palatine Private Equity LLP	No	No	Yes	Yes	No	Yes	Yes	Yes	No
Palero Capital GmbH	No	-	-	-	-	No	No	Yes	No
Panoramic Growth Equity	No	-	-	-	-	Yes	Yes	Yes	No
Pantheon Ventures	**Do not report to either group**								
Paragon Partners	No	-	-	-	-	-	-	-	-
Parquest Capital	No	-	-	-	-	No	Yes	Yes	No
Partech	No	-	-	-	-	No	Yes	No	No
Partners Group AG	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Paul Hamlyn Foundation	**Do not report to either group**								

PeaceNexus Foundation	**Do not report to either group**								
Pensioenfonds Detailhandel	**Do not report to either group**								
Pensioenfonds Metaal en Techniek	**Do not report to either group**								
Pension Fund City of Zurich (PKZH)	**Do not report to either group**								
Pension Protection Fund	**Do not report to either group**								
Pensionfund Metalektro (PME)	**Do not report to either group**								
Permira Holdings Limited	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
PFA Pension	No	-	-	-	-	-	-	-	-
Portobello Capital	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
PRIMARY CAPITAL PARTNERS LLP	No	-	-	-	-	Yes	Yes	Yes	No
Priveq Advisory AB	No	-	-	-	-	Yes	Yes	Yes	No
Procuritas Capital Investors	No	-	-	-	-	No	Yes	Yes	No
Quadriga Capital	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
QUALITAS EQUITY PARTNERS, S.A., SGEIC	No	-	-	-	-	No	No	Yes	No
Qualium Investissement	No	-	-	-	-	Yes	Yes	Yes	No
Quilvest & Partners	No	-	-	-	-	Yes	Yes	No	No
Rabobank Pensioenfonds	**Do not report to either group**								
Railways Pension Trustee Company Limited	No	-	-	-	-	-	-	-	-
RAISE	No	-	-	-	-	No	No	Yes	No
Ratos AB	No	-	-	-	-	-	-	-	-

Realza Capital S.G.E.I.C., S.A.	No	-	-	-	-	No	No	Yes	No
Robeco									
Rothschild Merchant Banking	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Schroders	**Do not report to either group**								
Segulah Advisor AB	No	-	-	-	-	Yes	Yes	Yes	No
Silk Invest Ltd.	No	-	-	-	-	No	Yes	Yes	No
Silverfleet Capital Partners LLP	No	-	-	-	-	Yes	Yes	Yes	No
Siparex	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Skandia	No	-	-	-	-	-	-	-	-
Skandinaviska Enskilda Banken (SEB) AB	No	-	-	-	-	Yes	Yes	No	No
SPF Beheer	**Do not report to either group**								
SPOV	**Do not report to either group**								
Stafford Capital Partners	**Do not report to either group**								
Stichting Algemeen Pensioenfonds KLM	**Do not report to either group**								
Stichting Bewaarder Beleggingen Menzis	**Do not report to either group**								
Stichting Pensioenfonds ABP	**Do not report to either group**								
Stichting Pensioenfonds KLM-Cabinepersoneel	**Do not report to either group**								
Stichting Pensioenfonds UWV	**Do not report to either group**								
Stichting Pensioenfonds Werk en (re)Integratie	**Do not report to either group**								
Suma Capital SGECR	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Summa Equity	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No

Suva	**Do not report to either group**								
SwanCap Partners (SwanCap Investment Management S.A. and SwanCap Partners GmbH)	No	-	-	-	-	No	Yes	No	No
Swedfund International AB	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Swen Capital Partners	No	-	-	-	-	-	-	-	-
Swiss Re Ltd	Yes	Yes	Yes	No	No	Yes	Yes	No	No
Synova Capital LLP	No	-	-	-	-	No	Yes	No	No
Terra Firma Capital Partners	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Tikehau Capital	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Trecento	No	-	-	-	-	Yes	Yes	No	No
Trilantic Capital Partners Europe	No	-	-	-	-	Yes	Yes	No	No
Triodos Investment Management B.V.	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Triton Investment Management Limited (TIML)	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Truestone Impact Investment Management	No	-	-	-	-	Yes	Yes	No	No
Truffle Capital	Yes	Yes	Yes	No	No	Yes	Yes	No	No
Turenne Capital Partenaires	No	-	-	-	-	Yes	Yes	Yes	No
UFG Asset Management	No	Yes	Yes	No	No	Yes	Yes	Yes	No
UI Gestion	No	-	-	-	-	Yes	No	No	Yes
Unigestion	No	-	-	-	-	Yes	Yes	Yes	No
Universities Superannuation Scheme - USS	No	-	-	-	-	-	-	-	-
Vaekstfonden	No	-	-	-	-	-	-	-	-
Vallis Capital Partners	No	-	-	-	-	Yes	Yes	Yes	No

Valtion Eläkerahasto	**Do not report to either group**								
Varma Mutual Pension Insurance Company	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
VERKA VK Kirchliche Vorsorge VVaG	**Do not report to either group**								
VidaCaixa	**Do not report to either group**								
Vision Capital LLP	No	-	-	-	-	-	-	-	-
Waterland Private Equity Investments	No	-	-	-	-	Yes	Yes	Yes	No
Weinberg Capital Partners	No	-	-	-	-	No	Yes	Yes	No
Wermuth Asset Management	No	-	-	-	-	Yes	Yes	Yes	No
West Midlands Pension Fund	**Do not report to either group**								
Wise SGR	No	-	-	-	-	No	Yes	No	No
Ysios Capital	No	-	-	-	-	Yes	Yes	Yes	No

Source: author

Annex 4. List of selected listed PE firms (both UNPRI signatories and non-signatories)

Name of PE firm	**Country of headquarters**	**Joined UNPRI**	**IPO date**
3i Group plc	United Kingdom	2011-08-03	1994-07-18
EQT	Sweden	2010-12-22	2019-09-24
Eurazeo	France	2009-05-27	1985-01-07
Ratos AB	Sweden	2013-11-22	1954-01-01
Wendel SE	France	2020-05-06	2004-01-01
Gimv NV	Belgium	2021-04-27	1999-04-01
HBM Healthcare Investments AG	Switzerland	Is not signatory	2008-02-14
HarbourVest Global Private Equity Ltd	Guernsey	Is not signatory	2010-05-12
Rocket Internet SE	Germany	Is not signatory	2014-10-02
BMO Private Equity Trust	United Kingdom	Is not signatory	1999-03-22
Deutsche Beteiligungs AG	Germany	2021-10-28	2013-06-24
NB Private Equity Partners Limited	Guernsey	Is not signatory	2007-07-18
Pantheon International PLC	United Kingdom	Is not signatory	1987-11-23
Partners Group Holding AG	Switzerland	2008-06-24	2006-03-24

Shareholder Value Beteiligungen AG	Germany	2019-01-18	2001-11-07
Aurelius Equity Opportunities SE & Co KGaA	Germany	Is not signatory	2006-06-26
CapMan Oyj	Finland	2013-01-11	2001-04-02
IDI SCA	France	Is not signatory	1991-01-01
Treasure ASA	Norway	Is not signatory	2016-06-08
Hitecvision AS	Norway	2019-06-11	2005-06-16
Verusa Holding AS	Turkey	Is not signatory	2013-11-19
Gozde Girisim Sermayesi Yatirim Ortakligi AS	Turkey	Is not signatory	2010-01-25
MedCap AB (publ)	Sweden	Is not signatory	2006-07-04
Deutsche Balaton AG	Germany	Is not signatory	1997-01-03
Private Equity Holding AG	Switzerland	Is not signatory	1999-01-18
Eisen und Huettenwerke AG	Germany	Is not signatory	1986-08-01
NB Aurora SA SICAF RAIF	Luxembourg	Is not signatory	2018-05-04
Nextstage SCA	France	Is not signatory	2016-12-15
Blue Cap AG	Germany	Is not signatory	2007-04-18
EPE Special Opportunities Ltd	Jersey	Is not signatory	2003-09-16
Clere AG	Germany	Is not signatory	1999-11-23
Sievi Capital Oyj	Finland	Is not signatory	2000-05-24
Heliad Equity Partners GmbH & Co KGaA	Germany	Is not signatory	2004-11-12
Castle Private Equity AG	Switzerland	Is not signatory	2008-12-16
Scherzer & Co AG	Germany	Is not signatory	2005-09-26
Elbstein AG	Germany	Is not signatory	2015-07-01
Spice Private Equity AG	Switzerland	Is not signatory	1999-12-10
Airesis SA	Switzerland	Is not signatory	2000-07-17
GBK Beteiligungen AG	Germany	Is not signatory	2002-12-19
Heidelberger Beteiligungsholding AG	Germany	Is not signatory	1998-12-21
AdCapital AG	Germany	Is not signatory	1984-10-01
Erato Energy Alternatywna Spolka Inwestycyjna SA	Poland	Is not signatory	2010-06-02
Flexdeal SIMFE SA	Portugal	Is not signatory	2018-12-24
NanoCap Group AB (publ)	Sweden	Is not signatory	2011-09-22
Pegroco Invest AB	Sweden	Is not signatory	2015-06-24
Value-Holdings International AG	Germany	Is not signatory	2008-10-20
Value Holdings AG	Germany	Is not signatory	1999-07-19
Ceps PLC	United Kingdom	Is not signatory	1986-01-03
KST Beteiligungs AG	Germany	Is not signatory	1998-10-16
Spobag AG	Germany	Is not signatory	2001-06-01
AB Effectenbeteiligungen AG	Austria	Is not signatory	2000-06-21
Fonterelli GmbH & Co KGaA	Germany	Is not signatory	2007-12-20
Falkenstein Nebenwerte AG	Germany	Is not signatory	2003-03-21
Beluga NV	Belgium	Is not signatory	1987-01-06
Etrinell AS	Norway	Is not signatory	2000-03-30
Beteiligungen im Baltikum AG	Germany	Is not signatory	2004-01-01

KlickOwn AG	Germany	Is not signatory	2002-06-26
Trade & Value AG	Germany	Is not signatory	2004-08-02
Sociedade Comercial Orey Antunes SA	Portugal	Is not signatory	2006-06-12

Source: author, 2021

Annex 5. Results of regression analysis whether being UNPRI signatory has correlation with Return on Assets (ROA) ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,1218
R Square	0,0148
Adjusted R Square	0,0131
Standard Error	0,1940
Observations	562

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,3174	0,3174	8,4316	0,0038
Residual	560	21,0813	0,0376		
Total	561	21,3987			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0,0456	0,0086	5,2919	0,0000	0,0287	0,0625	0,0287	0,0625
X Variable 1	0,0800	0,0275	2,9037	0,0038	0,0259	0,1341	0,0259	0,1341

Source: author

Annex 6. Results of regression analysis whether being UNPRI signatory has correlation with Return on Equity (ROE) ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0334
R Square	0,0011
Adjusted R Square	-0,0007
Standard Error	2,4372
Observations	558

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3,6800	3,6800	0,6195	0,4316
Residual	556	3302,4974	5,9397		
Total	557	3306,1774			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0,0530	0,1087	-0,4881	0,6257	-0,2665	0,1604	-0,2665	0,1604
X Variable 1	0,2724	0,3461	0,7871	0,4316	-0,4074	0,9523	-0,4074	0,9523

Source: author

Annex 7. Results of regression analysis whether being UNPRI signatory has correlation with Operating profit margin (OPM) ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0173
R Square	0,0003
Adjusted R Square	-0,0016
Standard Error	135,5203
Observations	516

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2840,2686	2840,2686	0,1547	0,6943
Residual	514	9439991,9442	18365,7431		
Total	515	9442832,2128			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	8,0803	6,3050	1,2816	0,2006	-4,3064	20,4670	-4,3064	20,4670
X Variable 1	-7,6646	19,4900	-0,3933	0,6943	-45,9544	30,6253	-45,9544	30,6253

Source: author

Annex 8. Results of regression analysis whether being UNPRI signatory has correlation with Net profit margin (NPM) ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0208
R Square	0,0004
Adjusted R Square	-0,0015
Standard Error	254,4133
Observations	516

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	14453,9342	14453,9342	0,2233	0,6367
Residual	514	33269233,0861	64726,1344		
Total	515	33283687,0203			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	17,6607	11,8364	1,4921	0,1363	-5,5929	40,9143	-5,5929	40,9143
X Variable 1	-17,2902	36,5887	-0,4726	0,6367	-89,1720	54,5916	-89,1720	54,5916

Source: author

Annex 9. Results of regression analysis whether being UNPRI signatory has correlation with Return on Assets (ROA) ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,2339
R Square	0,0547
Adjusted R Square	0,0381
Standard Error	0,1107
Observations	59

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,0404	0,0404	3,2982	0,0746
Residual	57	0,6980	0,0122		
Total	58	0,7383			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0,0455	0,0152	2,9920	0,0041	0,0150	0,0759	0,0150	0,0759
X Variable 1	0,0866	0,0477	1,8161	0,0746	-0,0089	0,1820	-0,0089	0,1820

Source: author

Annex 10. Results of regression analysis whether being UNPRI signatory has correlation with Return on Equity (ROE) ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0916
R Square	0,0084
Adjusted R Square	-0,0090
Standard Error	1,3265
Observations	59

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,8492	0,8492	0,4826	0,4901
Residual	57	100,3014	1,7597		
Total	58	101,1506			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	-0,1244	0,1822	-0,6829	0,4974	-0,4893	0,2404	-0,4893	0,2404
X Variable 1	0,3969	0,5714	0,6947	0,4901	-0,7472	1,5411	-0,7472	1,5411

Source: author

Annex 11. Results of regression analysis whether being UNPRI signatory has correlation with Operating profit margin (OPM) ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0246
R Square	0,0006
Adjusted R Square	-0,0183
Standard Error	61,4876
Observations	55

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	121,2433	121,2433	0,0321	0,8586
Residual	53	200378,4056	3780,7246		
Total	54	200499,6490			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	5,1717	8,7839	0,5888	0,5585	-12,4467	22,7900	-12,4467	22,7900
X Variable 1	-4,7625	26,5947	-0,1791	0,8586	-58,1047	48,5797	-58,1047	48,5797

Source: author

Annex 12. Results of regression analysis whether being UNPRI signatory has correlation with Net profit margin (NPM) ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0494
R Square	0,0024
Adjusted R Square	-0,0164
Standard Error	95,5598
Observations	55

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1183,1296	1183,1296	0,1296	0,7203
Residual	53	483978,3103	9131,6662		
Total	54	485161,4399			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	15,2236	13,6514	1,1152	0,2698	-12,1576	42,6049	-12,1576	42,6049
X Variable 1	-14,8773	41,3316	-0,3599	0,7203	-97,7781	68,0235	-97,7781	68,0235

Source: author

Annex 13. Results of regression analysis whether being UNPRI signatory has correlation with Sharpe ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0605
R Square	0,0037
Adjusted R Square	0,0019
Standard Error	22,0252
Observations	559

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	994,2022	994,2022	2,0494	0,1528
Residual	557	270206,1267	485,1097		
Total	558	271200,3289			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	4,1825	0,9791	4,2716	0,0000	2,2592	6,1058	2,2592	6,1058
X Variable 1	4,5523	3,1799	1,4316	0,1528	-1,6938	10,7983	-1,6938	10,7983

Source: author

Annex 14. Results of regression analysis whether being UNPRI signatory has correlation with Sharpe ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,1799
R Square	0,0324
Adjusted R Square	0,0154
Standard Error	10,0820
Observations	59

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	193,7901807	193,7901807	1,9065	0,172740789
Residual	57	5793,827999	101,6461052		
Total	58	5987,618179			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	3,7716	1,3849	2,7234	0,0086	0,9985	6,5447	0,9985	6,5447
X Variable 1	5,9962	4,3427	1,3808	0,1727	-2,6998	14,6923	-2,6998	14,6923

Source: author

Annex 15. Results of regression analysis results whether being UNPRI signatory has correlation with Sortino ratio based on annual financial results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0133
R Square	0,0002
Adjusted R Square	-0,0017
Standard Error	51,9945
Observations	546

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	258,8130	258,8130	0,0957	0,7571
Residual	544	1470667,3877	2703,4327		
Total	545	1470926,2006			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	10,7568	2,3417	4,5935	0,0000	6,1568	15,3567	6,1568	15,3567
X Variable 1	2,3256	7,5161	0,3094	0,7571	-12,4386	17,0897	-12,4386	17,0897

Source: author

Annex 16. Results of regression analysis results whether being UNPRI signatory has correlation with Sortino ratio based on average results of 2010-2020 period per PE firm

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,0990
R Square	0,0098
Adjusted R Square	-0,0076
Standard Error	13,0850
Observations	59

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	96,6259	96,6259	0,5643	0,4556
Residual	57	9759,3502	171,2167		
Total	58	9855,9761			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	9,5586	1,7974	5,3181	0,0000	5,9594	13,1577	5,9594	13,1577
X Variable 1	4,2341	5,6362	0,7512	0,4556	-7,0522	15,5204	-7,0522	15,5204

Source: author