An Empirical Analysis of Private Equity, Listed Private Equity and Public Equity

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Abstract

It is not a secret that the world of Private Equity is growing year by year, with an immense upwards trend and that the willingness of understanding how Private Equity as an alternative capital raising strategy can be used by companies which do not want to go public and get financed by Public Equity.

The underlying paper investigates the world of Private Equity, Listed Private Equity and Public Equity. Regarding transparency of data, the comparability of Public Equity to Listed Private Equity provides way better results than comparing Public Equity to Private Equity.

Due to the listing of the firms, the disclosure requirements need to be fulfilled. The GLPE Index illustrates and underlines the effectiveness of Listed Private Equity as a financing source. The GLPE Index contains 40 to 75 listed Private Equity firms which mostly invest Private Equity in firms that are not listed.

However - The top ten constituents of this index show their diversification considering the companies they have invested in and their performance, the countries in which the Headquarter are located and the performance of these funds. One can see clearly that 2021 was an extra ordinary year for all of them. They achieved returns and performance better than indices like the MSCI World and S&P 500.

Keywords: private equity, public equity, listed private equity

1. Introduction

The steady rise of Private Equity (PE) as a financing instrument and the reciprocal decline of Public Equity as such shows that this interrelation is more than at an actual peak. Some rumors exist that Private Equity firms experience an upward trend during the economic crises (Bernstein et al., 2017, p.1ff.).

In general, one can say that PE and Venture Capital (VC) have become an increasingly important financing source, starting to receive a lot of attention since the 2008 financial crisis for European businesses. For Europe the result was a sustainable and more resilient financing ecosystem.

But not only Europeans are interested in alternative financing and investment sources. All over the world, investors are reaching out to find alternative financial investment opportunities while avoiding to invest in the stock market. The returns achieved by investments in the private market are way higher than returns on investments made in the stock market (McKinsey, 2022, p.10f.). That raises the question why the investment in the public market was the only possibility, which was focused on for so long. The actual research supports the thesis that Private Equity investments outperform Public Equity investments in quite a few times. What once was a mystery for investors and companies is by now a completely solid possibility to invest in or to get financed.

Public Equity and Private Equity could not be compared on the same data basis because the disclosure information and data transparency of Private Equity is indeed less. This is the reason why Listed Private Equity is taken into consideration as well. Due to their listing, they have similar transparency regulations as Public Equity and therefore

disclose valuable data.

Private Equity can be used in various financing stages of a company's lifecycle. Consequently, Private Equity finances startups in addition to economically well established companies, and finances a company's operations without the need for the company to go public.

Listed Private Equity (LPE) firms are following the same underlying concept as privately held ones, with the difference, that the listed company uses the stock market to raise capital for their investments. While the companies invested in by the listed PE firms usually are not listed, the investment firm usually is. This makes Listed Private Equity comparable to Public Equity financings.

Public Equity follows mostly the idea of getting financed through the process of an Initial Public Offering (IPO). Through one or several financing rounds, a company is able to collect money for different steps of their economic lifecycle stages.

2. Literature Review

A lot of empirical research took place in this field, in the following some research is presented.

Gompers and Lerner (1997) compare the performance of Private Equity transactions of a single Private Equity fund by using equally weighted indices of publicly listed companies with equivalent three-digit SIC codes as benchmarks for individual Private Equity transactions. They use these indices as performance indicators for the Private Equity transactions in the absence of cash payments or write-downs, assuming a perfect correlation between the valuations of the companies under consideration and the chosen index. The authors calculate a risk-adjusted performance for this Private Equity fund that significantly outperforms the comparative return on public markets. However, this fund can hardly be considered representative of the Private Equity industry as a whole. Consequently, the question of the performance of Private Equity in relation to the public markets cannot be answered by their study.

Ljungqvist and Richardson's (2003) study looks at more comprehensive data from a fund-of-funds investor reporting cash payouts, deposits and management fees from 73 different Private Equity funds. To obtain (partially) risk-adjusted returns, they calculate industry beta factors using the methodology of Fama and French from 1997. They implicitly assume average industry leverage ratios in their analysis. From this, they obtain an average beta factor for all different Private Equity fund portfolios of 1.08 and an average annual IRR of 21.83%. The annual performance of the S&P 500 Index over the same period was 14.1%. The authors argue that, assuming leverage is no more than twice the industry average, this would lead to risk-co-adjusted outperformance for Private Equity transactions. However, as the authors themselves acknowledge, their sample presents the Private Equity funds that an experienced fund-of-funds investor has selected. Therefore, one must consider the possibility that these Private Equity funds do not represent a random selection of the entire population of Private Equity funds, but are subject to selection bias, which may explain the high returns of their sample of Private Equity funds.

Cochrane (2005) explicitly addresses the fact that empirical research in Private Equity can only observe valuations when companies are listed publicly for the first time, receive new financing or are acquired by third parties. These events are more likely to take place when returns are already good. This circumstance entails a selection bias, which the author overcomes by means of a maximum likelihood estimation. Focusing on Venture Capital investments, he uses data from 16,613 financing rounds between 1987 and June 2000 of 7,765 companies considered from the VentureOne database. Based on a reweighting procedure, Cochrane calculates an arithmetic mean return of 59%. He compares the returns with the corresponding performance of the S&P 500 Index and some portfolios from the NASDAQ Index. Taking into account these different benchmark portfolios, he finds alpha values between 22% and 45%, i.e., a significant outperformance for the Private Equity transactions.

Kaplan and Schoar (2005) use a public market equivalent (PME) approach to benchmark a large sample of sufficiently liquidated Private Equity funds from the 'Thomson Venture Economics' database. They construct a mimicking portfolio for certain Private Equity funds by investing an equal amount in the S&P 500 Index over an identical time period and comparing the Private Equity funds' returns to the index returns. They conclude that the average Venture Capital and buyout returns net of fees are approximately equal to those of the S&P 500, and the returns before fees of both asset classes exceed the selected benchmark. They also document higher performance of larger funds and more experienced management teams. However, the authors acknowledge that their results should be interpreted with caution because they did not adjust for different leverage or market risk within the sample.

Gottschalg, Phalippou and Zollo's (2005) study is an extension of the article by Kaplan and Schoar from 2005. By using additional information on the characteristics of the underlying investments of the funds, they are able to assign each transaction to an industry according to the Fama and French (1997) classification. They then calculate

unlevered beta factors to adjust for operational risk. However, due to a lack of data on the leverage of the companies considered, they are also unable to take into account the different leverage of their sample transactions. They refer to Cotter and Peck (2001), who provide detailed information on the capital structure in Private Equity transactions, and calculate beta factors with an initial debt/equity transaction, and calculate beta factors with an initial debt/equity ratio of 3 and a final debt/equity ratio equal to the industry average. After adjustments for selection bias, they obtain an IRR of 12.45% and a profitability index of 0.7 for a sample of 933 quasi-liquidated Private Equity funds from the Venture Economics database. In other words, these funds launched between 1980 and 1996 have returned only 70% of their invested capital and underperformed the S&P 500 Index by an average of 3% annually.

In a 2006 study, Groh and Gottschalg are able for the first time to make a fully risk-adjusted comparison between performance of a large sample of buyout investments and investments in the public market. Based on a unique dataset that includes the returns, leverage, and industry characteristics of 199 US buyout fund investments in 133 US companies, the authors construct a mimicking portfolio consisting of 199 leveraged investments in the S&P 500 Index. The investments in this portfolio perfectly match the buyout investment in terms of (a) the timing of their cash flows and (b) their systematic risk structure and are continuously matched to them throughout the holding period. Under conservative assumptions and after correcting for potential selection and survival bias within their sample, their analysis shows that the performance of the buyouts exceeds that of the public market.

The studies presented so far could only partially answer the question about the historical performance of Private Equity funds compared to investments in public markets – and the partly contradictory results within the included literature may result from differences in the origin of the data and the consideration of risk. Some studies (Gompers and Lerner 1997, Ljungqvist and Richardson 2003, Groh and Gottschalg 2006) rely on proprietary data provided by some investors in the Private Equity market. Such data may inevitably be subject to bias, and even if some of the authors explicitly address this fact and make corrections, one must nevertheless be cautious about generalizing their findings to the Private Equity industry as a whole. Other studies rely on large and commercially available databases (Thomson Venture Economics or VentureOne). These databases are subject to less distorting effects such as selection biases, but they do not include sufficiently detailed information for a full alignment of risk between Private Equity funds and investments in public markets. Therefore, additional data collection and further research is needed to provide a comprehensive answer to the question of whether, when and why Private Equity fund investments outperform or underperform other investment alternatives (Gottschalg, 2017, p.51).

Summarizing the literature review it confirms the overall private equity outperformance versus public equity. The extent of the outperformance depends largely on the investigated time horizon, the reviewed country, the economic sector and the political framework. This paper, however, takes into account longer time horizons and focuses on large regions like the United States, the European Union as well as Asia and not only single countries. It confirms that longer term investments imply less liquidity but higher returns.

3. Private Equity, Listed Private Equity and Public Equity

Private Equity is an alternative asset class. In marketing their products, providers of Private Equity funds regularly emphasize the positive characteristics of this asset class, namely attractive performance and low correlations to traditional asset classes which opens up considerable diversification potential. The low interest environment gave many investors difficulties to achieve their desired return targets with traditional forms of investment and are therefore seeking to supplement their portfolios with Private Equity investments. This trend continues to open up enormous growth potential for the Private Equity industry (Hanser & Disch, 2016, p.162).

When talking about numbers, delivered by Invest Europe, in the years from 2016 to 2020 EUR 407 billion have been invested by Private Equity in European companies. According to Invest Europe, 8,163 European companies are backed by private equity in 2020. Out of this number, about 85% are SMEs (Invest Europe, 2021).

Invest Europe published how extreme the trend of Private Equity financing and investments is at the moment by saying that Private Equity is delivering better pensions, it is investing EUR 54 billion a year in European growth and can therefore be seen as highly innovative region (Invest Europe, 2021). What they mean by delivering of better pensions is that Private Equity outperforms publicly listed markets. Secondly, the European Private Equity investments lead to assets under management of around EUR 640 billion. Private Equity can be seen as pushing Europe to a major innovative region.

A benefit of Listed Private Equity (LPE) is that it offers more liquidity than listed public funds and that the access to Private Equity is immediately enabled. It simplifies the cash flow management. LPE can be defined as an asset class in which the underlying business followed is similar to PE, but the company themselves are mostly listed on an

exchange (Bilo, 2002, p.12 and Bilo et al., 2005, p.49).

The growing phenomenon of LPE has kept on growing for years. Not unimportant for this ongoing growth have been listings of large Private Equity companies as Kohlberg Kravis Roberts, which went public in 2006 and Blackstone, which went public in 2007 and Carlyle, going public in 2012. Those companies are of course big players, when it comes to the industry of Private Equity (Darolles & Tommar, 2017, p.5). In 2017, Darolles and Tommar estimated the number of LPE entities based on their research to 200 to 300, one of the largest LPE – Index provider estimated the number of LPEs worldwide at 500 entities in 2017 (ALPS-Red Rocks Global Opportunity Fund as of 2017). When it comes to the actual situation, the report provided by 'Listed Private Capitals' states that the tradeable closed end PE funds listed on European stock exchanges are about 80 and when it comes to globally listed funds about 300. Those are mostly direct investment companies or funds of funds (LPeC, 2020, p.8).

As investors seek to add further listed supplements to their already existing Private Equity portfolios, the role of LPE investments is expected to keep on growing. The global market value of Listed Private Equity was around GBP 41.5 billion in 2010, reaching GBP 125.8 billion in 2019. Considering continental Europe, the market value has more than doubled, rising from GBP 15.5 billion in 2010 to GBP 30.7 billion in 2019. By the end of 2019, Listed Private Equity have outperformed global stock markets by more than one-third, which can also be seen in the graph provided in Figure 5 (LPeC, 2020, p.11).

In the meantime, a decline in the number of listed companies (public equity) can be observed in many countries, including the US, the United Kingdom and Germany This trend is not solely attributable to the bursting of the New Economy bubble at the turn of the millennium, the global financial market crisis in 2008 or the tighter regulation in the wake of the accounting scandals surrounding Enron and WorldCom in the early 2000s. At least in the U.S., it started much earlier. Jensen expected such a decline as early as the 1990s, resulting from the growth of the Private Equity industry (Jensen, 1989).

Due to the fact that the number of IPOs is not increasing heavily anymore it is also interesting to note that in the last years the numbers of listed companies worldwide has declined by about 40%. This shows that the development of 'public-to-private' is still an ongoing trend.

4. Empirical Analysis

4.1 Fundraising

Taking a look at the impact of fundraising in private markets compared to the market capitalization, Figure 1, delivers insides over a 20 years-period between 2000 and 2020. The data is provided by Cobalt, Preqin, PEI and Bloomberg as of January 2021. The graph shows an upward trend since the financial crisis in 2007, which underlines the assumption of a strong private market in times of economic weakness.

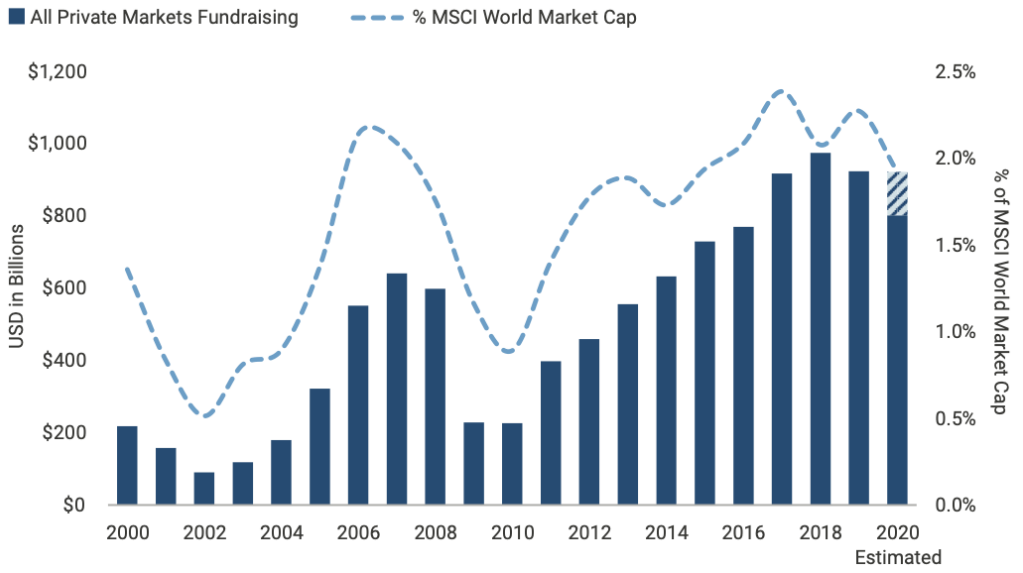


Figure 1. Fundraising in Private Markets vs. Market Capitalization of MSCI World, Cobalt, Preqin, PEI, Bloomberg (January 2021)

4.2 Private Equity Transactions

Focusing on the Private Equity Transaction, Figure 2 represents the number of transactions (left scale) as well as their transaction value in USD (right scale) based on their imposition year during the period between 2011 and 2021. The data is provided by Preqin and Pitchbook as of the end of November in 2021.

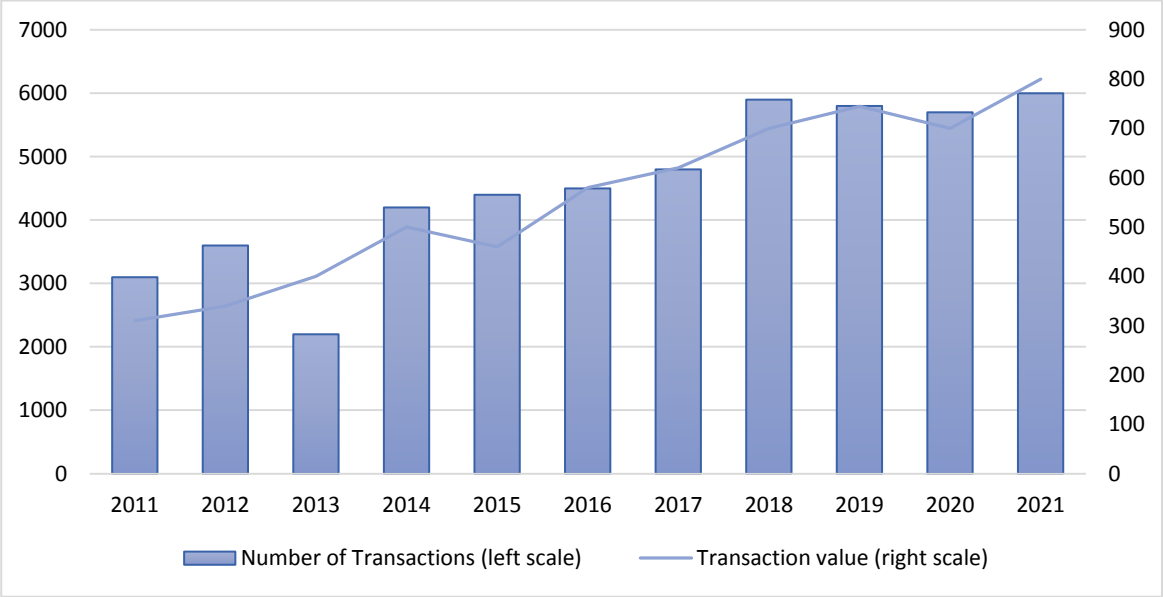


Figure 2. Number and Volume (USD) of PE-Transactions based on their imposition year, Preqin and Pitchbook, 2021

Pitchbook (2021) also provided data concerning the Net-IRR of PE investments based on the respective imposition year. Figure 3 compares the Private Equity investments by separating them into direct investments as well as co-investments, in the sense of minority investments.

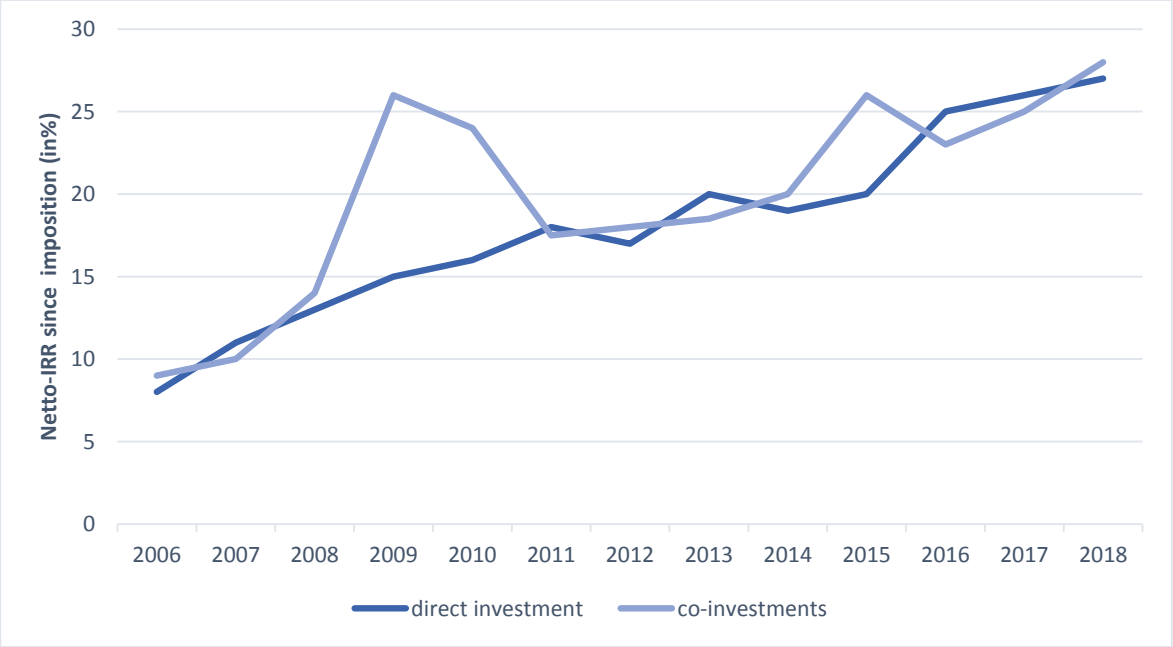


Figure 3. Net-IRR (Median) of Private-Equity-Investments based on imposition year, Preqin 2021

Private Equity funds reached also major achievements in the development of their fundraising activities. Private Equity international (2022) delivered data on the fundraising volume of Private Equity funds comparing the numbers April 2021 with April 2022. They investigated the differences in North-America, Multiregional, Asia-Pacific as well as Europe.

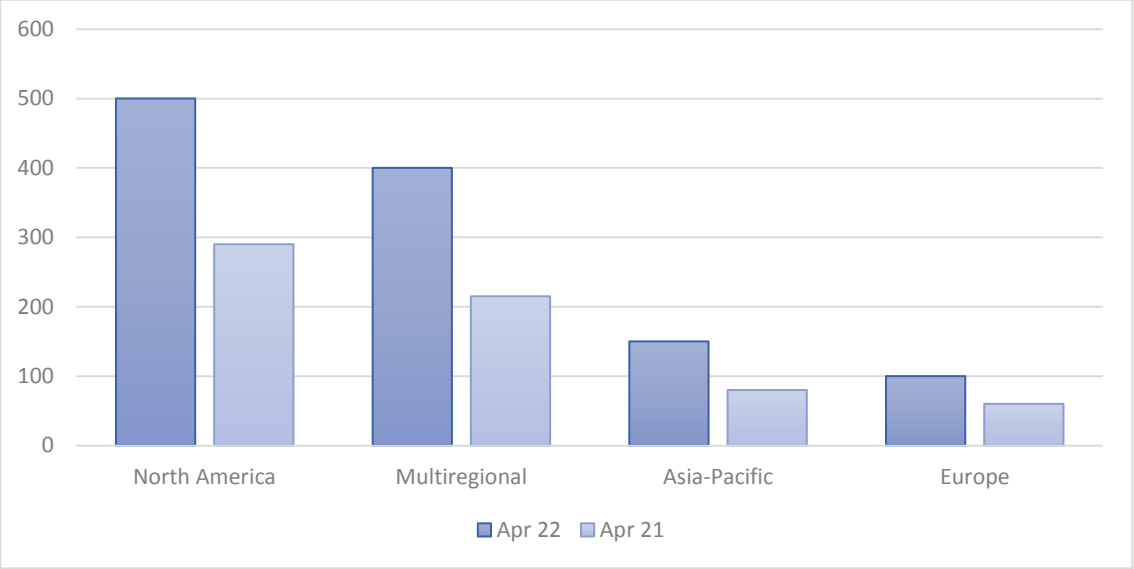


Figure 4. Private Equity Funds nearly reached to double their fundraising volume (in billions of USD), Private Equity international 2022

4.3 Total Return

Evidence on the fact that Listed Private Equity outperforms global stock markets was shown by LPeC in 2020. Figure 5 represents their findings. It compares the total returns of the MSCI World with the ones of LPX Composite. The LPX Composite index is an index comprising the most highly capitalized and liquid LPE companies. Comparing the total returns of both indices one can see that the LPX Composite index is outperforming the MSCI World since the end of 2009.

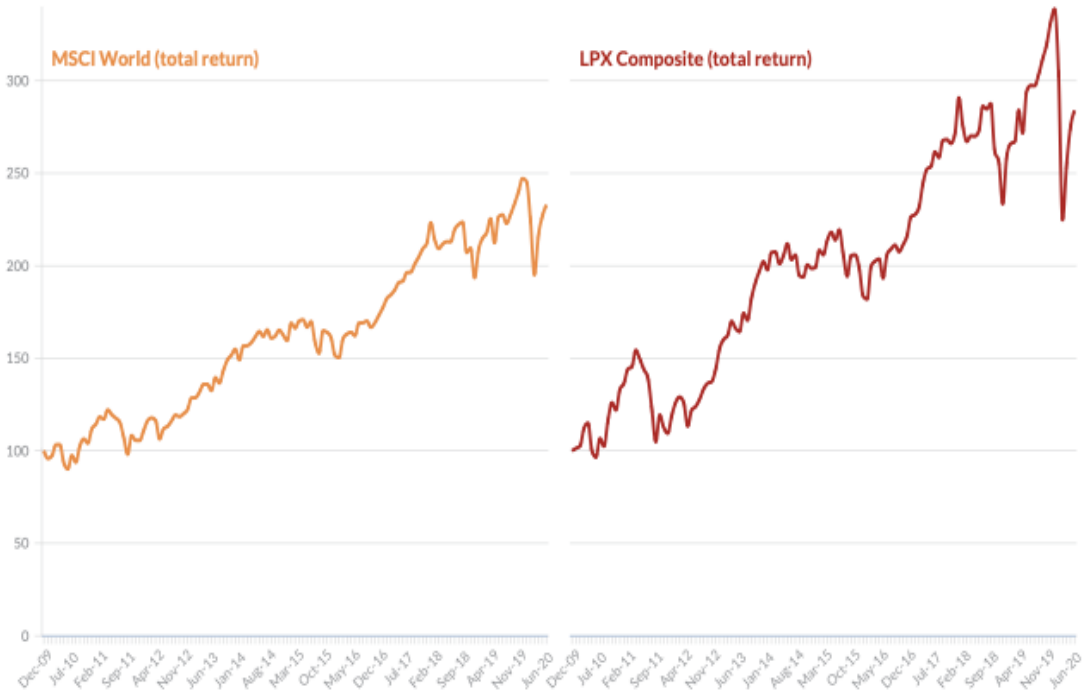


Figure 5. Listed Private Equity has outperformed global stock markets, (in billion USD), LPeC 2020

5. Global Listed Private Equity Index

5.1 GLPE Index

Red Rocks Global Listed Private Equity (GLPE) Index combines 40 to 75 listed PE companies in their index which can change quarterly per modified market capitalization weights. As of 31st of December 2021, the GLPE Index consists of 66 constituents with an average market cap (in million Dollar) of 21,197 and a dividend yield of 3,52%. The number of companies provide a mean of diversified exposure of over 1000 private businesses, which are owned by the listed PE companies. The diversification is shown in the portfolio by the type of capital, geography, stage of investment, industry and vintage years.

When it comes to the GLPE Index Returns as of 31st of March 2022, the following table provides the details:

Table 1. GLPE Index returns, March 2022

	YTD	1 Year	3 Year	5 Year	10 Year
Cumulative	-15.16%	0.27%	47.11%	70.01%	205.37%
Annualized	-	0.27%	13.73%	11.20%	11.81%

With over USD 200 million in tracking assets worldwide the GLPE index is the most widely followed listed PE index. Its constituents are weighted depending on the strength of their PE investment focus. In the sum of the 66 constituents, 10% are clustered as Business Development Companies (BDC), 32.5% are clustered as Alternative Asset Managers and the remaining 57.5% are Direct Investment Companies.

Table 2. Comparison of different index returns, Red Rocks GLPE Index March 2022

INDEX NAME	RETURNS					RISK
	YTD	1 Year	3 Year	5 Year	10 Year	Std Dev
Red Rocks Global Listed Private Equity Index	27.96%	27.96%	25.71%	16.31%	15.51%	21.58%
MSCI World Index	22.38%	22.38%	22.35%	15.67%	13.35%	15.01%
S&P 500 Index	28.71%	28.71%	26.07%	18.47%	16.55%	15.39%
HFRX Global Hedge Fund Index	3.69%	3.69%	6.35%	3.53%	2.58%	4.85%

According to the table the return of the GLPE Index outperforms the MSCI World Index and the HFRX Global Hedge Fund Index, but underperforms the S&P 500, no matter if the returns from a 1-year perspective or a 10-year performance are taken into consideration.

The standard deviation was calculated as of the 31st of March in 2022 based on the 10-year monthly returns and build by using the yearly monthly annualized standard deviation.

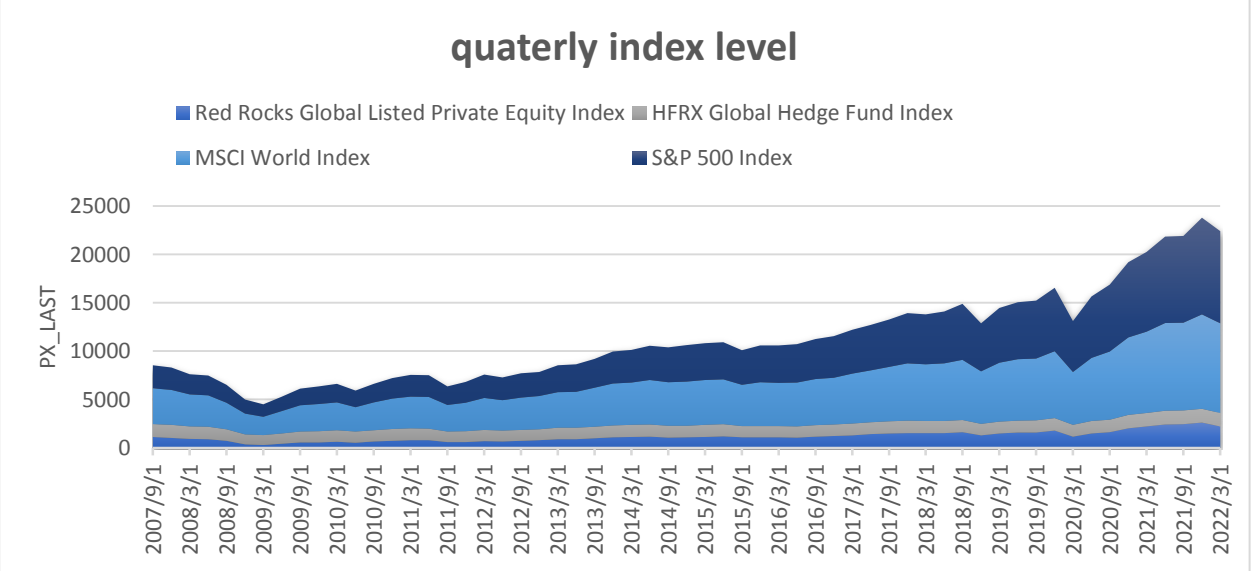


Figure 6. Quarterly index level: GLPE vs. HFRX vs. MSCI World vs. S&P 500, source: Red Rocks

The above shown Figure 6 pictures the quarterly index level development of the GLPE Index, HFRX Global Hedge Fund Index, the MSCI World Index and the S&P 500 Index. The timeframe covers the last 15 years, starting in 2007, when the index was created. The graph fully represents the time period since the beginning of the Red Rocks GLPE Index. The data were retrieved on a quarterly basis and are shown in USD. The HFRX Global Hedge Fund Index is an index, which is designed to represent the overall composition of the overall hedge fund world. The goal is to be the most representative index for the hedge fund universe by objective criteria.

When it comes to the diversification of the underlying private business the following graph represents the geographical diversification of the Red Rocks GLPE Index as of the 31st of March in 2022. As Figure 7 illustrates,

the regions of Europe and North America and Canada make out the largest part with about three-quarter.

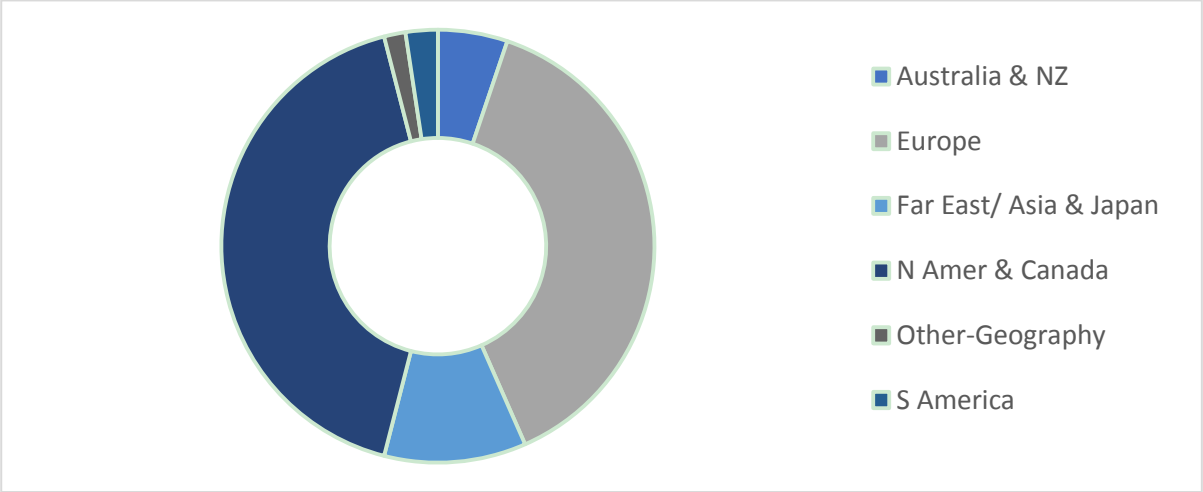


Figure 7. Share of investments by region, Red Rocks GLPE Index March 2022

According to Figure 8 another interesting observation are the industries in which the GLPE Index of Red Rocks has the most assets. The IT and consumer discretionary sectors make up the largest part of the index and sums up close to 40%.

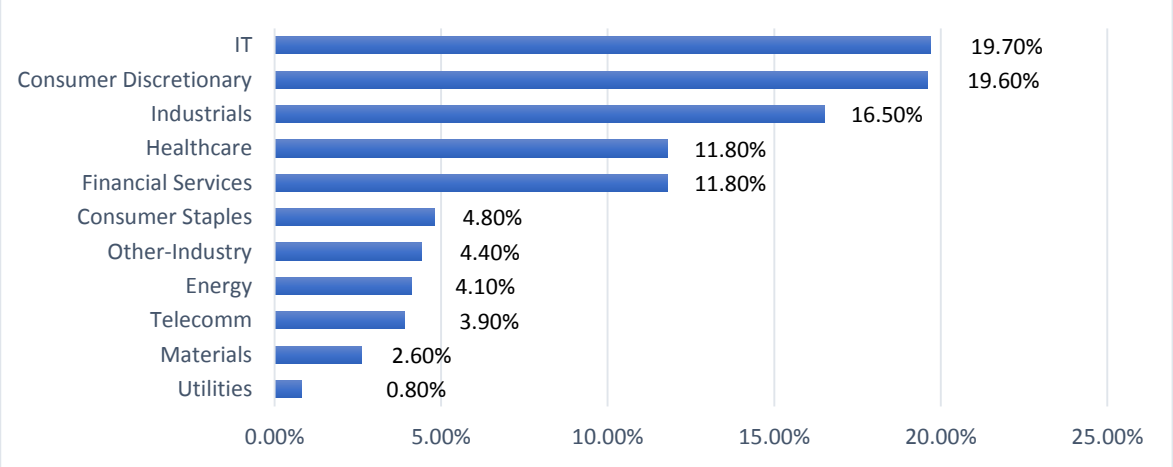


Figure 8. Share of investments by sector, Red Rocks GLPE Index March 2022

5.2 Global IPOs

Figure 9 represents the number of IPOs in 2020 worldwide provided by EY in their Global IPO Trends during the 4th quarter of 2020. The graph below shows the number of traditional IPOs which took place in the first half of 2020 and the second half of 2020. The numbers are on a worldwide basis. In this graph SPAC IPOs are excluded. Mainland China has the greatest number of traditional IPOs with an amount of 392 for the whole year 2020. The United States made the second greatest amount with 224, the third place is made by Hongkong with a number of 144. This means that the total number of IPOs coming from Greater China made a total of 536 traditional IPOs. The Nordics shown in the graph with a number of 96 IPOs include Denmark, Norway, Sweden and Finland.

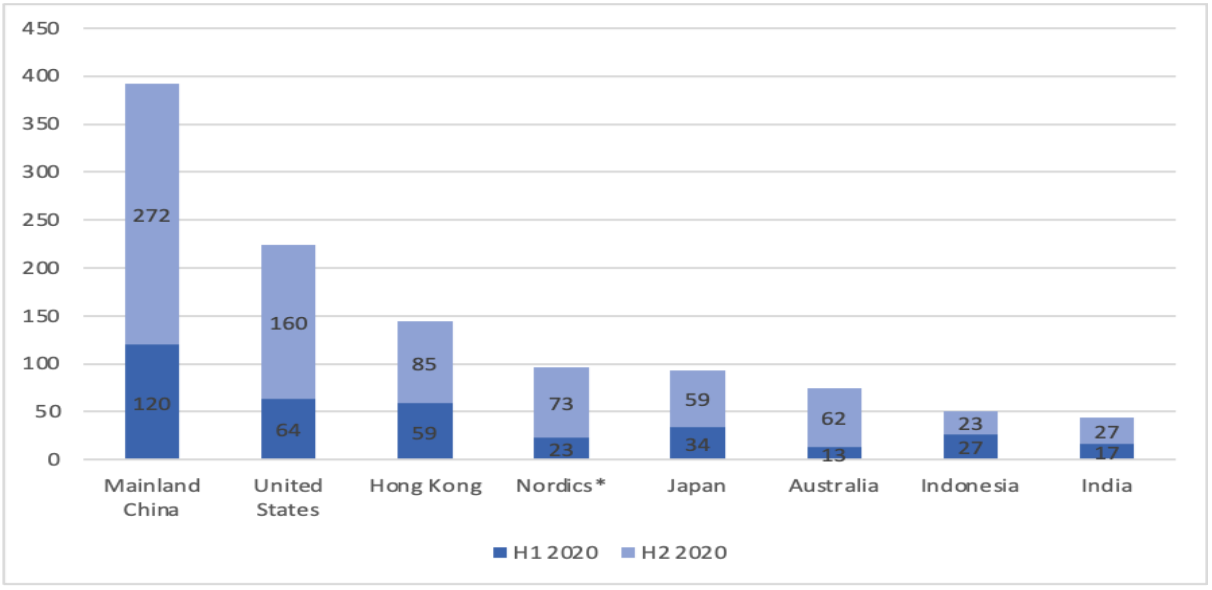


Figure 9. Number of IPOs in 2020 worldwide, EY Global IPO Trends, quarter 4 of 2020

In the following Figure 10 another comparison is shown for the time period between January 2019 until June of 2021. It compares the Number of IPOs with the Level of the MSCI World Index. This graph demonstrates that equity markets are resilient, open and growth orientated.

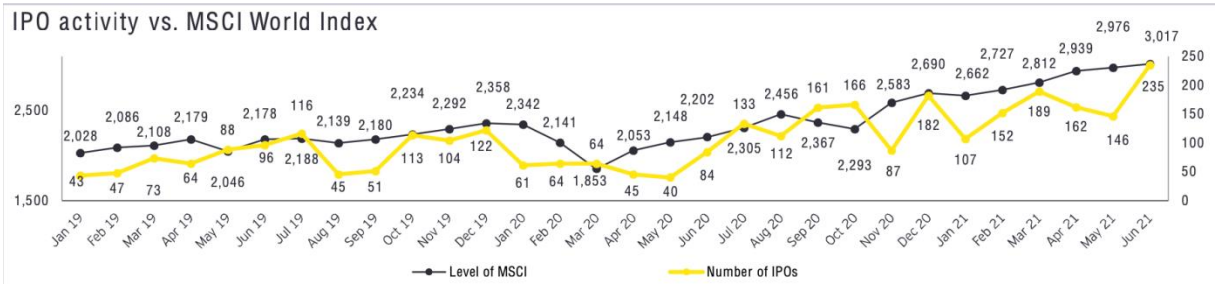


Figure 10. Number of IPOs vs Level of MSCI World Index, EY 2021

6. Comparison of Returns in the United States

The US stock market achieved an all-time record in the year of 2020 regarding the number of IPOs which took place. With 480 IPOs they have beaten their earlier record year by 20%. When it comes to SPACs, 348 companies went public in the United States using this vehicle. Regarding returns in the United States the following graph compares the average returns of investments in IPOs, SPACs, NASDAQ and in the S&P500 for the year of 2020. The data used are provided by PwC, dialogic and the S&P Capital IQ.

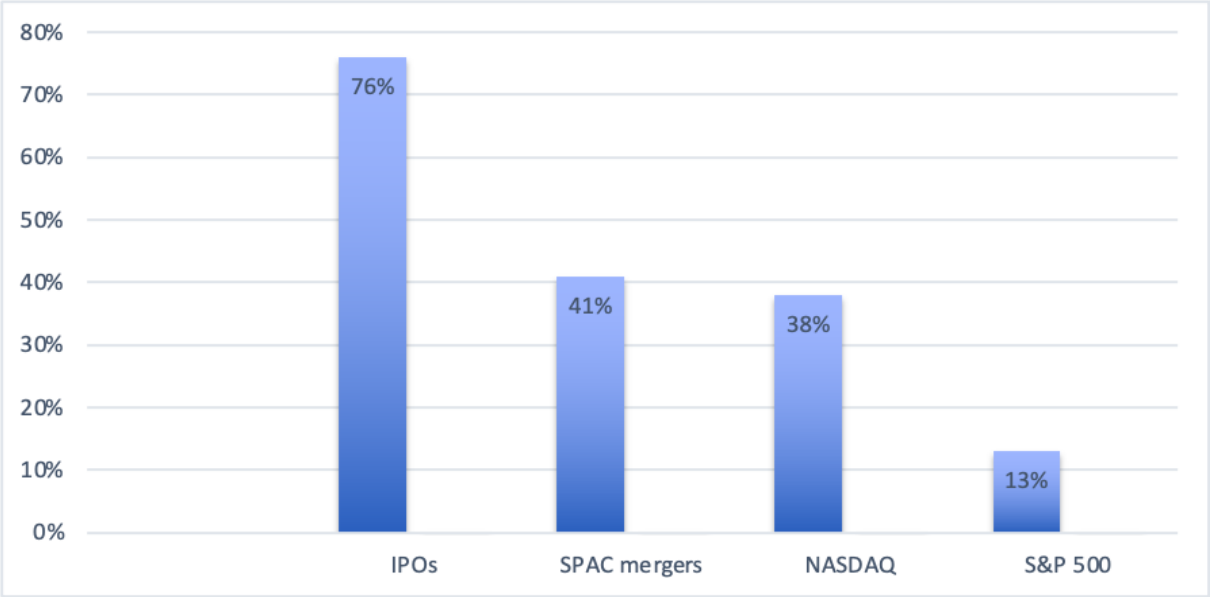


Figure 11. Returns in the US: IPOs vs. SPAC merger vs. NASDAQ vs. S&P500, PwC

Figure 11 data are provided by PwC. The basis for the calculation is adjusted by the number of SPAC mergers, which usually are also displayed in the number of IPOs.

In 2020, equity returns exhibited for example by the S&P 500 and the NASDAQ remained excessive, regardless of the uncertainty and volatility resulting from the COVID-19 pandemic situations and associated with partial shutdowns. IPOs ended the 12 months with the best returns, which amounted to 76% for investors as shown in the graph above.

7. Private Equity Fund Analysis

7.1 Private Equity Worldwide Distribution

Focusing on the target region of Private Equity funds worldwide in 2021, the following graph shows the data provided in billion U.S. dollars. North America has the highest value with USD 498.60 billion and takes the largest percentage of 42.81%. Multi-regional funds have been targeting with a value of USD 393.50 billion and 33,79%. The Asia-Pacific value of Private Equity funds in 2021 was USD 151.60 billion and 13,02%, Europe with 8,54%. The other regions had values of USD 99.5 billion Latin America, USD 10.10 billion Sub-Sahara, USD 6.10 billion and USD 5.20 billion with Mena. Figure 12 uses data provided by Private Equity Internationals Fundraising Report of the first quarter of 2022.

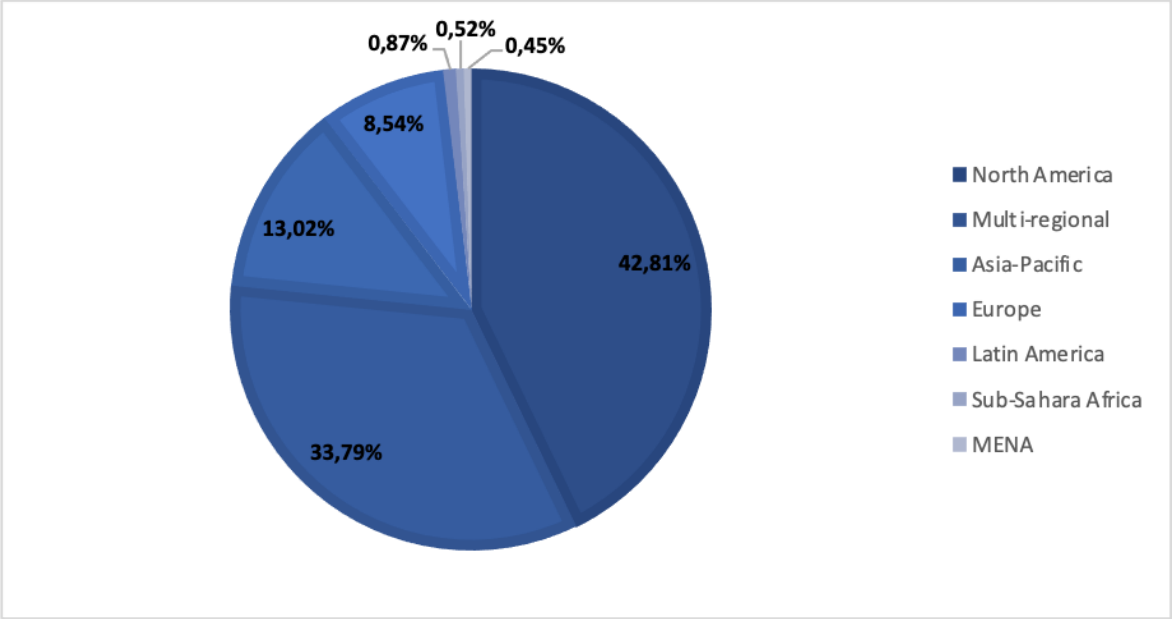


Figure 12. Share by countries, Private Equity Internationals Fundraising Report, first quarter of 2022

7.2 European Private Equity

Focusing on the European Private Equity funds market, one can demonstrate the development of amounts invested in different fund stages over the past years.

Table 3. Fund stage focus, Invest Europe 2007 until 2021

Fund stage focus															
Amounts in € thousands	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Early-stage	3.017.010	1.740.507	1.114.866	920.270	1.706.746	1.658.897	1.073.888	1.778.999	1.842.384	3.433.451	2.528.356	4.602.134	4.751.882	5.978.729	8.019.084
Later stage venture	602.298	1.334.123	291.986	382.626	831.772	185.078	149.360	467.010	1.143.400	356.113	701.941	2.054.159	1.693.800	2.103.802	1.114.455
Venture (all stages)	4.279.701	3.081.160	2.082.577	2.164.363	1.949.895	2.147.987	3.467.334	2.989.156	3.746.995	5.284.002	7.042.186	5.926.093	10.287.770	7.904.070	9.113.575
Total venture	**7.899.010**	**6.155.791**	**3.489.429**	**3.467.259**	**4.488.413**	**3.991.962**	**4.690.582**	**5.235.165**	**6.732.778**	**9.073.565**	**10.272.483**	**12.582.386**	**16.733.452**	**15.986.601**	**18.247.114**
Growth capital	2.299.039	2.998.964	1.070.740	2.907.268	1.976.820	1.599.658	5.948.846	3.833.559	3.308.436	4.789.887	7.412.596	10.132.659	10.866.707	18.168.587	19.957.568
Mezzanine	4.268.042	860.260	566.055	680.384	2.708.360	1.631.800	360.500	1.636.505	3.396.546	758.884	1.022.977	821.622	436.552	419.600	839.612
Generalist	11.795.175	6.827.694	5.677.801	7.286.284	7.055.092	3.455.181	5.741.528	8.295.020	7.758.165	6.815.853	5.258.228	11.048.060	5.474.629	7.356.049	7.993.010
Buyout	54.574.234	65.884.373	10.385.921	11.588.243	23.854.201	17.848.137	44.067.638	38.036.834	33.546.925	62.665.186	72.661.130	68.326.778	80.943.230	68.444.437	70.678.619
Total funds raised	**80.835.500**	**82.727.083**	**21.189.948**	**25.929.437**	**40.082.885**	**28.526.738**	**60.809.095**	**57.037.083**	**54.742.850**	**84.103.375**	**96.627.414**	**102.911.504**	**114.454.569**	**110.375.273**	**117.715.923**

Invest Europe provides data for the period of 2007 until 2021 showing the different fund stages, Table 3, and the number of total funds raised, Table 4, in the different years. The average growth of ventures including all different stages in the years of 2007 until 2021 was around 8%, the later stage growth on average 6% growth, while the Early-Stage fund had an average growth of 12%. Growth capital was around 55% and buyouts only 2%; mezzanine and generalist exhibited negative growth figures. Total funds raised increased from around € 80,8 billion to € 117,7 billion during this period, implying an average annualized growth rate of 3,3%.

Table 4 shows the number of funds founded during the period 2007 until 2021.

Table 4. Number of Funds, Invest Europe 2007 until 2021

Number of funds	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Early-stage	95	71	55	49	65	50	46	64	53	57	64	112	93	129	120
Later stage venture	20	15	12	17	14	8	5	8	5	5	15	15	44	37	39
Venture (all stages)	112	100	99	101	88	100	110	113	102	109	124	134	142	148	191
Total venture	**227**	**186**	**166**	**167**	**167**	**158**	**161**	**185**	**160**	**171**	**203**	**261**	**279**	**314**	**350**
Growth capital	44	45	47	75	63	52	51	65	60	76	129	128	137	162	195
Mezzanine	17	7	8	10	10	4	5	11	8	6	8	11	3	3	10
Generalist	202	205	206	205	205	178	153	162	150	150	135	130	106	103	105
Buyout	147	119	77	73	67	82	82	91	107	104	134	121	134	148	181
Total number of funds	**637**	**562**	**504**	**530**	**512**	**474**	**452**	**514**	**485**	**507**	**609**	**651**	**659**	**730**	**841**

Total number of funds increased overall by 32% from 637 in 2007 to 841 in 2021.

Looking at the growth capital funds, the major investment focus, the number of funds rose from 44 to 195, which implies an overall increase by 343%. Total venture funds of 227 increased to 350 funds, an increase by 56%. Mezzanine and Generalist dropped from 219 to 115 funds in 2021, implying a decrease by 47%, whereas Buyouts increased from 147 to 181 by 23%.

In summary, these tables focusing on investment amounts for different funds stages and number of funds demonstrate a great amount of change and growth regarding Private Equity funds in Europe.

The amount of capital raised by different types of investors is shown in Table 5.

Table 5. Differentiation into investor types, Invest Europe 2007 until 2021

Investor type															
Amounts in € thousands	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Academic institutions	192.829	225.713	69.578	228.781	145.912	172.879	36.506	517.346	112.365	79.883	199.845	220.537	205.890	278.685	438.765
Banks	9.450.655	6.888.040	2.715.411	2.459.517	2.782.450	1.487.130	1.569.192	1.536.854	2.250.231	3.378.831	4.118.176	4.653.106	5.108.875	4.701.598	5.458.535
Capital markets	1.224.132	1.218.080	353.562	1.494.767	904.216	296.963	578.739	285.647	616.137	625.736	246.873	478.382	1.364.662	1.265.036	1.162.660
Corporate investors	2.691.125	2.642.416	731.544	1.020.468	1.556.997	895.889	856.721	2.406.389	2.427.053	1.849.914	3.453.462	3.545.025	3.326.835	3.315.219	7.011.384
Endowments and foundations	1.370.302	3.571.159	410.958	477.221	680.143	436.188	1.874.196	2.221.892	1.104.541	2.394.540	2.555.848	3.551.410	5.346.044	3.024.233	2.954.647
Family offices	1.816.613	2.439.247	808.598	2.036.000	2.094.762	1.083.417	2.100.392	3.579.021	3.384.546	4.029.366	5.451.635	5.688.567	6.605.840	6.354.651	7.416.388
Fund of funds	9.067.345	11.187.090	3.188.800	2.830.605	6.500.557	4.472.592	5.846.511	6.311.865	6.093.191	9.559.042	11.787.626	10.963.260	13.640.354	12.104.618	15.332.941
Government agencies	2.349.183	2.927.084	2.601.583	3.258.311	3.381.866	2.561.950	2.781.850	4.263.272	3.959.789	4.930.403	5.244.238	6.536.054	5.860.152	7.016.237	7.575.149
Insurance companies	6.392.823	6.030.209	1.750.248	1.504.466	2.722.645	2.246.626	5.172.484	4.860.733	5.216.967	7.587.234	6.439.201	9.687.597	10.882.079	9.773.671	8.792.669
Other asset managers (including PE houses other than fund of funds)	3.125.225	3.639.824	903.246	1.798.135	1.458.906	1.625.948	3.113.196	2.595.244	3.014.962	3.942.297	3.826.700	5.507.942	5.226.638	7.084.985	7.175.238
Pension funds	14.656.279	23.423.311	2.653.887	3.897.395	7.955.521	5.676.836	18.133.778	14.250.344	10.266.545	24.432.601	23.613.636	28.033.463	27.048.462	27.768.584	19.625.134
Private individuals	5.446.797	6.444.150	1.882.471	2.520.482	2.649.388	2.277.348	3.082.677	2.668.519	2.494.818	3.775.001	7.552.117	5.083.092	7.115.107	6.981.834	7.192.743
Sovereign wealth funds	2.382.270	1.845.688	218.480	870.926	3.876.332	2.370.897	5.759.098	4.669.426	4.195.194	6.100.358	7.702.924	7.934.824	9.196.468	8.155.040	6.439.885
Unclassified	19.463.801	10.104.418	2.647.169	1.519.576	3.284.783	2.884.625	9.672.074	6.864.305	9.519.860	11.417.326	14.400.642	10.969.507	13.504.367	12.460.743	21.069.008
New funds raised	**79.629.380**	**82.586.430**	**20.935.536**	**25.916.650**	**39.994.479**	**28.489.288**	**60.577.414**	**57.030.855**	**54.656.199**	**84.102.531**	**96.592.924**	**102.852.766**	**114.431.772**	**110.285.132**	**117.645.146**

Table 5 exhibits an extreme strong year 2021. It represents the strongest year since 2007.

When focusing on the investor type, it is apparent that the numbers have also changed a lot between 2007 and 2021. Looking at the investor type of other asset manager which includes PE houses other than fund of funds, the number increased by roughly 130 % over the investigated period. Academic institutions, corporate investors, family offices, fund of funds, government agencies, pension funds, private individuals and sovereign wealth funds are all showing a significant growth rate during the reviewed period.

7.3 Global Return Private Equity

As shown in Figure 13 the return figures in Private Equity were the most attractive asset class among alternative assets, with growth and Venture Capital funds in particular demand. The top quantile of Private Equity funds, for example, generated an IRR of over 30 percent. Second place in 2021, measured by the delta between top and bottom performance, were natural resources and infrastructure, followed by real estate and private debt. Overall: the global fund performance, measured by net IRR, exceeds significantly the return in the listed equity markets.

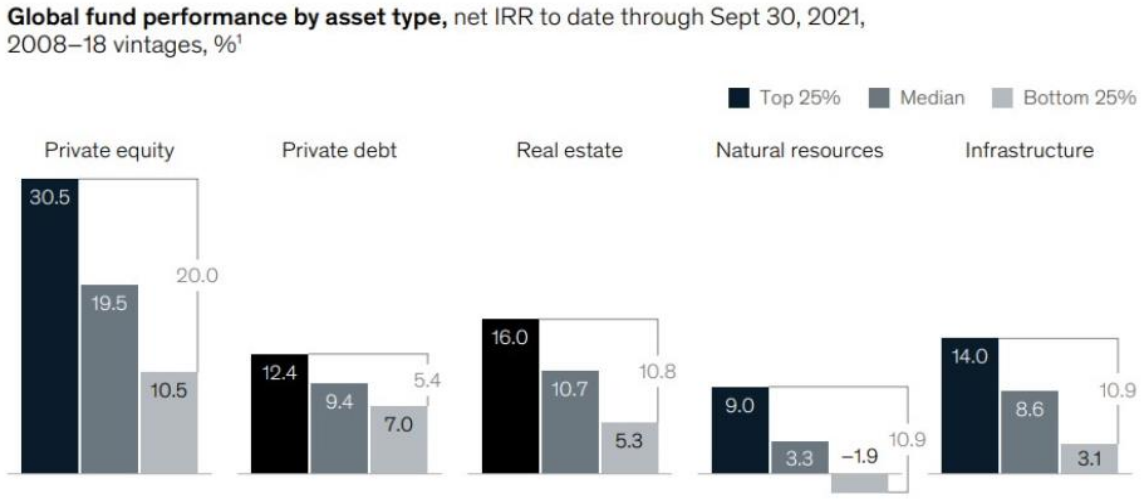


Figure 13. Global fund performance (in %) by asset type, net IRR to date through Sept 30, 2021, [1] 2008-18 vintages, McKinsey

In Private Equity, one fact stands out despite all the growth, the secondary market halved to just USD 43 billion after the record fundraising year in 2020 of USD 84 billion (McKinsey, 2022, page 19). Although the already expected decline is enormous, the secondary market still recorded the third-best fundraising result ever. Within Private Equity, Venture Capital was the big winner. Among the sub-classes, investments in young companies have almost without exception been the most attractive form of investment in terms of returns in recent years. At the same time, the data show that Venture Capital nevertheless exhibits high volatility.

McKinsey investigated the global PE deal volume by sector, trailing a three-year period. The total global deal volume had an increase of 140.81% starting with a total global deal volume of USD 2,041 billion in 2012 and ending by USD 4,915 billion in 2021. (McKinsey, 2022, page 27).

7.4 Transactions LPE

Regarding Listed Private Equity some PE companies are outstanding due to the number of deals concluded, if the focus is on the United States with data as of July 2021. As shown in Figure 14 Insight Partner was the most active private equity investor. Insight Partners invested in 645 PE deals. Insights Partners focuses on growth-stage technology businesses and is basically a venture capital and private equity firm. The next following firms in the graph are Tiger Global Management and DCM Ventures, with 639 and 580 investments, respectively.

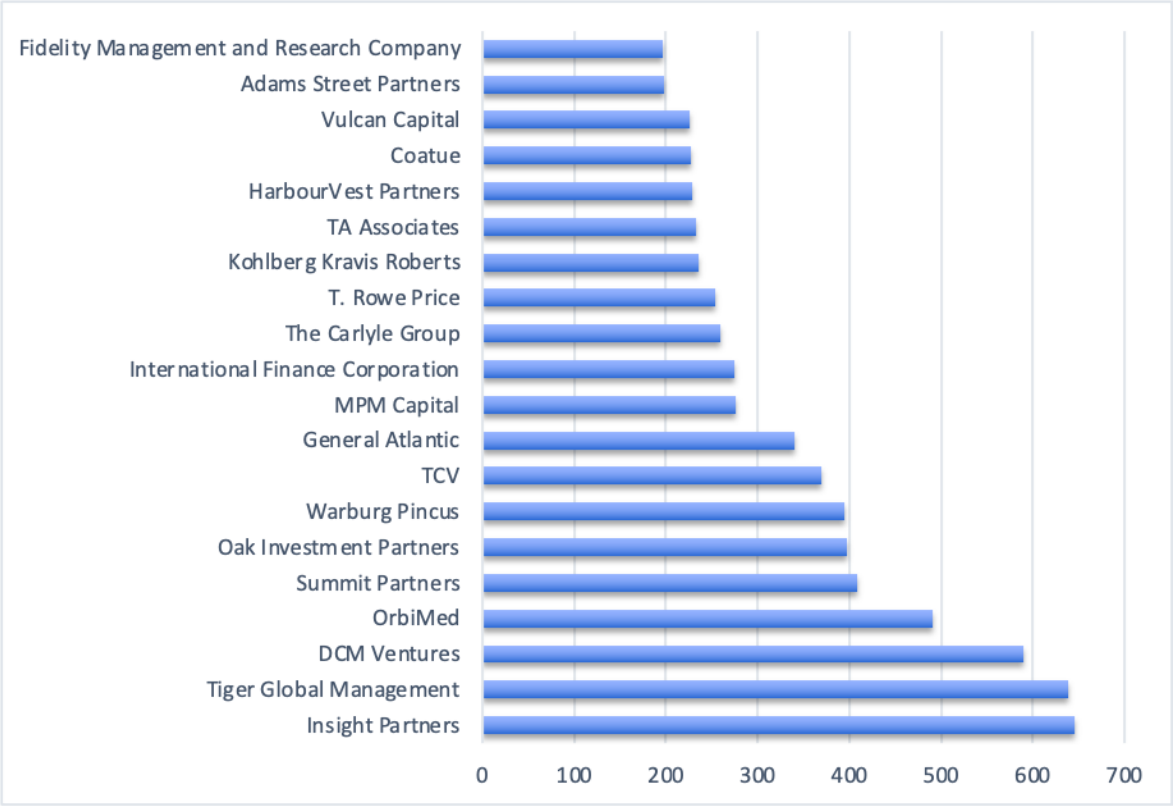


Figure 14. Own presentation: LPE Market Cap or Trading volume, Crunchbase and Statista (in billion $)

7.5 Private Equity as Share of GDP

Looking at Europe one can conclude how different countries face the Private Equity investment challenge. The following Table 6 demonstrates the Private Equity investments as share of GDP in selected European Countries from 2014 to 2020. The data are delivered by Invest Europe. The country, which is denoted as other CEE, comprises Bosnia-Herzegovina, Croatia, Macedonia, Moldova, Montenegro, Serbia, Slovakia and Slovenia. The numbers are selected by the location of the PE company.

Table 6. Private equity investments as a share of GDP in selected countries (2014-2020), Invest Europe

Countries	2014	2015	2016	2017	2018	2019	2020
Luxembourg	0,06	1,25	0,87	1,98	2,09	3,36	1,19
United Kingdom	0,43	0,48	0,64	1,28	1,26	1,49	1,39
France	0,39	0,38	0,66	0,68	0,70	0,78	0,82
Sweden	0,33	0,38	0,61	0,58	0,76	0,72	0,61
The Netherlands	0,48	0,50	0,33	0,46	0,53	0,48	0,78
Norway	0,59	0,45	0,28	0,31	0,17	0,46	0,25
Spain	0,15	0,14	0,21	0,22	0,30	0,42	0,36
Germany	0,25	0,22	0,16	0,28	0,27	0,38	0,30
Denmark	0,49	0,63	0,44	0,44	0,53	0,36	0,40
Belgium	0,24	0,34	0,17	0,03	0,22	0,34	0,28
Italy	0,11	0,16	0,23	0,13	0,31	0,25	0,21

Switzerland	0,18	0,22	0,22	0,19	0,27	0,22	0,32
Finland	0,35	0,50	0,30	0,15	0,25	0,22	0,23
Baltic countries	0,14	0,13	0,09	0,05	0,05	0,08	0,11
Hungary	0,16	0,15	0,11	0,31	0,05	0,08	0,14
Portugal					0,05	0,06	0,03
Poland	0,06	0,19	0,16	0,31	0,15	0,06	0,07
Ireland	0,27	0,31	0,18	0,09	0,07	0,06	0,06
Romania	0,05	0,09	0,06	0,01	0	0,06	0,01
Austria	0,09	0,32	0,03	0,02	0,02	0,05	0,04
Greece					0,03	0,05	0,02
Czechia	0,19	0,01	0,03	0,04	0,04	0,04	0,05
Bulgaria	0,01	0,06	0,02	0,03	0,04	0,02	0,07
Ukraine					0,04	0,02	0,03
Other CEE	0,18	0,12	0,01	0	0,01	0,01	0,01

Source: own presentation of data available at Invest Europe 2021

Memo: The US-ratio private equity/GDP was around 6,5% in 2021, see EY, economic contribution US private equity sector 2020, page 10, 2021

8. Conclusion

Time changes and so does the **demand for Private Equity investments**. Once Private Equity was assessed as inefficient and as an unimportant idea of investing for people who are bored of investing in the stock market. Now they have basically built their own imperium. **Private Equity financing is not anymore negligible**. It is an important financing source for companies, which do not want to go public, use bank financing or shareholder financing. The independency and possible know-how, structure and market experience set them apart from all other financiers and financing sources. It is a real new world which is growing year by year.

Especially in volatile market phases Alternative Investments are interesting to consider, but also during stable market phases these vehicles are expected to be profitable. This paper pointed out that **Private Equity is an alternative to raise capital** with all the benefits aforementioned compared to Public Equity. It was proven that the number of IPOs and the number of listed companies is declining while more companies seek out to find Private Equity investors for financing purposes.

As the most efficient investment vehicle, **listed Private Equity** companies come into consideration. To answer the question what the reason for the **declining number of IPOs and the rise in Private Equity backed firms** is, one can say that there is not only one reason why this all happened. It is a combination of the fact that Private Equity delivers better performance than investments in the stock market, that the regulations for companies to go public are getting continuously stricter and that an IPO takes quite a long time, costs and regulatory requirements.

Considering the MSCI World and the S&P500 as benchmark indices, **listed Private Equity companies and funds outperform the benchmark indices.** Reasons for the outperformance are greater diversification in particular when it comes to sectors and countries. Diversification leads to a lower sensitivity in rough economic situations.

As the analysis of the **top ten constituents of the Global Listed Private Equity index shows, the returns of the investigated companies outperformed the public market**. This is measured in different ways. They show that they are not that sensitive to economic weakness. Asset allocation and diversification delivers the back up for financial crisis.

The Global Listed Private Equity Index invests in listed companies which focus on companies having Private Equity as the largest asset class. The companies in their portfolio are mostly unlisted, that is another reason why they are not that sensitive to the market. They do not move downwards in phases as the case for the public market.

Interesting to see is that the **top ten constituents do not all focus on the same underlying** approach on how to set

their focus on choosing companies to invest in. The mentioned companies mostly follow different approaches which delivers another **diversification factor for the respective index**: the first group is focusing on extreme diversification in regions; the second group is focusing on extreme diversification in sectors; the third group investing in own unlisted subsidiaries; the fourth only having PE companies in their portfolio; the fifth is focusing on US companies; the sixth buying, improving and selling Private Equity companies. What most of them have in common is the fact of **having non listed companies in their portfolio** and that the overall regional focus is set on America, Europe and the Asian market.

For companies which consider to raise capital, based on the **result of this paper it is suggested to focus on the Private Equity market**, to use the know-how, network and experience of the investors.

Summary of major figures

- The **Red Rocks Global Listed Private Equity Index** produced in the last ten years a **return of 15,5% and volatility of 21,5% annually whereas the MSCI index came up with 13,4% return and 15% volatility** (see Table 2).
- The geographical diversification of the Red Rocks GLPE Index as of the 31st of March in 2022 illustrates, that the regions of **North America and Canada and Europe make out the largest part** with about three-quarter of private equity investments (see Figure 7).
- **The GLPE Index of Red Rocks has the most assets in the IT and consumer discretionary** sectors which implied the largest part of the index and sums up to 40% (see Figure 8)
- **Mainland China has the greatest number of traditional IPOs** with an amount of 392 for the whole year 2020. The United States made the second greatest amount with 224, the third place is made by Hongkong with a number of 144 (see Figure 9)
- When it comes to the **target region of Private Equity** funds worldwide in the year of 2021, the figure show that **North America has the highest value with USD 498.60 billion and takes the largest percentage of 42.81%.** Multi-regional funds have been targeting with a value of USD 393.50 billion. The Asia-Pacific value of Private Equity funds in 2021 was USD 151.60 billion (see Figure 12).
- **Private Equity was the most attractive asset class by return** among alternative assets, with growth and Venture Capital funds in particular demand. The top quantile of Private Equity funds, for example, generated an IRR of over 30 %, fairly behind in 2021 were real estate, infrastructure, private debt and natural resources (see Figure 13).
- **Within Private Equity, Venture Capital was the big winner** (see Figure 11 for US). Among the sub-classes, investments in young companies have almost without exception been the most attractive form of investment in terms of returns in recent years. Nevertheless, the Venture Capital exhibits high volatility.
- **The average growth of ventures including all different stages in the years of 2007 until 2021 was 8%,** the later stage average growth was 6 %, while the Early- Stage fund produced an average growth of 12%. Growth capital managed an average growth of 55 % during that period (see Table 3).
- McKinsey investigated the global PE deal volume by sector. The total global deal volume had an increase of 140.81% starting with a **total global deal volume of USD 2,041 billion in 2012 and ending by USD 4,915 billion in 2021.**

In summary, private equity is an import alternative to raise capital; this implies an increasing demand in the refinancing business. Listed private equity is the most efficient investment vehicle. It outperforms the major public equity benchmarks. The major private equity players are located in North America and Europe, whereas Mainland China shows the largest number of IPOs. North America has the highest private equity volume and venture capital is the front runner within the private equity business.

For further research it is interesting to investigate **what would happen if the Private Equity market would also open up for smaller investors.** If all investors would get the possibility to invest in the existing Private Equity funds and by doing so support companies in their capital raising. Next to open up the market for smaller **investors it is suggested to increase the tradability of private equity participations** and to **establish further benchmark indices** to boost the attractiveness of the asset class. **Further economic improvements in the political field** should provide sufficient incentives for private equity and venture capital investors to create an innovative climate for new innovations and business cases.

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