

RETURNS OF PRIVATE EQUITY – COMPARATIVE ANALYSES OF THE RETURNS OF VENTURE CAPITAL AND BUYOUT FUNDS IN EUROPE AND IN THE US

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Abstract: *This paper focuses on the returns of two segments of Private Equity (PE) market in Europe and in the US; Venture Capital (VC) and Buyout (BO). Contrary to the publicly traded stocks where information about the trade of securities is public, the measuring of the returns of these asset classes is not unambiguous. The returns of PE investments are considered as confidential information therefore we only have estimations about the real characteristics of the financial performance of the PE industry. Although it is impossible to observe the whole industry it is important to chart its performance because PE plays an essential role in the financing of firms, especially firms at special stages of their lives and the more information the investors and companies have, the more effective PE market can be therefore it can contribute to economic growth, employment, innovation etc. In the literature PE, VC and BO are not distinguished properly and they are often used as synonyms. Despite their similarities, there are significant differences in the features of these types of investments. In this paper the authors present the return characteristics of the PE industry of Europe and the US with regard to the stage-focus of PE funds. The key findings of this paper are that in average the returns of BO funds exceeded the returns of VC funds in the US as well as in Europe. Not just according to the absolute value of the returns, but also according to its risk-return tradeoff BO seems to be a preferable investment. The same statements can be made in case of the European market. The US returns are higher than European VC returns, because compared to the US VC industry the European is undeveloped. On the other hand the gap between the performances of BO funds is not as significant as the difference of VC funds. While in the 90's US BO funds outperformed the European ones, after the millennia European BO returns were higher. The analysis of returns reveals the sensitivity of these asset classes to economic cycles. The 'dotcom' boom of the millennia affected greatly the PE industry as well as the recession of 2008. The first section of this article describes the different subsets of PE, then it shows the differences in terms of returns of the US and European market, then in the third part the paper compares the characteristics of the different classes of PE.*

Keywords: venture capital, buyout, private equity

JEL classification: G24

1. Introduction

Private Equity (PE) firms have become very important financial intermediaries. PE industry was born in the United States in the second half of the twentieth century than later appeared in Europe. PE firms are intermediaries who collect capital from investors and invest the accumulated capital into portfolio companies. The features that make these PE firms special among financial intermediaries are the focus and the type of their investments. As far as the type of investment is concerned these firms provide hands on investments, which means that they are actively involved in the operation of the companies they invest in and they also offer management assistance hence they can

provide non-financial value-added services. (Becsky-Nagy, 2013) The focus of PE had changed during the evolution of the industry that makes necessary the defining of its subsets. In the beginning, PE offered financing mainly for innovative technology-oriented firms in the early stages of their life via raising their capital. This is the traditional venture capital (VC). The focus of the industry became wider and nowadays buyout (BO) is also a subset of PE. Buyouts mean the financing of later stages of enterprises. These are larger-scale investments. Contrary to the traditional VC, in case of BOs the company's assets can function as collateral. In many cases the BO firms take loan to buy the firms' shares with the portfolio company itself as the collateral. This is the so called leveraged buyout (LBO). The functions and the relevance of these subsets of PE are different hence the differentiation of these types is important.

The special features of PE must reflect in the returns of these investments. Investing into PE funds mean a long term commitment for the investors, the life of funds is limited in 10-12 years. As investors prefer liquidity they need to be compensated for the illiquidity of their investment. As a result of their personal involvement and their active role in the operation of portfolio companies the managers of funds also expect higher returns (Cochrane, 2005). These compensations for fund-managers are fixed management fees and carried interests (Sahlman, 1990).

The PE firms can realize their profits via exiting their portfolio companies therefore the procedure of the exit plays a crucial role in PE investments (Becsky-Nagy, 2006) The problem is, when we want to measure the financial performance of these firms, that they primarily aim companies whose shares are not listed hence the transactions cannot be observed. Furthermore the returns of PE investments considered as confidential information. We only have estimations about the performance of the whole industry based on voluntary supplying of data by PE firms and on the data gathering of researchers therefore in the interpretation of our results we have to take into consideration that our estimations about the returns can be biased (Cochrane, 2005 and Phalippou and Gottschalg, 2009).

2. Comparison of the PE returns in the EU and in the US

2.1. Comparison of the VC returns in the EU and in the US

There are significant differences in the risk and return characteristics of VC industry in the US and in the EU. Figure 1. shows the 5-year rolling horizon IRRs of BO and VC funds in Europe and in the US from 1992 to 2012. Horizon IRRs is calculated using the net asset value of a fund in the beginning of the given period as an initial cash-outflow and the residual value of the fund as a terminal cash flow modified by the cash in- and outflows in the given time horizon. In case of the five-year rolling IRR the time horizon is a five-year period. (Up to the writing of this article annual returns of Europe available only up to 2012.) As we can see the dot-com boom had huge effects on the returns of the industry. The highest returns were reached in 2000 in the US as well as in Europe; however the US returns were twice higher. This peak in the millennia was followed by a sharp decline. In the US the returns of financing of innovative technology-oriented enterprises with high growth potential decreased more rapidly than in Europe from 2000 to 2005, when they reached their minimum. While the peak was higher in the US, on the other hand the minimum of returns was also lower. Figure 1. shows 5-year rolling IRR-s, which lessens the decline compared to the returns measured on a yearly basis, where the magnitude of the decline would be even higher. As a result of the 5-year basis measurement, the returns reach their minimum in 2005, where the positive bias of the dot-com boom does not influence the results.

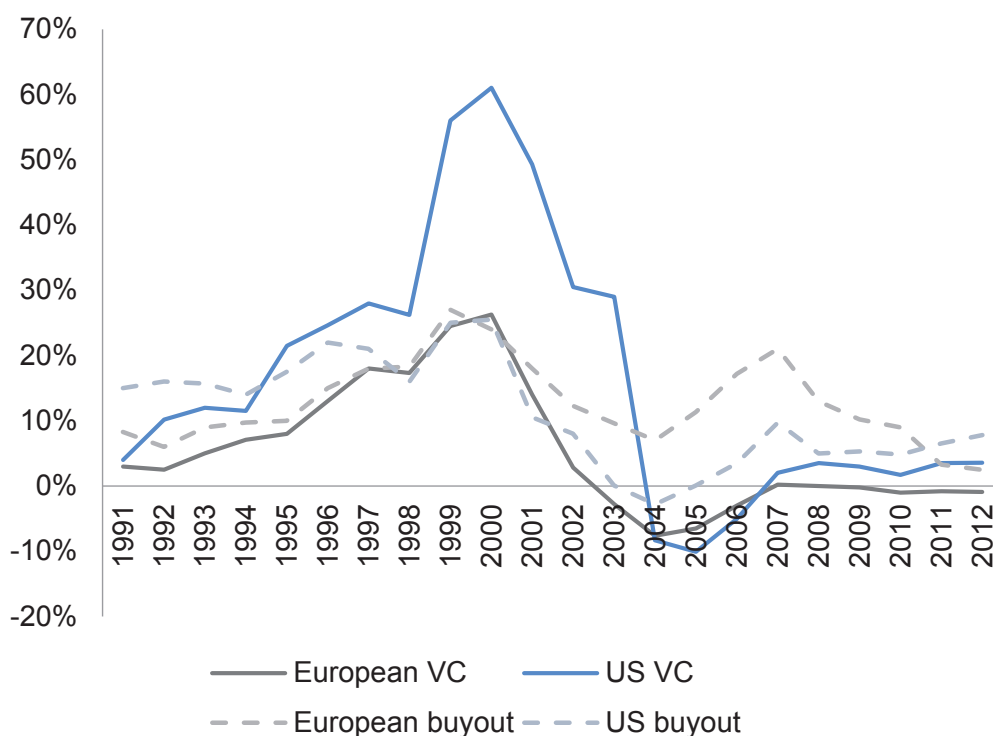


Figure 1: The 5-year rolling horizon IRRs of BO and VC funds in Europe and in the US from 1992 to 2012 (%)
Source: EVCA (2013)

The recovery of VC industry from the downturn after the millennium was hindered by the global recession in 2008. In Figure 1, the effects of this recession is not so conspicuous as a result of the smoothing effect of the 5-year basis measurement, the relatively higher returns before 2008 balance the lower results of the post-recession period.

Concerning the dynamics of the returns in the US and Europe in the last two decades we can see that the internet-boom was a turning point. In the 90's VC returns were high especially in the US, but after the peak of the dot-com boom VC returns could not come back to the previous level as a result of the slow recovery of the post-boom period and the effects of the recession of 2008. This dynamics is also reflected in the comparison of publicly traded assets and VC. Kaplan and Schoar (2005) introduced the PME (Public Market Equivalent) what is a relative return index that compares the returns in a given time period of the market portfolio of publicly traded assets and VC. Harris et al. (2012) examined the PME index in the US and according to their results VC performed better in average in the 90's than the publicly traded assets, while after the dot-com boom the performance of VC was lower.

The profits gained by VC investments were lower consistently in Europe. This is not a surprising result if we take into consideration the stage of the development of the two areas' VC industry. Kelly (2011) examined the reasons of the different return characteristics of the US and Europe and found that European VC industry has not reached its maturity yet and it lacks the critical mass where the market could operate effectively. As a result of this relative underdevelopment and the spurring effect on economic growth of VC the economic policy in Europe turned towards the promotion of this asset class (Karsai, 2013).

2.2. Comparison of the BO returns in the EU and in the US

The net pooled IRR for 1,416 independent private equity funds from 1980 to 2012 reached 9,26%, for BO funds it was 11,61%, and for VC funds it was 1,27% (EVCA, 2013). While the VC funds in the US clearly over-performed the returns of European ones, on the other hand the evaluation of the profits of BO funds is not so unambiguous. As we can see in Figure 1., the US BO funds' returns were slightly higher in the nineties but after the millennia this changed for the benefit of European BO funds. 2008 was a turning point in case of BO funds as well as in case of VC funds. While the VC returns were stagnant BO returns declined more rapidly than VC returns and it also fell below the US BO returns. This decrease is influenced by the credit crisis. LBOs are credit-intensive and the recession affected deeply the credit-market, which worsened the prospects of European BO funds.

Table 1. Horizon IRRs to 31.12. 2012 for Europe and US (%)

Fund stage	Region	1-year IRR	3-year IRR	5-year IRR	10-year IRR
Venture capital	Europe	11,12	2,04	-1,13	-0,52
	US	5,87	8,56	3,61	2,95
Buyout	Europe	16,10	11,69	2,48	10,85
	US	12,66	14,81	7,42	8,45
Private Equity	Europe	15,02	9,17	1,64	8,09
	US	11,18	13,44	7,03	7,39

Source: EVCA (2013)

Table 1. also confirms that the 10-year IRR European returns were higher, but in the medium-term, 3-, and 5-year IRRs were higher in the US. In the interpretation of these results we have to take into consideration, that the short- and medium-term results are influenced by unrealized investments that are investments in portfolio companies that PE firms have not yet exited.

3. Different characteristics of returns of BO and VC

The table below shows the European VC and PE funds' performances raised after 1980, more precisely the returns yield by the investors of the funds. Either the return indexes of classical VC or the ones of PE financing later stages recorded higher rates based on the three-year index, than on the five-year indexes, but the highest rates were recorded by the ten-year index. That means that either the PE or the VC funds are recovering from the crisis (EVCA 2013).

The survey of Murray and Lott (1995) carried out in the United Kingdom has already confirmed in the eighties and nineties, that buyouts created between 1980 and 1990 and closed until the end of 1994 reached more than 23% return, while the technology-intensive, early stage investments yield only 4%. According to the effective return indexes the BOs have already led the PE market compared to the start-up and early-stage investments.

Table 2: Net pooled IRRs of private equity classes in Europe in 2012 (%)

Fund stage	Top quartile			Top-half			Pooled average net IRR for the quarter	Threshold net IRR
	No. of funds	Top-quarter pooled IRR	Overall upper quartile IRR	No. of funds	Top-half pooled IRR	Overall median IRR		
Seed/Early-stage	107	12,41	2,16	214	7,35	-2,52	21,19	9
Later-stage	27	17,46	7,95	57	12,63	-0,11	5,76	0,49
Balanced	36	17,84	6,11	82	10,32	-0,23	-1,27	-3,97
All venture	112	18,49	4,41	267	11,33	-1,28	-10,41	
Buyout	196	20,96	15,99	331	15,07	7,11		
Mezzanine	12	18,71	13,57	27	12,74	7,15		
Generalist	29	38,03	4,65	71	10,82	-0,16		
All private equity	354	21,19	9	708	13,4	0,49		

Source: EVCA (2013)

Pooled IRR takes together the cash flows since inception with the residual values of all funds and aggregating them into a pool as if they were a single fund. The pooled IRR of the European VC and PE funds raised in the 1980-2012 period was 9,26% in 2012, that meant 1,27% for the VC funds and –more than nine times more - 11,61% for BO funds. Examining the overall upper-quartiles it is clear, that the BO funds show the highest values (15,99%), here nearly four times more than venture capital funds (4,41%). That means that returns of three quarters of the VC funds of were under 4,41%. This rate is much higher at the BO funds, it is 15,99% (EVCA 2013).

The top quarter pooled IRR of all PE funds were 21,19%, while the BO funds' top quarter pooled IRR was 20,96%, and the ones of VC funds was 18,49. These figures are closer to each other than in previous years.

The top quartile pooled IRR was the lowest at the seed and early stage funds among the funds specialized for different lifecycle periods.

Comparing the returns of the BO and VC funds led to the same result in the US as in Europe. Phalippou and Gottschalg (2009) and Harris et al. (2012) concluded the same comparing the returns of VC and BO funds.

There is a significant difference between the European and the US market. Since the first years of the nineties the BO funds' five-year rolling IRRs have always outperformed the VC funds, in the period 1991-2012 with an average 7,8%. In contrast from 1995 to 2003 in the US the five-year rolling IRRs of VC funds were higher with an average 18%. The five-year horizontal IRR's lower measures in Europe show that from 2004 the performance of funds was significantly shaped by the unrealized investments.

Table 3. Short-, medium- and long-term net horizon IRR in Europe (1980-2012) (%)

Fund stage	1-year IRR	3-year IRR	5-year IRR	10-year IRR	20-year IRR
Venture capital	19,07	5,99	2,63	6,64	1,22
Buyout	32,55	17,76	6,54	21,31	12,01

Source: EVCA (2013)

Furthermore, according to Becskyné Nagy (2008) from 1991 to 2007 the horizontal IRRs of BOs outperformed the ones of VC funds either in the short-, medium- and long run, while the standard deviation and the relative standard deviation of BOs' all indicators exceeded the ones of VC funds. It does not mean only that the BOs have better risk-return combinations, but also that they realized higher returns and lower risks at the same time, as not only the relative standard deviation was higher.

On the other hand in the US the five-year IRR of the VC funds was 18,9%, and for the BOs it was 13,27%. The VC funds had a 19,07% standard deviation, and buyouts had 7,02% with relative standard deviations orderly 0,85% and 0,53%. So the picture is not so clear in the US as it is in Europe, as the venture capital investments had higher risks but at the same time they produced higher returns. That's the reason of the smaller deviation of the risk-return compromise index.

Based on these indexes the BO funds produced much better risk-return combinations for the investors in Europe than the VC funds in the medium run. In the European market the BOs were less risky but more profitable according to the medium- and long-term return rates and the indexes of risk related to the 5-year index of the VC funds is still in the negative zone in 2012.

The reason of relatively low risk of BO according to Aernould (2005) is that the rate of falls for the BOs was 3%, while for the seed and early stage finance around 50%.

There are not available data for funds investing in Central and Eastern Europe or Hungary, therefore the returns of funds financed by the EBRD is examined. The EBRD is the biggest investor of the fund investing in Central and Eastern Europe, and the one-year net return realized by the EBRD reached 39% in 2004 and 55% in 2005 (Karsai 2006), that exceeded the one-year horizontal net return of European investors that was 44,9% (EVCA 2006).

In this region VC industry is in its infancy, the lack of information and the lack of empirical evidences increases the risk and cost of VC transactions, hence the return expectations are higher as well as to compensate the higher costs of monitoring and screening activities (Wijbenga et al., 2003). The PE firms of Central and Eastern European countries could realize high exit multiples during their exits from portfolio companies. On the other hand the development of PE industry would bring increased competition in the market therefore the value added by PE firms must also increase to maintain this level of exit multiples.

Mason and Harrison (1999) examined the return expectations of the investors of technology-oriented small enterprises and found that they expected 30-60% returns on their investments, while according to the earlier study of Plummer (1987) the investors with early-stage focus could have even 50-70% profit expectations. There is a significant

difference between the realized and expected returns and their convergence is necessary to the increased role of VC compared to BOs especially in Europe.

The role of BO within PE industry has become more and more important. An explanation of this phenomenon is the preferable risk-return ratio of BOs compared to the financing of technology-oriented innovative firms. It is true especially in Europe where the traditional VC in average is not a profitable industry. PE funds focus unambiguously to larger-scale BOs rather than the seed and early-stage investments. Higher returns would be possible in a more developed VC ecosystem, but without adequate profit level there is not enough capital in the industry that could lead to the rapid development of the industry. On the other hand larger-sized funds generated higher profits (EVCA, 2013) that will probably result in the increased demand for these types of funds by the investors of funds and in the creation of larger funds.

In the US in average the BOs performed better, but VC market was more developed in the period of the dot-com boom. Although VC in the US suffered the consequences of the post-boom periods' decline the role of VC was still important and started to recover to the recession of 2008.

In conclusion

The valuation of PE as an investment class is rather problematic as a result of that most firms handle this information confidential and we have to take into consideration the limits of our estimations and consequences in the interpretation of the results. We presented and compared the return characteristics of two subsets of PE with a geographical perspective and found significant differences.

First of all we analyzed the differences between the US and the European PE markets with regards to the stage of funds. Traditional VC financing is more developed in the US and still immature in Europe. This relative underdevelopment also reflects in the performance of European VC funds that are lower than US market returns. In case of BOs the difference was not so obvious, in the nineties the US returns were higher but in the previous decade European BO funds' returns exceeded in average the US ones.

The last two decades showed two different faces of PE market. In the nineties PE reached its peak and it proved to be a very profitable investment, especially the VC investments before the dot-com boom reached extremely high profits. On the other hand after the millennia PE industry generated moderate or even negative returns and it was influenced by the post-boom decline and also by the recession in 2008.

Comparing the two asset classes the BO in average seems to be a more preferable asset class according to the risk-return tradeoff. In Europe the higher returns are combined with lower risk. In case of US PE market the result is more complex. The risk of BOs is lower but the higher risk of VC is associated with higher returns. VC is a very risky asset class but the best-performing VC funds can achieve great premium that can compensate high risks.

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