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THE IMPACT OF THE INTEREST RATE ON THE LEVEL OF ACQUIRED CAPITAL AND INVESTMENTS BY VENTURE CAPITAL FUNDS AND PRIVATE EQUITY FUNDS ON THE POLISH MARKET

Abstract:

Venture capital funds and private equity funds are classified in the financial market as an alternative investment. The cycle of high-risk investment funds consists of three main successive phases. The first one is to raise funds from investors and then invest them actively. The level of invested funds collected and is influenced by many factors, among which the most important seems to be the degree of development of the capital market, the historical rate of return of funds and the market rate. The aim of the article is to analyze the influence of changes in the reference interest rate in the period 1998-2013 on the Polish market to the level obtained and invested funds through venture capital funds and private equity funds.

Introduction

Venture capital (VC) and private equity (PE) investing in companies in the early stages of development characterized by dynamic growth and fast increasing value. It can be concluded that the global activity of the VC and PE depends on two main factors: the situation in

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the public equity market and the tightening of lending policies of financial institutions, which operate mainly with the interest rate. Further factors affecting the level of activity of PE and VC is the situation in the IPO market, the market of mergers and acquisitions, GDP growth, credit spreads or volatility of market rates of return of public assets. Despite the growing market for venture capital and private equity investments, these began to be ineffective, which is caused by many factors such as problems with the exit strategy (low number of IPOs) and periodic low valuation of companies, investments performed poorly or difficulties in obtaining adequate amount of funds for investment, which leads to dilution of equity invested in individual projects and their further inefficiencies. One of the most important factors affecting the profitability of the investment is the reference interest rate, which in developed markets fluctuates depending on the market situation. The aim of the article is to analyze the influence of changes in the reference interest rate in the years 1998-2013 in the Polish market and the level of invested funds acquired by venture capital funds and private equity funds operating in Poland.

1. Characteristics of the investment cycle of VC and PE funds

Investment cycle of VC and PE funds extends to several or a dozen years and includes five phases characterized by different attributes and tasks the fund is obliged to perform. The main phases are: capital acquisition, exploration and analysis of potential investment projects, the closure of the investment in the management of the enterprise (work on the growth of its value), and the last stage of the company's sales - divestment. These steps follow each other and are disjoint phases occurring independently. The fund began its operations from the acquisition of capital. In this phase, the fund collects capital from private and institutional investors. In situations where funds are created by companies or institutions, all capital may belong to them and the owner will fund the enterprise (corporate venture capital). The scope of the fund determines the amount of financial resources that are necessary for its proper functioning. An important issue at this stage is to define the conditions for the capital fund, which will correspond to the interests of the capital lenders and managers of the company. This phase lasts from a few to several months. The main donors of capital are banks, pension funds, insurance companies, public institutions, companies and corporations, government agencies, research institutes and individuals. It happens more often that donors capital funds are investing the funds involved in the venture capital or private equity. Funds of this type are called funds of funds. Acquisition and analysis of potential investment projects is the next step, with what must be measured immediately after the meeting of the fund with sufficient capital. The last stage of the investment cycle is the sale of its shares called divestment. It is the process of preparing and conducting the resale of the shares when you reach the desired success in the market or economic objectives.

2. The interest rate as a determinant of the level of investment by venture capital and private equity

Interest rates are one of the main factors for the valuation of securities and financial instruments on the market. Their level differently affects the valuation of assets in different market segments. As capital markets and segments as venture capital and private equity is exposed to changes in macroeconomic factors. All investors are well aware of the fact that the level of interest rates is determined by the behavior of many financial instruments, although with different results. According to the theory, low interest rates mean a lower cost of capital and at the same time low interest rates on deposits. Therefore, investors are looking for alternative sites for the allocation of resources in anticipation of a greater return on investment. The natural result of this search is the capital market, which should translate into an increase in prices due to increased demand for shares. The situation of the functioning of the low interest rates in the market implies a negative economic situation, which is characterized by high unemployment and the slow pace of GDP growth. Interest rates are kept low as long as does not improve significantly the situation on the labor market, which is often a sign of a profound change in investment circles. For stabilizing profits on public markets, investors who want to gain higher profits, they will have to look for more innovative investment solutions. Economy slow growth and interest rates close to zero, however, a strong signal that the entrepreneur can convince the banks - even taking into account the risk - that their proposed projects are worthy of more attention. Entrepreneurship as an "alternative investment" may be more tempting for institutional traders who are looking for the most interesting possibilities for the allocation of capital and are seeking to diversify their investments. It is still unclear what innovative solutions to the policy of low interest rates react corporations pursuing new ventures and venture capital funds. The relative modesty of profits from traditional investments and increasing the attractiveness follow the path of innovation, suggests that this is probably the right time for entrepreneurs to prototype with great growth potential. Lower interest rates can therefore increase the attractiveness of venture capital funds. Unfortunately, the data suggest that not the end, this may translate into a level of PE and VC investment. According to a preliminary assessment of PricewaterhouseCoopers, in 2012 the activities of venture capital funds has been limited. In the first three quarters of last year invested $ 20 billion in 2661 projects, which is well below the amount invested for the same period in the prior year, which renders it plausible possibility that the year 2012 will be worse than 2011 in terms of quota and the number of investments. In addition, it should be noted that OTC companies is much more than those whose shares are available on regulated markets. This is mainly due to the fact that the typical OTC company is on average 10 times smaller than the trading counterpart. The second reason is that private companies are managing a much larger proportion of the resources of the global economy. It is estimated, for example, 86% employed in the private sector is working in non-public companies. A large number of companies does not mean that anyone who wants to invest in them, he could easily do so. Most large private companies is no single owner who is rarely willing to give up control of your company. Acquisition of a minority stake is not the practice, because the rights of small shareholders in non-public companies are very poorly protected. This situation is partly solve the VC and PE funds, which are investment schemes developed in this type of business. The relationship between interest rates and investment is the subject of numerous investigations of theoretical and empirical analyzes. Although it has not managed to get a clear answer to the question of the extent to which the central bank's decisions on the reference rate effect on investment.

3. Empirical studies on the impact of interest rates on capital markets

Empirical studies for the Polish stock market indicates the highest level of correlation between sets of data exist at the time of shifting the reference rate for 12 months ahead. The value of the correlation coefficient is in this case -66%. Analyzing the data can be observed that in most cases the lowest levels of interest rates meant the highest rating WIG20. Studies on the levels WIG20 and depending on the interest rate indicate that:

1. In March 2000, when the index peak at 2481 points responsible dołkowi feet at 13%.
2. In October 2001, when the lowest level index - 1106 points -odpowiadał foot summit of 19%,

3. In October 2007, when the index peak at 3832 points correspond to the lowest level of interest rate - 4%
4. In March 2009, when the index hole at 1481 feet peak corresponded points at 6%, but it happened with four months in advance,
5. Wkwietniu 2011 years when the index peak at 2903 feet dołkowi answered at 3.5%
6. In July 2013 years when the index hole at 2244 feet correspond to peak at 4.75%.
7. In February 2014 years high of 2526 corresponded to the minimum interest rate at 2.5%.

This means that in 5 out of 8 cases, a hole or peak interest rate for 12 months moved forward, perfectly marked the turning point in the Warsaw index of the largest companies, and 1 in 8 cases, there was a four-shift. However, in two cases, the relationship did not work. In 2004-2005, two extreme on interest rates was not accompanied by either peak or hole on the WIG 20 index.

Rate cuts are usually announced bull market. Cause for the falling profits on funds invested in bank deposits and bonds. On the other hand, thanks to increased interest in investments that can yield higher profits. The analysis shows that during the last four cycles of interest rate cuts in our country WIG index rose from 16.5% to 119%. Interest rates are one of the primary tools of central banks in monetary policy development in each country. They affect not only the economy, inflation, cost of credit, but also on the condition of the stock exchange and other capital market investments. You can emphasize that long-term share price increase usually began with a small delay and did not occur after the first ever cut interest rates. For example, the WIG index began to list increases after eight (February 1998), six (March 2001), two (March 2005) and three (November 2008) months from the decision of the central bank's monetary policy loosening. However, once this has occurred, the rate of return in a given period were really high: + 62.9% (March 2001 - July 2004), + 119.32% (March 2005 - March 2007), + 75% (November 2008 - January 2011).

Capital markets with a long history of providing more evidence for the interaction with changes of the interest rate. In the US market during the period 1990-2013 could be observed up to 5 cycles of the federal funds rate changes (FED), which overlap with changes in the broad market index represented by the S & P 500. Extending the scope of the analysis to 1955 can be seen until 11 periods when reductions Fed interest rate affect the growth of capital markets. Note the period from mid-2000 to June 2004 and the first half of 2008. In the US market recorded when an extremely dynamic process of interest rate cuts. The first was to halt declines in the stock market after the bursting of the Internet bubble (interest was reduced from 6.5% to 1%), while the second - the crisis of the subprime mortgage loans (from 5.25% to close to zero). These decisions on interest rate cuts were reflected in changes in the S & P 500 stock market peak, which ended in August 2000 coincided with a period when interest reached their highest values. The upward trend in the stock market began at the time of the completion of the cycle of interest rate cuts in June 2003 and lasted until mid-2007. The rate of return of the S & P 500 during this period was 57.07%. The next cycle was characterized by a much greater dynamic rate cuts followed by the completion of the S & P 500 reached the bottom of the bear market in March 2009 and began to continued growth in April 2014. The period of lower interest rates the Fed rate of return on the S & P500 index over the period:

October 1990 - January 1994 + 58.42%

October 1998 - August 2000 + 38,14%

June 2003 - June 2007 + 57.07%

March 2009 - now (April 2014) + 184.39%

Analyzing the data describing the impact of interest rate changes on capital markets can be concluded that it is one of the main factors influencing trends in trading stock indices.

4. The impact of interest rate changes on acquisition and investment funds, venture capital and private equity market in the period 1998-2013 Polish

The market for venture capital and private equity funds began to develop in Poland in 1990. Initially, the funds were largely supported by public funds and it is thanks to him could make a large number of investments in start-ups. The situation began to change after 2000. When it emerged fully commercial VC and PE and began to dominate market transactions. The situation is shaping up the level of investment to the roar of the VC and PE in Poland shows Fig. 1.

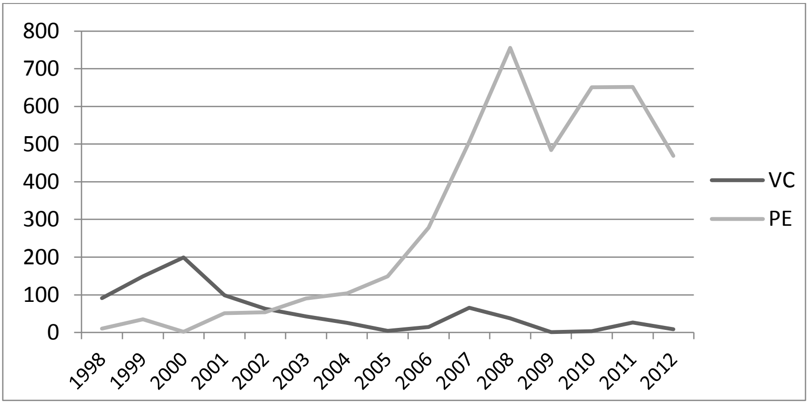

Fig. 1. PE and VC investments on the Polish market over 1998-2012 (in thousands of EUR)
Source: EVCA YEARBOOKS 1999-2013.

Analyzing the data contained in Figure 1 should be noted that since 2002, dominate transactions in companies that are at a later stage of development in which they are engaged only equity funds. The share of PE investments in relation to the investment of VC funds should be noted that in the period 1998-2001 the share of VC investment has averaged about 89%. After this period, the share of investment increased significantly in PE which was already 98% of the entire segment. The data indicate that the VC market activity and PE is cyclical rather strongly associated with the capital market. This happens because the providers of capital to the fund are mainly financial institutions listed on the stock market and it is their decision depends on the flow of capital to the fund. Table 1 shows the average level of the reference rate for each of the years and the level of acquired and invested funds by PE and VC funds operating in Poland in the years 1998-2013.

Table 1. The level of the reference interest rate and investment and acquisitions (in thousand of EUR) VC and PE on the Polish market in the period 1998-2013

Year	Rate of return %	Acquisition	Investment
1998	19,70	322312,53	102103,80
1999	14,50	259514,43	183983,88
2000	18,25	363219,90	201591,00
2001	14,43	175754,00	150478,44
2002	8,28	118709,00	117697,04
2003	5,88	25737,25	133191,00
2004	6,08	303881,00	130032,00
2005	5,15	59054,00	153981,00
2006	4,13	936500,00	293000,00
2007	4,63	823780,00	571412,00
2008	5,54	760460,00	792805,00
2009	3,88	145350,00	482183,21
2010	3,50	114760,00	504431,91
2011	4,13	442590,00	692157,38
2012	4,50	466720,00	544003,72

Source: Own calculation on PSIK data.

Analyzing changes in interest rates by the Bank and trends in raising capital and investment funds, VC and PE can be seen more regularity. The test period of 15 years can be found in the investment activities of VC and PE funds some regularity. It is clear that the investments of these institutions on the Polish market is cyclical. As in the case of capital market correlation of changes in interest rates and the level of development of the acquisition and investment funds, PE and VC is negative. In the case of acquisition of capital during the period 1998-2013 amounts to 18%, and if the investment is no longer a level of -55%. It can be concluded that changes in interest rates are quite correlated with the level of investment carried VC and PE. This situation presents Fig. 2.

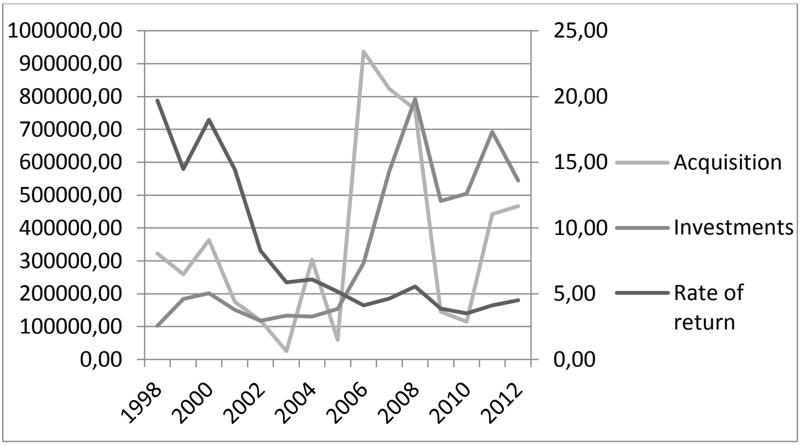

Fig. 2. VC/PE investment and acquisition of the funds in Poland over 1998-2013

Source: Own calculation based on National Central bank and EVCA.

Analyzing the relationship of changes in interest rates and investment segment should be noted that the level of funds raised by the funds do not exhibit a strong correlation with the changing rate during the period. In the case of investments made by the funds since 2004 can be seen robust growth in investment, which is preceded by a decrease in the interest rate below 6%. Another factor decrease in interest and investment growth VC/PE funds could be Polish accession to the EU. However, the upward trend in the level of investment for a further period remained and the acquisition of equity stood at a variable level. Clearly a stronger link between the level of investment the VC and PE with changes in interest rates. One may also find that the buyout sector investment are more strongly associated with changes in interest rates while the typical VC investments and their level on the Polish market are not correlated with the changes. Investment funds and their effectiveness appears to be linked to business cycles in the economy and the capital market. The level of investment and fund performance increase with the increasing pace of GDP and falling with the increase in the average interest rate. Additionally, you can specify that in the case of the low interest rate spreads (credit spreads) and low corporate bond yields and choice that moment on PE investment increases its efficiency. For the US market also noted the effectiveness of VC investment ties and PE with an average level of returns on stock indices and the average level of returns on purchase options on stock indices. This indicates the dependence of VC and PE investment from the strong skewness of returns on investments carried out. These data confirm the activity of the funds on the Polish market and its correlation with changes in the reference interest rate.

Bibliography

National Central Bank Data.

European Venture Capital Assosiation Yearbooks 1999-2013.

Gladstone D., Venture Capital Handbook, Prentice Hall, 2002.

Gompers P. A., Lerner J., What drives venture capital fundrising, Working paper 9609, National bureau of economic research, January 1999.

Phalippou L., Zollo M., What drives PE fund performance?, November 2005