



# “The venture capital in the Czech companies: development of number of employees and efficiency of employees”

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## ARTICLE INFO

Jaroslava Rajchlova, Anna Fedorova and Zdenek Brož (2014). The venture capital in the Czech companies: development of number of employees and efficiency of employees. *Investment Management and Financial Innovations*, 11(1)

## RELEASED ON

Monday, 03 March 2014

## JOURNAL

"Investment Management and Financial Innovations"

## FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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## The venture capital in the Czech companies: development of number of employees and efficiency of employees

### Abstract

This article summarizes research in which several chosen characteristics of Czech firms financed by venture capital were observed between 1998 and 2011. This paper has two research objectives. The first objective is to evaluate the development of selected characteristics like, for example, the number of employees or the productivity of employees. The second objective is to research the observed characteristics and their dependence on the size of the business enterprise. This research is useful and original because it analyzes a large group of Czech enterprises which use venture capital financing. Quantitative data were evaluated with the help of descriptive statistics and Microsoft Excel. Following conclusions can be drawn from this research. The average number of employees did not grow in the observed time period unlike the productivity of employees. Several other important observations were made from the analysis. For example both small to medium sized businesses and large enterprises recorded a measureable average increase in the productivity of employees. Small businesses recorded an increased average number of employees. Medium sized businesses had decreasing productivity and also a decreasing number of employees. The conclusions of this research can help managers of businesses who would like to use venture capital financing in the near future. This research also provides a valuable feedback to venture capital investors and helps to understand the long-term macroeconomic impacts on enterprises financed by venture capital.

**Keywords:** venture capital, financing, employee productivity, SMEs.

**JEL Classification:** G24.

### Introduction

Detailed knowledge, broadening formerly completed stages of the task, represents the core of the matter of submitted results generated by the last stage of the research, in particular in the area of the evaluation of changes of selected economic characteristics in the Czech companies with the venture capital participation.

According to Rajchlova et al. (2011) the venture capital financing has a positive influence on the economic development of businesses. This development can be analyzed and evaluated with a set of selected indicators such as the long-term development of the number of employees (Engel, 2001; Belke, Fehn & Foster, 2003). Increase of exports according to EVCA (2002) and Jain and Kini (1995). Increase of turnover, cash flow and with several other indicators discussed for example in BVCA (2002), Jain and Kini (1995), AVCO (2006). For example, Jain and Kini (1995) analyzed and compared 136 businesses financed by venture capital and came to the conclusion, that the overall long-term development of the selected enterprises, when compared to other enterprises, is positive. Or for example according to Engel (2001) a group of German businesses, which were using venture capital, created more new jobs on average, between 1991 and 1998, than other businesses. The result of this study concluded that the difference was significant – the average number of new jobs was about 90% higher when compared to businesses

without venture capital. The influence of venture capital financing on the national economy was researched by NVCA (2002). The focus was on turnover, employment, productivity, research and exports. Conclusion of this research was, that enterprises financed by venture capital, employ about 11% of total workers and contribute to GDP by about 11%. However the study conducted by Cherin and Hergert (1988) concluded that performance of businesses on the stock exchange was not better when compared with businesses without venture capital. The same conclusion was reached by Manigart and Hyfte (1999). This study showed that there is no evident increase in the rate of creation of new jobs. However the positive influence on assets and cash flow was presented in this study. Each of these mentioned studies used a control group of businesses, which was compared with the set of businesses using venture capital. A research conducted by Frederiksen et al. (1991) came to conclusion, that there is no evident positive influence on liquidity, turnover, employment or equity ratio. And also Want et al. (2002) concluded that the financial indicators of enterprises, with venture capital investments, were showing worse results than the control group of other enterprises.

On the grounds of various foreign studies and their inconsistent outcomes our attention has been paid to the development of number of employees working in the companies, situated in the Czech Republic and financed by the venture capital.

In our research we have extended our monitoring from the development of plain number of employees working in the companies to the qualitative

characteristic, called the “efficiency of employees”. The knowledge, acquired by said research, was published in the specialized journals (Fedorová, Rajchlová, 2012; Rajchlová and Fedorová, 2013a; Rajchlová and Fedorová, 2013b). The first stage of mentioned research focused on the monitoring of the number of employees working in the companies with venture capital participation (Fedorová and Rajchlová, 2012); the second stage aimed at the monitoring of the frequency of the improvement of the efficiency of employees (Rajchlová and Fedorová 2013b). Both monitored variables have been compared in the third stage (Rajchlová and Fedorová, 2013a).

The identical research materials have been used in all research stages, i.e., data from all business subjects in the Czech Republic, financed by venture capital, in the period from 1998 until 2011. The parent population contains totally 93 companies with their seats situated in the territory of the Czech Republic. The Czech Private Equity and Venture Capital Association (Česká asociace private equity a venture kapitálu) was the source of data about the companies funded with venture capital. Publicly available financial statements provided the information about the number of employees working in the individual companies and adjusted for profit/loss outcome, which is necessary to calculate the efficiency of employees. In spite of the fact that in the years 1998-2011 the venture capital participated in the financing of totally 93 Czech companies, data about 63 companies have been finally collected, i.e., 68% of the total parent population. The Collection of Deeds has not contained the financial statements concerning 30 companies, or these financial statements have not been digitalized by the Trade Register and have not been collected in any other way. Consequently, 63 companies represent the sample.

Two partial objectives have been outlined in the first stage of said research: the first objective has been formulated as the determination and evaluation of the development of number of employees in the individual companies with the venture capital participation in the period of one year prior to the venture capital entry, in the period of the co-existence and, finally, in the period not longer than three years after the exit of the venture capital investors from such companies. The second partial objective has been formulated as the comparison between the development of number of employees in the individual companies with the venture capital participation and the development of level of employment in the Czech Republic.

The second stage of the research has concentrated on the development of efficiency of employees in

such monitored companies. The research task has focused on the investigation of the influence of the venture capital financing of the company on the development of efficiency of employees working in the Czech companies. A research hypothesis has been put forward: the venture capital involvement in the company results in the improvement of efficiency of employees employed by companies.

The research has been conducted in three aspects: firstly, the development of efficiency of employees in the period of co-operation of venture capital investor with the particular company; secondly, the development of efficiency of employees after the exit of venture capital investor; thirdly, the comparison between the period of the co-operation of such particular investor with the company and the period following the exit of mentioned investor.

The area of frequency of the improvement of efficiency of employees and frequency of increase of number of employees has been monitored in two levels:

- ◆ in the first level the attention has been devoted to the frequency of increase of the variable “efficiency of employees” and the frequency of increase of the variable “number of employees” in the population of investigated companies for the full defined period, i.e., one year prior to the entry of investors, in the period of co-operation of venture capital investors and companies, or after the exit of such investors; however, not longer than three years following such exit, without any differentiation of period. To evaluate the situation in the companies we have considered as necessary to extend the time interval of the monitoring of said companies also over the period after the venture capital exit and, consequently, to identify any potential development trends, following any trends established by investors;
- ◆ in the second level the attention has been devoted to companies already left by investors; the relation of both variables in the period of co-operation of venture capital investors and in the period after the exit of such investors from companies has been monitored and compared.

Mixed research methods and subsequent logical inductions have been applied to solve all three research stages. Qualitative data have been processed by means of descriptive statistics, by means of the function “frequency”, and have been analyzed both from qualitative and quantitative point of view. In case of the first two research stages the falsification technique has been utilized, too; i.e., to demonstrate whether the statement about the increase of variables “number of employees” and

“efficiency of employees” owing to the venture capital has been erroneous and false. Furthermore, a complementary characteristic to the falsification has been searched, being the finding how mentioned statement has passed the empirical data, how it has been “proved”, or how corroborated. According to Carnap’s theory of confirmation (Popper, 1997) we have coined mentioned characteristics as the “level of confirmation”.

## 1. Research plan and objectives

Two objectives have been defined in the last stage of the research, dealing with the development of number of employees and their efficiency:

1. Evaluation of the development of monitored phenomena applying other methods of investigation compared to previous stages of the research. We consider this step as the method of verification – either confirmation or rejection – of acquired knowledge and reached conclusions. From the methodology point of view we can perceive this step as a certain analogy with repeated scientific tests; therefore, we consider mentioned step as important.
2. Searching for new knowledge by more detail monitoring of the development of number of employees and their efficiency in the Czech companies with venture capital participation. The size of companies has been determined as the criterion for new distinguishing level. Only one distinctive marker has been used to classify companies into the size groups, i.e., number of employees, the core of our interest. The Commission Regulation (EC) No. 800/2008 has been applied to classify companies into the individual size groups.

## 2. Methodology and research material

The research material comes out from the data about all business subjects, financed in the Czech Republic by venture capital in the period from 1998 until 2011. The parent population contains totally 93 companies with their seats located in the Czech Republic. The source, used to obtain the population of companies, financed by venture capital, was the *Česká asociace private equity a venture kapitálu (Czech Private Equity and Venture Capital Association)*. The data about the number of employees have been collected from publicly opened financial statements.

In spite of the fact that venture capital participated in the financing of totally 93 Czech companies (1998-2011), the data about 63 companies (i.e., 68% of the parent population) have been gathered. The Collection of Deeds has not contained the financial statements concerning 30 companies, or these

financial statements have not been digitalized by the Trade Register and have not been collected in any other way. Thus, the sample has comprised of 63 companies. Out of these 63 companies data concerning re-calculated number of employees for the period of one year prior to the entry of investors and during the participation of venture capital investors have been recorded for 60 companies; data indicating the situation following the exit of investors have been collected for 3 companies. Totally 23 companies (from the total number of 63 companies) with the exit of investors have been identified; data of 19 companies have been acquired. Complete data about 39 companies have been identified for the whole monitored period, the data describing one year prior to the entry of venture capital investors have not been identified in case of 11 companies, certain data connected with the period of the investment duration have not been captured in case of 13 companies.

While investigating the venture capital influence on the increase of the number of employees, which all companies are obliged to specify and publish in the attachments to their financial statements, is used; i.e., the information related to the annual average re-calculated number of employees. Primarily, such information is required to evaluate the fulfilment of the obligation of any company to employ handicapped persons pursuant to §81 Act No. 435/2004 Coll., on employment. Therefore, the calculation of annual average re-calculated number of employees is cohesively regulated by the decree No. 518/2004 Coll. In spite of the fact that we are aware that the calculation of annual average re-calculated number of employees shows certain deficiencies as this figure includes also certain facts not falling under the economically reasoned number of employees, such as incapacity for work or family member treatment, we have decided to apply this information. The application has been supported, among others, by the fact that the figure represents the data with a unified calculation methodology in all companies and in all years we have monitored; moreover, mentioned data are publicly available.

In the last stage of the research task we processed acquired quantitative data by means of the descriptive statistics applying Microsoft Office Excel.

To find the change in re-calculated number of employees in the monitored companies we used the identified annual numbers of employees in the companies in the full monitored period and out of such numbers calculated average change of number of employees. The average change of the number of employees was analyzed as the inter-annual change of number of employees and the mean value was

calculated from reached values. A percentage variation in the number of employees to the average number of employees was then surveyed as the resulting variable. Identified values of this variable, we evaluate as follows: a positive variable means that the number of employees has increased in average; a negative variable means that the number of employees has decreased in average.

To evaluate the efficiency of an employee (referred to as the “EE”) we followed our definition of the efficiency of employee (Rajchlová and Fedorová, 2013b):

$$VZ = \frac{PVHO}{PPZ} = \frac{PVH - TPDMaM + ZCDMaM}{PPZ}, \quad (1)$$

where *PVHO* is the abbreviation standing for the operating profit/loss adjusted for the result for the sale of property; *PVH* is the operating profit/loss; *TPDMaM* is the revenues from disposals of fixed assets and material; *ZCDMaM* is the net book value of sold fixed assets and sold material; *PPZ* is the average recalculated number of employees.

While identifying the change in efficiency of employees in the monitored companies an average efficiency per employee was calculated. The value of average accrual of efficiency of employee was further specified based on the values of the inter-annual change of the indicator “efficiency of employee”. The assessed variable was represented by the variable of the percentage variation of the efficiency of employee to the average efficiency of such employee. The interpretation of this variable is analogical with the interpretation of the variable of percentage variation of the number of employees to the average number of employees.

Calculated data have been compiled into the tables – see Tables 1 to 6 – to provide better illustration. These tables contain complete population consisting of 63 companies, classified according to the size of companies defined by the number of their employees.

### 3. Research results

Produced results showing the changes in number of employees have been summarized in the Tables 1, 2 and 3.

With the exception of the first column from the left, describing the data in the lines, every other column in these tables contains the data of real, though in the table not specified, company: e.g., the fourth column indicates that totally 5.6 employees have been found in the company in average, annually on average the number of employees decreased by 1.9 employees; this variation means an annual average decrease of the number of employees by 34%.

The overall view on the investigated companies, monitored in the percentage variation of the number of employees to the average number of employees (hereinafter referred to as the “percentage variation of number of employees”), can be summarized as follows. From the total number of 63 companies was found out:

- ◆ in 32 companies, i.e., 51% of companies, the number of employees decreased on average in the monitored period because the value of the indicator “percentage variation of number of employees” was negative;
- ◆ 7 companies, representing 11% from the total number of companies, did not report any statistically significant change;
- ◆ 24 companies, i.e., 38% of the population, showed an average increase of the number of employees because the variable of the indicator “percentage variation of number of employees” was positive.

The changes in the number of employees monitored according to the individual size groups of the involved companies resulted as follows:

- ◆ in 21 companies, characterized as small companies (see Table 1), was found out that in 43% of cases the variable describing the percentage variation of the number of employees was positive, 19% of companies did not show any statistically significant changes and in 38% of cases the variable was negative, i.e., the number of employees decreased.
- ◆ in 25 companies, characterized as medium-sized companies from the point of the number of employees (see Table 2), in 56% of cases the value of monitored variable was identified as negative, positive value of the variable in 32 % of cases and 12% of companies did not show any statistically significant change, in large companies, i.e., in the companies employing 250 and more employees (see Table 3), the monitored variable was negative in 59% of cases, i.e., the number of employees decreased in average, and in 41 % of companies the number of employees increased as the value of percentage variation of the number of employees was positive.

Table 1. Changes of number of employees in companies with 0-50 employees

Average number of employees	Annual average change of number of employees	Percentage variation (%)
0.3	0	0
0.7	0	0
1	1	100
5.6	-1.9	-34
6.2	-1	-16

Table 1 (cont.). Changes of number of employees in companies with 0-50 employees

Average number of employees	Annual average change of number of employees	Percentage variation (%)
7.6	1.11	14.6
9	-2	-22
11.5	-2	-17
14	1	7.1
14.5	0.6	4.1
20	-1.5	-7.2
22.2	4.75	21.4
24.8	-5.2	-21
25	10	40
29.3	2	6.8
34	12.7	37.3
35	0	0
36.4	-32	-86
36.5	3.33	9.1
41.4	-1.8	-4.2
46	0	0

Source: Own work.

Table 2. Changes of number of employees in companies with 51-250 employees

Average number of employees	Annual average change of number of employees	Percentage variation (%)
56	0	0
56.8	4.55	8
62	-12	-19
63	6	9.5
69	-6	-8.7
77.5	0.67	0.9
92	29.7	32.2
94.4	-4	-4.2
98.8	4.75	4.8
115	-16	-14
121	-12	-9.9
125	55.3	44.4
128	-1.3	-1
134	-10	-7.5
158	-32	-21
164	5	3.1
164	0	0
168	-61	-36
182	-16	-8.9
191	-7	-3.7
192	-67	-35
230	0	0
237	42	17.8
247	-30	-12
249	-6	2.4

Source: Own work.

Table 3. Changes of number of employees in companies with 251 and more employees

Average number of employees	Annual average change of number of employees	Percentage variation (%)
278	-22	-7.9
295	61	20.7

323	84.8	26.3
357	-29	-8.1
410	34.3	8.4
421	11	2.6
429	49.3	11.5
533	-46	-8.6
611	-16	-2.5
621	-115	-19
633	-76	-12
820	-204	-25
1,299	-85	-6.6
1,320	-294	-22
1,394	-73	-5.2
1,774	142	8
2,679	82.5	3.1

Source: Own work.

Table 4. Changes in efficiency of employees in companies with 0-50 employees

Average number of employees	Efficiency of employee (CZK)	Absolute average accrual of efficiency of employee (CZK)	Percentage variation (%)
0.3	8,843,000.00	0	0
0.7	442,000.00	432,000.00	97.7
1	-22,574,500.00	-20,873,000.00	-92.5
5.6	275,592.59	158,631.94	57.6
6.2	23,478.11	-21,964.65	-93.6
7.6	-871,728.55	-19,843.40	-2.3
9	-3,652,875.00	9,565,250.00	261.9
11.5	763,117.87	59,769.58	7.8
14	868,281.11	-220,748.86	-25.4
14.5	165,399.22	17,468.83	10.6
20	184,655.97	85,436.33	46.3
22.2	271,292.44	228,652.68	84.3
24.8	-900,749.88	433,905.56	48.2
25	-9,590,718.40	-1,057,541.67	-11
29.3	-334,354.37	-277,355.28	-83
34	-290,721.41	172,973.24	59.5
35	403,642.86	-489,400.00	-121.2
36.4	-524,318.51	-14,354.33	-2.7
36.5	-148,505.58	23,357.14	15.7
41.4	93,451.21	44,628.38	47.8
46	-16,565.22	0	0

Source: Own work.

Based on the data interpreting the changes in efficiency of employees (see calculations in Tables 4-6) we can state that from the total number of 63 companies the positive variable “percentage variation of efficiency of employee” to the “average efficiency of employee” (hereinafter referred to as the “percentage variation of efficiency”) was identified in 33 companies (i.e., 52.4%). The negative variable was identified in case of 26 companies, i.e., in 41.3% of the total population. Four companies, i.e. 6.3% of the total number of companies, did not report any statistically significant variation.

Table 5. Changes in efficiency of employees in the companies with 51-250 employees

Average number of employees	Efficiency of employee (CZK)	Absolute average accrual of efficiency of employee	Percentage variation (%)
56	-18,589.29	0	0
56.8	-82,973.64	1,150.66	1.4
62	-31,034.46	-390,175.10	-1,257.2
63	-104,963.64	289,472.73	275.8
69	92,531.57	-87,547.98	-94.6
77.5	-147,096.95	-60,648.65	-41.2
92	-234,313.40	-111,265.68	-47.5
94.4	156,784.30	-52,253.62	-33.3
98.8	674,298.70	-105,614.59	-15.7
115.2	2,581.86	-24,079.73	-932.7
120.7	151,040.91	-70,169.34	-46.5
124.8	-312,511.06	71,693.75	22.9
128.3	51,284.04	-10,983.02	-21.4
134	202,193.91	66,804.27	33
157.7	-76,186.97	20,518.12	26.9
163.5	148,032.83	79,705.42	53.8
164	419,365.85	0	0
167.5	-115,232.75	29,192.21	25.3
182	107,130.01	5,551.48	5.2
191	1,788,646.07	668,390.17	37.4
192.3	-134,380.34	-213,823.91	-159.1
230	93,236.96	-87,586.96	-93.9
236.6	378,255.50	-442,990.62	-117.1
247	159,537.11	420.30	0.3
248.8	6,800.60	16,328.14	240.1

Source: Own work.

The status of the variable according to the specified size categories of companies:

- ◆ small companies: total number of the investigated population 21 (see Table 4), in 52% of investigated companies monitored variable “percentage variation of efficiency” was positive, in 38% of companies was identified negative value of this variable, i.e., the efficiency of employee was decreasing annually in average. Totally 10% of companies did not report any variation.
- ◆ in medium-sized companies (totally 25 – see Table 5) in 12 cases (48%) was identified that monitored variable “percentage change of efficiency” was negative; i.e., the efficiency of employees in average decreased inter-annually, in 44% of companies measured efficiency of

employees increased, in 8% of companies no changes were reported.

- ◆ in large companies, funded with venture capital (totally identified 17) the variable “percentage variation of efficiency” was positive for 65% of companies, i.e., in the absolute interpretation 11 companies. To the contrary, six companies, i.e., 35%, showed negative values of this particular variable, i.e., efficiency of employees in the particular subjects inter-annually decreased in average (see Table 6).

Table 6. Changes in efficiency of employees in the companies with 251 and more employees

Average number of employees	Efficiency of employee (CZK)	Absolute average accrual of efficiency of employee (CZK)	Percentage variation (%)
278	-101,508.40	-31,126.85	-30.7
295.4	1,053,488.00	-281,950.84	-26.8
322.7	186,622.21	-97,637.58	-52.3
356.6	17,058.87	32,467.12	190.3
410.4	874,318.14	197,091.54	22.5
421	156,566.98	15,839.13	10.1
429.3	615,695.68	-93,329.22	-15.2
533	407,637.19	29,184.45	7.2
611	236,872.83	-14,062.14	-5.9
621	42,433.98	18,749.21	44.2
633.3	25,243.35	28,453.96	112.7
820	-752,484.40	711,270.26	94.5
1,298.7	131,386.88	112,602.44	85.7
1,319.8	40,916.09	-28,883.34	-70.6
1,393.6	49,565.78	1,439.67	2.9
1,773.8	1,233,600.94	265,589.57	21.5
2,679	3,527,619.56	35,650.52	1

Source: Own work.

#### 4. Discussion on achieved results

From the general view on the companies as regards the change of number of employees *the increase of the number of employees in the companies with venture capital participation cannot be confirmed*, as in 51% of companies the average annual decrease of number of employees was reported.

From the point of the change of characteristic of the efficiency of employees the fact was found out that 52.4% of companies, included in the sample of investigated companies, *reported the average annual increase of this variable*.

Table 7. Comparison of percentage expression of variations of monitored characteristics

	Numbers of employees (%)	Number of employees (%)	Number of employees (%)	Efficiency of employee (%)	Efficiency of employee (%)	Efficiency of employee (%)
Change	Small	Medium	Large	Small	Medium	Large
Increase	43	32	41	52	44	65
Decrease	38	56	59	38	48	35
No change	19	12	0	10	8	0

Source: Own work.

More detail survey of the results, displayed in summary in Table 7, discloses that:

- ◆ number of employees increased rather in small companies as well as the efficiency of employees working in these companies;
- ◆ in case of middle-sized companies we can see a significant decrease of the variable “average number of employees” as well as the decrease of efficiency of employees;
- ◆ situation existing in large companies is characterized rather by the decrease of number of employees and the increase of efficiency of employees in the important part of this group.

The fact has been established that from the point of monitored variables the population of Czech companies with venture capital participation is not any homogenous unit as certain differences in the development of investigated characteristics may be reported. Said differences can be identified as regards the size of companies. In this stage of carried-out research the authors do not have any plausible explanation of such identified fact. This phenomenon shall be the subject of future research.

Compiled tables offer us the knowledge demonstrating the development of number of employees and their efficiency, i.e., both variables within one company. The individual companies have been identified in Tables 1-3 without their names in the columns, in Tables 4-6 the companies are mentioned in the identical sequence, but in lines. The data have been taken-over from Tables 1 and 4 for the individual companies in the category of small companies, the Tables 2 and 5 for the individual companies in the category of medium-sized companies and Tables 3 and 6 for the individual companies in the category of large companies.

The summary of the monitoring of changes of number of employees and changes of efficiency of employees in one company, classified according to the category of the size of company, is as follows.

Small companies (from the total number of 21 companies):

- ◆ 2 companies with decreasing number of employees reported also decreasing “efficiency of employees”;
- ◆ 6 companies with negative variation in the number of employees reported improvement of efficiency of their employees;
- ◆ 5 companies with identified increase of the number of employees reported decrease of efficiency of their employees;

- ◆ 5 companies with identified increase of the number of employees also reported improvement of efficiency of their employees;
- ◆ established variable connected with two companies did not show any statistically significant change, in case of one company the number of employees was without any change (i.e., without any statistically significant change) and subsequent improvement of the efficiency of employees was reported, and one company reported without statistically significant change the variable “number of employees” and subsequent decrease of the variable “efficiency of employees” was identified.

In case of 12 companies, i.e., ca. 57%, the positive variation in the variable EE was reported and, at the same time, in ca. 24 % of small companies (23.8 %) was displayed the increase of number of employees and simultaneous improvement of the variable EE. In case of ca. 10% of companies both monitored variables decreased.

Medium sized companies (25 companies):

- ◆ 7 companies with decreasing number of their employees also indicated decrease of the efficiency of their employees;
- ◆ 7 companies with decreasing number of their employees indicated increase of the efficiency of their employees;
- ◆ 4 companies with increasing number of their employees indicated decrease of the efficiency of their employees;
- ◆ 4 companies with increasing number of their employees indicated increase of the efficiency of their employees;
- ◆ 2 companies did not show any statistically significant change in both monitored areas, one company with the constant number of employees indicated decreasing values of the efficiency of employees.

In the category covering medium-sized companies the fact was found out that in 44% of companies (i.e., 11 out of 25 subjects) reported the increase of variable EE, and, at the same time, only 4 companies, i.e., 16%, demonstrated the increase of both number of employees and EE, and, at the same time, in 32% of companies was proved only the increase of number of employees. Totally 28% of companies reported the decrease of variable “number of employees” as well as EE.

Large companies (17 companies):

- ◆ 3 companies with decreasing number of their employees also indicated decrease of the efficiency of their employees;

- ◆ 7 companies with decreasing number of their employees indicated increase of the efficiency of their employees;
- ◆ 3 companies with increasing number of their employees indicated decrease of the efficiency of their employees;
- ◆ 4 companies with increasing number of their employees indicated increase of the efficiency of their employees.

As regards the category covering large companies, 17.6% of companies showed decrease of both monitored variables and 23.6% of companies showed increase of the value of the monitored characteristics. From the viewpoint of the variable EE as the variable influencing the economic development of companies we can state that totally 65% of companies reported its increase. Consequently, for the category of large companies we can indicate the positive variation of EE in the monitored period of the involvement of venture capital in the company and immediate time period.

In summary, small companies utilized the cooperation of venture capital investors most efficiently, both from the point of the increase of number of their employees and the improvement of their efficiency; at the same time, small companies reported the lowest percentage of companies with decreasing variables in the monitored period.

A very similar percentage of companies, only with 2 tens of percentage point less, i.e., 23.6% of large companies, indicated both increase of number of their employees and their efficiency.

Medium sized companies reported the increase of both characteristics only in 16% of cases.

Positive development of both indices has a positive impact both on national economy and development of companies themselves. From the macroeconomic point of view mentioned positive development contributes to the improvement of the employment rate, maintenance of the living standard, not increasing of public expenditures to e.g. unemployment benefits, or in the form of social welfare benefits. Companies can survive in their markets, can maintain and improve their competitiveness and can increase their values.

The clear conclusion cannot be reached on the basis of mentioned facts, i.e., that small and medium-sized companies, would utilize the support of investors best. Further characteristics should be surveyed to support this standpoint in such a way to complete the view on the companies.

*Comparison of results of previous stages and last stage of the research* to the particular subject see in Table 8.

Table 8. Summary of stages of research (2012 and 2013)

Former research stages – year 2012	Last research stage – year 2013
Development of number of employees	
Certain increase of number of employees in the individual years of the monitored period has been identified in case of 81% of companies (from 14.29% to 100% of the time of the monitored period).	Increasing number of employees has been identified for the whole monitored period in case of 38% of companies
Development of efficiency of employees	
Certain increase of the variable “efficiency of employees” has been identified in case of 88.77% of companies in the individual years (from 25% to 100% of the time of the monitored period).	Increasing efficiency of employees has been identified for the whole monitored period in case of 54.4%.

Source: Own work.

While evaluating the results of research, dealing with the development of number of employees Fedorová and Rajchlová (2012) applying the statistical method of frequency of incidence of increasing number of employees. *The fact was established that in case of 81% of investigated companies the increase of number of employees was identified, at least in one year included in the monitored period.*

Whereas contemporary research showed that the numbers of employees increased in 38% of companies in the whole monitored period.

It means that contemporary research clarifies the conclusions of the research, carried-out in the year 2012, in the point that in 43% of companies a certain increase of number of employees was indicated, but in average this number was not higher.

Another area of our interest was represented by the survey of the frequency of the increase of the variable “efficiency of employee” (Rajchlová and Fedorová, 2013b). The increase of this particular variable was identified in 88.8% of investigated companies (this group, containing 88.8% of companies, contained also a company reporting the increase of efficiency of employee in one year).

Contemporary research indicates that the variable “efficiency of employee” increased in average in 54.4% of companies.

Thus, more detailed results indicate the fact that 34.4% of companies reported a certain increase of monitored variable; nevertheless, the percentage average variation of this variable we evaluate as its interannual average decrease.

Comparing the frequency of increase of number of employees and their efficiency, Rajchlová and Fedorová (2013a) came to the following conclusions: in case of 63% companies the higher frequency of the increase of the variable EE was

recorded compared to the frequency of the increase of the number of employees, 15% of companies reported the identical frequent incidence of the number of employees as the quantity EE. In case of nearly a quarter, i.e., 23% of companies, higher frequency of the increase of the variable “number of employees” than the frequency of the improvement of efficiency of their employees were identified.

The results of current research have identified the following facts: 31.8% of companies reported in average decreasing variable “average number of employees” and, at the same time, increasing average variable EE. 20.6% showed both increase of the variable “average number of employees” and the variable “average EE”. In case of 17.5% of companies the number of employees increased and, at the same time, the variable EE decreased. Decreasing average variation of the number of employees and decreasing average change of the variable were identified totally in 19% of companies included in the investigated population.

The condition of statistically insignificant change, i.e., the condition without any change, was demonstrated in case of the quantity EE as regards the average number of employees as follows: 2 companies, i.e., 3.2%, reported decreasing variation of EE, 1 company, i.e., 1.6% of companies, reported increasing variation of EE, 6.35% of companies reported no significant statistical variation of EE quantity.

The following conclusion can be reached on the basis of the conclusions arrived at the second stage of said research, comparing both investigated quantities, and present research, also comparing both quantities as well: from the percentage number of companies with reported more frequent increase of the quantity “efficiency of employee” compared to the quantity “number of employees” the fact was established that totally 31.2% of companies showed

the improvement of the efficiency of their employees in a certain period; however, the efficiency of their employees decreased in total.

## Conclusion

The identical conclusions can be drawn on the basis of comparison of results, achieved by various processing methods. Any increase of the average number of employees can not be confirmed during the presence of venture capital investors, or after their immediate exit. On the contrary, the variable specifying the efficiency of employees increased in connection with the presence of venture capital investors and immediately after their exit from the monitored companies. Beyond the framework of this basic agreement on the conclusions, the last research stage gave precision to the picture of the development of number of employees and their efficiency by the quantification of development of their average quantities. Furthermore, a different development of monitored characteristics in the companies with various sizes has been identified, at the moment without any explanation: the efficiency of employees increased in small and medium-sized companies, number of employees increased in small companies, while in medium-sized, companies the number of employees decreased as well as their efficiency. The investigation of this phenomenon shall be further examined by the authors.

## Acknowledgement

This paper is a result of a specific research project conducted at the Mendel University in Brno and of the specific research project titled “Výzkum interních a externích faktorů ovlivňujících hodnotu podniku” (Researching the internal and external factors influencing the firm’s value), of the internal grant agency of the Brno University of Technology, registration number FP-S-12-1.

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