INDICATOR EVA IN CONDITIONS OF SMEs AND LARGE FIRMS IN THE CZECH REPUBLIC

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Abstract

This paper focuses on the indicator Economic Value Added (EVA) in Small and Medium Enterprises (SMEs) in the transitional economy of the Czech Republic. Our research question is to find the actual level of this indicator in conditions of different segments of SMEs market and to compare it with large companies. The second research question is to find whether the level of EVA differs depending on different branch of industry in which the SMEs operate. And the last question is to assess whether the level of EVA changes in relation with selected in company indicators. The research employs a set of 16,302 company data obtained from database Albertina. Our results confirmed findings of previous research works and furthermore they show that the level of EVA indicator is generally very low in the Czech Republic even in the large companies. The findings have many limitations, but the results may serve as an introductory study for the following research on company performance and decision-making.

Keywords: Economic value added, Cost of equity, SMEs, risk premium.

JEL Code: M21, G3, D24.

Introduction

With companies seeking to measure the effectiveness of their business activities, new indicators have been introduced throughout the years. Obvious candidates are e.g. Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS), etc. These, however, have been increasingly criticized for their over-reliance on profit as success measure. Profit fails to take into account general economic conditions and time value of money, it has also other drawbacks. In an attempt to overcome these shortcomings, Stern Stewart& Co. introduced a new measure Economic Value Added (EVA), an indicator designed to measure the true economic profit of businesses (Salaga, Bartosova and Kicova, 2015, p. 485). EVA is the company's after-tax operating profit less the cost of capital employed, i.e. both the capital of creditors and the capital of owners. It aims to aid the management process and, ultimately,

improve the company performance (Training EVA®, 2014). The idea of economic profit is older and is associated with the names of A. Marshall, L. Walras, A. Damodaran and others. Both measures the cost of equity and indicator EVA are also considered as characteristics of conditions of particular the national economy (Damodaran, 2003; Dluhošová, 2004; Fernandez, 2001, 2017; Boyer et al., 2017). In the previous research, which was carried out in the Czech Republic at the end of the last century it has been revieled that 70 to 80 per cent of the Czech firms reached the negative value of EVA. It has been found subsequently that this percentage share of companies with negative value of EVA is gradually decreasing (Dluhošová, 2004, 2007). In all previous investigations the EVA indicator was assessed by industry. The research question of our study is to analyse this indicator by segments of SMEs´ compared to large firm.

1. Literature Review

The introduction of EVA has met with a lot of controversy, some authors appreciate its ability to measure the efficiency of used capital, while most practitioners questioning its usefulness.

Various studies have been conducted to evaluate the effectiveness of implementing the EVA model. One such study found that the link between increasing the EVA and obtaining higher stock return is not as strong as was claimed by EVA proponents. Moreover, the EVA indicator seems to be closely related to residual income, which has been used by businesses for decades, (Chen and Dodd, 1997, p. 551). Another study has reached a similar conclusion regarding EVA and stock returns, stating that the metric is not able to adequately forecast stock performance. The indicator by itself is unable to boost shareholders' value any better than other traditional indicators. There is also no concrete evidence that firms using the EVA system are superior to those which do not use it (Palliam, 2006, p. 214). These findings are congruent with Fernandez's research of 582 American companies using different metrics of value measurement including EVA. Analyzing the financial data of the companies and the formula for finding EVA, the paper concludes that the metric cannot measure shareholder value creation (Fernandez, 2001, p. 15).

When it comes to SMEs, EVA seems to be a good tool for performance management albeit not on its own. When used jointly with other business practices, the metric can be helpful to SMEs, since it is easy to understand and requires relatively easily available information. The limits of financial data, however, reduce EVA's relevance, which is why it cannot be considered a universal remedy. Nonetheless, it can be used to discover issues and

find ways to ameliorate them (Bahri, St-Pierre and Sakka, 2010; Salaga, Bartosova and Kicova, 2015).

The calculation of EVA is based on the ´equity cost´. Cost of equity reflects the return on "unrealized, missed opportunities" plus the risk premium associated with the specific area of capital use. This approach became the basis for one of the methods quantifying the cost of equity (r_e) where the profitability of risk-free investment (r_f) is increased by the risk premium corresponding to the degree of risk exposure (r_{POD}) – see equation (1):

$$r_e = r_f + r_{POD} \qquad \qquad (1)$$

The decomposition of risks which is reflected by the risk premium is the corner stone of this calculation. There are many theories and approaches in different research of studies. The breakdown of risk into the specific types of risk has been carried out differently by different authors. Boyer et al. (2017) defined the risks in emerging markets in the areas as follows:

a) Financial markets which are illiquid and lack transparency,

b) Less developed regulatory, corporate governance and legal framework,

c) Inability to repatriate earnings,

d) Economic uncertainty,

e) War and/or political instability.

The equity cost indicator can be considered as a measure of performance of capital in relation to the conditions of particular economy in question. The difference between this and the actual performance is an information for both the internal and the external evaluators of particular company.

Indicator EVA is the difference between the annual profit of the company and the cost of capital used. The difference represents the residual that the owners obtain over the amount, which they should get as a compensation for risk undertaken, i.e. the increase of their wealth. For the original formula for calculation of the EVA indicator is as follows – see equation (2):

$$EVA_{entity} = NOPAT - C \; x \; WACC \qquad \qquad (2)$$

where: NOPAT is defined as net profit from operating activities, C = capital employed, WACC = weighted average cost of capital from both shareholders and debt holders.

2. Methodology and the Sample

The aim of our research is to find the amount, in which the wealth of business owners increases or decreases (the positive/negative level of EVA) in condition of SMEs segments in

the Czech Republic and to find if there are any differences in its level in SME sector compared to large firms.

To calculate the value of EVA we used the INFA methodology (INFA). This calculation of EVA value is based on the EVA equity model (3):

$$EVA_{equity} = (ROE - r_e) \; x \; C \tag{3}$$

where: ROE = return on equity, r_e = costs of equity, C = capital employed.

The r_e calculation is based on the risk free rate and risk exposure - the structure of the risk premiums is as follows (4):

$$r_e = r_f + r_{LA} + r_{POD} + r_{FINSTAB} + r_{FINSTRU} \tag{4}$$

where: r_f riskless rate

r_{LA} risk premium for the size of the company or liquidity of shares

r_{POD} risk premium for business risk

$r_{FINSTAB}$ risk premium for financial stability

$r_{FINSTRU}$ risk premium for financial structure

The risk-free rate r_f is derived from the yield of 10-year government bonds.

The risk premium for the size of company r_{LA} depends on the size of so-called "available resources" (AR), which is a summary of equity, bank loans and bonds:

if AR <= 100 mil. CZK then r_{LA} = 5.00%

if AR >= 3 mld. CZK, then r_{LA} = 0.00%

if 100 mil. CZK < AR < 3 mld. Kč, then r_{LA} = $(3-AR)^2/168,2$ (AR in bil. CZK).

Risk premium for business risk (r_{POD}) depends on the indicator of production power ROA (= EBIT/A). ROA has to be higher or equal to the X1, which is calculated as follows:

$$X1 = (AR \; / \; Assets) \; x \; UM \tag{5}$$

where: UM = interest/(bank loans+liablities for long term financial lease,

If ROA > X1, then $r_{POD} \rightarrow r_{POD}$ = minimum r_{POD} in the industrial sector

If ROA is in the interval of 0 <ROA<X1, then r_{POD} is calculated based on this formula:

$$r_{POD} = \lfloor (X1 - ROA)^2 \; / \; X1^2 \rfloor \; x \; 0,1 \tag{6}$$

If ROA < 0, then r_{POD} = 10.0%

Risk premium for the financial stability $r_{FINSTAB}$ is a mark-up for the risk the firm will fail to repay its liabilities. It is tied to the current ratio (L3) as a relation (see 7):

$$L3 = STA / STL \qquad (7)$$

where: STA = Short-term Assets, STL = Short-term Liabilities

To state the risk premium $r_{FINSTAB}$ it is used the limit values XL1, XL2: XL1 and XL2 are determined individually for each industry. It is also individually taken into account the financial strength of the firm and other facts (assets, significant parent company, etc.) when the firm "can afford" lower liquidity. For individual application of the methodology it is recommended to consider XL1 >= 1.0 and XL2 <= 2.5. Lower liquidity can be usually accept in a large enterprise, so it is recommended that enterprises with assets up to CZK 10 billion do not make any correction of the liquidity surplus and, for enterprises with assets over CZK 50 billion, to modify $r_{FINSTAB}$ with a coefficient of 1> K>= 0, 2. In the range of 10 to 50 billion CZK of assets, use a linear or quadratic course of the K coefficient value (INFA, p. 10). The resulting values are:

if L3 ≤ XL1 then $r_{FINSTAB}$ = 10.00 %,

if L3 ≥ XL2, then $r_{FINSTAB}$ = 0.00 %,

if XL1 < L3 < XL2 then $r_{FINSTAB} = [(XL2 - L3)^2 / (XL2 - L1)^2] \times 0.1$ (8)

The risk premium for the financial structure ($r_{FINSTRU}$) is based on the r_e calculation in condition of debt-free companies – then r_e = WACC and $r_{FINSTRU}$ = 0. For the calculation in the other conditions the risk premium is limited to 10% (INFA, p. 13).

Based on earlier empirical research, the following hypotheses was formulated:

- The amount of EVA has the highest value in the segment of medium and large companies

- In all segments of SMEs, most companies achieved negative value of EVA indicator.

The data of a set of companies were downloaded from Albertina database and represents the situation in the year of 2015. The sample of companies included 16 302 Czech firms from various branches (see Table 1).

Tab. 1.: The structure of the sample

Branche	Micro	Small	Medium	Large	*Total*
Administrative and support activities	294	418	89	26	*827*
Profes., scientific and technical activities	851	554	112	41	*1608*
Real estate activities	339	205	50	6	*600*
Information and communication activities	170	278	102	35	*580*
Accommodation, meals and hospitality	376	326	56	7	*765*
Transport and storage	146	558	106	64	*974*
Trade and repair of motor vehicles	949	2355	949	217	*6593*

Construction	488	866	215	47	*1616*
Water supply, waste and sanitation	32	129	68	29	*258*
Electricity, gas, steam and aircond.supply	9	53	40	50	*152*
Manufacturing	748	1912	1314	595	*4669*
Total	*4402*	*7654*	*3129*	*1117*	*16302*

Source: Albertina database and own elaboration

The criteria of the SMEs category we used for differenciation of the EVA calculation in the set of firm´s are defined in Act No. 462/2016 Coll., amending Act No. 563/1991 Coll., on Accounting, as amended and are presented in the table 2.

Tab. 2.: Category of the SMEs and large firms

Category	Total Assets (in mil. CZK)	Year Turnover (in mil. CZK)	Number of Emploees
Micro firm	Up to 9	Up to 18	Below 10
Small firm	9 – 100	18 – 200	10 – 49
Medium firm	Up to 500	Up to 1 000	50 – 249
Large firm	More then 500	More then 1 000	More then 250

Source: Czech Republic: Act No 462/2016 Coll., amending Act No. 563/1991 Coll., on Accounting.

3. Results

Based on the financial statements data and employing INFA model the value of EVA was calculated for each company. The descriptive statistic of the calculated EVA values of our sample are summarized according to individual categories of SMEs in Table 2. The average values of EVA are in all segments including the large companies are below zero. The number of companies in which the EVA values reached negative value (lower than zero) is than those with positive values larger in all SMEs sectors. The only exception are large companies. In this category the number of companies with the positive EVA value is higher than that with negative EVA. This result is in line with the first hypothesis assuming the highest values of EVA in the large companies.

Tab. 3: The structure of the sample according to EVA values

Companies	Micro		Small		Medium		Large	
Number of firms	*4402*		*7654*		*3129*		*1117*	
Number of positive EVA (+)	2051	*46.6%*	3605	*47.1%*	1485	*47.5%*	591	*52.9%*
Number of negative EVA (-)	2349	*53.4%*	4047	*52.9%*	1644	*52.5%*	526	*43.1%*

Average of positive EVA (+)	994.30	4940.21	19425.65	187206.32
Average of negative EVA (-)	-3014.34	-11954.57	-67881.41	-722755.80
Average	-1145.77	-3995.13	-26446.13	-241682.63
Median	-21.2136	-124.10	-922.21	4499.85

Source: own elaboration

More detailed information on the breakdown of EVA values for each category of SME provides data on the interval distribution of values in each category - see Table 3 and Figure 1.

Tab. 4: The EVA values in the SMEs segments and large firms

EVA value	Companies			
	micro	small	medium	large
less than -50000	0.36%	1.90%	10.46%	29.12%
-40000	0.23%	0.69%	3.29%	1.79%
-30000	0.34%	1.31%	4.63%	3.49%
-20000	0.70%	4.01%	9.59%	6.18%
-10000	51.75%	44.96%	24.58%	27.33%
0	46.23%	43.65%	24.83%	33.06%
10000	0.16%	2.46%	9.11%	8.33%
20000	0.05%	0.51%	5.02%	4.84%
30000	0.02%	0.22%	3.07%	2.06%
40000	0.02%	0.07%	1.89%	0.90%
more than 50000	0.14%	1.60%	3.55%	15.32%

Source: own elaboration

The most common values of EVA are near zero in all categories. However, the calculated values of EVA are significantly differentiated in each category. In the category of Micro and Small Business, almost all values are negative in the range of (-20001; -10000) and (-10001; 0) i. e. 97.98 per cent and 88.61 per cent respectively. In the category of large enterprises only 60.39 per cent of firms are in this range. In the category of large companies, a significant proportion of firms show either extremely low values (less than -50000, i.e. 29.12 per cent), or on the contrary, extremely high values of the indicator (more than 50000, i.e.15.32 per cent). In the category of medium-sized enterprises, the distribution of EVA indicator is more even, in both intervals (-20001; -10000, -10001; 0) there are 49 per cent of the calculated values.

Fig. 1: EVA values in the SMEs segments and large firms
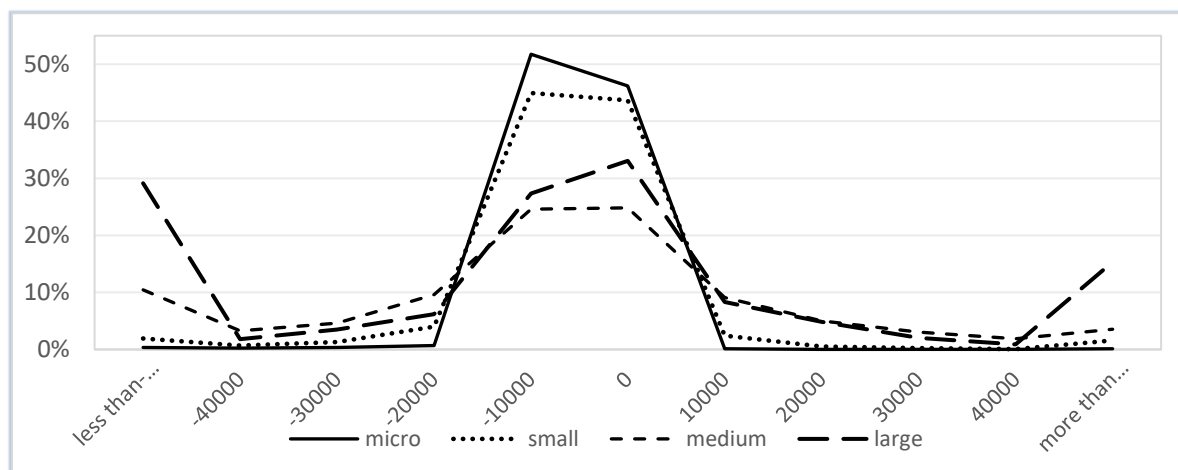
Source: own elaboration

Conclusions and Discussions

Several conclusions can be formulated based on analysis presented. The business risk is relatively high in the Czech Republic as one of the emerging (transitional) countries. Consequently the value of EVA indicator is relatively low in these conditions. This appertains in the companies in all the segments of SMEs. The highest values were found in the segment of large firms, the lower values in segment of micro firms. These results are consistent with the other researches carried out in the condition of Czech Republic (i.e. Dluhošová D., 2004). The results bring new findings in the field of differences among the segments of firms. A significant difference has been revealed between micro and small enterprises on the one side and medium and large enterprises on the other, and also different value distribution compared the medium and large companies. The both hypothesis has thus been confirmed.

However, the results and their informative value have considerable limitations. The greatest limitation on the comparative performance of the comparison results from the character of the EVA indicator as the absolute value. Comparing with a value that characterizes the conditions of creation of EVA, e. g. the amount of equity or the amount of assets, this deficiency could be eliminated. Another limitation follows from the method used to calculate EVA, namely one of the input indicators, the equity cost indicator, but also the input data from which the values are calculated (data of the financial statements compiled according to the Czech legislation). More accurate comparison could also bring the use of the CAPM model for the cost of capital calculation.

Improvement in explanatory value of the analysis would allow for further calculations which allow the expansion of the comparison´s possibility of the EVA indicator between

individual segments or analysing the factors that are reflected in the value of the EVA indicator.

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