The Analysis of the Economical Value Added in Transport

Analiza ekonomske dodane vrijednosti u prijevozu

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Summary

The economic value added (EVA) is an indicator which can show the success of the company on the market. Its importance is ever growing since it is used in benchmarking analyses and in practical management of a company as a managers' motivational factor. In the Czech Republic, quarterly surveys of selected indicators take place allowing an on-year comparison of the development of various sectors of the economy. Since the analysis of data has been carried out on a long-term basis, these data can be used for an analysis for a longer period and compare the performance data of a company. This article is focused on the analysis of EVA of transport companies in the Czech Republic. In this regard, benchmarking will reflect the ownership structure and the transport companies will be compared with the rest of the non-financial sector of the economy.

KEY WORDS

EVA
economical value added
the costs of own capital
ROE
transport
stocking

Sažetak

Pokazatelj dodatne vrijednosti je indikator koji može pokazati uspjeh tvrtke na tržištu. Važnost mu stalno raste budući se koristi u načelnim analizama i u praktičnom menadžmentu tvrtke kao motivacijskom čimbeniku menadžera.U Češkoj Republici, kvartalni pregled odabranih pokazatelja ostvaruje se godišnjom usporedbom različitih čimbenika ekonomije. Budući je analiza podataka izvršena dugoročno, ovi podaci mogu se koristiti za dulja razdoblja i usporediti ih s učincima tvrtke. Ovaj članak se usredotočuje na analizu pokazatelja dodatne vrijednosti prijevoznih kompanija u Češkoj Republici.U vezi s ovim, mjerenje će odraziti vlasničku strukturu, a prijevozne kompanije će se usporediti s ostalim ne financijskim sektorom ekonomije.

KLJUČNE RIJEČI

EVA
ekonomska dodana vrijednost
troškovi vlastitog kapitala
ROE
prijevoz
snabdjevanje

1. INTRODUCTION

In analyses of companies on the market, we can use many parameters and processes. For example, the horizontal analysis can be used for comparison of economy results in certain years. This comparison provides us with plenty of useful information, nevertheless, the information will only be local and finite [9]. It will not consider the risk factor, capital structure, holders' requirements and many others aspects. Those are the reasons why the indicator capable to consider those factors has been created. The EVA indicator is a tool for measuring the financial efficiency of a company [10].

Thanks to its attributes, the EVA indicator is used for various economic analyses and comparisons among companies [11]. The fact that the EVA indicator is becoming a motivational tool for company managers is very important. It allows them to look at the company's management from the owner's perspective.

The EVA indicator seems to be an effective tool to conduct the analysis of the specific market of transport and storage in the Czech Republic. This market involves many specifics and is defined in CZ NACE classification, section H. The specifics of this fild of industry are especially given by the fact that the biggest companies in the sector are controlled by the state or publicly.

The aim of the article is to conduct the analysis of value added for the Ttransport and storage sector, which is defined in the H section of the CZ NACE classification.

2. METHODOLOGY

In the literatures, the calculation of the EVA indicator is carried out in several ways. According to Brealey, Myers & Allen [1].

$$EVA = NOPAT - C \cdot WACC \quad (1)$$

Where:
EVA – Economic Value Added,
NOPAT – Net Operating Profit after Taxes,
t – Income tax rate,
C – Capital provided for remuneration,
WACC – Weighted Average Cost of Capital.

WACC (Weighted Average Cost of Capital) represents the costs of total invested capital and it is calculated in the following manner (2):

$$WACC = \frac{E}{C} \cdot r_e + \frac{D}{C} \cdot r_d \cdot (1 - t) \quad (2)$$

Where:
E – Equity,
D – Debts,
r_e – The Opportunity Cost of Capital, (),
r_d – Interest on Debts.
The opportunity costs of capital represent costs of profit loss on the assumption of the same level of investment risk. The CAPM model is being used for the calculation in the following way (3):

$$r_e = r_f + B \cdot E(R_m - r_f) \quad (3)$$

Where:
r_e – The Opportunity Cost of Capital,
r_f – The risk-free rate,
β – Systematic risk,
$E(R_m - r_f)$ – Risk premiums.
On the other hand, Neumaierová and Neumaier especially consider the equity capital and the result value is more valid and predicative for the owners. The following formula is used for calculation (4):

$$EVA = (ROE - r_e) \cdot E \quad (4)$$

Where:
ROE – Return on Equity,
r_e – The Opportunity Cost of Capital,
E – Equity.

Contrary to the previous case, the opportunity costs of equity capital are not calculated by the CAPM model but using a modular method. The calculation of the indicator is as follows (5):

$$r_e = \frac{WACC \cdot \frac{D}{A} - \frac{EAT}{EBT} \cdot C \cdot \left(\frac{C}{A} \cdot \frac{E}{A}\right)}{\frac{E}{A}} \quad (5)$$

Where:
A – Assets,
E – Equity,
D – Debts,
r_d – Interest on Debts,
EAT – Earnings after Taxes,
EBT – Earnings before Taxes,
WACC – Weighted Average Cost of Capital.
WACC is defined as a sum of interests that reflect certain risks connected with running a business - contrary to the previous method where the costs of equity and debts were averaged on the base of the individual components' value. This indicator is calculated in the following way (6):

$$WACC = r_f + r_{LA} + r_{entrepreneurial} + r_{FinStab} \quad (6)$$

Where:
r_f – The risk-free rate,
r_{LA} – Function of indicators characterizing the size of the enterprise,
$r_{entrepreneurial}$ – Function of indicators characterizing the creation of ROA (return-on-assets),
$r_{FinStab}$ – Function of indicators characterizing the relationships between the assets and liabilities.

The statistic investigation made by the Czech Statistical Office is the source of the data for the following analysis. Namely, the following reports will be considered: P 3-04 which observes the companies with 0-19, 20-49 and 50 and more employees, and the P 6-04 report which observes indicators without association with the number of employees. Those reports are aggregated and used by the Ministry of Industry and Trade in quarterly financial analysis of the business sphere of the industry (for our needs, we only use the financial analysis of the business sphere for the year 2014).

The P3-04 questionnaire is set by the Czech Statistical Office in accordance with Decree no. 239/2014 Coll., which is in accordance with the Regulation of the European Parliament and (EU) Council Regulation no. 549/2013 of 21 May 2013, on the European System and regional accounts in the European Union. Selected economic subjects fill out the questionnaire four times per year and are required to supply the following data: "Indicators of work - the number of employees and their wages, the number of temporal workers provided by job agencies. Financial indicators of flow in the statistical breakdown - revenues, costs and value added. Acquisitions and disposals of intangible assets and tangible fixed assets and sales revenue. The number of cars and trucks and the number of kilometers traveled by these vehicles."

The P 6-04 questionnaire is based on the same legal framework, only it is filled by entities regardless of the number of employees. Even in this case, the data are collected by the Czech Statistical Office and the surveys are focused on the following indicators: "Financial indicators of status in a statistical breakdown - tangible and intangible fixed assets, inventories by folders, financial assets by folders including prepayments and accruals, receivables, liabilities broken down into their own capital, reserves, bonds and notes, bank loans and repayable financial assistance. Indicators of work - the number of employees, wages and hours worked, the number of temporal workers provided by job agencies. Financial indicators of flow in the statistical breakdown - revenues, expenses, value added, subsidies for fixed assets and results of operations. Acquisitions and disposals of intangible assets and tangible assets by type of property and sales revenue. The number of cars and trucks and the number of kilometers traveled by these vehicles."

Based on the above reports, large amounts of data in particular fields are aggregated. Given the scope of this work, it is not possible to present all the data. For these reasons, we only present a brief example of input tables (Table 1). The complete data are available on the website of the Ministry of Trade and Industry.

Table 1 Example of input data

	NACE	05	08	**B**
	Title	Mining of coal and lignite	Other	Quarrying and mining
Return on equity (ROE)	1.Q.09	13,84%	-4,81%	**11,59%**
	1.Pol.09	10,65%	7,56%	**11,10%**
	1.-3.Q.09	10,78%	10,62%	**11,10%**
	1.-4.Q.09	12,13%	10,47%	**12,37%**
	1.Q.10	8,79%	-2,30%	**7,99%**
	1.Pol.10	11,44%	8,71%	**11,65%**
	1.-3.Q.10	12,62%	12,62%	**13,60%**
	1.-4.Q.10	13,40%	10,15%	**14,47%**
Return on assets (EBIT/ Assets)	1.Q.09	11,44%	-2,24%	**9,77%**
	1.Pol.09	8,67%	5,44%	**8,95%**
	1.-3.Q.09	8,51%	8,69%	**8,81%**
	1.-4.Q.09	8,97%	8,03%	**9,20%**
	1.Q.10	7,20%	-1,52%	**6,56%**
	1.Pol.10	8,56%	6,83%	**8,65%**
	1.-3.Q.10	9,55%	10,26%	**10,26%**
	1.-4.Q.10	10,21%	8,26%	**10,99%**

Source: Financial Analysis of the Business Sphere for the Year 2014. Ministry of Industry and Trade [3].

Extensive tables for individual years are further aggregated from the smaller and clearer structures, from which graphs for a more transparent analysis will subsequently be generated. A sample table is given below (Table 2).

Table 2 Data Processing

Indicator/ Year	2009	2010	2011	2012	2013	2014
Re	13,73%	12,26%	11,07%	12,33%	12,60%	13,06%
ROE	2,00%	6,58%	4,73%	4,08%	3,34%	4,61%
L1	0,45	0,43	0,37	0,54	0,54	0,78
L2	1,44	1,39	0,96	0,84	0,77	0,68
L3	-	1,48	0,1	0,1	0,09	0,1

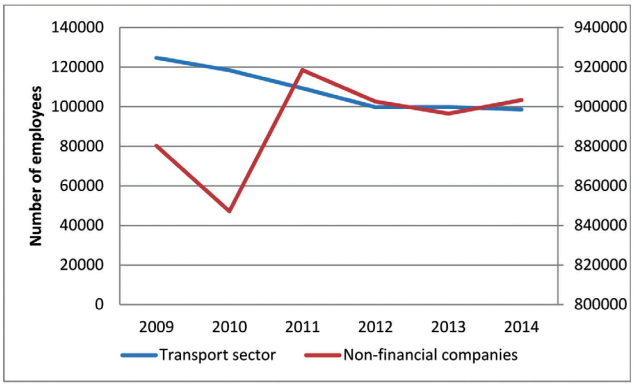
Source: Author; financial analysis of the corporate sector for 2010-2014.

3. RESULTS

We will analyse the EVA indicator on the basis of the calculation which takes into consideration the equity capital and the costs of capital will be calculated by the modular method because the method of Neumaierová and Neumaier is more suitable for Czech companies.

In the first place, we will compare the number of employees in the given sector with the industry. Under the notion 'industry' we understand all categories of CZ NACE with the exception of the K category, i.e. all non-financial companies.

Figure no. 1 compares the development of the number of employees in the industry with the number of employees in the field of transport. The graph was designed as to provide a better imaging of the development, with two vertical axes. The vertical axis on the left side shows data for transport companies. The right side numbers stand for the industry as a whole. It is clear from the graph that there is a gradual moderate drop in the number of employees in the transport sector. There was a 20% drop from values over 120k to values slightly under 100k during the analysed period of 6 years. In contrast to this drop, the development of the industry was not so explicit. The numbers of employees were fluctuating between values from 885k to 920k. In total, there was a growth from 880k to little over 920k. This growth represents a slight growth of c. 4% in 6 years.



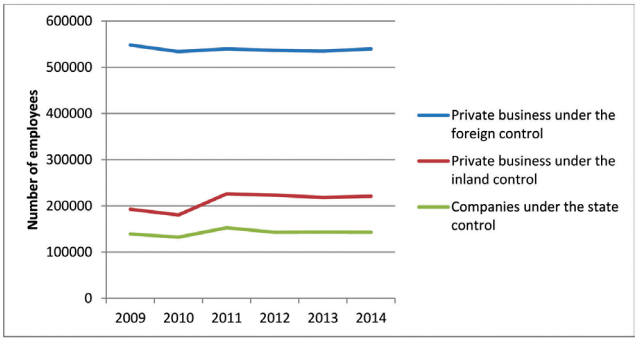
Source Author; financial analysis of the corporate sector for 2010-2014.

Figure 1 Number of employees

Of course, the numbers of employees in the individual sectors vary and we can measure the size of the certain section and the degree of liberalization. The second figure shows the number of employees in the following three categories:

- Companies under state control,
- Private business under inland control,
- Private business under foreign control.

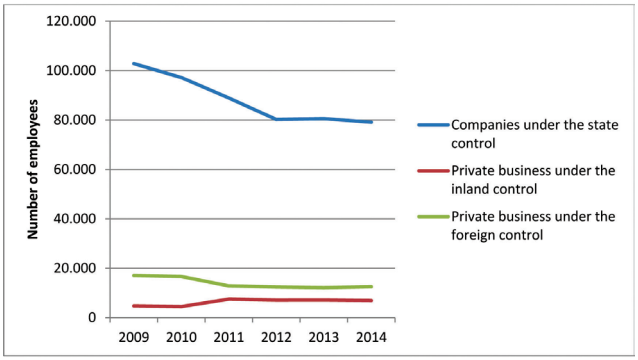
The figure shows that companies under foreign control dominate significantly among the non-financial companies fluctuating between 500k and 600k employees. They are followed by private companies under inland control ranging around 200k and, lastly, by the companies under state control with numbers of employees ranging from 100k to 200k.



Source: Author; financial analysis of the corporate sector for 2010-2014.

Figure 2 Number of employees non-financial companies

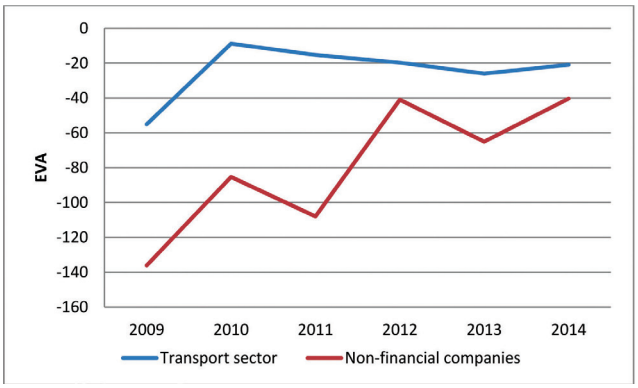
If we look at the Transport and storage sector, the situation is significantly different from the whole sector of non-financial companies. Numbers of employees are shown in the figure no. 3. The difference is caused by the fact that the highest numbers of employees work in the companies under state control. Numbers of employees fluctuate between 80k and 100k. This implies that the sector of Transport and storage takes a share more than 50% of the total number of employees in the non-financial companies under state control. The companies under foreign control come next with numbers of employees from 12k to 17k while the companies under inland control are the smallest with 4k – 7k employees.



Source: Author; financial analysis of the corporate sector for 2010-2014.

Figure 3 Number of employees transport sector

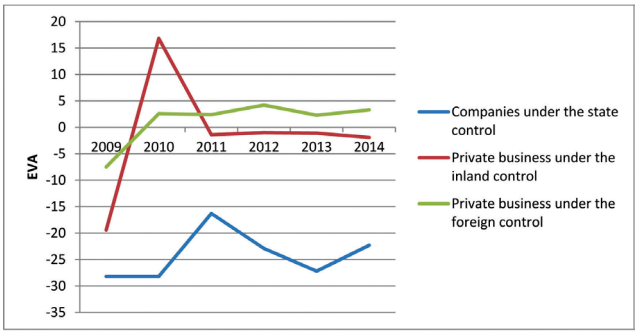
Following the analysis of the size of all sectors, we can continue with the analysis of the EVA indicator. The development over the years is shown in the figure no. 4. It is obvious that the transport companies have significantly better long-term EVA because this value has been always higher than the value of the rest of the whole non-financial companies sector during the observed period. The non-financial companies, as a whole, have tendency to grow and it is evident that there is a gradual rise of EVA. The total values for both sections are in negative numbers. Therefore the EVA is not produced.



Source: Author; financial analysis of the corporate sector for 2010-2014.

Figure 4 EVA

If we sort EVA of transport and storage companies according to ownership structure, we will find that there are companies which show relatively stable EVA (figure no. 5). These are the companies under foreign control. The values are in milliards of CZK. The companies under inland control form the second group in order and, over a long-term period, they are thinly in negative numbers. The companies under state control have the highest loss. The loss is ranging from 30 to 15 milliards of CZK.



Source: Author; financial analysis of the corporate sector for 2010-2014.

Figure 5 EVA of transport and stocking companies according to structure

From the EVA's perspective, the companies under inland control had loss of 16.3 milliards of CZK in 2011. But if we look at the return of profit and loss, the operational profit is + 3.2 milliards of CZK. This is caused especially by the fact that the opportunity costs of equity capital were 12.03% in the same year. The profitability of equity capital of those companies was only 1.84%. Therefore, it is obvious that despite the fact that the profit is positive, in reality, there is a loss in value.

4. CONCLUSION

This analysis proves that the companies of the H category according to CZ NACE reach higher values of the EVA indicator than the rest of the economy (provided we do not count in financial institutions). In spite of it, the total result of those companies is in negative numbers and there is a loss in value.

Even over a long-term period, a positive EVA can be reached in this branch. That is proved by the transport and storage companies under foreign control. Their efficiency is high enough to respect risks and cover the costs of equity capital.

The most unfavourable position is take by the companies under inland control. They show loss in terms of EVA in tens of milliards of CZK annualy. The reason is the very nature of this business. Companies have to connect the business to the public interest and have to provide transport services e.g. for smaller villages. This coverage is provided by the companies under inland control even if the economical profitability is equal to zero or negative.

On the other hand, these companies are not motivated to control those processes effectively because the managerial contracts in the state sector usually do not count with EVA. If the contracts would counted with EVA, there would probably be more efforts to use minibuses on call and assure better general optimization of transport services than currently.

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List of abbreviations

A	Assets
CAPM	capital asset pricing model
D	Debts
E	Equity
EAT	Earnings after Taxes
EBT	Earnings before Taxes
$E(R_m-r_f)$	Risk premiums
EVA	Economic Value Added
NACE	Nomenclature générale des Activités économiques dans les Communautés Européennes - Classification of Economic Activities in the European Communities
NOPAT	Net Operating Profit after Taxes
r_d	Interest on Debts
r_e	The Opportunity Cost of Capital
$r_{entrepreneurial}$	Function of indicators characterizing the creation of ROA (return-on-assets)
r_f	The risk-free rate
$r_{FinStab}$	Function of indicators characterizing the relationships between the assets and liabilities
r_{LA}	Function of indicators characterizing the size of the enterprise
ROE	Return on Equity
WACC	Weighted Average Cost of Capital
β	Systematic risk