DEVELOPMENT OF MARKET CAPITALIZATION DEPENDANCE ON EBITDA IN AUTOMOTIVE INDUSTRY

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Abstract: *The paper is aimed to express the market capitalization dependance on EBITDA in the automotive sector, where market capitalization is defined as the number of shares issued by the company on the market, multiplied by the market price per share and EBITDA is expressed as earnings before interest, depreciation and taxes. Data were obtained from public-available financial statements of the companies in the automotive sector and for the graphical representation of the file we used Excel and SPSS statistical software. We based on the assumption that the dependence of the market capitalization of EBITDA can be described by linear regression, specifically by the linear trend.*

Keywords: *market capitalization, EBITDA, linear regression, the coefficient of determination, automotive industry*

JEL Classification: *G14, G17, L1*

1. INTRODUCTION

"The manufacturing plays a long-termed and crucial role in the structure of economy of developed countries. It belongs to the dominant employers, makers of GDP, value added and investments. The core of manufacturing in doing so is engineering. "(Romanová - Hudák, 2009). The strongest segment of engineering is the production of vehicles.

On the basis of the actuel knowledge in the experienced field, the research problem of the paper was identified as: General incompleteness of current criteria and indicators not taking into consideration the different areas of business, which may have a significant impact on business performance.

The paper is based on the representation of the market capitalization dependance on EBITDA in automotive companies during the reporting period 2007 - 2011. When calculating rapidly an enterprise value, or so-called market capitalization, financial analysts use an EBITDA multiple. Market value is defined as the number of shares issued by the company on the market, multiplied by the market price per share.

Using EBITDA (Earnings before interest, taxes, depreciation and amortization) to evaluate the profitability of the company is much more exact than a profit determining, but has some disadvantages:

– EBITDA does not take into account the payment of interest and taxes, so these expenses that have a significant impact on cash flow,

– EBITDA adjusted the profit for non-cash operations (depreciation), but does not include all of these non-cash items. EBITDA does not reflect reserves including deferred tax accounting and value adjustments

– EBITDA does not exclude special adjustments including the profit from the sale of assets.

EBITDA is useful to an international comparison of the profitability of enterprises, because it excludes overall interest and tax burden and at the same time takes into account the mainly non-cash .

2. MARKET CAPITALIZATION DEPENDANCE ON EBITDA

Market capitalization dependance on EBITDA can be described by the linear regression, specifically by the linear trend, when the trend is considered as a function of:

$$Y = a* x, \tag{1}$$

while the market value is Y and x i sused as EBITDA.

The equation is thus changed to:

$$MV = a * EBITDA \tag{2}$$

R^2 value (R-squared) is called the coefficient of determination, and expresses the proportion of the common variability between two variables.

3. DEVELOPMENT OF MARKET VALUE DEPENDACE ON EBITDA IN AUTOMOTIVE COMPANIES

It is necessary for analyzed businesses to represent a sample large enough, so that from this would be possible to analyze the global industry. The object of our research in this paper is represented by 32 automotive concerns, which are described in the Table 1.

Table 1 Automotive enterprises

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Toyota Motor Corporation	Suzuki Motor Co.	Tata Motors	Brilliance Auto
General Motors Corporation	Renault S.A.	Faw Group	Great Wall Motors
Volkswagen Group	Fiat Group	Geely Group	Mahindra Group
Hyundai	Daimler AG	Fuji Heavy Industries	AB Volvo
Ford Motor Company	B.M.W. AG	Dongfeng Motor	Jiangxi Jiangling Group
Nissan Motor Co.	Mazda Motor Co.	AvtoVaz	Proton
Honda Motor Company	Mitsubishi Group	BYD Auto	M.A.N. AG
PSA Peugeot Citroen	Chana Co.	Isuzu Motors Ltd.	Porsche Automobil

Source: own proceeding
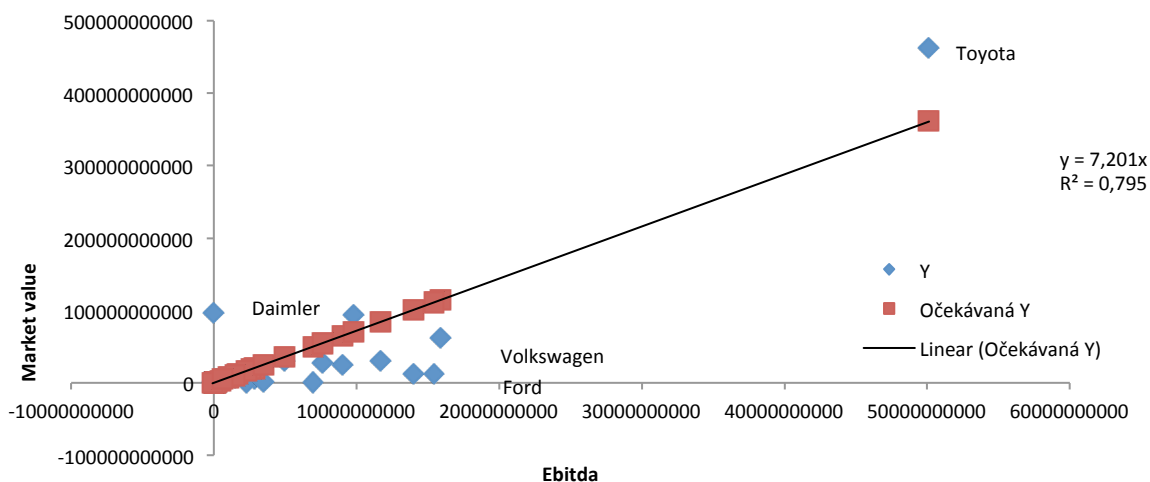
Figure 1 Dependance of market capitalization on EBITDA, 2007
Source: own processing

Input data are the financial statements and the balance sheets and profit and loss accounts of the companies. To represent it graphically, we used Excel and statistical software SPSS, through which we proceeded various statistical tests. We based on the assumption that the dependence of the market capitalization on EBITDA can be described by linear regression, specifically by the linear trend. In the following figures, we can see an overview of the market capitalization dependance on EBITDA in the automotive sector enterprises for the period 2007 - 2011.

The Figure 1 describes the dependence of the market capitalization of the automotive companies on EBITDA in 2007.

In 2007, the dependance of particular enterprises is described by the linear trend equation MV = 7,201*EBITDA. This equation can be interpreted by the fact that in 2007 a market capitalization in the automotive sector was equal to 7,20 times EBITDA.

The number $R^2 = 0,795$ shows the variance of market capitalization which is caused by the variance of EBITDA by 79,5 %.

In 2008, the dependance of particular enterprises is described by the linear trend equation MV = 5,582*EBITDA. This equation can be interpreted by the fact that in 2007 a market capitalization in the automotive sector was equal to 5,58 times EBITDA.

The number $R^2 = 0,859$ shows the variance of market capitalization which is caused by the variance of EBITDA by 85,9 %. There are some enterprises our of the straight trend line as Toyota, Daimler, Volkswagen and Ford.

In 2009, the dependance of particular enterprises is described by the linear trend equation MV = 4,683*EBITDA. This equation can be interpreted by the fact that in 2007 a market capitalization in the automotive sector was equal to 4,68 times EBITDA.

The number $R^2 = 0,586$ shows the variance of market capitalization which is caused by the variance of EBITDA by 58,6 %. There are some enterprises our of the straight trend line as Toyota, Daimler and Ford.
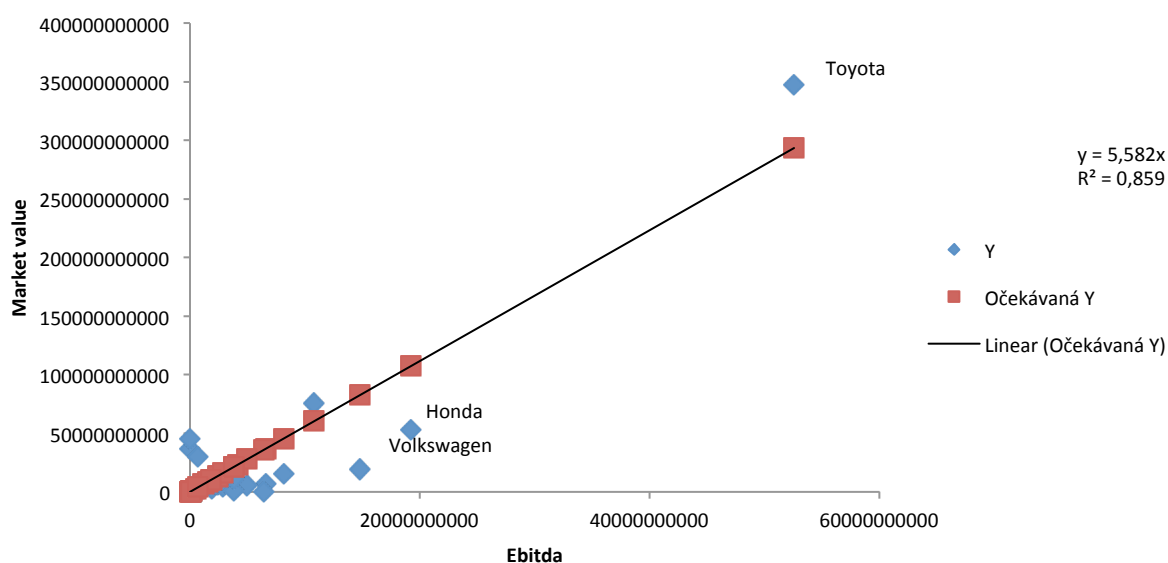

Figure 2 Dependance of market capitalization on EBITDA, 2008
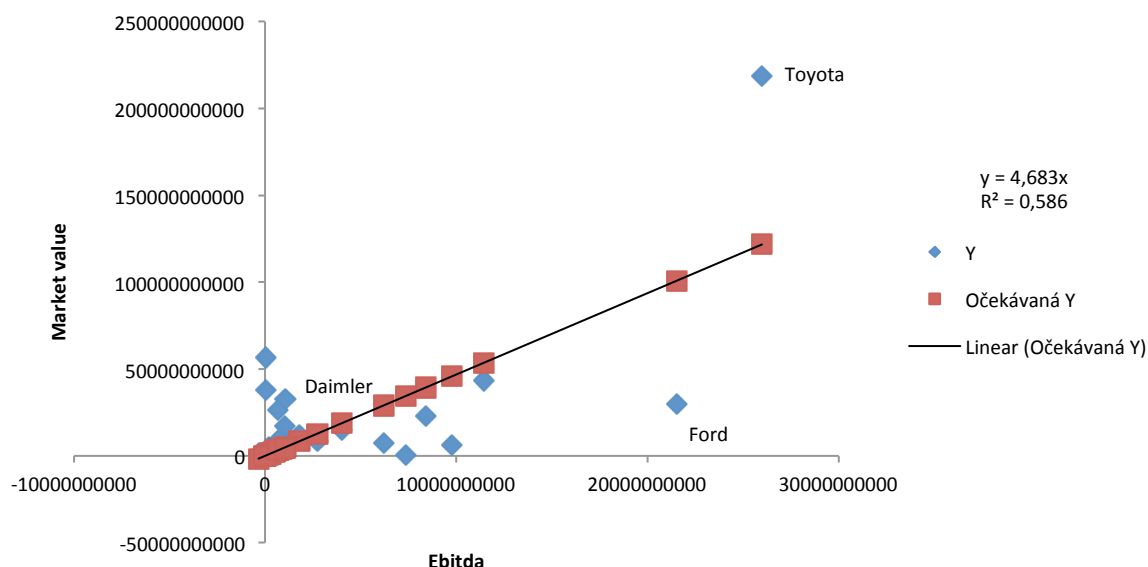Source: own processing

Figure 3 Dependance of market capitalization on EBITDA, 2009
Source: own processing

In 2010, the dependance of particular enterprises is described by the linear trend equation MV = 4,521*EBITDA. This equation can be interpreted by the fact that in 2007 a market capitalization in the automotive sector was equal to 4,52 times EBITDA.

The number R^2 = 0,467 shows the variance of market capitalization which is caused by the variance of EBITDA by 46,7 %.

In 2011, the linear trend can be described under the form MV = 3,838*EBITDA. This equation can be interpreted by the fact that in 2008 a market capitalization in the automotive sector was equal to 3,84 times EBITDA.

The number R^2 = 0,355 shows the variance of market capitalization which is caused by the variance of EBITDA by 35,5 %.

In Table 2 it may be seen the summary from the preceding figures, specifically the development of market capitalization dependance on EBITDA in automotive companies during the reporting period 2003 - 2011.

4. CONCLUSION

We conclude that in the period 2007 – 2011, year by year a market capitalization was not increasing. In 2007, we were already able to express it as 7.2 times EBITDA, but from 2008 to 2011, the market capitalization decreased gradually. In 2008, the market capitalization of 5.58 times EBITDA, but in 2011 only 3.83 times EBITDA, which is the second lowest value achieved during the period that was observed.
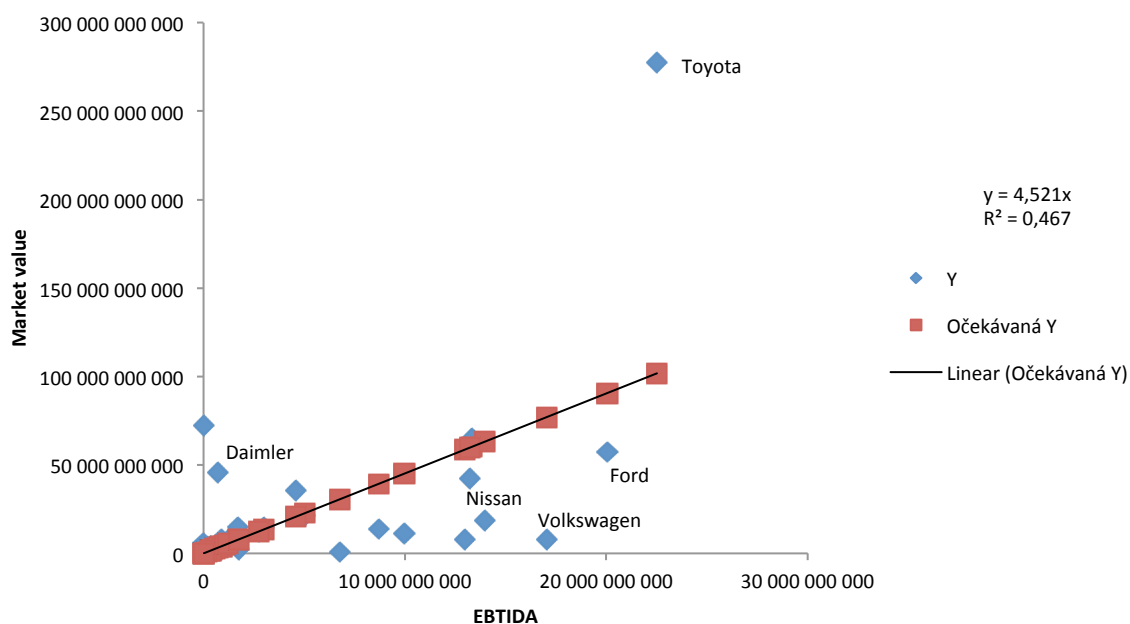

Figure 4 Dependance of market capitalization on EBITDA, 2010
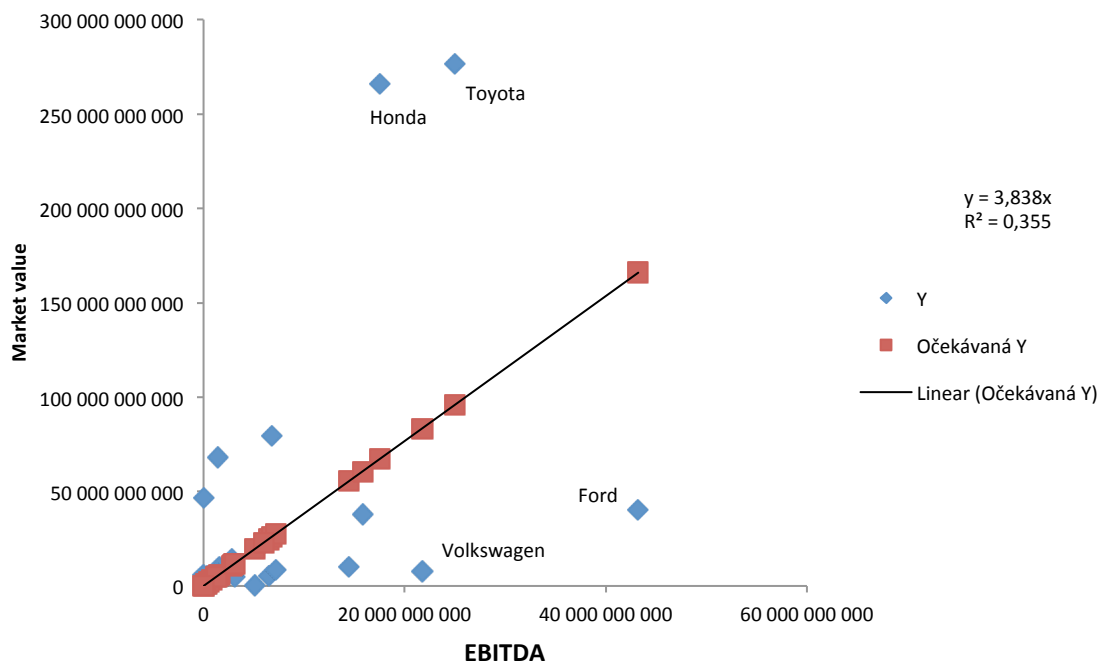Source: own processing

Figure 5 Dependace of market capitalization on EBITDA, 2011
Source: own processing

Table 2 Development of market capitalization dependance on EBITDA in automotive sector

Year	Linear trend function	R^2	Candidates
2007	MV = 7,201*EBITDA	0,795	Toyota, Volkswagen, Daimler, Ford
2008	MV = 5,582*EBITDA	0,859	Toyota, Honda, Volkswagen
2009	MV = 4,683*EBITDA	0,586	Toyota, Daimler, Ford
2010	MV = 4,521*EBITDA	0,467	Toyota, Daimler, Ford, Nissan, Volkswagen
2011	MV = 3,838*EBITDA	0,355	Toyota, Honda, Volkswagen, Ford

Source: own processing

A similar process was also in the link between MV and EBITDA, what is proven by the coefficient of determination values. During 2007, the achieved level was over 80%, in 2008 it was maintained and since 2008, the level has decreased until 2011, when it reached 36%. Companies in the automotive industry were with advancing years more clustered outside the trendline as well.

When calculating fast, analysts use the multiple EBITDA. While experiencing about the correctness of their discretion we concluded that the market capitalization – MV can be really expressed by EBITDA multiple.

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