Study on the Correlation Between Working Capital and Economic Value Added for the Companies Relating to the Hotel and Restaurant Industry Listed on the Bucharest Stock Exchange

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Abstract

In the present study was determined the influence of the value change of the working capital on the variation of the economic value added indicator on a sample consisting of a number of 26 companies (2007-2017) belonging to the hotel and restaurant industry, listed on the Bucharest Stock Exchange.

The correlation between the indicators was achieved by using the multiple linear regression method. The study showed that there is a strong link between the two economic indicators, over 80% of the change in economic value being explained by the change in working capital. It was found that a 1% increase in working capital, for the period 2007-2017, had the effect of increasing the economic value added by 0.38%.

Key words: working capital, economic value added, multiple linear regression, financial performance
J.E.L. classification: G32, C21

1. Introduction

The economic value added represents the indicator that measures the real economic profit of a company, the measure of financial performance, directly related to the creation of shareholders' wealth.

Value is a very good tool for quantifying performance, as it encompasses a complete set of information, such as: long-term strategy, managing cash flows, and comparing cash flows from different periods given the risk involved. (Copeland a.o., 2005, p.56).

Researchers P. Howarth, B. Becker, M. Hyuzlid believe that achieving value is the most important goal of a society (Drd. Savciuc Vladimir, Scientific leader Cobzari Ludmila, 2015, p.14).

Determining a company's cash flow is essential for making investment decisions. A good way to analyze a company's cash flow prospects is working capital management (McClure, 2010). Working capital is a reflection of a company's current financial situation that allows investors to obtain information about its financial balance.

The working capital is represented schematically as follows (Meyer 2007, p.37):

Figure no. 1: Schematic representation of the components of the working capital

The components of the working capital

Current assets
- Accounts receivable
- stocks

Current debts
- payment obligations
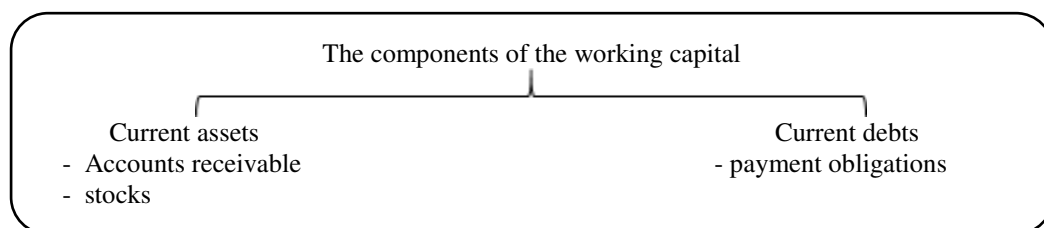
Source: processing of authors according to the calculation formula of working capital

In order to analyze how the decisions taken on the working capital could affect the added economic value, it is necessary to break down the indicator step by step into its separate components, in order to identify the causes that led to the change in the added economic value. Figure 2 shows a step-by-step approach to the dependence of economic value added on working capital size.

Figure 2: Factors influencing the economic value-added indicator
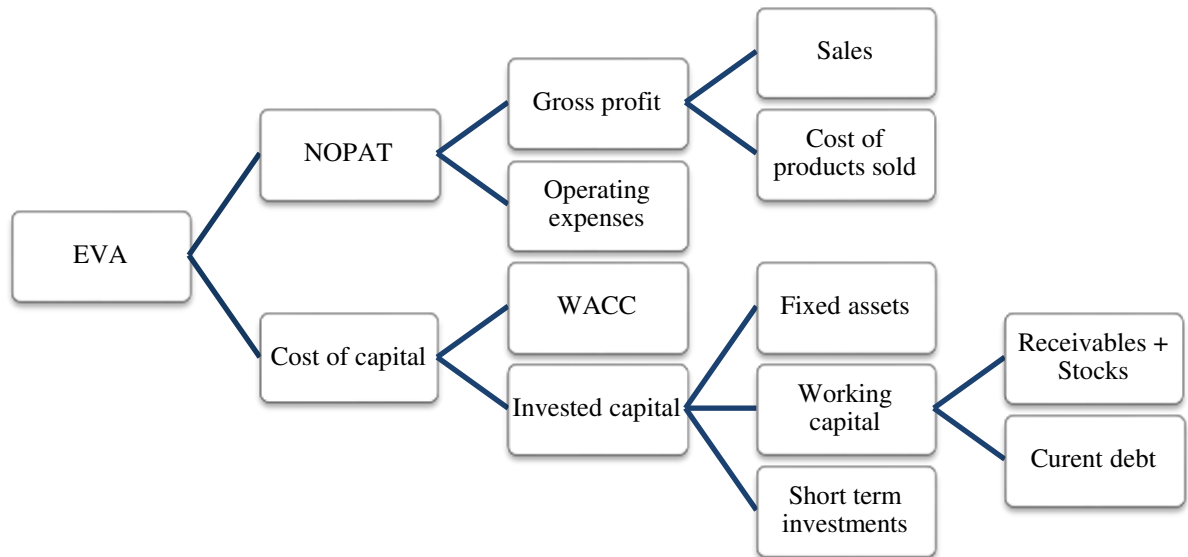
Source: author processing after - Kratz Norbert, Kroflin Petra, 2016, p.24

Determining the added value for a certain period of time requires the analysis of the working capital which shows the average value of the net investment in working capital components during the period.

Traditional views on financial balance analysis cannot provide answers on how working capital management interacts with a company's overall goal of creating shareholder value. The impact of working capital decisions on value creation is determined by the economic added value indicator.

2. Literature review

Over the last decade, several empirical studies have shown that there is a positive impact of the financed balance (measured by working capital) on the profitability of companies. Efficient working capital management will help increase profitability while reducing net operating assets and permanent capital, leading to a constant cost of capital and an increase in financial performance. Therefore, Smid (2008) considers working capital management to be a source of operational and financial efficiency.

Samylog (2008) analyzed the correlation between profitability and working capital over 10 years, the sample consisting of production companies in Turkey. The results suggest that leverage and debt collection have a negative impact on companies' profitability. Thus, by reducing the period of debt collection, an increase in profitability is expected (Zohre Habibi Samarian, M. Yaghobi, M.R KarimiPoya, 2016, p.77).

Gill, Biger and Mathur (2010) found from the study that there is a close relationship between the cash conversion cycle and the profitability of companies. The sample consisted of 88 listed American companies. Another study that came to the same conclusion is conducted by Bolek, Kacprzyk and Wolski (2012), respectively found that there is a statistically significant link between the cash conversion cycle and economic added value.

Amir Mosazadeh, Azim Aslani, Mohammad Hassanzadeh (2015) studied the relationship between financial balance and economic value added at the level of 127 companies listed on the Tehran Stock Exchange, 2009-2012. The results of the estimates showed that the independent variables working capital and the cash conversion cycle have an effect on the economic added

value, the samples having a significance level of less than 5%.

The aim of the study conducted by Shahbazi Sajad and Mohammad Nazaripour (2015) was to identify the interdependence of economic added value - the cash conversion cycle, for the period 2008-2013, analyzing 87 companies listed on the Tehran stock exchange. According to the research results, it was found that there is no significant relationship between variables such as turnover, debt recovery period and debt settlement period, on the one hand, and the cash conversion cycle, on the other hand. In conclusion, the research results showed that there is no strong relationship between economic added value and the cash conversion cycle.

3. Research methodology

The objective of this study is to determine the correlation between the financial balance expressed through the working capital and the added economic value. The research hypothesis is: "the working capital significantly influences the economic added value, in a positive sense, at the level of the companies in the hotel industry and of the restaurants listed on the Bucharest Stock Exchange". The research was carried out, for the period 2007-2017, based on the financial data provided by 26 companies in the hotel industry and restaurants listed on the Bucharest Stock Exchange. In order to highlight the interdependence of the indicators, the multiple linear regression model was used and the testing of the relationship between the variables was performed through the statistical program E-views 9.

The standard model for determining the linear relationship between variables (Baltagi, Badi H, 2008, p.49) is:

$$Y = \alpha + \beta 1 X + \beta 2 Z + \mu,$$

where, Y = dependent variable; X = independent variable; Z = control variable; α and β = partial regression coefficients; μ = the residual variable of the regression model.

The dependent variable used in the simulation is the economic value added (EVA), the independent variable, the working capital (FR), and as a control variable the financial lever (LF).

$$EVA = \alpha + \beta 1 * FR + \beta 2 * LF$$

The economic added value focuses on the operational performance of the company from the point of view of the financiers, so it is not a performance measure based on trading. (Bacidore et al., 1997).

One way to represent EVA is as follows (Petersen, Christian; Plenborg, Thomas, 2012):

$$EVA = (Ri - CMPC) \times CI$$

where, Ri = return on invested capital, Ri = NOPAD/Ci; CI = invested capital, Ci = equity + long-term debt; CMCP = weighted average cost of capital.

The weighted average cost of capital is in fact the cost of capital of a company in which each category of capital is proportionately weighted. All sources of capital, including common shares, preferred shares, bonds and any other long-term debt, are included in a CMPC calculation. It is determined according to the formula below (Ignacio Vélez-Pareja, Joseph Tham, 2002):

$$CMPC = \frac{(equity\ weight * return\ on\ equity + debt\ weight * interest\ rate*(1\text{-}tax\ rate))}{100}$$

The calculation method of the working capital indicator resides in two procedures (Petrescu, Silvia, 2008, p.196) but in this study we will use the information from the bottom of the financial balance sheet, as the difference between current assets and total short-term debts, highlighting the surplus or deficit of current assets over short-term debts (Balteş, Nicolae, 2010, p.82).

4. Descriptive analysis

Figure 3 shows the grouping of companies based on the values recorded by the added value.

Figure no. 3: Grouping of companies according to economic added value, for the period 2007-2017
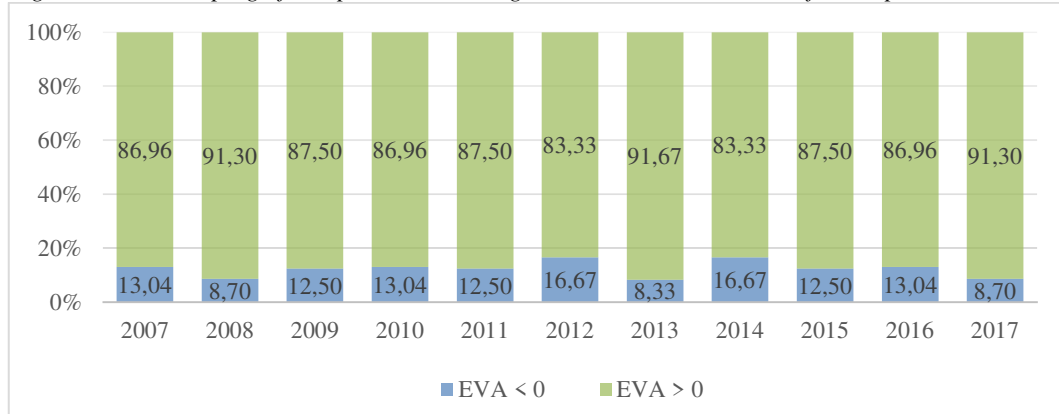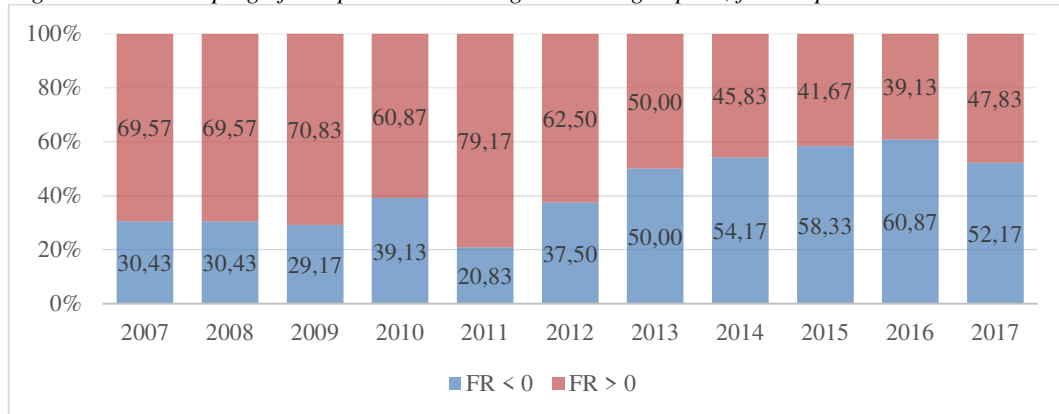
The share of companies that register negative economic added value follows an oscillating trend, for the period under analysis. The companies that registered a positive economic added value have a reduced share, being between 83.33% and 91.67%. Recently, there has been an improvement in the share of companies that register positive economic added value, respectively at the end of 2017 their share increased by over 9% compared to 2014.

Figure 4 shows the grouping of companies in the hotel industry and restaurants, based on the value recorded by the working capital.

Figure no. 4: Grouping of companies according to working capital, for the period 2007-2017

The share of companies that register the positive working capital is high (between 62% and 70%) in the period 2007-2012. From 2013 until the end of the analyzed period, more than half of the companies registered negative working capital, being in financial instability if they were required by creditors to fully pay their due debts.

Table 1 presents the results of the regression estimation on the influence of working capital on added value.

Table no. 1: Regression estimates on the relationship between value added and working capital

Dependent Variable: EVA
Method: Least Squares
Sample: 2007 2017
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.492355	0.854496	0.576194	0.0113
FR	0.380512	0.209266	1.818312	0.0065
LF	-0.481454	0.416392	-0.916093	0.0364

R-squared	0.804640	Mean dependent var	-0.212780
Adjusted R-squared	0.780800	S.D. dependent var	0.194441
S.E. of regression	0.153004	Akaike info criterion	-0.689699
Sum squared resid	0.187283	Schwarz criterion	-0.581182
Log likelihood	6.793345	Hannan-Quinn criter.	-0.758104
F-statistic	4.074936	Durbin-Watson stat	1.858915
Prob(F-statistic)	0.030212		

Source: data processed by the authors in the E-Views 9 program

The value recorded by R-squared can be stated that 80% of the change in value added is explained by the change in working capital and financial leverage. The regression is considered accepted due to the coefficient of determination, which does not differ significantly from the adjusted one (Adjusted R^2), at the same time by the corresponding level of probability associated with the multilinear regression coefficients, p-Value (> 0.05-threshold value). The value of the Durbin-Watson statistical test of 1.85, denotes a strongly positive serial correlation of the residues.

In the diagram 1 (Scatterplot) the relations between the economic value added - dependent variable, control variable and constant, are represented.

Diagram no. 1: Scatterplot - the relationship between EVA-FR; EVA-LF and EVA-C (constant)

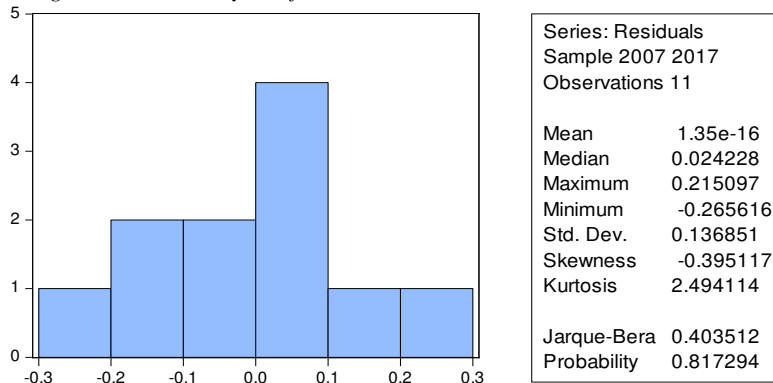EVA vs Variables (Partialled on Regressors)
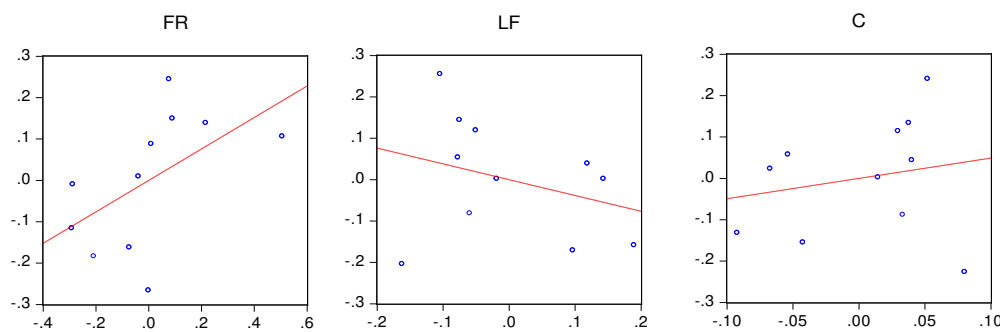
Source: data processed by the authors in the E-Views 9 program, based on the annual financial statements, 2007-2017

The Scatterplot diagram uses Cartesian coordinates to display the values of the regression model indicators. Thus, it presents on the OX axis the independent variables, respectively the working capital, the financial leverage, and the constant and on the OY axis the dependent variable, respectively the economic value added. The data is displayed as a collection of points, each having the value of one variable that determines the position on the horizontal axis and the value of the other variable determining the position on the vertical axis. The EVA-FR line has a rising trend, highlighting the directly proportional link between the variables and the EVA-LF trend line is decreasing, which denotes an inverse proportional relationship between these two variables.

Diagram no.2 shows the analysis of the residues resulting from the regression of the added economic value and the working capital.

Diagram no. 2: Analysis of residual S: economic value added and working capital

Series: Residuals	
Sample 2007 2017	
Observations 11	
Mean	1.35e-16
Median	0.024228
Maximum	0.215097
Minimum	-0.265616
Std. Dev.	0.136851
Skewness	-0.395117
Kurtosis	2.494114
Jarque-Bera	0.403512
Probability	0.817294

Source: data processed by the authors in the E-Views 9 program, based on the annual financial statements, 2007-2017

The Kurtosis test value of 2.49 (less than 3) demonstrates a platykurtic distribution of residues, producing less extreme values than the normal distribution. With the Skewness value a negative asymmetry can be appreciated, because it is less than 0. The probability of the Jarque Bera test of 0.81 shows that the data series has an abnormal distribution, accepting the hypothesis of normality of the distribution of residues.

The multiple regression equation is presented as follows:

$$EVA = 0,49 + 0,38*FR - 0,48*LF$$

The added economic value is explained in a proportion of over 80% by the two variables, respectively the working capital and the financial leverage. As such, it is confirmed that a 1% increase in working capital has the effect of increasing the economic value added by 0.38%.

5. Conclusions

Following the research, we can say that in the last period 2013-2017 most companies, belonging to the hotel industry and restaurants listed on the Bucharest Stock Exchange, for the period 2007-2017, had difficulties in ensuring a short-term financial balance. In its capacity as a performance indicator, added economic value, it follows an oscillating trend over the analyzed period of time and the share of companies with a positive value is between 83.33% and 91.67%.

The R-squared value, respectively 80%, the variation of the working capital and the economic added value. It was found that there is a close positive correlation of the working capital indicator with the added economic value, respectively based on the coefficient of variation we can appreciate that an increase in working capital by 1% entails the increase of economic value added by 0.38 %.

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