STUDY ON THE INFLUENCE OF THE CASH CONVERSION CYCLE ON THE FINANCIAL PERFORMANCE OF THE ENTITY

Ruxandra - Maria PAVEL[1]

Lucian Blaga University, Sibiu, Romania

Abstract

The paper presents the impact of changes in the components of the cash conversion cycle on financial performance (expressed through economic profitability). The research sample consists of 26 companies belonging to the hotels and restaurants industry, listed on the Bucharest Stock Exchange, 2007-2016. The obtained results indicate that an increase in the debt recovery period and the inventory conversion period have the effect of diminishing the economic profitability of the companies included in the research. On the other hand, increasing the use of attracted resources leads to an improvement in financial performance at the company level in the period 2007-2016.

Keywords return on total assets, cash conversion cycle, receivables collection period, payables deferral period, multiple linear regression

JEL classification: G32, C12

1. Introduction

In many authors' view, two types of basic indicators are distinguished in measuring the financial performance of an economic entity, respectively profit and rates of return (Stan, Sorin V., Anghel, Ion, 2013, p.85). Profit is the absolute amount of performance and rates of return represent its relative size, expressing the extent to which the company's resources are used for revenue purposes. Balteș Nicolae and Vasiu Diana Elena (2015) consider that the economic entity is financially performing when the result obtained from its activity is realized in profit. Profitability is "the company's ability to make profit through the use of production factors and capital, necessary both for reproduction and development, and for the remuneration of capital." (Balu Mariana-Elena, 2007, p.149),

[1] *Ph.D. Student, Faculty of Economic Science, Sibiu, Romania, pavel_ruxandra_maria@yahoo.com*

The cash conversion cycle represents the interaction between the working capital components and cash flows within an economic entity. The indicator is estimated in days and is determined by summing the stock conversion period with the payout period of the trade receivables minus the payment settlement period. In this sense, management of the company must be concerned about increasing financial performance by speeding up the capital rotation optimizing the stock conversion period, reducing the conversion period of receivables, faster recovering amounts from customers, giving up payment to creditors earlier than maturity, etc. (Gitman, 2011, p.135).

2. Literature review

Smith (1980) and others claim that conducting an analysis of the cash conversion cycle is essential for a company because of its direct effects on performance.

Lazaridis and Tryfonidis (2006) have discovered a significant relationship between the cash conversion cycle and the profitability of the companies as measured by the operating result. The study concluded that managers can create profits for companies by correctly manipulating the cash conversion cycle and by maintaining the debt conversion time to an appropriate level.

Enqvist et al. (2014) have studied working capital management in different business cycles using Finnish listed companies during the period 1990-2008. The study showed that the cash conversion cycle had a negative effect on profitability being much more pronounced during the economic crisis. In addition, they came to the same conclusion as Deloof (2003), that the duration of the payments had a negative impact on profitability.

Gill et al. (2010) have revealed a positive impact of the cash conversion cycle and the gross margin in 88 US companies traded publicly, 2005-2007. They concluded that profitability and, implicitly, financial performance may be higher by reducing through the adoption of commercial credit policy.

3. Objective and research methodology

For the purpose of estimating the impact of the indicators presented in table no. 1 on the financial performance of 26 companies belonging to the hotel and restaurants industry listed on the Bucharest Stock Exchange, the period 2007-2016, the multiple linear regression was used. The independent variables used in the simulation are the components of the cash conversion cycle, namely: the receivables collection period, the inventory conversion

period and the payables deferral period, and the dependent variable, return on total assets.

Table 1. Variables used to determine the influence of components of the cash conversion cycle on financial performance

Name	Abbreviations	Formula
Dependent variable		
Return on total assets	ROA	Net income / Total assets
Independent variables		
Receivables collection period (days)	DRC	Claims/Turnover×365 days
Inventory conversion period (days)	DCS	Stocks/Turnover×365 days
Payables deferral period (days)	DCD	Current Debt/Turnover 365 days
Control variables		
Liquidity rate	RLC	Current assets / Current liabilities
The size of society	LN_CA	Natural logarithm of turnover

Source: processing by author

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

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n$ Equation (1)

In which: Y = the dependent variable; X1, X2, ..., Xn = independent variables; α and β point of intersection and order. Thus, to determine the influence of the components of the cash conversion cycle on financial performance, the multiple linear regression model was used, by creating three models that will be tested individually, they are:

Model 1: $ROA = \alpha + \beta_1 * DRC + \beta_2 * RLC + \beta_3 * LN\_CA$ Equation (2)

Model 2: $ROA = \alpha + \beta_1 * DCS + \beta_2 * RLC + \beta_3 * LN\_$ Equation (3)

Model 3: $ROA = \alpha + \beta_1 * DCD + \beta_2 * RLC + \beta_3 * LN\_ CA$ Equation (4)

Where α - the constant associated with the test for each model; β (1,2,3) - determination coefficients associated with indicators and model.

4. Descriptive analysis

The three dependent variables were replaced in turn in the multiple linear regression formula, maintaining the same dependent variable and the control variables, in order to determine their influence on financial performance (expressed by return on total assets) at hotel and restaurant companies listed on the Bucharest Stock Exchange.

We continue to determine the influence of each component of the cash conversion cycle on financial performance (expressed by return on total assets indicator) on companies in the hotel and restaurants industry listed on the Bucharest Stock Exchange.

4.1. Influence of the receivables collection period

The synthesis of the results obtained by applying the regression model, meant to identify the interdependence between the receivables collection period and return on total assets, is presented in table no. 2.

Table 2. Estimates of the regression regarding the impact of the receivables collection period on return on total assets

Dependent Variable: ROA

Method: Least Squares

Sample: 2007 2016

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.089801	0.849150	-2.793195	0.0314
DRC	-2.491005	0.000974	-0.056369	0.0469
RLC	0.012726	0.007979	0.341638	0.0443
LN_CA	2.017795	0.716439	2.816422	0.0305

R-squared	0.772479	Mean dependent var	0.342704
Adjusted R-squared	0.558718	S.D. dependent var	0.298501
S.E. of regression	0.239040	Akaike info criterion	0.264804
Sum squared resid	0.342841	Schwarz criterion	0.385838
Log likelihood	0.675981	Hannan-Quinn criter.	0.132030
F-statistic	1.728132	Durbin-Watson stat	1.972496
Prob(F-statistic)	0.040636		

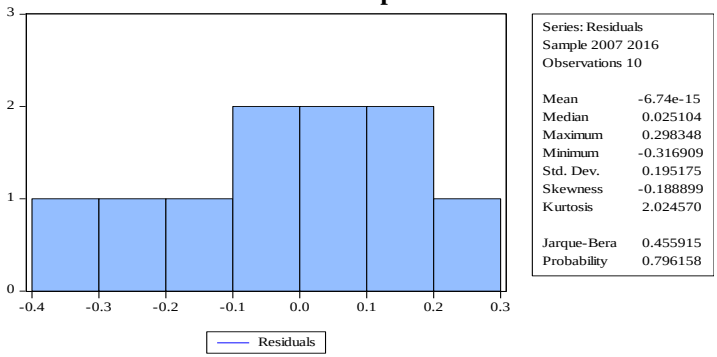
Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

According to the estimated regression model, the change in the return on total assets is explained 77,24% by the modification of the receivables collection period, current liquidity and the size of the company. It is noted that the regression equation is accepted, since there was no significant difference between the determinant and the adjusted coefficient.

The results of the significance test F show that at the level of the equation as whole, the null hypothesis is rejected because the value obtained by the indicator Significance F > α (0,04) is less than the significance threshold chosen (0,05). The Durbin-Watson statistical test indicates a positive positive series correlation, having a value of 1,97 against the value 2 that is considered an optimal level.

Diagram 1 shows the results of the tests for the residue normality assumption.

Diagram 1. Residue regression analysis: return on total assets - receivables collection period



Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

The analysis revealed a platykurtic distribution (Kurtosis <3) and a negative asymmetry (Skewness <0) of the residues. The Jarque Bera test confirms the abnormal distribution of the data series, resulting in a 79,61% probability of accepting the normal distribution of residue assumptions.

The model for estimating the: return on total assets through the receivables collection period is:

*ROA = - 3,089 - 2,491*DRC + 0,012*RLC + 2,017*LN_CA* Equation (5)

The return on total assets of companies belonging to the hotel and restaurants industry is negatively influenced by the change in the receivables

collection period, and positively by the evolution of liquidity and the size of the companies. The estimated value of the receivables collection period (-2,49) indicates that a 1% increase in its claims results in a 2,49% decrease in return on total assets.

4.2. Influence of the inventory conversion period

The synthesis of the results obtained by applying the regression model, meant to indicate the interdependence between the return on total assets and the inventory conversion period, is presented in table no. 3.

Table 3. Estimates of the regression regarding the impact of the inventory conversion period on return on total assets

Dependent Variable: ROA

Method: Least Squares

Sample: 2007 2016

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.523292	1.990654	-3.425753	0.0140
DRS	-0.023801	0.002599	-1.462510	0.0139
RLC	0.051289	0.007024	0.738777	0.0379
LN_CA	2.808092	0.816207	3.440415	0.0138

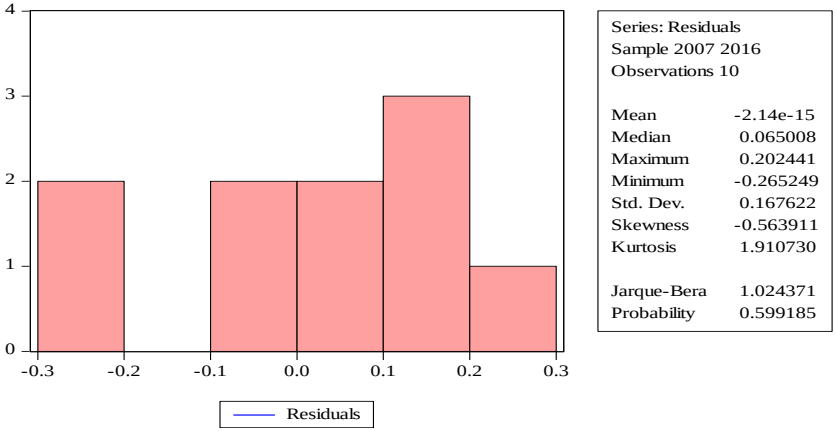
R-squared	0.684666	Mean dependent var	0.342704
Adjusted R-squared	0.526999	S.D. dependent var	0.298501
S.E. of regression	0.205295	Akaike info criterion	-0.039567
Sum squared resid	0.252875	Schwarz criterion	0.081467
Log likelihood	4.197834	Hannan-Quinn criter.	-0.172341
F-statistic	2.732478	Durbin-Watson stat	1.568677
Prob(F-statistic)	0.039886		

Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

In the multiplier regression coefficients, according to the p-Value test (<0,05-threshold value), the possibility of the zero hypothesis can be rejected. The regression equation is also accepted due to the fact that there was no significant difference between the coefficient of determination and the adjusted coefficient. The value of R2 (over 68%) indicates an influence of inventory conversion period, current liquidity and company size on the return on total assets change. The Durbin-Watson statistical test (1,56) indicates a positive posterior correlation of residues.

The results of the tests performed on the normality assumptions on the residues are presented in diagram 2.

Diagram 2. Residue regression analysis: return on total assets - inventory conversion period



Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

According to the Kurtosis value resulting distribution is platykurtic (Kurtosis <3) and a negative asymmetry (Skewness <0) of the residues results. The Jarque Bera test confirms the abnormal distribution of the data series, resulting in a probability of over 59% to accept the normal distribution of residues.

The regression equation obtained is:

$$ROA = -4{,}523 - 0{,}023 * DRS + 0{,}051 * RLC + 2{,}808 * LN\_CA \quad \text{Equation (6)}$$

According to the estimated regression model, the change in return on total assets is explained in a proportion of 68.46% by the change in inventory

conversion period, current liquidity and company size. Thus, an increase in the inventory conversion period by 1% results in a 0.023% decrease in the value of return on total assets and current liquidity as well as the size of the company influences favorably the financial performance of the research companies.

4.3. Influence of the payables deferral period

The synthesis of the results obtained by applying the regression model in estimating the influence of changes the payables deferral period on financial performance (expressed through return on total assets) is presented in table 4.

Table 4. Estimates of the regression regarding the impact of the payables deferral period on return on total assets

Dependent Variable: ROA

Method: Least Squares

Sample: 2007 2016

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.786652	1.037239	2.640671	0.0385
DRD	2.235205	0.000659	0.094652	0.0277
RLC	0.002537	0.008062	0.314723	0.0636
LN_CA	2.009729	0.744249	2.688588	0.0361

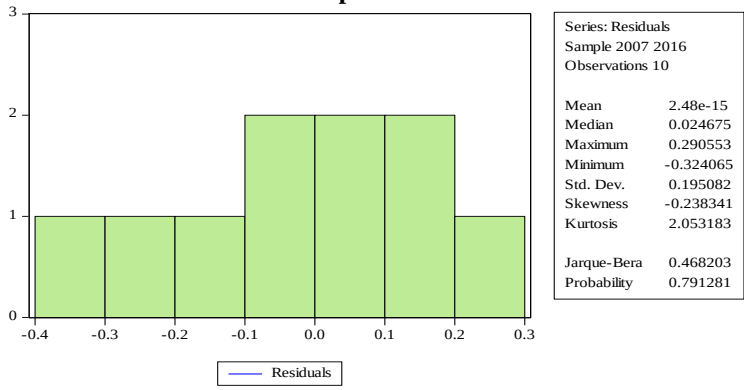
R-squared	0.752890	Mean dependent var	0.342704
Adjusted R-squared	0.689335	S.D. dependent var	0.298501
S.E. of regression	0.238925	Akaike info criterion	0.263841
Sum squared resid	0.342511	Schwarz criterion	0.384875
Log likelihood	2.680794	Hannan-Quinn criter.	0.131067
F-statistic	2.762638	Durbin-Watson stat	1.945767
Prob(F-statistic)	0.060263		

Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

Table 6 shows that 75,28% of the return on total assets variation is explained by the variation of payables deferral period, the current liquidity ratio and the size of the company. The coefficient of determination does not differ significantly from the adjusted (Adjusted R2), assuming that the regression equation is accepted. Since the value obtained at the F-Statistic level (0,06) is higher than the chosen significance threshold value ($\alpha = 0,05$), the null hypothesis can not be rejected in favor of the alternative hypothesis at the level of the equation as whole.

In diagram no. 3 shows the results of the tests performed in order to confirm the assumptions of normality.

Diagram 3. Residue regression analysis: return on total assets - payables deferral period



Source: data processed by author in the E-Views program 9, based on the annual financial statements, the period 2007-2016

The value of the Kurtosis test indicates a platykurtic distribution, being below 3, and by the Skewness value we estimate a negative asymmetry. The Jarque Bera test confirms the abnormal distribution of the data series, resulting in a 79,12% probability of accepting the normal distribution of residue assumptions.

The explanatory model of financial performance expressed by return on total assets indicator, from the perspective of the length of the payables deferral period, is the following:

$$ROA = 1,786 + 2,235*DRD + 0,002*RLC + 2,009* LN\_CA \quad \text{Equation (7)}$$

The estimated value of the indicator indicates that a 1% increase in payables deferral period result in a 2,235% increase in return on total assets.

5. Conclusions

The results which were obtained have shown that the cash conversion cycle influences significantly the financial performance companies in the hotel and restaurants industry listed on the Bucharest Stock Exchange. Companies could achieve financial performance by maintaining the receivables collection period at an appropriate level and by reducing the number of days of storage. At the same time, it is advisable for less profitable companies to wait longer to pay current debts due to the positive impact of the payables deferral period on return on total assets.

6. References

- Akinlo, O.O (2012), *Determinants of working capital requirements in selected quoted companies in Nigeria*, Journal of African Business, 13(1), pp.40-50;
- Baltagi, Badi H. (2008), Econometrics, Fourth Edition, Springer-Verlag Berlin Heidelberg;
- Balteș, Nicolae, Vasiu, Diana-Elena (2015), *Analiza performanței financiare a entității economice*, Editura Universității "Lucian Blaga" din Sibiu;
- Balu, Mariana-Elena (2007), *Analiza economico-financiara Teorie și aplicații practice Ediția a 2-a*, Editura Fundatiei România De Mâine, Bucuresti;
- Căruntu, Constantin, Lăpăduși, Mihaela-Loredana (2011), *Profitability and financial stability*, Analele Universității "Constantin Brâncuși" din Târgu Jiu, Seria Economie, Nr.3./2011, pp. 195-204;
- Deloof, D. (2003), *DoesWorking Capital Management AffectProfitability of Belgian Firms?*, Journal of Business FinanceandAccounting, Vol. 30 No. 3 & 4, pp.573-587;
- Eljelly, A. (2004), *Liquidity - profitabilitytradeoff: An empiricalinvestigation in an emerging market*, International Journal of Commerce and Management, 14 (2), p.49-60;
- Enqvist, Julius, Graham, Michael, Nikkinen, Jussi (2014), *The impact of working capital management on firmprofitability in different business cycles: EvidencefromFinland*, Research in International Business andFinance, 2014, vol. 32, issue C, pp.36-49;
- Gill, A., Biger, N., Mathur, N. (2010), *The RelationshipBetweenWorking Capital Management AndProfitability: EvidenceFrom The United States*. Business andEconomics Journal, pp.1-9;
- Grosse-Ruyken, P.T., Wagner, S.M., Jonke, R. (2011), *What is the right cash conversion cycle for your supply chain?*, International Journal of Services and Operations Management, vol. 10, no. 1, pp.13−29;
- Hristea, Anca-Maria (2015), *Analiza economică și financiară a activității întreprinderii, de la instituție la știință*, Ediția a 2-a revizuită, Volumul 2, Editura Economică, București;
- Musazadeh, Amir, Aslani, Azim, Hassanzadeh, Mohammad (2014), *Surveying the relationship between working capital and economic value added at firms listed in Tehran Stock Exchange*, Arabian Journal of Business and Management Review (Nigerian Chapter) Vol. 2, No. 3, 2014, pp.1-7;
- Smith, K. (1980), *Profitability versus Liquidity Tradeoffs in Working Capital Management, in Readings on the Management of Working Capital*, New York: St. Paul, West Publishing Company;
- Stan, Sorin V., Anghel, Ion (2013) *Evaluarea întreprinderii*, Ed. a 5-a revizuită, Editura Iroval, București;
- Taleb, Ghassan; Zoued, Abd; Zoued, Naser; Shubiri, Faris Nasif (2010), *The Determinants of Effective Working Capital Management Policy: A Case Study on Jordan*, Interdisciplinary Journal of Contemporary Research in Business; Aug.2010, Vol. 2 Issue 4, pp.248-259.