THE CORRELATION WORKING CAPITAL - SELF-FINANCING CAPACITY AT THE COMPANIES FROM HOTEL AND RESTAURANT INDUSTRY LISTED ON BUCHAREST STOCK EXCHANGE

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Abstract
The present paper determines the influence of the changes in working capital on the self-financing capacity, using the panel type simple linear regression model. The research sample consists of 22 companies from hotel and restaurant industry, listed on Bucharest Stock Exchange, the period 2007-2015. The decision between the random effects model and the fixed effects model was based on the Hausman test application and the criteria associated information of the two models. The hypothesis was confirmed so there is a direct relation between working capital and self-financing capacity, meaning that one unit change in working capital leads to a change of 1,505 units in the self-financing capacity.

Keywords: working capital, self-financing capacity, data panel, Pearson correlation, Hausman test

JEL classification: G32, C12

1. Introduction

Managing the gross bearing fund is considered an important issue in any organization. This is due to the fact that, without proper management of the working capital, it is difficult for society to run its operations without problems and to maintain a financial balance. The working capital indicator is used in Western practice and is of particular importance for analyzing the

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financial equilibrium of the company, but for the correct assessment of the value of the rulemaking fund it is necessary to correlate it with other indicators.

This is why Brigham and Houston (2003) mentioned that about 60 percent of the time a financial manager is dedicated to managing working capital. The company's financing and investment policy is supported by working capital as it can highlight the existence of difficulties (Şuşu, Ştefăniţă, 2014, p.190).

The self-financing capacity is considered the key notion for assessing profitability and financial balance, as a performance and resource indicator in the financial flow chart to link the results analysis to the financial flows analysis. According to S. Petrescu (2008), the self-financing capacity is "a residual flow balance that represents the difference between inputs and outputs generated by current management operations leaving their own resources at the disposal of the enterprise so that they are available to finance various needs ".

2. Literature review

The extent of research on panel models has led to a very high rate of development of related literature. There are several treaties on the econometric aspects of panel data such as: Dielman (1989), Matyas and Sevestre (1996), Nerlove (2002), Arellano (2003), Baltagi (2005) and Wooldridge (2010). At the same time, the study of specific aspects related to panel data models is the subject of numerous articles. Baltagi, Song and Koh (2003) report various Lagrange multiplier tests for spatial error correlation regression models and perform Monte Carlo experiments to study the performance of these tests.

The study by Falope and Ajilore (2009) uses panel data, where cross-sectional data series over time have been combined and estimated. They analyze the influence of bearing fund management on profitability for Nigerian companies during 1996-2005. In order to choose the correct model, perform the Hausman test, therefore the null hypothesis is rejected, the effects being considered to be fixed, and the model is then estimated by the least squares method.

3. Methodology of research

Typically, the amount of data collected in a study and research assumptions is rather extensive, so it can’t be answered by a simple careful

examination of numerical information, and therefore the data needs to be processed and analyzed in an orderly and coherent manner. Quantitative information is usually analyzed through statistical procedures. Statistical analyses cover a wide range of techniques, from simple procedures that are regularly used by analysts to complex methods.

In the effort to estimate the impact of self-financing capacity on the company's working capital, we recourse to the panel regression, based on a sample of 22 hotel and restaurant companies for the period 2007-2015 (198 observations). Regression coefficients were interpreted using the E-views statistical program. The data were extracted from the annual financial statements of each company, using the office search techniques, respectively by visiting the Bucharest Stock Exchange website (www.bvb.ro).

The calculation of the working capital indicator is based on two processes (Petrescu, Silvia, 2008, p.196), but in the present study we will use the information in the lower part of the balance sheet to determine the difference between the current assets and the short-term total debts. This indicator will be considered the dependent variable, showing the excess of current assets over short-term liabilities (Balteş, Nicolae, 2010, p.82).

The self-financing ability indicator, the independent variable, is a monetary surplus that is obtained as a result of all the operations of collections and payments made by the enterprise over a period of time, also taking into account the tax incidence calculated by the deductive, according to the relationship below (Balteş, Nicolae, 2010, p.34).

Self - financing capacity = Gross operating surplus + Other operating income - Other operating expenses + Financial Income - Financial expenses - Income tax Equation (1)

To test the influence of self-financing capacity on the bearing fund, we adopted to use the regression of the panel data using the smallest squares method (OLS) because the data includes time series and cross-section data. Regression analysis is a statistical tool for investigating relationships between variables, trying to establish the causal effect of one variable on each other.

In order to establish the existence of a relationship between the two variables, the following hypothesis was considered:

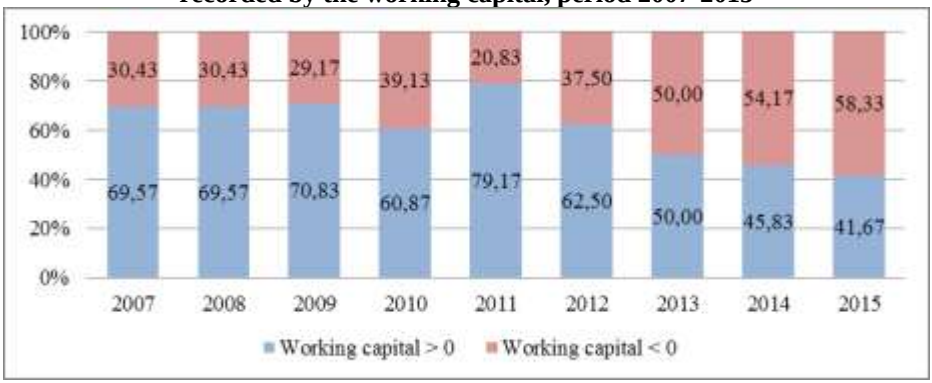
Hypothesis - there is a direct relationship between the working capital and the average self-financing capacity for the hospitality industry and the restaurants listed on the Bucharest Stock Exchange.

4. Descriptive analysis

Figure 1 shows the group of companies belonging to the hotel sector and restaurants listed and traded on BVB, according to the values registered by the bearing fund (positive or negative).

In the first three years of research, the share of companies registering a positive working capital is relatively constant. The smallest share of companies registering a negative working capital value is about 20% at the end of 2011. In the next period, we witness a considerable increase in their share, so that over the last few years of research, more than half of them recorded a negative working capital, indicating that companies have a deficit of current assets. It can be said that in 2015 almost 58% of the companies were in a financial instability if they had been forced by the creditors to immediately pay their debts immediately.

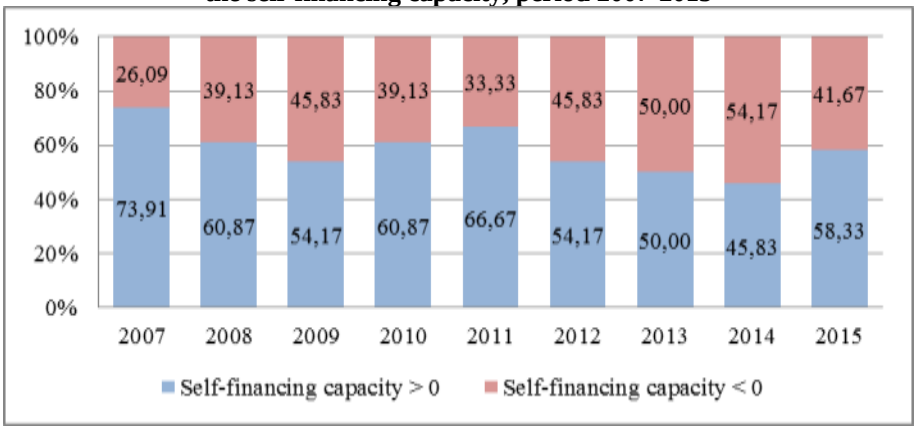
Figure 1: Grouping of companies according to the positive or negative values recorded by the working capital, period 2007-2015



Source: Author's processing based on annual financial statements of BVB listed companies in the hospitality industry and restaurants, 2007-2015, available at www.bvb.ro

The group of companies included in the research according to the positive or negative values of the self-financing capacity indicator is presented in figure 2.

Figure 2: Grouping of companies according to the positive or negative values of the self-financing capacity, period 2007-2015



Source: Author's processing based on annual financial statements of BVB listed companies in the hospitality industry and restaurants, 2007-2015, available at www.bvb.ro

We are witnessing an oscillating evolution of the share of companies that have a positive value for the self-financing capacity indicator. Throughout the analyzed period, more than half of the companies recorded a positive value, with the exception of 2014, so they could generate the necessary resources for self-financing from the exploitation activity. Most companies with a negative self-financing capacity are approximately 54% at the end of 2014, driven primarily by the high level of financial expenditures that have lowered the net result.

The Pearson correlation between the two indicators is shown in Table 1.

Table 1: Pearson Correlation

Correlation	CAF	WC
CAF	1.000000	
WC	0.609402	1.000000

Source: own processing using E-Views 9

The Jarque-Bera test value is 749.99, so we appreciate the fact that the data series errors follow a normal distribution. This is confirmed by the values taken by Skewness = 0.34, and Kurtosis = 3.15 and the probability of the test being = 0.039.

The unit roots tests on the two variables are presented in table no.2.

Table 2: unit roots test for the working capital and self-financing capacity

Series: FR

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.02950	0.0000	23	159
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.41901	0.0079	23	159
ADF - Fisher Chi-square	68.3771	0.0178	23	159
PP - Fisher Chi-square	56.1218	0.0457	23	182

Series: CA

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-56.7250	0.0000	23	159
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.48275	0.0000	23	159
ADF - Fisher Chi-square	62.0677	0.0071	23	159
PP - Fisher Chi-square	68.1420	0.0186	23	182

Source: own processing using E-Views 9

The Levin, Lin & Chu test is based on two assumptions: The null hypothesis - each time the series contains a single root, so it is non-stationary;

alternative hypothesis - each time the series is stationary. The probability associated with the test for the two variables is 0%, so the null hypothesis is rejected. Thus, the analyzed time series are stationary; respectively the average of the time series is constant. The probability values obtained for ADF (Augmented Dickey Fuller) and PP (Philips Perron) tests confirm that the data series is stationary for both cases. Thus, on the basis of the above we confirm that the time series of both variables are stationary, respectively their variation as a stochastic process is not affected by a constant increment in the time parameter.

A commonly used method for hypothesis testing is the use of the Hausman test to compare estimates of coefficients obtained by estimating with fixed effects and by estimating with random effects. It checks if the random effects are correlated with the independent variable. In order to perform the Hausman test, it is first necessary to estimate a model with random effects, both on cross sectional data and on the analyzed time period.

In table no. 3 is an estimate of the equation with random effects.

Table 3: Estimation of the equation with random effects

Dependent Variable: FR

Method: Panel EGLS (Two-way random effects)

Periods included: 9

Total panel (balanced) observations: 198

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1980543.	809898.5	2.445421	0.0154
CA	1.505682	0.163123	9.230369	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	3135241.	0.1870
Period random	0.000000	0.0000
Idiosyncratic random	6537536.	0.8130

Weighted Statistics

R-squared	0.302986	Mean dependent var	1228024.
Adjusted R-squared	0.299430	S.D. dependent var	7768896.
S.E. of regression	6502569.	Sum squared resid	8.29E+15
F-statistic	85.19971	Durbin-Watson stat	1.187233
Prob(F-statistic)	0.000000		

Source: own processing using E-Views 9

We note that the probability is 0%, which shows that there is a relationship between the two variables. Thus, a change with a unit of the rolling stock variable results in a change of 1,505 units of the variable self-financing capacity.

The null hypothesis of the Hausman test is that statistically significant differences between the coefficient estimates in the fixed-effect model and the coefficient estimates in the random-effects model are not statistically significant. If the null hypothesis is rejected, i.e. if the difference between the two estimators is high, then the fixed-effect model is preferred. Instead, if the null hypothesis can't be rejected, then the pattern with variable effects is preferred. The relevant part of the test output is shown in table no. 4.

Table 4: The Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section and period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.383472	1	0.2395
Period random	0.909862	1	0.0402
Cross-section and period random	2.288186	1	0.1304

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CA	1.404196	1.505682	0.007445	0.2395

Source: own processing using E-Views 9

Due to the fact that the probability associated with the Hausman test for cross sectional data is greater than 0.05, then the null hypothesis is accepted. According to which there is no relation between the residual value and the independent value and it is necessary to use the pattern with random effects. The probability of testing the random effects at the time level is lower than the level of relevance, in which case the fixed-effect model may be used.

As a result, we will opt for a model with mixed panel data (table 5), with random effects at cross-sectional data and fixed effects at the period level.

Table 5: Mixed model with panel data

Dependent Variable: FR

Method: Panel EGLS (Cross-section random effects)
Sample: 2007 2015
Periods included: 9
Cross-sections included: 22
Total panel (balanced) observations: 198
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1983506.	464982.5	4.265765	0.0000
CA	1.479607	0.165397	8.945771	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	3135241.	0.1870
Period fixed (dummy variables)		
Idiosyncratic random	6537536.	0.8130

Weighted Statistics

R-squared	0.557264	Mean dependent var	2151648.
Adjusted R-squared	0.477731	S.D. dependent var	9046212.
S.E. of regression	6537536.	Sum squared resid	7.14E+15
F-statistic	7.006664	Durbin-Watson stat	1.324430
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.482996	Mean dependent var	2151648.
Sum squared resid	9.95E+15	Durbin-Watson stat	0.950336

Source: own processing using E-Views 9

Once the model is realized, it observes an R-squared coefficient of 55.72%, so more than half of the variation of the bearing fund is determined by the change in the self-financing capacity, the difference being due to the variation of the residual variable. The independent variable's coefficient is 1.47, indicating that an increase in the independent variable entails an increase in the dependent variable, and the probability of error by rejecting the null hypothesis is 0%.

The study confirms the hypothesis that there is a direct relationship between the average working capital and the average self-financing capacity for the hospitality industry and the restaurants listed on the Bucharest Stock Exchange.

The overall equation of the model is:

FR = 1983505.91913 + 1.47960671397*CA + [CX=R, PER=F] Equation (2)

5. Conclusions

As a result of our research, we can state that during the last period 2013-2015 the most hotels and restaurants companies listed and traded on the Bucharest Stock Exchange during the period 2007-2015 experienced difficulties in ensuring a long term financial equilibrium short. As a performance indicator, self-financing capacity is considered the key notion for assessing the financial equilibrium, so we appreciate the fact that more and more companies have in the last period recorded a negative value of self-financing capacity.

The use of simple linear regression in this model led to the conclusion that there is a relationship between the two variables, namely 55.72% of the variation of the bearing fund is determined by the variation of the self-financing capacity, the difference being due to the variation of the residual variable. The resulting model was the one with random effects at cross-sectional data and fixed effects at period level, this being the best representation of the data used.

Based on the research, we appreciate the fact that for the hospitality companies and restaurants listed on the Bucharest Stock Exchange, which are in financial imbalance, it is necessary to increase the operating income and decrease the financial expenses. Thus, with these changes, the working capital will increase and companies will manage to achieve a financial balance and good functioning.

In future research, we propose to consider the evolution of the specific indicators of working capital management and their influence on the profitability of the hospitality and restaurants companies listed and traded on the Bucharest Stock Exchange.

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