

The impact of capital intensity, indebtedness and the size of retail companies on profitability

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ABSTRACT : This case study focuses on the analysis of the financial performance of companies and the determination of the factors that have an effect on it, as well as the relationship between these indicators. For this purpose, three independent variables were taken into account: capital intensity, global indebtedness and company size. The population selected for this research is represented by the Romanian retail companies for which data were available. The data collected for this study were taken from the TPSoft website [1]. The study concluded that financial performance is affected by the rate of capital intensity, the degree of global indebtedness but also the size of the company. Therefore, industry managers must pay special attention to decisions related to the capital structure, but also to the debt ratio.

KEYWORDS: debt, capital intensity, performance, profitability, retail.

I. INTRODUCTION

Among the characteristics of the retail industry, the intensity of capital, but also the degree of indebtedness, play a very important role, given that for a store, for proper operation, commercial spaces, equipment, shelves and others are needed, which involve investment. major capital. The fact that the main objective of managers to maximize the value of the company they run is known, makes the analysis of the influence of the rate of capital intensity and the degree of indebtedness on the performance of companies to be a topic of continuous relevance.

Capital intensity is an operational lever and can be measured by calculating how many assets are needed to produce a leu turnover, so it represents the total assets divided by turnover. This is the reverse of the asset turnover ratio, an indicator of the efficiency with which a company uses its assets to generate revenue. The intensity of capital translates into the value needed to be invested in assets in order to obtain a leu turnover [2]. Thus, a company has more capital the more capital it uses to produce the same unit of product. A high capital intensity ratio for a company means that it needs more assets than a lower ratio company to generate an equal amount of sales. In order to streamline the total assets to turnover ratio, it is necessary for managers to identify sources of financing at fair and reasonable costs, otherwise the company risks moving into the area of counterproductivity. Production capacity, both in volume and in the truth of the products offered or services, reflects the size of a company. Currently, the size of a company is very important because it gives us an overview of the capital structure. Large companies have the advantage, unlike small companies, of being able to produce at very low costs, thus gaining additional market share. The strategy of increasing the size of large companies is based on reducing debt, thus strengthening the market position and increasing the share price, while small companies must turn to sources of financing, which in their case can become a lever in increasing profitability.

When we talk about performance, we inevitably talk about profitability, which refers to the value generated by an entity with whatever resources it has at its disposal. Company management is always looking for ways to increase profitability, thus increasing the size of the company to generate internal sources of financing. The reverse of this fact is that, thus, companies become attractive to investors and the more they turn to debt financing, the more the risk involved increases and the future of the company is no longer so secure. The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper. The contents of each section may be provided to understand easily about the paper.

The objective of the study : The purpose of the study is to analyze the effect of capital intensity, global indebtedness and company size on financial performance.

Research question : How does the intensity of capital, the degree of indebtedness and the size of the company affect the financial performance of the companies in the field of retail trade in Romania?

The significance of the study : The retail sector is the main component of GDP in Romania (DP, 2021)[3], in 2020 having a gross growth of 2.2% compared to 2019 [4], therefore this study will help us understand the effects of intensity capital, global indebtedness and size for companies in the most important sector in terms of Romania's share of GDP.

II. LITERATURE REVIEW

According to Lubatkin & Chatterjee (1994)[5], levels of capital intensity vary from one industry to another, being considered a benchmark in a company's activity. The financial performance of companies is affected by the debt ratio in the capital structure, the debts being considered a vital source of financing. In their study, Hamilton & Fox (1998)[6] concluded that it is difficult for a company to identify external sources of financing at low cost, thus preferring internal sources of financing. In his research, Asimakopoulos (et al., 2009)[7], analyzed the link between sales growth, investments made and current assets with the company's profitability, concluding that there is a positive relationship between them. Financial indicators such as the profitability or the rate of current assets are the basis of companies' decision to apply for loan financing, and companies that prefer short-term debt have more opportunities for growth [8]. In a study on the relationship between profitability and capital structure, it was concluded that total debt is a determinant of profitability [9]. Also, in the same study, it was found that there was a negative association between the structure of capital and profitability. The study, conducted over an 8-year period that included corporations in the banking system, showed that almost 90% of the assets of the banking sector are represented by debt.

In his study, which included an analysis of the effect of capital structure on the profitability of Ghana-listed companies, Abor (2005)[10] suggests that the most profitable companies depend heavily on debt as the main financing option, in the case studied, over 85% of the total assets being represented by the short-term debts. Rajakumaran & Yogendrarajah (2015)[11] also studied the debt ratio to total assets for Sri Lankan companies, and their results suggested that 44% of total assets are debt. At the end of the research, the authors emphasize the importance of the commercial sector in the economy and also make two recommendations to increase profitability, which refers to adopting an appropriate mix in terms of company capital structure and at the same time be very cautious about with financing decisions. In the study of Pakistani textile companies, Shaheen (2012)[12] concluded that there is a direct negative link between debt ratio and profitability. In her view, debt financing, although an important source of liquidity, is also very risky and companies should be cautious when deciding on refinancing.

On the other hand, the conclusion, based on the empirical analysis of Masoud (2014)[13], shows that the price / profit ratio but also high interest rates, will cause companies to use equity instead of debt. The research of Erdogan et al. (2015), resulted in the finding of a strong and significant link between liquidity, size and financial performance of companies listed on the Istanbul Stock Exchange. The influence of capital intensity on the performance of companies was also studied by Pantea et al. (2014)[14] in the research on the determinants on the performance of Romanian companies. His study was based on the analysis of panel data for 55 companies listed on the Bucharest Stock Exchange for a period of 14 years. The study concluded that both the size of the company, the number of employees and the intensity of capital positively influence the financial performance of the company. In the study on the financial performance and capital structure of Pakistani companies in the pharmaceutical sector [15], it was concluded that the debt / equity ratio substantially and negatively influences the profitability of companies in the sense that a decrease in profitability it is the direct cause of the increase in the debt / equity ratio. Based on the analysis of the above literatures, it was observed that the intensity of capital, but also the degree of indebtedness affects to some extent the profitability of companies.

III. DATA COLLECTION AND RESEARCH METHODOLOGY

Data collection : For this research, an initial sample of 1000 companies registered in Romania and with CAEN code 4711 - Retail sale in non-specialized stores, with predominant sale of food, beverages and tobacco, was used. The data were extracted from the TPSoft website, the analyzed period being 9 years, respectively

2008-2016. Companies that did not report turnover for the entire analyzed period were removed from the sample. As it was wanted to highlight the impact on performance, the companies that reported negative EBITDA in the analyzed period were considered irrelevant for research and therefore removed from the sample. At the same time, companies for which sufficient data were not available for conducting the research were also removed from the sample. After these successive eliminations, we extracted a random number between 1-1000 (RANDOM.ORG)[16] to establish the final number of companies that will make up the sample to be researched and thus we obtained a sample of 124 companies. The choice of the 124 companies was made using a mechanical step of 33 and this number was also obtained randomly. Thus, after assigning an order number for the 226 companies, starting from the company in position 33, we added 33 until we obtained the total number of companies within the analyzed sample, ie 124 companies.

Variables

Overall indebtedness (GD)

It is used to measure the debt component of total assets.

Overall indebtedness (TD) = Total debt / Total assets * 100

Capital Intensity Rate (CI)

Represents the amount of money invested in assets to obtain 1 leu turnover.

Capital Intensity Rate (CI) = Total Assets / Turnover

Company size (DIM)

Calculated as the natural logarithm of total assets

Profitability (EBITDA)

It was chosen as an indicator for financial performance because it allows focusing on results from operations and does not take into account the effects of decisions not related to operational activity.

EBITDA = Net profit + Interest expense + Tax expense + Depreciation expense + Depreciation expense

Hypotheses

Based on the review of the literature, the following hypotheses were developed:

H1: There is a positive correlation between the intensity of capital and the financial performance of companies.

H2: There is a negative correlation between debt and financial performance.

H3: There is a positive correlation between company size and financial performance.

Metodology : The variables that are part of the econometric model are presented in point 4.2., Were selected after studying the literature on previous research. Thus, to record the factors influencing the performance of companies, the dependent variable EBITDA and the independent variables global indebtedness (GD), capital intensity rate (CI) and company size (DIM) were used. The impact of influencing factors on companies' performance was tested using an econometric model that uses balanced panel data.

$$EBITDA_{it} = \alpha_0 + \alpha_1 CI_{it} + \alpha_2 DIM_{it} + \alpha_3 GD_{it} + \varepsilon_{it}$$

Where: α_0 = constant

$\alpha_1, \alpha_2, \alpha_3$ = parameters

ε_{it} = error - measures the influence of randomly acting factors

t = 2008, 2010,.., 2016

i = 1, 2, ..., 124.

IV. RESULTS, INTERPRETATION

Descriptive results : Gretl software was used to model the data and estimate the results. Thus, a descriptive analysis of the variables was performed, which is presented in Table 5.1. We can see that we have a distribution of variables with positive asymmetry because Skewness has positive values in addition to the independent variable degree of indebtedness (GD). The static parameter Kurtosis indicates the degree of concentration of the values around the central measurement by characterizing the probability distribution of a random variable. In the table below, we have positive values greater than 3, threshold that represents the

curtosis of the normal distribution (KURTOSIS)[17], for the independent variables capital intensity (CI) and EBITDA which represents a leptokurtic distribution, for the variable company size (DIM) we can let us state that we have a mesokurtic distribution considering the value of 0.021791 which is very close to zero and a platikurtica distribution for the variable degree of indebtedness (GD), considering the fact that its value is less than zero, ie -1.1198.

Tabel 5.1. Descriptive statistics

Summary Statistics, using the observations 1:1 - 124:9				
Variable	Mean	Median	Minimum	Maximum
EBITDA	0.044765	0.036400	0.00020000	0.31410
GD	0.50052	0.56335	0.00000	1.4435
CI	0.35754	0.29055	0.047531	2.8785
DIM	14.139	14.147	11.947	16.420
Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
EBITDA	0.036484	0.81501	2.6888	10.563
GD	0.33775	0.67481	-0.29474	-1.1198
CI	0.26327	0.73634	3.0161	15.230
DIM	0.74805	0.052906	0.037064	0.021791
Variable	5% Perc.	95% Perc.	IQ range	Missing obs.
EBITDA	0.0092000	0.11410	0.030400	0
GD	0.00000	0.93817	0.60532	0
CI	0.11520	0.86526	0.21355	0
DIM	12.905	15.356	0.96108	0

Source: own processing in Gretl software

The results of the descriptive statistics show that in the analyzed period the average EBITDA indicator is 3.6%, the capital intensity has an average of 29.05% while the average degree of indebtedness is 56.33%. The average EBITDA indicator, 3.6%, confirms the low profit margin for companies in this sector of activity (Profit of Firms in Trade in Food Products Belongs to Foreigners | Romania Libera, 2019)[18], and the extremes of minimum and maximum show that, despite this low averages, the sector also has performers who have registered a level of EBITDA of over 30 percent, 31.41%, but also the fact that there are companies for which this indicator has values close to the minimum value, zero. The ratio of total assets to turnover (CI) has a minimum of 4.75% and a maximum of 287.85%, indicating that there is a substantial variation between the companies selected for this research. Also, the average ratio between the debts of companies and their assets shows us that approximately 56% of the assets of companies in the retail sector in Romania are represented by debts, thus highlighting the importance of credit granted by suppliers to these companies. There are also minimum and maximum values of the indicator on the degree of indebtedness, which ranges from zero to 144.35%.

Following the test on the normality of the distribution we observe, in Table 5.2., The fact that apart from the variable DIM, which has a normal distribution with p-value 0.870407, so higher than 0.05, the other variables EBITDA, CI and GD, do not have a distribution normal, the hypothesis being rejected because for all three variables the p-value is less than 0.05.

Table 5.2. The Jarque-Bera test

Test for normality of EBITDA: Jarque-Bera test = 6532.97, with p-value 0
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Test for normality of GD: Jarque-Bera test = 74.471, with p-value 6.74264e-017
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Test for normality of CI: Jarque-Bera test = 12477.2, with p-value 0
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Test for normality of DIM: Jarque-Bera test = 0.277589, with p-value 0.870407

Source: own processing in Gretl software

The correlation between the variables was analyzed using the correlation matrix presented in Table 5.3. in order to expose multicollinearity. A weak correlation is in the range 0 - 0.30, a moderate correlation is considered in the range 0.30 - 0.70, and for a strong correlation we have the range 0.70 - 1.00 (Vintilă G., 2014)[19].

Table 5.3. Correlation matrix

Correlation coefficients, using the observations 1:1 - 124:9				
5% critical value (two-tailed) = 0.0587 for n = 1116				
EBITDA	GD	CI	DIM	
1.0000	-0.1872	0.3904	0.2298	EBITDA
	1.0000	0.0032	-0.1084	GD
		1.0000	0.6446	CI
			1.0000	DIM

Source: own processing in Gretl software

The analysis of the correlation matrix between the variables taken into account, shows that between EBITDA and GD we have a weak and perfectly negative correlation having -0.1872. Regarding EBITDA and CI, we have a moderate and positive correlation In the case of EBITDA and DIM, we have a weak but perfectly positive correlation of 0.2298.

Econometric results : The model captured the impact between capital intensity (CI), indebtedness (GD), company size (DIM) and company performance represented by EBITDA. To determine whether the estimation process using the Ordinary Least Squares (OLS) method is valid for our panel data set, the test for different group interceptions was performed using the hypothesis that the analyzed group has common interceptions. Following the test, the results presented in Table 5.4., Rejected the null hypothesis, because p-value <0.05, this being reinforced by the F test ($F > 8.61864$), thus resulting in the fact that the method cannot be applied to the proposed data set. Ordinary Least Squares (OLS) estimation.

Table 5.4. Common interception test

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: $F(123, 989) = 8.61864$
with p-value = $P(F(123, 989) > 8.61864) = 1.12003e-092$

Source: own processing in Gretl software

Thus, the Hausman test (Table 5.5) was also performed to decide which of the models offers the most accurate results. Following the test, the null hypothesis that the random effects model is valid based on p-value <0.05 was rejected, indicating that the valid model for this data set is the fixed effects model to the detriment of the

random effects model.

Table 5.6. Hausman test

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(3) = 18.5754
with p-value = 0.000334621

Source: own processing in Gretl software

The table below (Table 5.6.) Presents the results of the application of the proposed model in which EBITDA was used as a dependent variable, and CI, DIM and GD as independent variables. For the F test we have F theoretically obtained with the help of the FINV function (0.05; 126/989) resulting in 1.233467 < F calculated 12.25538 which together with p-value <0.05 shows us that the model is valid. We have a coefficient of determination of 60.95% which shows us that the dependent variable EBITDA is influenced in a proportion of 60.95% by the independent explanatory variables.

Table 5.6. The result of the regression analysis with the dependent variable EBITDA

Model 1: Fixed-effects, using 1116 observations				
Included 124 cross-sectional units				
Time-series length = 9				
Dependent variable: EBITDA				
	Coefficient	Std. Error	t-ratio	p-value
const	0.0164452	0.0332999	0.4938	0.6215
GD	-0.00658542	0.00320970	-2.052	0.0405 **
CI	0.0267791	0.00672620	3.981	<0.0001 ***
DIM	0.00155885	0.00235115	0.6630	0.5075
Mean dependent var	0.044765	S.D. dependent var	0.036484	
Sum squared resid	0.579430	S.E. of regression	0.024205	
LSDV R-squared	0.609581	Within R-squared	0.022954	
LSDV F(126, 989)	12.25538	P-value(F)	8.1e-133	
Log-likelihood	2636.740	Akaike criterion	-5019.480	
Schwarz criterion	-4382.256	Hannan-Quinn	-4778.584	
rho	0.315001	Durbin-Watson	1.032586	

Source: own processing in Gretl software

A negative correlation can be observed between EBITDA and the degree of indebtedness (GD) which is in agreement with the research result obtained by Shaheen (2012), considering that with the decrease of the degree of indebtedness the financial performance of companies will increase or vice versa. the sense that with the increase of the indebtedness of the companies, their performance will suffer. Regarding the impact of the size of the company (DIM), we notice that this variable has a not very big but positive impact, being in agreement with the results of the research undertaken by Erdogan et al. (2015)[20].

In terms of capital intensity (CI), we note that this research hypothesis is confirmed, there is a strong positive correlation with EBITDA and in accordance with the result of the analysis performed by Pantea et al. (2014). Therefore, based on the results presented above, the regression coefficients for capital intensity, indebtedness and company size in relation to performance can be expressed as:

$\hat{EBITDA} = 0.0164 - 0.00659*GD + 0.0268*CI + 0.00156*DIM$
(0.0333) (0.00321) (0.00673) (0.00235)
n = 1116, R-squared = 0.610
(standard errors in parentheses)

Source: own processing in Gretl software

V. CONCLUSION

The study concluded that the financial performance of companies, defined in this case by EBITDA, is directly affected by the intensity of capital, the degree of indebtedness and the size of the company. Based on the study of the literature, three research hypotheses were constructed that were tested in a regression-type econometric model with the dependent variable EBITDA. To conduct this study we used the financial data of 124 companies in the field of retail in Romania during 2008-2016. Thus, following the research it was found that the capital structure is a determining factor of financial performance being a positive correlation between this indicator and EBITDA. This means that an increase in the share of total assets relative to turnover leads to an increase in performance being in line with the similar study conducted by Pantea et al. (2014)[14]. Between the size of the company and performance, the study reveals a positive link, which means that the larger a company, the more it attracts the attention of potential investors, which inevitably leads to the development of new growth opportunities. The last factor taken into account in this study is the degree of indebtedness to which there is a weak negative relationship which suggests that a reduction in the overall debt of companies will lead to an improvement in financial performance. The research results are largely in line with other similar research that has had similar objectives. Future research directions require us to highlight the impact of other determinants on the financial performance of companies such as macroeconomic factors or factors related to internal organization. In addition to the dependent variable considered in this study, other variables considered suggestive for the performance of companies such as ROA or ROE can be introduced. The results of this study help to suggest the formulation of future decisions for the managers of retail companies.

VI. THE LIMITS OF THE RESEARCH

The limits of the research lie in the fact that Romanian retail companies have been strictly analyzed and in determining the factors related to financial performance we must take into account a series of information in the field of global economy or information in fiscal, monetary or the industry sector to which the organizations belong.

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