

THE INFLUENCE OF THE CAPITAL STRUCTURE ON THE PROFITABILITY: EVIDENCE FROM THE ROMANIAN RETAIL INDUSTRY

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Abstract: *The aim of the paper is to study the influence of the capital structure on the profitability of retail companies within the Romanian market. The study examined the capital structure situation for 597 companies, the financial data being subjected to an analysis using the correlation matrix as well as multiple regression for panel data. The analysed period is 10 years from 2013 to 2021 and it involved the collection of financial data with the help of the tpsoft.ro website. The research results showed that between the dependent variable ROA and the independent variables (RSG - total debt to total assets, RSP - equity/total capital) that represent the capital structure, there is a significant positive correlation, while between ROA and RDCP (debt to equity) there is an insignificant correlation.*

Key words: *cash flow, turnover, profit, financial management.*

1. Introduction

According on the interests of the stakeholder conducting the study, the goals of ROA analysis for businesses in the retail sector may change. As a result, examining the profitability ratio of total assets can show how a business utilises its assets to make money. A greater rate of return on total assets may signify that the company is using its resources more effectively and it is able to make more money using the same assets.

Firms acting in the retail sector may have some effects of their capital structure on their rate of return on total assets, presented below:

- The total cost of financing used by the company, which may include the cost of debt and stock, is called the cost of capital. Usually, the company's cost of debt is less than its cost of equity, if it employs more debt than stock and because of deductibility of the interest of debts. Because of the lower overall cost of debts, the company may have a greater rate of return on its total assets.
- Usually, a capital structure with higher debt than stock can raise the financial risk for the company. Investors might expect a greater rate of return in order to make up for the

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increased financial risk. In this case, the company's rate of return on total assets can be lower.

- The capital structure can affect the financial flexibility of the corporation. If a firm uses more debt than equity, it may be less financially flexible because it has to meet its interest payment and debt repayment obligations. A corporation with a more balanced capital structure may be able to invest in its assets with greater freedom, which can determine, on the long run, the increase in the rate of return on total assets.

Thus, we can conclude that capital structure can have a significant influence on the rate of return on total assets for companies acting in the retail industry and it should be considered in their financial analysis.

2. Literature Review

The impact of capital structure on companies' performance was also tested by Bhutto et al. (2012) in their study of a sample of 141 textile companies in Pakistan. They also considered the size of the companies, which showed that large companies in the textile industry operate below the optimal level of capital structure, and the profitability is negatively influenced by the size of total assets.

Using an unbalanced panel data set of companies in Vietnam, Le and Phan (2017) investigated the effect of capital structure on the financial performance, their conclusions being in contrast with the results of other similar research, but carried out on companies from developed countries, namely that debt ratios have a significant and negative relationship with companies' performance, highlighting the fact that for Vietnamese companies, the benefits of loans may be below the cost generated by the poor financial situation.

Debt primarily benefits from the tax shield, according to Modigliani and Miller (1963), which indicates that a firm can lower its tax obligations by paying interest on contracted loans. The costs of debt are mostly generated from the direct and indirect costs of bankruptcy through increasing financial risk (Kraus and Litzengerger, 1973). The conclusion of this theory is that the value of a firm with debt is equal to the value of a firm without debt plus the value of taxes paid after subtracting the costs related to financial difficulty.

Akintoye (2009) points out that in determining an optimal capital mix it must be considered the trade-off between risk and expected return. Thus, the total debt to equity ratio must be checked because it lowers the cost of financing and raises the companies' worth. As a result, when the value of debt or stock changes, the market value of the company also changes.

It is thought that because of the tax advantages, businesses borrow more money to fund their activities.

Abor (2005) discovered a negative link between long-term debt and profitability that is measured by the rate of return on equity, even though there is a positive correlation between performance, short-term debt and overall debt. This is because many capital structure indicators can affect a company's profitability.

However, there are studies (Ebaid, 2009) that have not shown any relationship between profitability and capital structure decisions. Some of the most important features of capital structure are frequently used in studies that examine how financial decisions affect performance and profitability. Romanian companies resort to loans to finance their development, but research in the field shows that they use short-term loans in periods of financial difficulties or periods in which there was a high inflation rate (Vatavu 2012).

According to Nasimi (2016) and Vatavu (2015), capital structure affects a company's profitability, but at the same time, financial leverage has no effect on the companies' financial performance that is measured by ROA (Chadha and Sharma 2016).

Goyal (2013) found a favourable relationship between debt and profitability, while El-Sayed Ebaid (2009) found that there is a weak correlation between capital structure and firm performance.

Also, capital structure has a statistically significant detrimental effect on a company's financial performance, according to Quang and Xin's (2014) research. At the same time, Krishnan and Moyer (1997) and King and Santor (2008), establish the fact that the financial success of a corporation is inversely correlated with the capital structure.

The initial choice of the present research to utilize the rate of return on total assets as a measure for figuring out the profitability of organizations is validated since, according to Bauwhede (2009), the return on an asset is the best predictor of operational effectiveness for a company.

As a summary of the literature, we can state that there hasn't been a lot of study done to see how the capital structure affects a firm's profitability. More than that, there are found discrepancies in the results of the studies done until now regarding how the capital structure affects profitability.

There isn't numerous research that examine this relationship between capital structure and profitability in emerging markets. The present study adds to the body of knowledge related to the impact of capital structure on the profitability of retail enterprises in Romania by evaluating the relationship between capital structure and ROA.

3. Data and Methodology

3.1. Data collection

The subject of this research is represented by the firms acting in the retail industry in Romania, and the data were extracted from the TPSoft website, the analyzed period being 10 years, respectively 2012-2021.

The companies for which sufficient data were not available to carry out the research, were removed from the list. We also removed from the sample companies for which there were extreme financial data. Thus, we obtained a final sample of 476 companies considered relevant for the research.

The importance of the research is given by the fact that the retail trade sector represents the main component of GDP in Romania (INSSE 2023), contributing more

than 15% to the formation of GDP and having a contribution of 0.9% to GDP growth in Romania according to the data published for the third quarter of 2023. STATA software was used for statistical modeling of the obtained data.

3.2. Variables

Profitability indicator:

A companies' financial efficiency is measured by its ROA, which demonstrates how much money it produces by the use of its assets. Because this rate shows the companies' capacity to effectively use their assets to generate profit, ROA is a significant indicator for investors. ROA is determined by dividing the companies' net profit to its total assets.

$$\text{(ROA) - Rate of return on total assets} = \frac{\text{Net income}}{\text{Total assets}}$$

A high value of ROA shows that a firm is maximizing the use of its assets to generate revenue. A higher value of ROA is generally preferable because it shows that the firm is profitable relative to its total assets involved in activity. A lower value of ROA may indicate that the firm isn't using its capital efficiently or is having trouble in achieving profit.

Indicators related to the capital structure:

The total debt to equity ratio (RDCP), that compares a firm's total loans (including long-term and short-term) with its equity, serves as a tool for determining how indebted the company is. This metric can offer crucial details regarding the level of financial risk a company possesses as well as its capacity to pay all its financial obligations.

The RDCP ratio for a company is calculated by dividing total debt by equity. All the firm's initial investments and retained earnings make up firm's equity. This ratio shows the proportion of equity that is covered by the firm's debt.

$$\text{(RDCP) - Total debt to equity ratio} = \frac{\text{Total debts}}{\text{Equity}}$$

If the RDCP ratio is high to a company, this means that it may be highly indebted and vulnerable to changes in the financial market or economy. A low value of this ratio indicates a stable equity and a reduced financial risk exposure.

The general solvency ratio (RSG) measures the company's ability to meet its long-term obligations, and it is calculated by comparing its total assets to its debts. This measure can provide critical information about a company's finances and the ability to pay off long-term debt. This indicator shows the proportion of the company's total assets that equals the value of its liabilities.

$$\text{(RSG) - The general solvency ratio} = \frac{\text{Total assets}}{\text{Total debts}}$$

A corporation with a high general solvency ratio is likely to be financially stable and able to meet its long-term obligations. A better financial state for a corporation is indicated by a greater general solvency ratio.

The equity solvency ratio (RSP), which compares a firm's own capital (equity) to its total capital, serves as a measure for the level of shareholder involvement. This ratio can offer significant details about the company's financial structure and the level of risk that shareholders are willing to take. This ratio shows the percentage of the company's total capital that the shareholders own in the form of money.

$$\text{(RSP) - Equity solvency ratio} = \frac{\text{Equity}}{\text{Total capital}}$$

A high value of this ratio suggests that the company's financial structure is heavily dominated by its shareholders and that means the company has a low level of debt. When the value of this ratio is high, then the company is in a stronger financial position and is less susceptible to financial hazards.

3.3 Hypotheses

The present research formulates the following hypotheses:

H1: The relationship between RDCP and ROA is favorable and significant.

H2: The relationship between RSG and ROA is favorable and significant.

H3: The relationship between RSP and ROA is favorable and significant.

3.4. Methodology

The econometric model took into account the RDCP ratio, general solvency ratio, and equity solvency ratio. This paper investigates the impact and the association of these independent variables on the dependent variable, ROA.

As a result, an econometric model, which uses balanced panel data, was developed in order to examine the effect of influencing factors on the performance of companies, described by the relationship below:

$$ROA_{it} = \alpha_0 + \alpha_1 RDCP_{it} + \alpha_2 RSG_{it} + \alpha_3 RSP_{it} + \varepsilon_{it}$$

where:

α_0 = constant

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

ε_{it} = errors

t = 2013, 2010,..., 2021

i = 1, 2,280.

$x_{it} \alpha_{it}$

4. Results, interpretation

4.1. Descriptive results

According to the descriptive data (Table 1.), the average performance, represented by ROA, for the firms included in the sample was positive for all period analysed (2013-2021), being an average of 14.2%. However, the firms used in the sample have distinct levels of performance because the maximum and minimum values of the performance indicator differ significantly -50.4% to 107.6%.

Table 1

Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	4760	.142	.143	-.504	1.076
RSG	4760	2.808	3.139	1.01	68.03
RSP	4760	.468	.237	.01	.985
RDCP	4760	2.492	4.83	.015	97.136

Source: own processing in STATA software

The RDCP ratio registers an average of 2.49. The average patrimonial solvency rate is 0.46, which means that equity typically accounts for 46% of the financial units that make up the entire capital. The general solvency ratio, which highlight the difference between total assets and total liabilities, registered the value of 2.81, and indicates that firms acting in the retail sector are able to cover total liabilities using total assets.

The relationship between independent and dependent variables was examined using Pearson correlation analysis (Table 2).

Table 2

Pairwise correlations between ROA and independent variables RSP, RSG, RDCP

Variables	(1)	(2)	(3)	(4)
(1) ROA	1.000			
(2) RSG	0.211* (0.000)	1.000		
(3) RSP	0.394* (0.000)	0.643* (0.000)	1.000	
(4) RDCP	-0.218* (0.000)	-0.229* (0.000)	-0.558* (0.000)	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: own processing in STATA software

The results of the research demonstrate a substantial positive correlation between ROA and the overall solvency rate ($\alpha_2 = 0.211^*$, p-value 0.1). $\alpha_3 = 0.394^*$, p-value 0.1, indicates a substantial and moderately favourable association between ROA and the patrimonial solvency ratio. We found a negative and significant connection ($\alpha_1 = -0.218$, p-value 0.1) between the RDCP ratio and ROA.

The following figures (1, 2, and 3) show the graphical correlations between the independent variables represented by the equity solvency ratio, general solvency ratio, debt-to-equity ratio, and the dependent variable, return on total assets.

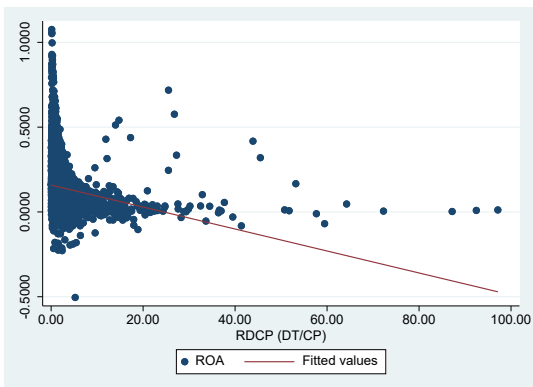


Fig. 1.
Scatterplot of the relationship between ROA and RDCP

Source: own processing in STATA software



Fig. 2.
Scatterplot of the relationship between ROA and RSP

Source: own processing in STATA software

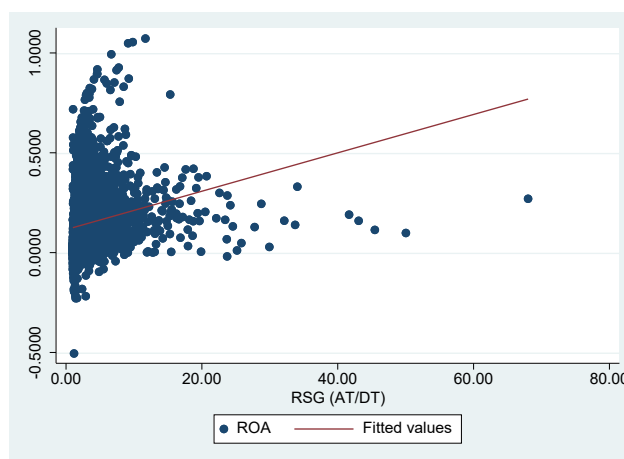


Fig. 3.
Scatterplot of the relationship between ROA and RSG

Source: own processing in STATA software

4.2. Econometric results

The proposed econometric model highlights the connection between the dependent variable proposed, ROA and the independent variables, such as the patrimonial solvency rate, the general solvency rate and RDCP rate which represent the capital structure for companies.

To determine which of the models (Pooled OLS, Random-Effects or Fixed effects Models) is suitable for the present research we propose the following steps:

Step 1 - We run both models, Fixed effects (Table 3) and Random-Effects (Table 4) regressions for the balanced panel data set, which sums up 476 companies in the retail industry for a 10-year period between 2012- 2023 using STATA software.

Table 3

The result of the Fixed-effects regression with the variable dependent ROA

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
RSG	-.003	.001	-3.71	0	-.004	-.001	***
RSP	.375	.013	29.12	0	.349	.4	***
RDCP	-.001	0	-1.41	.157	-.001	0	
Constant	-.024	.006	-4.06	0	-.036	-.012	***
Mean dependent var		0.142	SD dependent var			0.143	
R-squared		0.241	Number of obs.			4760	
F-test		453.014	Prob > F			0.000	
Akaike crit. (AIC)		-9911.285	Bayesian crit. (BIC)			-9885.413	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: own processing in STATA software

Table 4

The result of the Random-effects GLS regression with the variable dependent ROA

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
RSG	-.003	.001	-4.00	0	-.004	-.001	***
RSP	.349	.012	28.65	0	.325	.373	***
RDCP	0	0	-1.29	.195	-.001	0	
Constant	-.012	.007	-1.66	.097	-.026	.002	*
Mean dependent var		0.142	SD dependent var			0.143	
Overall r-squared		0.157	Number of obs.			4760	
Chi-square		1358.351	Prob > chi2			0.000	
R-squared within		0.241	R-squared between			0.118	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: own processing in STATA software

Step 2- To compare the two executed models, the Hausman test was performed (Table 5 in order to determine which of the models, Random-effects or Fixed-effects should be applied for our data set. Following the Hausman test, a result was obtained significant p-value<0.05 (p-value=0) which led to the conclusion that the Fixed-effects model is valid for the panel data set.

Table 5

The Hausman specification test

	Coef.
Chi-square test value	63.128
P-value	0

Source: own processing in STATA software

The general solvency rate negatively affects the profitability expressed by the indicator of ROA, according to the interpretation of the regression model with fixed effects, which shows a negative coefficient (-0.003), but statistically significant (p-value 0.01). This finding is contrary to that of Linqing and Zhouyun's research from 2021, which found that an increase in a company's debt causes it to become less profitable (Lai 2016). The study's findings, however, are consistent with those made by He and Ding (2012), who came to the conclusion that a company's profitability declines when its debt ratio goes down.

By taking into account the effect of the companies' patrimonial solvency rate, we found that this variable has a positive influence on the dependent variable ROA with a coefficient of 0.349, which supports the notion that a higher proportion of equity in total capital results in a higher ROA.

The impact of the debt to equity capital ratio, which shows that a lower proportion of equity capital in total debt results in a fall in profitability as measured by ROA, further emphasizes the significance of equity capital.

Step 3 – The Breusch and Pagan Lagrangian multiplier test for random effects was performed (Table 6), to test the validity of the Pooled OLS model. The test result (p-value=0) is statistically significant which indicates that the Pooled OLS model is not accepted.

Table 6

Breusch and Pagan Lagrangian multiplier test for random effects

	Coef.
Chi-square test value	5648.63
P-value	0

Source: own processing in STATA software

Based on the results presented above and given the fact that the regression model with fixed effects was accepted, the link between the independent variables that highlight the structure of the capital and the dependent variable regarding profitability, can be expressed as follows:

$$\text{ROA} = -0.024 - 0.003 \cdot \text{RSG} - 0.001 \cdot \text{RDCP} + 0.375 \cdot \text{RSP}$$

The influence of the general solvency rate is the most important, concluding that a one percent increase in this rate leads to a 0.375% increase in the rate of ROA, which shows the importance of firms' ability to cover their debts based on assets.

5. Conclusions

In the present study, the relationship between the dependent variable, the total asset recovery rate, which represents the profitability indicator for the sample used of 467 firms acting in the retail industry, and the independent variables, the general solvency rate, the patrimonial solvency rate, and the RDCP ratio, which represent the capital structure for companies in the Romanian retail industry, was examined.

The investigation of the correlation between the variables presented above showed that there is a significant correlation between the independent variables RSP, RSG, and RDCP and the dependent variable ROA, with a p-value of less than 0.1 for each link. According to research, there is a slight but positive association between the general solvency rate and the rate of ROA. There is also a positive, significant, but moderate association between the solvency rate of the firms and the rate of return on total assets.

In contrast, the debt-to-equity ratio, showed a significant, weak, and negative association with the total asset rate of return.

Testing the initial hypotheses:

H1: The relationship between RDCP and ROA is favorable and significant – Partially accepted

H2: The relationship between RSG and ROA is favorable and significant - Accepted

H3: The relationship between RSP and ROA is favorable and significant – Accepted

Comparing the performance of companies within the same industry is an objective of ROA analysis. In this case, the objective would be to determine which company is using its assets more efficiently and which has a greater ability to generate profit.

The importance of the research is given by the fact that the people in charge of the companies in this sector must establish rules regarding the management of the available capital but also the degree of indebtedness in order to ensure long-term profit. Profitability is so necessary for sustainable development in a market which in the last two decades has been invaded by large international store chains.

Analysis of the rate of ROA can be used to identify long-term patterns. If ROA is consistently dropping, it may be a sign that it is not employing its resources effectively and that its strategy needs to be reviewed.

Finally, the study of profitability to total asset ratio can be used to assess a company's historical performance. This could indicate if a company's performance has gotten better or worse over time.

The limits of the research consist in the fact that only a number of 476 companies were analysed out of a total of 174973 companies active in the Romanian retail industry in 2020.

It is also recommended to test several models in order to evaluate the influence of the capital structure on profitability with the inclusion of other dependent variables regarding the evaluation of companies' profitability, given the importance of the analysed sector.

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