

CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE. A STUDY ON REAL ESTATE SECTOR IN ROMANIA

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Abstract: *Like in other countries, the real estate sector of Romania have been hit hard by the 2008-2009 financial crisis. The resumption of lending activity was the main factor that contributed to the relaunch of the real estate sector. The possibility of choosing from internal and external sources of financing, plays an important role in maximizing the value of the company, with a direct impact on company's performance. In this context, this research contributes to the ongoing discussion on the relationship between capital structure and performance of the companies. For this research were tested 20 companies listed on Bucharest Stock Exchange, in the field of real estate transactions, using panel data regression technique over the period of 2009-2018, with fixed and random effects models. The resulting model was the one with random effects, being a better representation of the data used. Capital structure, the independent variable is measured by the Overall Debt Rate and the Financial Stability Rate, while the performance, the dependent variable, is measured by the company's Return on Equity (ROE) and Return on Assets (ROA). The results showed a positive impact from the Financial Stability Rate on ROA and ROE, while the Overall Debt Rate has a negative one, suggesting that an increase in the firm's debt level would negatively affect its shareholders return. Most of the companies analysed present a low level of Overall Debt Rate which reflects the financial autonomy. At the same time, they have a high level of Financial Stability Rate. We interpreted this results as a strong point, because these companies faces a low risk of insolvency and, perhaps, therefore are preferred by investors who have an aversion to risk. However, whether capital structure of companies will influence their performance or not, is a topic that remains unexplored. Even so, results from past studies seemed to be varying and contradicting in some cases.*

Keywords: *ROA; ROE; Overall Debt Rate; Financial Stability Rate; real estate.*

JEL Classification: *C50, D21, G31.*

1. Introduction

The purpose of this research is to identify the impact of capital structure on the performance of 20 companies listed on the Bucharest Stock Exchange, in the real estate transactions sector, based on available of 2009 to 2018 annual report. The performance of the company has acquired, over time, a special importance among the concerns of company's managers. It depends on the type of management applied within a company, but, to a large extent, it also depends on certain external factors, specific to the environment in which the entity operates.

Capital structure is the mixture of debt and equity capital of a company. The capital structure of a company is very important since it is related to the ability of the company to fulfil the needs of its stakeholders. (Yildirim, Masih, Bacha, 2018).

One challenge that company needs to deal with, is making a good financing decision by achieving an optimal set of capital structure; one that minimizes a company's cost of capital, maximizes market value, and increasing shareholder's wealth. Conversely, an incorrect financial decision could potentially cause financial distress and eventual bankruptcy (Varian Foo et al., 2015).

The financial crisis of 2008-2009 seriously affected the real estate sector in Romania. Many construction companies have been forced to close overnight due to the dramatic drop in house prices and only the strongest developers have survived in this field. Prices before the crisis were at a level almost similar to today, but have begun to recover in the last five years. After ten years, the real estate market reached the same values before the crisis, even managing to surpass them in certain areas of the country. The resumption of lending activity was the main factor that contributed to the relaunch of the real estate sector. The possibility of choosing from internal and external sources of financing, plays an important role in maximizing the value of the company, with a direct impact on company's performance.

2. Literature review

Theories of capital structure seek to provide a framework for understanding how financing decisions are made. Since the seminal work of Modigliani and Miller (1958, 1963) a large number of academic works emerged and developed several competing theories in an attempt to arrive at one that is able to explain the financing behaviour of companies (e.g. Myers, 1984; Myers and Majluf, 1984; Shyam-Sunder and Myers, 1999; Baker and Wurgler, 2002). Despite the large number of academic studies, there is still no agreement among scholars on which determinants are reliably important. Firms generally differ in terms of profitability, growth opportunities, asset structure, operational risk, competitiveness, country's legal and tax frameworks, etc. It is, therefore, important that firms consider all these factors in order to remain operative in the current competitive environment. Consequently, firms' capital structure ratio is expected to be dynamic and vary between countries, industries and the firm sizes. (Yildirim, Masih, Bacha, 2018).

An important underlying theory in capital structure literature is the Modigliani & Miller (M&M) Theorem in which they argued that capital structure is irrelevant in determining a company's value provided that certain restrictive and perfect market assumptions hold true. However, in reality where market imperfections exist, choices of capital structure made by companies seem to deviate from the M&M's Theorem. This led to many researchers to introduce additional rationalization to M&M's proposition to demonstrate that capital structure affects company's value and performance (Varian Foo et al., 2015). Varian Foo et al. analysed in 2015 the relationship between the capital structure and the corporate performance of 12 public oil and gas companies listed on the Malaysian stock exchange, in the period 2003-2013. The results of the study show that the capital structure negatively influences ROE, and compared to ROA it has no impact or seems insignificant.

The US economist S. Myers (Myers, 1984), the initiator of The Pecking Order Theory, shows that the profitable companies have a low level of debt, and the information asymmetry affects the businesses financing. (Sabău-Popa, Boloş, Bradea, 2016). In 2016, Sabău-Popa et al. analysed the influence of the capital structure on the performance of 10 companies in the energy sector, in the period 2011-2014. The results of the study shows different correlations for the analysed companies: either a significant negative correlation between the leverage effect and performance, or it does not show any correlation between them.

Jawad, S. et al. (2015) analysed the impact of financial leverage on the corporate financial performance of the Pakistani textile sector in the period 1999-2012, using panel data, paying particular attention to the crisis period of 2007-2008. The results of the study indicate that financial leverage has a negative impact on corporate's performance when assessed with ROA, and the financial crisis has had a negative impact on corporate's performance and also affects the relationship between leverage and performance.

Nwaolisa and Chijindu (2016) determined the influence of financial structure on profitability, with special reference to oil and gas companies in Nigeria. 10 of the 14 oil and gas companies listed on the Nigerian Stock Exchange from 1993-2013 were selected. The results showed that the financial structure has a negative influence on the profitability of oil and gas companies, measured by ROA, ROE, profit before tax and earnings per share.

Abdullah, H., Tursoy, T. (2019) empirically examined the relationship between firm performance and capital structure. The study sample consisted of non-financial firms listed in Germany during 1993-2016. The authors found that over 60% of the total assets of German non-financial firms are financed by debt, which means that they are very low compared to similar countries. The results of the study show a positive relationship between the company's performance and the capital structure.

3. Data, methodology and results

In order to analyse the connection between the variables, the information provided by Bucharest Stock Exchange, Ministry of Public Finance and public financial data from the companies' own websites was used, more precisely, 20 commercial companies from all areas of the country, meeting the following criteria: are listed on the Bucharest Stock Exchange, financial instrument type: shares, status: tradeable, field of activity: real estate activities, and all of them have positive equity in 2018. Considering the whole listing company group in the Bucharest Stock Exchange, the sample size might be pretty small, but that is the most appropriate sample with competitive data published publicly that it could find as yet.

In this paper is used both qualitative and quantitative research methods. Among the qualitative research methods used it can be mentioned: observation, comparison and analysis of data. The econometric analysis is based on the estimation of a regression on panel data in Eviews, based on 200 observations. All variables are measured in percentages.

Measuring the capital structure is made in the literature by various rates, including *The Overall Debt Rate* and *The Financial Stability Rate*.

The Overall Debt Rate highlights the company's total debt proportion in its total liabilities, and also, the dependence of the company's financial resources from the external ones. A reduction of this indicator reflects an increase in self-financing capacity. The optimal level of this ratio is below 66%. The higher this ratio is, the less is the financial autonomy of the company and the higher is the exposure to insolvency risk.

The Financial Stability Rate reflects the share of funding sources that remain available for more than a year in total funding sources. The optimal level of this ratio is in the range of (0.5-0.6) because it highlights the permanence status and offers safety for the company.

The performance of companies is measured in literature through a variety of rates, the most relevant being *Return on equity* and *Return on assets*. Return on equity reflects the return of investments made by shareholders, by purchasing shares of the company. If this rate is higher than the limit value of 5%, the company's activity has been efficient. ROA measures the total asset performance, and the overall efficiency of the company's management to generate profits using the assets. A ROA higher than the inflation rate ensures assets renewal and growth in a short period (Sabău-Popa, Boloş, Bradea, 2016).

Table 1: Independent and Dependent Variable formulas

The Overall Debt Rate	Total Debt / Total Liabilities*100	Independent Variable
The Financial Stability Rate	(Long-term Debts+Equity) / Total Liabilities *100	Independent Variable
ROE	Net income / Equity * 100	Dependent Variable
ROA	Net income / Total Assets * 100	Dependent Variable

Source: Sabău-Popa, Boloş, Bradea, 2016

In the literature, either the fixed or random effects methods are used to estimate a panel data model. The fixed-effects model shows the relationship between the exogenous variable and the endogenous variable in which each individual component has a significant role in predicting the result in the system. While, in the case of the random effects model, the variance between entities is assumed to be random and uncorrelated with the exogenous variables included in the model. A first step in analysing panel data involves whether the differences between the fixed effects parameter estimator and the random effects parameter estimators are significant or not, and choosing a single method, that is, the most appropriate one. To determine which model is more appropriate for the data series, we used the Hausman test (1978). According to the Hausman test, if the null hypothesis is true, the estimator of random effects is efficient and the difference between the estimators must be close to zero. If the null hypothesis is rejected, the fixed effects is tested. (Bădulescu, Simuţ, Morutan, 2018).

According to the results presented in Table 2 and Table 3, the random effects model is accepted, because the null hypothesis of the Hausman test is accepted both for

the capital structure rates and for the performance indicators of the companies, and the value of $p > 0.05$.

Table 2: Results of panel data analysis using the independent variable: the *Overall Debt Rate (ODR)*

	Model 1		Model 2	
	Dependent variable ROA		Dependent variable ROE	
	Coefficient	P-value	Coefficient	P-value
Hausman Test	1.145803	0.2844	0.019972	0.8876
Intercept	1.364025	0.1958	12.23708	0.2272
ODR	-0.054368	0.0695	-0.876523	0.0064
R-squared	0.016538	-	0.039947	-
F-statistic	3.329497	0.069555	8.238542	0.004547

Source: Processed data using Eviews program

The results show that *Overall Debt Rate (ODR)* have a negative impact in relation to ROA and ROE. In the graphs below we can observe the negative correlation.

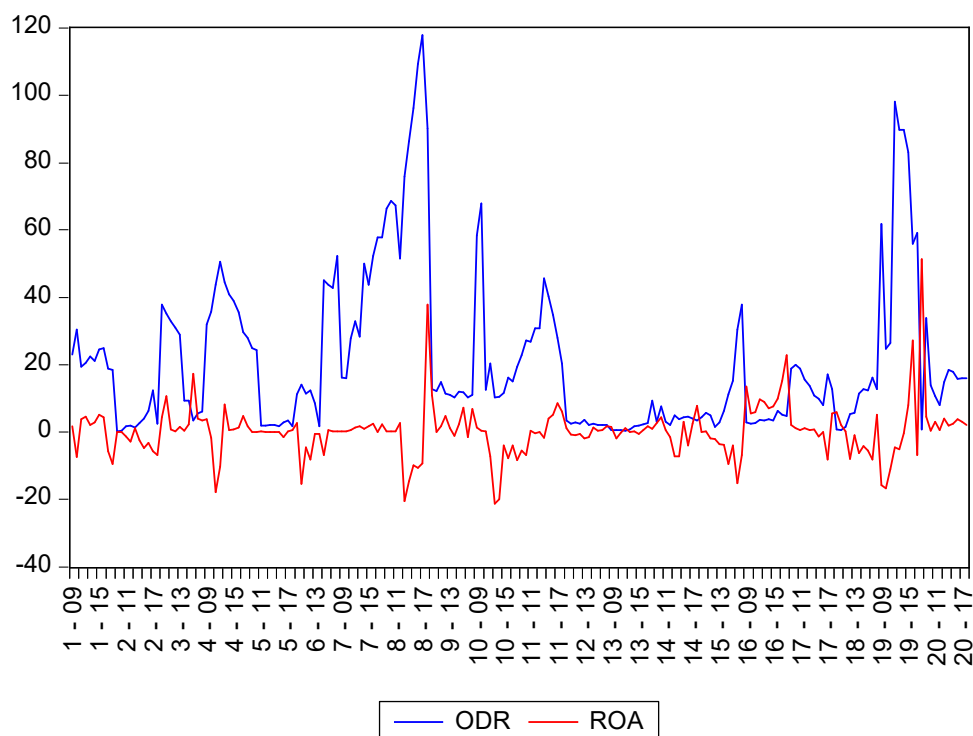


Figure 1: Evolution of the *Overall Debt Rate (ODR)* in relation to ROA

Source: Graph processed using Eviews program

From the Figure 1, we note that, in the period 2009-2018, the *Overall Debt Rate (ODR)* stood in the range [0,2399 – 117,9890], with an average of 21,2858. The optimal level of this ratio is below 66%. The higher this ratio is, the less is the financial autonomy of the company and the higher is the exposure to insolvency risk. 18 companies of the 20 analysed, were below the optimal level.

Return on Asset (ROA) stood in the range [-21,2363 – 51,3237], with an average of 0,2067. Higher ROA indicates more asset efficiency. Of the 20 companies analysed, only one had values above the inflation rate, the rest of the companies had either at the beginning of the period in 2009, but most at the end of the period, in 2018.

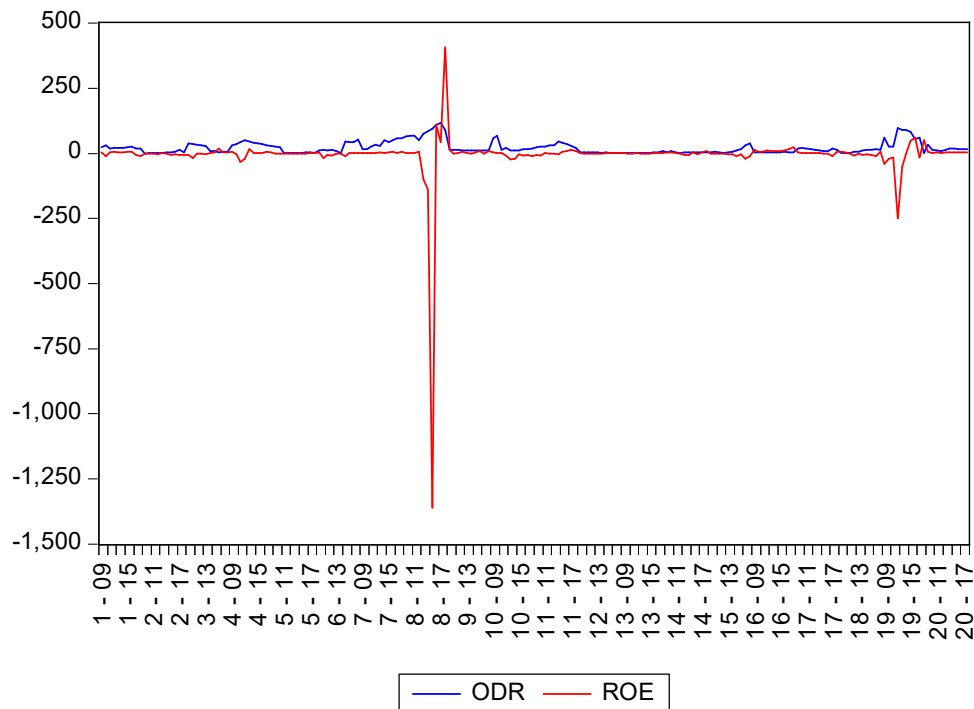


Figure 2: Evolution of the *Overall Debt Rate (ODR)* in relation to ROE
Source: Graph processed using Eviews program

From the Figure 2, we note that, in the period 2009-2018, the *Return on Equity (ROE)* stood in the range [-1361,1881 – 406,2108], with an average of -6,4204. If this rate is higher than the limit value of 5%, the company's activity has been efficient. Like ROA, only one company had values above 5%, the rest of the companies had either at the beginning of the period in 2009, but most at the end of the period in 2017, 2018.

The results show that *Financial Stability Rate (FSR)* have a positive impact in relation to ROA and ROE. In the graphs below we can observe the positive correlation.

Table 3: Panel data analysis using the independent variable: the *Financial Stability Rate (FSR)*

	Model 1		Model 2	
	Dependent variable ROA		Dependent variable ROE	
	Coefficient	P-value	Coefficient	P-value
Hausman Test	1.141050	0.2854	1.674112	0.1957
Intercept	-1.482812	0.4490	-27.43319	0.2152
FSR	0.021144	0.3393	0.262966	0.3121
R-squared	0.004609	-	0.005449	-
F-statistic	0.916820	0.339479	1.084855	0.298884

Source: Processed data using Eviews program

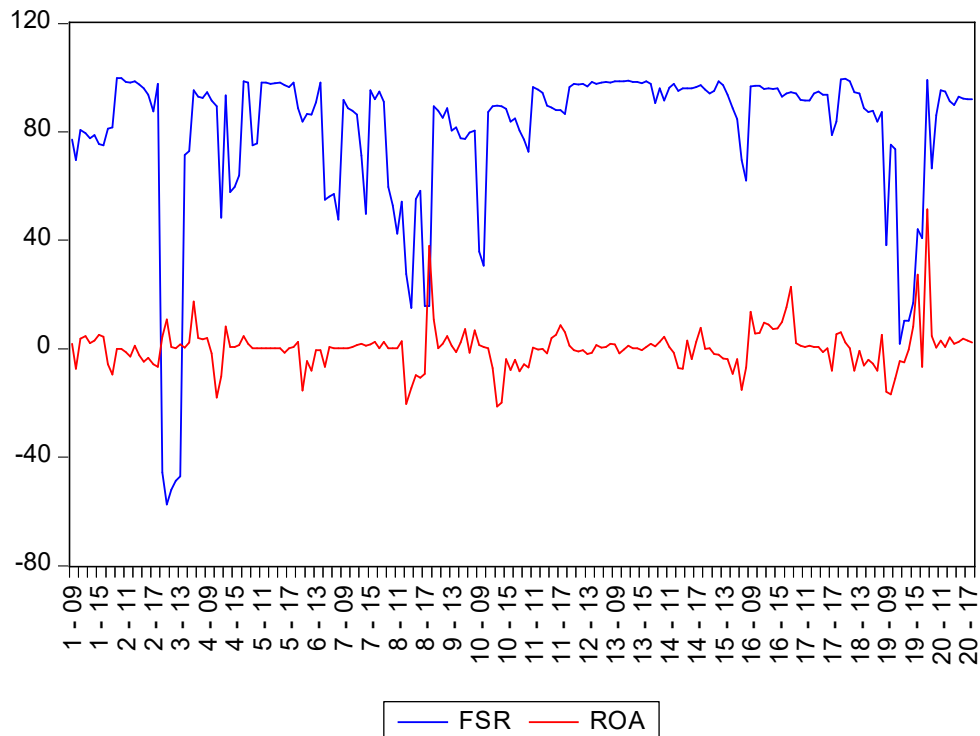


Figure 3: Evolution of the *Financial Stability Rate (FSR)* in relation to ROA

Source: Graph processed using Eviews program

From the Figure 3, we note that, in the period 2009-2018, the *Financial Stability Rate (FSR)* stood in the range [-57,3600– 99,7601], with an average of 79,9067. The optimal level of this ratio is in the range of 50%-60% because it highlights the permanence status and offers safety for the company. Only 2 companies of the 20 analysed, were in the range, most were below 50%.

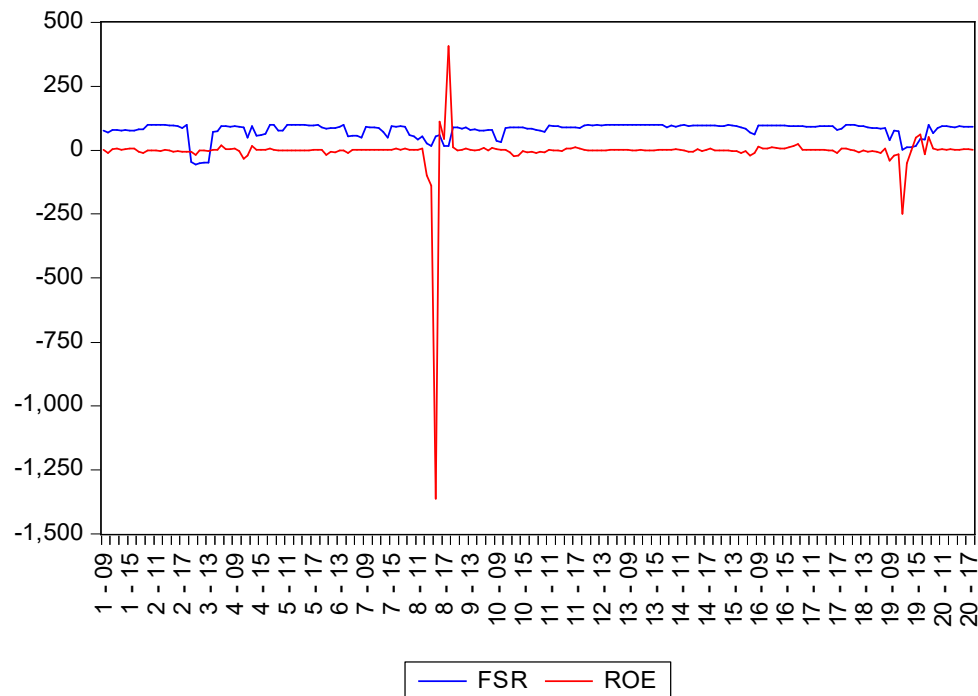


Figure 4: Evolution of the **Financial Stability Rate (FSR)** in relation to ROE
Source: Graph processed using Eviews program

Thus, taking into account the coefficients estimated by the random effects model, the following results were obtained: if the overall debt rate increased by 1%, the ROA would decrease by 0,054%. In the case of ROE, an increase in the overall debt rate by 1%, ROE would decrease by 0,87%.

Regarding the effect of the financial stability rate, it is positive: if the financial stability rate increased by 1%, the ROA would also increase, but only by 0,02%. The impact of ROE is also positive, but higher in intensity than the ROA. If the financial stability rate increased by 1%, the ROE would increase by 0,26%.

4. Conclusions

Romanian real estate developers have been hit hard by the 2008-2009 financial crisis. Many construction companies have been forced to close overnight due to the dramatic drop in house prices and only the strongest developers have survived in this field. The resumption of lending activity was the main factor that contributed to the relaunch of the real estate sector. The possibility of accessing external sources of financing is considered one of the most important decisions in maximizing the value of the company, with a direct impact on company performance.

The present paper analysed the relationship between capital structure rates and performance indicators, using data on 20 companies in the field of real estate transactions, listed on the Bucharest Stock Exchange. The period for which the

analysis was performed is 2009-2018. A panel type model was used, the decision between the random effects model and the fixed effects model based on the Hausman test. In the end, the resulting model was the one with random effects, this being a good representation of the data used. The results obtained from estimating the random effects model showed a positive effect from the financial stability rate and performance indicators of the analysed companies, and a negative one exerted by the overall debt rate.

Most of the companies analysed present a low level of debt which reflects the financial autonomy. At the same time they have a high level of financial stability rate. We interpreted this result as a strong point, because these companies faces a low risk of insolvency and, perhaps, therefore are preferred by investors who have an aversion to risk.

However, whether capital structure of companies will influence their performance or not, is a topic that remains unexplored. Even so, results from past studies seemed to be varying and contradicting in some cases, but most of the researchers in this area concluded that there is a negative relationship between capital structure and performance of companies.

This research has many limitations, firstly because of the focus on real estate sector and the results cannot represent overall industry in Romania. Secondly, this research is only using 20 company and 10 year data, for future research is recommended using long time series data and large sample size to obtain a more accurate result.

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