THE FINANCIAL PERFORMANCE – RISK CORRELATION OF COMPANIES LISTED ON THE BUCHAREST STOCK EXCHANGE

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Abstract: This present paper analyzes the correlation between the financial performance and the risks based on a sample of 40 companies listed on Bucharest Stock Exchange. The period subjected to observation was in amount of three years (2016-2018). The performance is quantified on the basis of accounting indicators: return on assets (ROA) and return on equity (ROE). Also the financial risk is determined through financial leverage (level of indebtedness).

The aim of this paper work is to determine the financial risk in order to obtain financial performance, as well as testing the relation between the financial performance and risks.

The statistic analyze of data is based on statistic software SPPS, and also on Pearson coefficient. As a result, the statistic correlation between the rate of return equity (ROE) as a dependent variable and independent variables: return of assets (ROA), the rate of interest (IR), financial leverage (FR), is verified.

Therefore, these analyses confirm that there are correlations between independent variables and the rate of financial profitability of the rate of return on equity.

1. INTRODUCTION

Over the years theory and practice have been focused on debating the performance – risk relationship.

As such, in order to finance activities, companies use equity capital as well as debt capital. After choosing debt capital as a source of financing, a fixed cost is generated for companies. Attracting financial sources requires increased attention, as this needs to lead to an optimal financial structure.

The structure of capital can determine a financial risk for companies, which results from the uncertainty of realizing a level of exploitation enough to honor the cost of borrowed sources.

Financial risk appears when financial resources with a fixed cost are accessed, resulting having as consequence the decrease in net profits and, at the same time, the reduction of company performance.

The present research intends to analyze the correlation between financial performance and risks at the level of a random group of 40 entities listed on the Bucharest

Stock Exchange, with various sectors of activity. The time interval subject to analysis is three years (2016-2018).

The selection of the companies was made based on the information regarding the financial debts, but also on other information, necessary for the research.

Performance is measured by analyzing the rate of return on equity (ROE) and the rate of return on assets (ROA), and by analyzing the interest rate and financial leverage, the financial risk is determined.

In the following, I will show the impact of financial risk on companies performance by analyzing return on equity (ROE), return on assets (ROA), financial debt, equity, interest, interest rate, leverage and financial leverage, but I will also analyze bond between financial profitability (ROE) and influencing factors: return on assets (ROA), interest rate (IR), financial leverage (FL), through a statistical analysis based on the Pearson coefficient.

2. LITERATURE REVIEW

2.1 The notion of performance

The notion of performance is of latin origin, emphasizing the proximity to the latin "performare", later found and in English as: "to perform" and "performance".

In the specialized literature the concept of performance encompasses several meanings such as: increase, return, yield, productivity, the result of an activity, success etc.

As such, in the opinion of Nederita (2003), "performance means success, competitiveness, accomplishment, action, continuous effort, as it is the optimization of the present and the projection of the future".

Therefore, a diversity of opinions regarding the definition of the notion of corporate performance has emerged.

Consequently, there are economists who approach performance from the standpoint of the objectives pursued by companies. Thus, Tannenbaum, Schmidt (2009) present their opinion regarding performance, defining it as: "the degree to which an organization, as a social system, with certain resources and means, accomplishes its objectives"; Lavalette, Niculescu (1999) too share a similar opinion, showing that "the performance of companies aims to achieve organizational goals, regardless of their nature and variety".

Therefore, Lorino (2003) approaches "performance as a measure of the value created by the company", and Bouquin (2004) believes "that productivity and efficiency are the basis of a company's performance".

In the current research, performance expressed through the two components – efficiency and effectiveness – helps determine the correlation between performance – risks. Thus, when the level of performance of a company increases, the level of risk decreases and vice versa.

2.2 The notion of risk

Defining the notion of risk represents a difficult task, taking into account the diversity of opinions about risk. Regarding the concept of risk, it is submitted that in common parlance no distinction is made between risk and uncertainty, although any risky

situation is uncertain, nevertheless uncertainty can exist without risk. As such, risk means the fluctuation of results indicators - profit and profitability.

There are several authors who have approached the notion of risk this way: author Hedgetts (1994) perceived risk as a "the possibility that the losses will be higher than expected" being possible damage. Another approach to the notion of risk is also examined by Giurgiu (1995) who defines risk as "the probability of an unwanted event occurring".

Therefore, all companies which undertake productive activities are predisposed to three types of risk (economic, financial, bankruptcy).

In this paper I will direct my attention to financial risk in order to determine the way in which it affects financial profitability following the use of borrowed financial resources by entities.

Financial risk is closely linked to with the way in which the activities of companies are financed. When companies finance their activities with loans, they need to repay the principal but also the corresponding interest which constitutes a fixed obligation. If the financing of the activity is provided from internal sources (reinvested profits, or share capital increases), this fact does not constitute fixed payment obligations and the financial risk will be lower.

The choice between debt and equity is rather a replacement of business risk with financial risk. If companies choose the option of debt in order to finance their needs, this does not affect the property of the enterprise. However, the presence of a high proportion of capital raised by shareholder investment ensures a better rating for the society.

As a result, companies which obtain big loans encounter higher risk compared to companies which operate more conservatively by using more equity – provided by internal funds.

The analysis return of equity under the corporate financial policy is a fundamental aspect of financial risk which is of interest especially to the shareholders.

The degree of influence exerted by financial policy over corporate performance has led to the appearance of a model specific to analysis, known as the "financial leverage effect". This indicator is used to measures "the effect of the indebtedness" of the entity on the return on equity of an enterprise.

The analysis of "the financial leverage effect" is used in the case of the sizing of the participation of every financing source engaged in the exploitation process (own sources, borrowed sources or raised sources). As such, the financial leverage effect is the result of raising external capital for which the cost of borrowed capital is expressed through of paid interest. Any decision made for the financing of the needs of a business contributes to the determination of an annual rate of interest, this being a representative influencing factor of "the financial leverage effect".

2.3 The performance – risk correlation

Over the years, there have been a multitude of studies regarding the performance of companies with the purpose of identifying the factors influencing performance. As such, in the following I will highlight the results of the research and studies in the specialized literature that have analyzed the impact of diverse influencing factors on financial performance.

Gănescu (2016) tests the influence of the structure of capital (financial leverage), liquidity, capital intensity, growth opportunities, effective tax rate, net profit margin rate, market indicators (EPS, PER) on corporate performance. This paper has at its basis a

sample of 212 NYSE-listed companies in the period of 2010-2014. Financial performance is determined by profitability indicators (ROE, ROE). The results obtained describe an unfavorable correlation between financial performance and the capital structure. On the other hand, debt and the short-term effect have been shown to positively influence corporate performance.

As such, Margaritis, Pisalki (2010) studied the correlation "between the structure of capital, the shareholder structure and corporate performance" through a sample of production companies in France. The final results support the agency cost theory, according to which a higher level of leverage leads to decreased agency costs and inefficiency and thus to favoring the performance of companies. A similar correlation is also presented in the study of Kazempour and Aghaei (2015), which is based on companies listed on the Tehran Stock Exchange.A similar correlation is also described by authors of Kazempour and Aghaei (2015) in study their which is based on companies listed on the Tehran Stock Exchange.

Also, researchers Chinaemerem, Anthony (2012) use ROA and ROE as dependent variables of measuring corporate performance and the debts/assets ratio – as an explanatory variable, through which they tested "the impact of capital structure on corporate performance". As such, the results obtained confirm the fact that "the structure of capital is an important determiner of corporate performance", the correlation being an unfavorable one, which highlights that with the emergence of agent conflicts, companies become over-indebted, which reduces their performance.

Reilly (1997) in one of his researches analyzes ROE and its components over a lapse of 40 years for "companies listed on the United States Stock Exchange contained in the Standard & Poors 400 stock index". The research results show that ROE remains constant, but its components face fluctuations that have as a cause: "the decrease in the turnover of total assets and profit margins, but also the significant increase in financial leverage."

Siminica, Cîrciumaru, Mogoseanu (2011) in one of their studies had as main objective the analysis of the profitability of Romanian enterprises. In the first phase, they made "a statistical correlation between the rate of return on equity (ROE) as a dependent variable and a set of 24 indicators that represent independent variables." The study was based on "40 companies listed on the Bucharest Stock Exchange from different fields of activity, and the analyzed time interval is 4 years (2007-2010)". The research results highlight "a correlation between the variables kept independent and the rate of return on equity, creating in this sense 4 correlation models, one for each year analyzed."

Siminica, Cîrciumaru, Dracea, Tanasie (2015) conducted a study which was built on the premise that "there should be a strong correlation between yield and risk". They consider that the risk-return analysis is not easy to perform, because the return concerns the "past performance of the business", while the risk concerns the future. The paper includes a survey of nine Romanian entities "listed on the Bucharest Stock Exchange". For the analysis of the bankruptcy risk, three scoring functions and three rates of return (profitability of sales, return on assets, return on equity) were used over time interval of 6 years (2007-2013). The study followed the link between risk and performance of Romanian entities by calculating and comparing the three scores and the three rates of return. The study showed that the three models don't similarly determine the risk of bankruptcy of the analyzed companies.

Nimalathasan, Brabete (2010) conducted a study whose main objective is "the impact of the capital structure on the profitability of 13 production companies listed on the CSE over a time interval of 5 years (2003-2007)". The obtained result underlines a favorable connection between the capital structure and the profitability.

Abu (2006) researched the relation between the financial structure and the profitability of "48 companies listed on the Amman Stock Exchange" over a period of 10 years (1995-2004). He indicated that the structure of capital had a significant positive relationship with the ROE, while the size of the firm showed a significant negative relationship with ROE, thus declaring that the structure of capital is a useful factor which influences the performance of the company.

Derayat (2012) revealed the favorable correlation between the structure of capital and profitability in a study, for a sample of 135 companies listed on the Tehran Stock Exchange for the years 2006-2010.

Habib, Khan, Wazir (2016), following a study based on the impact of debt on the profitability of 340 companies listed on KSE, conclude the existence of a significant but negative relationship between debt and profitability. Therefore, the higher the debt, the more the profitability decreases.

Das, Swain (2018), in a study, tries to demonstrate "the determinants of capital structure and its impact on financial performance." This study is based on 50 production companies. To study the relationship and impact of capital structure on profitability, a regression model was used. The study concludes that there is a "significant relationship between capital structure and profitability".

3. THE RESEARCH METHODOLOGY

In highlight to underline level of influence of the risk factors (financial leverage) on the financial performance, I realised a study grounded on a sample of 40 Romanian industrial companies. The research covered a period of 3 years, and the data used were extracted from the financial statements displayed by the companies on the BSE website.

The objectives of the study are: determination the impact of financial risk (financial leverage) on the performance of companies (ROA and ROE); determination the relationship between financial performance and financial risks.

3.1. The research model and hypotheses

This research aims to determine the financial risk in obtaining financial performance as well as to test the correlation between performance and financial risk.

Therefore, starting from the methods found in the specialized literature, I have established the following hypotheses for the analysis of the correlation between financial performance and risks:

H0: There is a significant correlation between the rate of return on equity and financial leverage.

H1: There are significant relationships between the rate of return on equity and the rate of return on assets.

H2: There is a significant correlation between the rate of return on equity and the interest rate.

And the alternative hypotheses:

H3: There is not a significant link between the rate of return on equity and the financial lever/financial leverage.

H4: There is not a significant correlation between the rate of return on equity and the independent variable – rate of return on assets.

H5: There is not a significant correlation between the rate of return on equity and the interest rate.

In the present study I used an initial sample consisting of 40 Romanian companies. The period under analysis stretches over an interval of 3 years (2016-2018). The selection of the companies was made with the help of information on financial debts, but also on the basis of other available information necessary for the study.

Performance is quantified based on accounting indicators: ROA and ROE, and risk Is measured through the financial leverage (financial lever, degree of indebtedness).

The case study is conducted using the SPPS statistical software, based on the Pearson coefficient through which the established statistical correlation between ROE as a dependent variable and the independent variables is analyzed: ROA, IR, FL.

As the study aims to demonstrate the impact of financial performance on financial risks, I have used a mathematical model in order to determine the link between return on equity, return on assets (ROA), the interest rate (IR) through financial leverage (FL) and the income tax rate (TR).

In order to highlight the relationship between these rates, the following mathematical model is used:

$$ROE = [ROA + (ROA - IR) \times FL] \times (1 - TR)$$

From the (ROA – IR) x FL relationship it is stands out that, the leverage effect as well as ROE are dependent on ROA and IR, therefore:

If ROA> IR, the use of loans will increase ROE, and the leverage effect is positive and it is for the shareholders of ROE >ROA. In this situation, companies will be interested in using as much borrowed capital as possible to benefit from the financial leverage effect, but up to the limit of insolvency risk;

If ROA = IR, using loans will not influence ROE in any way, thus achieving equality between ROE and ROA, ROE = ROA;

If ROA < IR, using loans will lead to a decrease in ROE, and the leverage effect will be negative. In this situation, companies will carry out inefficient activity followed by its decapitalization.

3.2. Data analysis.

In order to prove the impact of financial risk on the performance of enterprises, I analyzed in Appendix no. 1. ROA and ROE, in Appendix no. 2. I analyzed financial debts and equity, in Appendix no. 3. I determined the interest and interest rate, and in Appendix no. 4 I measured FL and LE.

Return on assets (ROA) –is the ratio between net income and total assets of the enterprise.

$$ROA = Net\ Profits/Total\ assets\ \times 100$$

In 2016, it is noted that 33 of the companies undergoing analysis have obtained positive ROA results, but the highest level was reached by the company PRODVINALCO S.A. with 18,70% in the activity field in the distillation, refinement and mixing of alcoholic beverages. 7 of the 40 analyzed companies registered negative ROA values, but

the lowest value of -18,12% was registered by UZTEL S.A. in the field of extraction and construction equipment manufacturing. (Appendix no. 1)

In 2017, it is remark that 33 of the analyzed enterprises obtained favorable results on ROA, but as and in 2016, the highest level was reached by the company PRODVINALCO S.A. with 17,81%, nevertheless with a decrease of 0,89 percentage points compared to the previous year. The lowest level is obtained by ATELIERELE CFR GRIVITA S.A, in the field of rolling stock manufacturing. (Appendix no. 1)

In 2018, it can be noted that 30 of the analyzed companies reached positive results, but the company which registered the highest level of 22,54% is TURBOMECANICA S.A. in the field of aircraft and spacecraft manufacturing and 10 of the companies undergoing analysis supported a diminished level, EL-CO S.A. being the company which registered the lowest ROA of -12,36% in the field of electricity distribution and control devices manufacturing. (Appendix no. 1).

Return on equity (ROE) – is the ratio between net profit and equity of the enterprise.

$$ROE = Net\ Profits/Equity\ x\ 100$$

Following the analysis of ROE in 2016 it can be noted that 33 companies reached favorable values, but the highest threshold of 31,30% was reached by PRODVINALCO S.A. in the field of distillation, refinement and mixing of alcoholic beverages and 7 companies registered low values with the lowest value being borne by UZTEL S.A. with e level of -25,70% in the field of extraction and construction equipment manufacturing. (Appendix no. 1)

The ROE analysis in 2017 shows that 19 companies reached positive values, the maximum level is recorded by PRODVINALCO S.A. with a value of 31,45%, an increase of 0,15 percentage points compared to 2016. The remaining up to 40 recorded negative values with UZTEL S.A. registering the lowest level of -21,47% - an increase of 4,23 percentage points compared to 2016. (Appendix no. 1)

In the year 2018 the ROE analysis brings to the forefront the fact that 30 firms reached positive values, TURBOMECANICA S.A. reached a maximum level of 32,98%. Negative values were recorded by 20 firms and the lowest level is obtained by company DAN STEEL GROUP BECLEAN S.A., with a value of -20,93% having as field of activity the production of ferrous metals in primary forms and ferroalloys. (Appendix no. 1)

Following the **financial debts analysis**, it can be observed that in 2016 the highest level of financial debts is obtained by ROMPETROL RAFINARIE S.A. in the fie ld of manufacturing products obtained from crude oil processing and the lowest financial debts are recorded by ELECTROARGES S.A. with domain of activity in the fabrication of household appliances. (Appendix no. 2)

Regarding 2017, the highest financial debts are obtained by ROMPETROL RAFINĂRIE SA with the field of manufacturing products obtained from crude oil processing, as in 2016. The lowest level of financial debts is obtained by SATURN S.A. with the domain of activity in casting iron. (Appendix no. 2)

In 2018, it is found that CHIMCOMPLEX SA BORZEŞTI - with the field of activity in the manufacture of other basic inorganic chemicals - registered the highest debts, and, as in the previous year, SATURN SA obtained the lowest debts. (Appendix no. 2)

The **equity analysis** highlights that throughout the 3 analyzed years, company ROMPETROL RAFINARIE S.A. - with the activity domain in the manufacturing of products obtained from crude oil processing – has shown the highest equity, while the lowest level is shown by company TRANSILANA S.A., with the activity domain of fibre preparation and textile fiber spinning. (Appendix no. 2)

In the **analysis regarding debt** it can be observed that in the years 2016 – 2018 ROMPETROL RAFINARIE S.A., in the field of manufacturing products obtained from crude oil processing records the highest interest rate, the latter (i.e. the interest rate), nevertheless, decreasing year by year for this company. The lowest level is recorded in 2016 by the company PRODVINALCO S.A. with the activity domain of distilling, refining and mixing alcoholic beverages. In 2017, the lowest interest rate level is reached by company MECANICA FINA S.A. with the activity domain of fabricating instruments and devices for measurement, verification, control, navigation and in the year 2018 its spot was replaced by company SATURN S.A. with the activity domain of pouring cast iron. (Appendix no. 3).

The interest rate (IR) –is ratio between interest and financial debts of the enterprise.

$$IR = Interest/Financial\ debt \times 100$$

In 2016 the highest level of interest rate is 21,29%, reached by company ROMPETROL RAFINARIE S.A. in the field of manufacturing products obtained from crude oil processing. In the year 2017 ROMPETROL RAFINARIE S.A. recorded a value of 10,77%, observing a decrease of 10,52 percentage points compared to 2016. The place of the company ROMPETROL RAFINĂRIE SA is taken over in 2018 by the company TURBOMECANICA SA with the activity domain of aircraft and spacecraft manufacturing, regarding the increased level of the interest rate. (Appendix no. 3)

The company which obtained the lowest level differed from year to year in the following way: in 2016 the lowest interest rate value of 0,32% was reached by company PRODPLAST S.A. with the activity domain of manufacturing plastic products; in 2017 the lowest interest rate of 0,39% was reached by company MECANICA FINA S.A., with the activity domain of fabricating instruments and devices for measurement, verification, control, navigation; in 2018 the lowest interest rate value of 0,52% was reached by company UAMT S.A., with activity domain of fabricating parts and accessories for motor vehicles and for motor vehicle engines. (Appendix no. 3)

Financial leverage (FL) – is defined as a ratio between the financial debts of the company and its equity.

$$FL = Financial\ debts/Equity$$

In the years 2016 – 2018 the highest level was obtained by company TRANSILANA S.A. in the activity domain of fibre preparation and textile fiber spinning, observing an increase from 1,49% in the year 2016 to 2,59 in the year 2018. The company which obtained the lowest level differed from year to year in the following way: in 2016, the lowest level of financial leverage is 0,02% was reached by company ELECTROARGES S.A. with the activity domain of household appliances manufacturing; in the year 2017 the lowest level is 0,04% obtained by company SATURN S.A. with the activity domain of pouring cast iron; in the year 2018 the lowest value is 0,03%, recorded

by company FEPER S.A. with the activity domain of fabricating computer and peripheral equipment. (Appendix no. 4)

The **leverage effect (LE)** – is defined as the ratio between the financial lever and the difference between ROA and the interest rate (Rd).

$$LE = FL \times (ROA - IR)$$

In 2016, 26 companies obtained negative results, however the highest level of 4,94% was reached by company TURBOMECANICA S.A. with the activity domain of aircraft and spacecraft manufacturing. (Appendix no. 4)

In 2017 the number of companies with a negative financial leverage effect decreased to 22 companies, but the highest level was still registered by TURBOMECANICA S.A., with a value of 6,36% which means an increase of 1,42 percentage points compared to the previous year. (Appendix 4)

25 companies recorded negative results the following year, however the highest level of 2,94% was obtained by CHIMCOMPLEX S.A. BORZESTI with the domain of activity in basic inorganic chemical products manufacturing, as well as by TERAPLAST S.A. with the domain of activity in plastic plates, foils, tubes and profiles manufacturing. (Appendix no. 4)

3.3. The results of the analysis

The analysis shows that in 2016, 14 companies had a higher assets rate of return than the interest rate ROA>IR, and 26 companies obtained a lower assets rate of return than the interest rate ROA<IR.

In 2017, 18 companies reached an assets rate of return higher than the interest rate ROA > IR, and 22 companies obtained an assets rate of return lower than the interest rate ROA<IR.

In 2018, 15 companies reached an assets rate of return higher than the interest rate ROA>IR and 25 companies obtained an assets rate of return lower than the interest rate ROA<IR.

In conclusion, throughout the three years it can be observed that the number of firms which recorded an assets rate of return lower than the interest rate (ROA<IR) was higher than the number of companies which reached an assets rate of return higher than the interest rate ROA>IR. As such, companies that have obtained ROA> IR will have a positive financial leverage effect, favoring ROE, and in the case of companies that have obtained ROA <IR, they will have a negative financial leverage effect, influencing ROE in the same way.

4. ANALYSIS OF THE CORRELATION

Next I will study the correlation between return on equity (ROE) and the influencing factors: return on assets (ROA), the interest rate (IR), the financial leverage (FL).

In order to study the intensity of the correlation between the rate of return on equity (ROE) as a dependent variable and the independent variables: return on assets (ROA), the interest rate (IR), the financial leverage (FL), I have used the SPPS software through which I have calculated the Pearson coefficient, whose values are given in the table 1.

Pearson is the linear coefficient which measures the degree of connection between variables.

The Pearson coefficient can obtain values between -1 and 1, with positive values indicating a direct connection between the analyzed variables, while the negative values indicate an indirect connection. When the value of the coefficient is closer to 1 or -1, a strong dependence between the analyzed variables can be observed. Also, in order to verify the veracity of the hypotheses we need to know that the significance threshold (sig.) should have values lower than 0,05.

From the (Table no. 1) be observed that the independent variable ROA has a significant influence on the dependent variable ROE as it recorded a value of 0,972 and sig.< 0.01 which indicates a strong link between the two variables evolving in the same direction (when one increases, the other increases too and when one decreases the other decreases respectively).

Table no. 1. Correlation matrix for the ROE dependent variable in 2016-2018

		ROE	ROA	IR	FL
ROE	Pearson Correlation	1	.972**	.183*	-.110
	Sig. (2-tailed)		.000	.045	.232
	N	120	120	120	120
ROA	Pearson Correlation	.972**	1	.199*	-.126
	Sig. (2-tailed)	.000		.030	.172
	N	120	120	120	120
IR	Pearson Correlation	.183*	.199*	1	-.127
	Sig. (2-tailed)	.045	.030		.167
	N	120	120	120	120
FL	Pearson Correlation	-.110	-.126	-.127	1
	Sig. (2-tailed)	.232	.172	.167	
	N	120	120	120	120

Source: SPPS

As regards the link between the interest rate IR and ROE, the existence of a weak correlation can be observed, as the Pearson coefficient recorded a level of 0,183 and sig.< 0,05, which means that the correlated variables vary directly proportional (when one increases, the other increases too), the link being a significant one from a statistical standpoint. (Table no.1)

In the case of the correlation between the independent variable – financial leverage – FL with the dependent variable ROE, it can be found that the statistical link is insignificant and that FL does not have a significant influence on ROE, the cause being the negative recorded result (-0,110 and sig.>0,05). (Table no. 1)

The analysis was conducted by cumulating the three years 2016 - 2018, highlighting the factors that influenced the level of return on equity of Romanian companies listed on BVB.

In the study, it can be observed that in the case of the independent variables, the rate of return on assets and the interest rate, Sig. has values lower than 0,05 which allows us to accept the hypotheses: H1 and H2 (that between the dependent variable – rate of

return on equity – and the independent variable – rate of return on assets - and the interest rate there is a significant correlation), but also to reject the hypotheses: H4 and H5 (that between between the dependent variable – rate of return on equity – and the independent variables – rate of return on assets and interest rate – there is not a significant correlation). As regards the independent variable – financial leverage – Sig. has values higher than 0,05, hypotheses H3 being thus accepted (that between the dependent variable – rate of return on equity - and the independent variable – financial leverage – there is no significant correlation) and H0 being rejected (that between the dependant variable – rate of return on equity – and the independent variable – financial leverage – there is a significant correlation).

5. CONCLUSIONS

Following the research in which I monitored the impact of financial risk through various influencing factors it can be observed that Romanian companies do not efficiently make use of internal funds in order to finance activity, using borrowed funds as financial sources, which generate a fixed cost (interest expenses). This increases financial risk for businesses, also having consequences over the obtains return on equity.

Companies in Romania perform better when using smaller loans as opposed to big loans. Firms do not, however, need to eliminate the option of using borrowed capital in order to finance activity, they only need to pay closer attention to the correlation between financial risk and return on equity resulting from contracting bank credit.

Following the testing of the financial risk – financial performance correlation through the analysis of return on assets (ROA), return on equity (ROE), financial debts, equity, interest, interest rate, financial leverage and the leverage effect, it was found that in the three analyzed years the number of firms which registered a rate of return on assets inferior to the interest rate (ROA<IR) was higher than the number of companies which reached a rate of return on assets superior to the interest rate (ROA>IR). As such, in this case the financial leverage effect will act negatively, influencing the rate of return on equity (ROE) in the same way, and the analysis of the statistical correlation shows that between the dependent variable - rate of return on equity – and the independent variables - the rate of return on assets and the interest rate - there is a correlation, but that there is no significant connection between the dependent variable - rate of return on equity - and the independent variable - financial leverage.

It is recommended that in future research, the sample of companies analyzed is increased, and that other factors which can influence the performance of Romanian companies are also highlighted.

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APPENDIXES

Appendix no. 1. The results of return on assets (ROA) and return on equity (ROE)

	COMPANY NAME	ROA			ROE		
		2016	2017	2018	2016	2017	2018
1	FEPER SA	-0,39%	0,52%	3,45%	-0,46%	0,61%	3,71%
2	TMK ARTROM SA	0,09%	2,83%	3,78%	0,18%	6,35%	9,56%
3	ELECTROARGES SA	14,87%	11,16%	9,20%	22,86%	19,87%	19,46%

4	AUTONOVA SA	5,05%	3,29%	4,27%	9,52%	7,52%	9,83%
5	IAMU SA	8,38%	7,39%	6,14%	13,61%	11,51%	9,50%
6	DAN STEEL GROUP BECLEAN SA	0,85%	0,49%	-6,94%	2,04%	1,14%	-20,93%
7	COMPA SA	9,11%	6,38%	5,25%	14,10%	9,42%	8,05%
8	CHIMCOMPLEX SA	2,90%	7,60%	2,73%	4,20%	12,86%	10,10%
9	AMYLON SA	6,39%	7,65%	9,15%	9,48%	12,15%	14,37%
10	ALTUR SA	-0,18%	0,19%	-0,64%	-0,39%	0,38%	-1,30%
11	24 IANUARIE SA	2,14%	2,44%	0,97%	3,53%	3,90%	2,29%
12	CEMACON SA	4,97%	7,32%	9,47%	8,71%	12,10%	14,73%
13	EL - CO SA	-3,33%	-8,85%	-12,36%	-4,47%	-11,49%	-16,99%
14	HELIOS SA	2,14%	2,57%	2,87%	3,85%	4,39%	4,94%
15	TURBOMECANICA SA	9,31%	10,95%	22,54%	23,48%	27,74%	32,98%
16	TERAPLAST SA	17,73%	3,76%	6,41%	22,52%	7,40%	15,04%
17	UAMT SA	4,05%	3,53%	1,13%	6,58%	5,84%	1,97%
18	ROMPETROL RAFINĂRIE SA	1,03%	5,17%	-2,95%	5,28%	16,22%	-9,19%
19	PREFAB SA	0,43%	0,49%	0,81%	0,57%	0,67%	1,12%
20	SATURN SA	1,68%	6,97%	2,58%	2,09%	8,69%	3,12%
21	REMARUL 16 FEBRUARIE SA	0,18%	1,08%	-5,96%	0,29%	1,89%	-12,26%
22	AAGES S.A	9,36%	10,00%	13,30%	15,14%	14,65%	20,94%
23	MACOFIL SA	3,38%	6,16%	4,35%	8,44%	12,69%	8,06%
24	MECANICA FINA SA	0,26%	-0,82%	0,38%	0,32%	-1,01%	0,47%
25	PRODPLAST S.A	2,27%	6,59%	4,75%	2,68%	7,99%	5,89%
26	PRODLACTA SA	-4,57%	2,23%	-1,00%	-11,65%	5,43%	-2,49%
27	PRODVINALCO S.A	18,70%	17,81%	19,35%	31,30%	31,45%	28,26%
28	RETEZAT	1,06%	9,86%	14,21%	1,43%	15,92%	21,04%
29	REVA SA	3,05%	1,08%	1,24%	4,26%	1,55%	1,79%
30	ROMCARBON SA	1,79%	1,78%	1,89%	3,76%	3,60%	3,50%
31	SEVERNAV SA	0,67%	5,18%	1,09%	0,96%	7,33%	1,86%
32	SINTEROM SA	-8,29%	0,22%	-4,34%	-10,88%	0,28%	-5,69%
33	SINTEZA S.A	3,54%	-8,71%	-7,81%	4,31%	-11,95%	-11,45%
34	TRANSILANA SA	0,04%	0,38%	0,60%	0,14%	1,43%	2,75%
35	UZTEL S.A	-18,12%	-13,67%	0,82%	-25,70%	-21,47%	1,25%
36	UZUC S.A	0,13%	-6,74%	0,60%	0,16%	-8,69%	0,79%
37	VRANCART SA	6,97%	6,19%	4,56%	12,16%	11,59%	8,86%
38	ARGUS SA	-1,59%	-4,84%	-6,00%	-2,79%	-11,78%	-16,05%
39	ATELIERELE CFR GRIVITA SA	0,21%	-14,71%	-3,17%	0,32%	-18,99%	-1,44%
40	URB RULMENTI SA	0,31%	1,01%	0,63%	0,55%	1,76%	1,06%

Source: Own processing

Appendix no. 2. The analysis of financial debts and equity

	COMPANY NAME	FINANCIAL DEBTS			EQUITY		
		2016	2017	2018	2016	2017	2018
1	FEPER SA	8.868.422	12.246.466	3.731.009	97.533.353	98.132.130	113.090.594
2	TMK ARTROM SA	188.081.571	294.187.285	334.851.283	487.326.193	520.417.600	591.986.795
3	ELECTROARGES SA	1.188.214	3.838.450	9.379.330	72.500.220	64.804.810	62.983.415

4	AUTONOVA SA	2.455.891	7.044.421	10.222.353	13.988.278	14.556.397	16.143.029
5	IAMU SA	13.406.115	10.272.691	12.825.017	46.089.430	51.476.244	53.807.101
6	DAN STEEL GROUP BECLEAN	76.674.830	90.355.570	122.447.999	99.283.954	100.427.919	83.043.278
7	COMPA SA	46.733.495	39.244.259	60.199.570	366.160.825	404.515.100	440.152.922
8	CHIMCOMPLEX SA	39.355.773	37.956.056	700.111.639	195.150.776	243.078.219	323.782.742
9	AMYLON SA	3.967.510	3.746.069	9.823.943	29.983.301	34.128.589	30.491.219
10	ALTUR SA	38.668.314	26.223.344	33.880.397	63.121.194	63.362.974	64.070.519
11	24 IANUARIE SA	8.774.310	8.464.199	9.104.740	31.619.484	32.393.610	32.688.241
12	CEMACON SA	51.772.600	47.717.450	42.384.650	95.984.158	109.278.344	128.443.734
13	EL- CO SA	4.194.415	3.626.782	2.750.209	22.710.834	20.370.051	17.412.040
14	HELIOS SA	14.194.503	14.751.603	17.258.597	26.487.771	27.702.759	29.142.347
15	TURBOMECANICA SA	39.695.277	39.950.588	6.796.587	46.298.318	49.207.267	75.345.217
16	TERAPLAST SA	12.305.510	115.560.110	139.760.909	184.322.512	190.645.994	199.669.285
17	UAMT SA	28.911.604	34.795.075	44.387.300	87.028.200	98.607.738	100.585.293
18	ROMPETROL RAFINĂRIE SA	370.947.043	467.139.993	678.755.725	1.326.900.989	2.579.458.450	2.505.591.030
19	PREFAB SA	48.123.922	44.881.223	48.698.388	207.479.737	197.778.673	199.371.932
20	SATURN SA	2.651.776	1.875.529	1.387.510	43.313.376	47.440.596	48.969.997
21	REMARUL 16 FEBRUARIE SA	17.154.947	22.329.971	31.071.925	82.694.156	83.412.944	70.365.621
22	AAGES S.A	4.806.099	4.252.678	4.972.517	15.819.996	17.447.480	20.790.650
23	MACOFIL SA	30.077.747	24.302.381	21.693.187	27.423.645	31.410.833	34.069.103
24	MECANICA FINA SA	5.975.002	7.383.601	9.445.486	144.211.535	147.271.525	147.836.586
25	PRODPLAST S.A	6.898.158	7.129.139	6.320.472	61.711.278	67.071.492	73.603.437
26	PRODLACTA SA	21.424.582	26.769.079	27.709.873	21.424.582	26.769.079	27.709.873
27	PRODVINALCO S.A	2.350.859	5.973.613	6.049.913	35.112.062	43.195.629	47.958.810
28	RETEZAT	2.264.709	4.966.700	4.884.946	17.265.983	20.532.711	26.764.820
29	REVA SA	5.320.533	10.507.594	11.474.824	59.563.167	60.498.235	65.640.775
30	ROMCARBON SA	81.441.410	74.638.253	62.602.496	130.330.881	133.121.619	137.190.295
31	SEVERNAV SA	20.395.723	22.693.325	40.254.776	84.216.636	92.176.919	93.921.928
32	SINTEROM SA	7.778.224	6.504.196	7.357.018	47.768.728	47.903.078	45.324.418
33	SINTEZA S.A	2.827.608	6.029.636	7.326.408	64.118.547	46.807.362	40.221.702
34	TRANSILANA SA	10.332.365	13.697.033	18.816.090	6.951.790	7.052.414	7.251.680
35	UZTEL S.A	8.554.966	7.498.798	4.864.348	74.504.958	61.334.230	62.736.649
36	UZUC S.A	23.909.027	24.264.313	23.236.951	117.562.272	108.159.461	109.025.450
37	VRANCART SA	76.224.600	105.893.949	129.585.797	166.140.255	192.574.561	200.599.958
38	ARGUS SA	59.588.659	102.594.165	97.247.287	87.481.470	78.263.508	67.437.758
39	ATELIERELE CFR GRIVITA	1.994.108	1.947.091	3.469.781	45.687.389	39.527.045	38.966.062
40	URB RULMENTI SA	2.994.098	2..162.312	1.564.495	16.594.615	16.891.685	17.072.936

Source: Own processing

Appendix no. 3. The analysis of interest and the rate of interest

	COMPANY NAME	INTEREST			INTEREST RATE		
		2016	2017	2018	2016	2017	2018
1	FEPER SA	583.527	426.542	272.623	6,58%	3,48%	7,31%
2	TMK ARTROM SA	4.873.792	8.388.669	11.029.855	2,59%	2,85%	3,29%

3	ELECTROARGES SA	53.181	36.562	196.378	4,48%	0,95%	2,09%
4	AUTONOVA SA	93.590	233.020	467.951	3,81%	3,31%	4,58%
5	IAMU SA	161.340	161.308	157.648	1,20%	1,57%	1,23%
6	DAN STEEL GROUP BECLEAN SA	3.269.731	3.102.009	3.513.538	4,26%	3,43%	2,87%
7	COMPA SA	683.219	518.478	465.295	1,46%	1,32%	0,77%
8	CHIMCOMPLEX SA	1.397.197	847.088	9.617.025	3,55%	2,23%	1,37%
9	AMYLON SA	105.923	101.809	442.291	2,67%	2,72%	4,50%
10	ALTUR SA	1.294.361	900.462	962.628	3,35%	3,43%	2,84%
11	24 IANUARIE SA	86.232	97.752	111.961	0,98%	1,15%	1,23%
12	CEMACON SA	2.348.809	1.811.118	2.483.341	4,54%	3,80%	5,86%
13	EL- CO SA	123.550	125.590	160.948	2,95%	3,46%	5,85%
14	HELIOS SA	512.543	454.822	490.989	3,61%	3,08%	2,84%
15	TURBOMECANICA SA	1.411.440	1.245.153	2.554.007	3,56%	3,12%	37,58%
16	TERAPLAST SA	672.446	2.301.963	3.078.583	5,46%	1,99%	2,20%
17	UAMT SA	201.655	232.402	231.661	0,70%	0,67%	0,52%
18	ROMPETROL RAFINĂRIE SA	78.976.794	50.300.522	39.670.650	21,29%	10,77%	5,84%
19	PREFAB SA	1.407.533	1.500.164	2.425.759	2,92%	3,34%	4,98%
20	SATURN SA	124.279	77.178	56.844	4,69%	4,11%	4,10%
21	REMARUL 16 FEBRUARIE SA	440.204	848.078	1.908.280	2,57%	3,80%	6,14%
22	AAGES S.A	182.403	147.571	250.635	3,80%	3,47%	5,04%
23	MACOFIL SA	1.635.108	1.578.222	1.223.810	5,44%	6,49%	5,64%
24	MECANICA FINA SA	167.322	28.863	319.341	2,80%	0,39%	3,38%
25	PRODPLAST S.A	22.157	84.501	228.285	0,32%	1,19%	3,61%
26	PRODLACTA SA	317.580	350.562	448.600	1,48%	1,31%	1,62%
27	PRODVINALCO S.A	7.675	135.984	252.468	0,33%	2,28%	4,17%
28	RETEZAT	105.156	320.856	343.732	4,64%	6,46%	7,04%
29	REVA SA	188.171	246.507	433.123	3,54%	2,35%	3,77%
30	ROMCARBON SA	1.748.687	1.587.652	1.702.834	2,15%	2,13%	2,72%
31	SEVERNAV SA	785.933	999.781	1.574.830	3,85%	4,41%	3,91%
32	SINTEROM SA	322.753	291.462	350.003	4,15%	4,48%	4,76%
33	SINTEZA S.A	433.993	245.905	230.026	15,35%	4,08%	3,14%
34	TRANSILANA SA	501.821	583.688	554.139	4,86%	4,26%	2,95%
35	UZTEL S.A	112.593	240.349	371.361	1,32%	3,21%	7,63%
36	UZUC S.A	606.698	621.893	927.577	2,54%	2,56%	3,99%
37	VRANCART SA	1.421.758	2.108.174	4.706.748	1,87%	1,99%	3,63%
38	ARGUS SA	1.443.612	1.719.437	3.154.239	2,42%	1,68%	3,24%
39	ATELIERELE CFR GRIVITA SA	76.557	95.484	203.956	3,84%	4,90%	5,88%
40	URB RULMENTI SA	141.331	118.305	113.592	4,72%	5,47%	7,26%

Source: Own processing

Appendix no. **4.** The analysis of financial leverage and the leverage effect

	COMPANY NAME	FINANCIAL LEVERAGE			LEVERAGE EFFECT		
		2016	2017	2018	2016	2017	2018
1	FEPER SA	0,09	0,12	0,03	6,58%	3,48%	7,31%

2	TMK ARTROM SA	0,39	0,57	0,57	2,59%	2,85%	3,29%
3	ELECTROARGES SA	0,02	0,06	0,15	4,48%	0,95%	2,09%
4	AUTONOVA SA	0,18	0,48	0,63	3,81%	3,31%	4,58%
5	IAMU SA	0,29	0,20	0,24	1,20%	1,57%	1,23%
6	DAN STEEL GROUP BECLEAN SA	0,77	0,90	1,47	4,26%	3,43%	2,87%
7	COMPA SA	0,13	0,10	0,14	1,46%	1,32%	0,77%
8	CHIMCOMPLEX SA	0,20	0,16	2,16	3,55%	2,23%	1,37%
9	AMYLON SA	0,13	0,11	0,32	2,67%	2,72%	4,50%
10	ALTUR SA	0,61	0,41	0,53	3,35%	3,43%	2,84%
11	24 IANUARIE SA	0,28	0,26	0,28	0,98%	1,15%	1,23%
12	CEMACON SA	0,54	0,44	0,33	4,54%	3,80%	5,86%
13	EL- CO SA	0,18	0,18	0,16	2,95%	3,46%	5,85%
14	HELIOS SA	0,54	0,53	0,59	3,61%	3,08%	2,84%
15	TURBOMECANICA SA	0,86	0,81	0,09	3,56%	3,12%	37,58%
16	TERAPLAST SA	0,07	0,61	0,70	5,46%	1,99%	2,20%
17	UAMT SA	0,33	0,35	0,44	0,70%	0,67%	0,52%
18	ROMPETROL RAFINĂRIE SA	0,28	0,18	0,27	21,29%	10,77%	5,84%
19	PREFAB SA	0,23	0,23	0,24	2,92%	3,34%	4,98%
20	SATURN SA	0,06	0,04	0,03	4,69%	4,11%	4,10%
21	REMARUL 16 FEBRUARIE SA	0,21	0,27	0,44	2,57%	3,80%	6,14%
22	AAGES S.A	0,30	0,24	0,24	3,80%	3,47%	5,04%
23	MACOFIL SA	1,10	0,77	0,64	5,44%	6,49%	5,64%
24	MECANICA FINA SA	0,04	0,05	0,06	2,80%	0,39%	3,38%
25	PRODPLAST S.A	0,11	0,11	0,09	0,32%	1,19%	3,61%
26	PRODLACTA SA	1,00	1,00	1,00	1,48%	1,31%	1,62%
27	PRODVINALCO S.A	0,07	0,14	0,13	0,33%	2,28%	4,17%
28	RETEZAT	0,13	0,24	0,18	4,64%	6,46%	7,04%
29	REVA SA	0,09	0,17	0,17	3,54%	2,35%	3,77%
30	ROMCARBON SA	0,62	0,56	0,46	2,15%	2,13%	2,72%
31	SEVERNAV SA	0,24	0,25	0,43	3,85%	4,41%	3,91%
32	SINTEROM SA	0,16	0,14	0,16	4,15%	4,48%	4,76%
33	SINTEZA S.A	0,04	0,13	0,18	15,35%	4,08%	3,14%
34	TRANSILANA SA	1,49	1,94	2,59	4,86%	4,26%	2,95%
35	UZTEL S.A	0,11	0,12	0,08	1,32%	3,21%	7,63%
36	UZUC S.A	0,20	0,22	0,21	2,54%	2,56%	3,99%
37	VRANCART SA	0,46	0,55	0,65	1,87%	1,99%	3,63%
38	ARGUS SA	0,68	1,31	1,44	2,42%	1,68%	3,24%
39	ATELIERELE CFR GRIVITA SA	0,04	0,05	0,09	3,84%	4,90%	5,88%
40	URB RULMENTI SA	0,18	0,13	0,09	4,72%	5,47%	7,26%

Source: Own processing