Research of Corporate Tax Impact on Financial Performance. Case of Companies Listed on Bucharest Stock Exchange

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ABSTRACT
Financial performance is the objective of any economic entity, regardless the domain it activates in. From the decision-making process perspective, the corporate tax is included in the equation of financial performance, considering that it has multiple informational facets at the company's level. Considering the computation formula for the due tax as a premise, one can say that along with the economic development of the company, there is a positive correlation degree between it and the fiscal liability, determined by the multiplication of the number of transactions generating tax. Therefore, the corporate tax becomes relevant information for decision making in terms of organization form, reinvestment and others. In this context, our research plans to identify a relation between corporate tax and the financial performance of an entity. In this respect, two econometric models were built showing that the effective tax rate passes the tests of significance and influences the performance indicators in a negative way.

KEYWORDS: *corporate tax, net profit, econometric model, financial performance, financial position, Romania*

JEL CLASSIFICATION: *M41, M10, H25*

1. INTRODUCTION

In an economic environment dominated by globalization and turbulences, governments and economic entities have opposite objectives. Governments are interested in attracting resources to the state budget and investors, while companies are oriented toward financial performance and, implicitly, reduced taxes and duties. Thus, the tax system is the interface between governments and economic entities in their approach to create and improve performance, both at macroeconomic and microeconomic level.

The fiscal system of a country and, implicitly, the existing taxation level, represent a key factor for an investment decision. Globalization can generate pressure on governments to reduce taxation, so that their countries to remain attractive (Matei and Pârvu, 2010). From this perspective, we consider that the fiscal system must be built in a manner that ensures stability

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and financial sustainability, as well as the development of a culture of financial performance across all of economic entities operating in the country.

Corporate tax represents one of the main sources of revenue for the state budget, but also an important influence factor in the decision process of capital investment in a particular country. Depending on the actual level of the tax rate, potential investors will be affected by its high value and, therefore, will explore other opportunities to invest in countries whose tax systems are more relaxed. From this perspective, tax can be considered a factor that contributes to national capital inflows and outflows.

The paper is structured as follows: the first section presents conceptual approaches on the corporate tax, by reference to the literature. The second and third sections complement the first one and include the research methodology and its results. The last section is dedicated to the final conclusions of the research.

2. LITERATURE REVIEW

From a conceptual standpoint, the corporate tax has a multidimensional approach. A first dimension considers corporate tax payers, subsequently enabling the analysis of how this tax impacts on decision-making at the economic entity level. Randolph (2006) considers that labor force is the one this tax is reflected on.
The second dimension of approaching the corporate tax is based on its impact on the way companies are financed and on the borrowed capital cost. Company's choice for a financing solution is influenced by their policy regarding the cost generated by the typology of the funding source, i.e. own sources and borrowed sources. Whatever the option for the funding source typology is, the company will incur a cost represented by dividends, in case of financing from own sources, or interest, if they chose borrowed ones. In this respect, the management's decision on the typology of the funding source will need to consider the tax issues and the impact on the financial position and financial performance of the company.

Modigliani and Miller (1963) comparatively analyzed two entities from the same class of risk, but differently financed: one opted external sources and the other for self-financing. The results showed that, precisely because of interest expenses deductibility, the first form of financing can be more advantageous and, also, that indebtedness may lead to a higher rate of financial return. However, in the presence of taxation, the average cost of capital depends, in addition to the update rates used, on the tax rate, but also on the weight of debts in capital structure.

The model proposed by them was tested by Peles and Sarnat (1979). By statistically testing the way the impact of taxation was reflected, the authors concluded that the financing policy and the business decisions for the adoption of some sources to cover the monetary needs were closely related to the regulations adopted at that time. A similar study was conducted by Ţâţu (2006), who calculated the value of borrowed capital cost both in the presence and the absence of taxation. The test results have shown that the cost of borrowed capital work closely with corporate tax along with other factors identified: the weight of deductible interest expenses in total interest expenses or the tax rate level. Thus, as the share of deductible interest is higher and the tax rate increases, the cost of capital is modified downward. The author also claims that the value of an indebted firm is higher than that of an unlevered firm as a result of tax economy and that the financial structure influences the firm's value. The higher the firm's value, the higher the value of financial liabilities is.

An interesting dimension of profit tax takes into account the fiscal burden of economic entities. The results of a research conducted by Vintilă et al (2011) on a sample of 40 Romanian companies showed that, for 2009, the average effective tax rate was 16.88% thus higher than the statutory one of 16%. This difference is explained by the introduction of a minimum tax starting the 1st of May 2009 owed by taxpayers even when recorded a fiscal loss, as well as by tax adjustments of accounting result for the purposes of determining the taxable one.

Another dimension of corporate tax approach is the one of performance. This concept has various meanings in the academic literature. By reference to the classic definition – "special achievement in a particular field" (https://dexonline.ro/) - at the level of an economic entity, the performance reflects the profit earned from its activity.

Lorrino (2003) considers that the performance aim is to improve the value – cost couple. For Colasse (2008) the performance concept covers different and diverse notions as those of increase, return, profitability, productivity, competitiveness and yield. From the perspective of societal responsibility, the results of the research performed by Hirigoyen & Poulain-Rehm (2014) proved that a superior societal responsibility doesn't determine a superior financial performance, but the financial performance negatively influences the societal responsibility of companies. Revelli & Viviani (2011) demonstrate that the existence of a causal relationship between responsible social investment and financial performance.

In terms of how the financial performance of an economic entity is measured, in literature there are many meanings, but all converge to net profit. An argument in this respect is that the net profit can be the financial funding source of entities for future and also the remuneration source for shareholders. Thus, corporate tax is included in the performance equation and, indirectly, its coordinates the tax rate, the non-deductible expenses and other items.

David-Sobolevschi (2015) considers that profit is only a result indicator which doesn't provide information on the effort of obtaining it, and, therefore rates of return are necessary. They reflect the entity's ability to remunerate the invested capital by managing available resources. For example, the economic rate of return reveals the entity's ability to manage the invested capital, the material, financial and human resources, coupled with the entity's ability to generate profit (David-Sobolevschi, 2003).

Ţâţu (2006) analyzed the impact of corporate tax on the profitability of an entity and examined how the deductible expenses and the tax rate reflect on the on this indicator. Starting from the premise that profitability is the difference between total revenues and expenses and developing this formula in the presence of taxation, it was found that the size of this indicator activates the income volume, the amount of expenses, the share of non-deductible expenses in total and the tax rate in the same time. Different hypothesis were tested, based on the relationship between total income and expenses, the conclusions being the following: profitability of an enterprise is influenced by corporate tax through the weight of non-deductible expenses in total and, as it increases, profitability is reduced by a value amounting to $\pi * C_{ned}$, where π is the tax rate and C_{ned} the value of non-deductible expenses.

The analysis of the approaches on corporate tax highlights that it is a concept with multiple informational valences in terms of impact on decision-making process related to the financial position and performance of economic entities.

3. RESEARCH METHODOLOGY

The sample used in this study included a total of 20 companies listed on the Bucharest Stock Exchange, whose financial accounting information for the period 2012-2014 was analyzed. The selection of enterprises took into account the access degree to financial and accounting information and, for this reason, only listed companies were considered. Their selection criteria were as follows:

- selection of a single industry in which they operate, in order to reduce as far as possible, the same factors specific only to certain areas of activity; the manufacturing industry was considered, including all its divisions (from group 10 to 33);
- companies from the first and second category of Bucharest Stock Exchange were considered;
- in order to collect enough information for the study, those listed companies whose financial statements were not available (whose status was suspended) or only partially available were removed from the sample;
- only companies which didn't register loss during the analyzed period were detained - this adjustment was deemed necessary to avoid creating distortions in the model.

In order to quantify the impact caused by the corporate tax on financial performance, it was considered useful to perform the multiple regression analysis based on using the statistical module Data Analysis existing in Excel worksheets and the Eviews 9 program. Based on the collected data, this implies identifying the relationships of dependency between the variables used, in terms of coefficients and other specific indicators. Based on the results, significance tests were conducted, model corrections where necessary, and their interpretations, in order to express some pertinent conclusions at the end of the research.
The synthesis of the literature revealed several factors that impact on company's results. In this regard, the following variables were retained for the construction of the analysis model:

- endogenous: net profit, return on assets;
- exogenous: effective tax rate, firm size, asset structure, long-term debt to total assets ratio, financial leverage.

Table 1. Formulas for calculating the indicators used as explanatory variables

Indicator	**Formula**
Effective tax rate (RIE)	Tax expenses * 100/ Earnings before tax
Firm size (DIM)	LN (Total assets)
Asset structure (STR_A)	Non-current assets * 100/ Total assets
Long-term debt to total assets ratio ($RDat_{TL}$)	Long term debts * 100/Total assets
Financial leverage (LEV)	Total liabilities * 100/Equity

Source: Authors' synthesis of the relevant literature

4. RESULTS

A regression was run for every endogenous variable, the results being presented and interpreted for each of them.
The econometric model of the net profit (PN) is the one presented below.

$$LN(PN) = \beta_1 + \beta_2 RIE + \beta_3 DIM + \beta_4 STR_A + \beta_5 RDat_{TL} + \beta_6 LEV + e_t \quad (1)$$

Prior to the analysis of the results, it is important to follow the existence of some correlations between variables which could influence the result adversely. The table below indicates that in the first regression model the collinearity is not present, the corresponding coefficients having considerable lower values than the collinearity detection limit of 0.85. The negative relationship between net profit and tax rate can be observed, otherwise a normal situation, or the direct relationship between the value of assets and that of profit, the correlation coefficient having a value of 0.60. In addition, further tests were conducted by running a regression for each explanatory variable, depending on the rest of those from the initial model, The values obtained for R Square were below the maximum acceptable value of 0.8.

Table 2. Correlation coefficients values from net profit model

	LN(PN)	**RIE**	**DIM**	**STR_A**	**$RDat_{TL}$**	**LEV**
LN(PN)	1.0000					
RIE	-0.3604	1.0000				
DIM	0.6034	-0.0848	1.0000			
STR_A	-0.3539	-0.0362	0.1846	1.0000		
$RDat_{TL}$	0.3208	0.1918	0.4921	-0.0345	1.0000	
LEV	0.1360	-0.1408	0.3111	-0.0187	0.4555	1.0000

Source: Authors' processing

According to the table of descriptive statistics presented below, it appears that the average return is around 15.64 mil, the average effective tax rate is 16.87% with about 1 percentage point higher than the legal one and the long-term debt to total assets ratio has an average value of 11.77%. Also, the fixed assets of companies are 50.47% from their total assets, a satisfactory percentage in the terms of a sample operating in the manufacturing industry, while the share of debt to equity has a percentage of 58.23%, which is a relatively high leverage.

Table 3. Values of net profit descriptive statistics indicators

	LN(PN)	**RIE**	**DIM**	**STR_A**	**LEV**	**$RDat_{TL}$**
Mean	15.6479	0.1687	18.9727	0.5047	0.5823	0.1177
Standard Error	0.1824	0.0101	0.1311	0.0210	0.0448	0.0142
Median	15.8884	0.1602	19.0562	0.5113	0.4822	0.0731
Standard Deviation	1.3893	0.0772	0.9988	0.1598	0.3413	0.1081
Sample Variance	1.9300	0.0060	0.9976	0.0255	0.1165	0.0117
Minimum	12.4055	0.0132	16.3217	0.1928	0.1450	0.0019
Maximum	17.8090	0.4961	20.6718	0.8207	1.4293	0.3909
Sum	907.5807	9.7863	1,100.4146	29.2753	33.7732	6.8264
Count	58	58	58	58	58	58

Source: Authors' processing

Moreover, tests were conducted to identify outliers, to treat, if possible, or to eliminate them. After using three standard deviations method two observations were eliminated from the initial sample, outliers of the effective tax rate.

The estimated values of the regression coefficients are in the table below, obtained by running the regression for a confidence level of 95%. Each value will be analyzed; the relationship

between them and the dependent variable *net profit*, as well as the level of significance given by the value of t-Student test and P-value.

Table 4: Estimated values of coefficients from the initial net profit model

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	2.0164	2.2748	0.8864	0.3795	-2.5482	6.5810
RIE	-6.8102	1.4180	-4.8027	0.0000	-9.6556	-3.9648
DIM	0.9042	0.1233	7.3329	0.0000	0.6568	1.1517
STR_A	-4.2268	0.6555	-6.4484	0.0000	-5.5422	-2.9115
LEV	-0.7931	0.3478	-2.2803	0.0267	-1.4911	-0.0952
$RDat_{TL}$	1.8695	1.2451	1.5015	0.1393	-0.6289	4.3679

Source: Authors' processing

Following the substitution of the coefficients, the regression equation is presented below:

$$LN(PN) = 2.0164 - 6.8102RIE + 0.9042DIM - 4.2268STR_A - 0.7931LEV + 1.8695RDat_{TL} \quad (2)$$

At a first analysis of the t-test values and of the probability associated with it, it was found that factorial variables *LEV* and $RDat_{TL}$ are not significant and they should therefore be removed from the model. The estimated coefficient of the long-term debt to total assets ratio is equal to 1.8695, but the value of t-test of 1.5015 is lower than the critical one ($t_{critical}$) of 2.3082, therefore the null hypothesis H_0 will be accepted: $\beta_5=0$, according to which the examined independent variable has no effect on profit. As a consequence, it will be eliminated from the model.

Initially, it was intended to keep variable *LEV*, because the probability associated to the t-test amounts 0.027, less than the materiality threshold. By comparing $t_{computed}$ of -2.2803 with $t_{critical}$ of -2.3082, although the null hypothesis H_0: $\beta_5=0$, the excluded variable should be accepted. Given the small difference between the two indices and the value of $t_{critical}$ = -2.0066 for the 90% confidence level, a new regression was run to determine whether the leverage will be excluded from the model. The results obtained are a P-value probability of 0.0769 and a value of $t_{computed}$ of -1.8039, higher than that of $t_{critical}$ of -2.3082. They require the elimination of variable *LEV* from the model.

Following the adjustments made, the net profit equation will be narrowed and will include only three independent variables, whose coefficients due to running the regression for a confidence level of 95%, are shown in the table below:

Table 5. Estimated values of coefficients from the narrowed net profit model

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	1.1858	2.0394	0.5815	0.5633	-2.9029	5.2746
RIE	-5.7907	1.3676	-4.2342	0.0001	-8.5326	-3.0488
DIM	0.9267	0.1074	8.6270	0.0000	0.7114	1.1421
STR_A	-4.2470	0.6694	-6.3446	0.0000	-5.5890	-2.9049

Source: Authors' processing

Intercept has a value of 1.1858, but the correspondent P-value is greater than the materiality threshold $\alpha = 0.05$, being insignificant in the studied model.

The negative value of coefficient RIE shows that it exerts a negative influence on profit, namely one unit increase of the effective tax rate will determine a result reduction of 5.6262%. This information was obtained from the conversion of the dependent variable by applying the exponential power, in order to make sense in economic terms. The coefficient is statistically significant, because the P-value is lower than the one of the materiality threshold. The value of t-test is -4.2342, lower than the one of the $t_{critical}$ of -2.3056 (for t distribution with $\alpha/2=0.025$ and $(T-k)=54$ freedom degrees). Therefore, we reject the null hypothesis H_0: $\beta_2=0$, so independent variable *RIE* has an impact on the dependent variable *PN*.

Firm size has a positive impact on the dependent variable, the coefficient being in value of 0.9267. Its value can be translated in an economic sense as follows: at an increase of 1% in the value of total assets, the profits will increase by 0.9264%. Important is that it is statistically significant, P-value being less than the value materiality threshold of 0.05. Moreover, by applying the t-test is noted that its calculated value of 8.6270 is higher than that of $t_{critical}$ of 2.3056, therefore, the variable *LN (PN)* is influenced by the factorial one *DIM*.

Between net profit and asset structure there is a negative relationship, which means that at an increase of 1% in the percentage of STR_A ratio, there will be a decrease of 4.1580% of the endogenous variable. The existing situation does not reflect the current theory, a higher share of fixed assets leading to a reduction of profit and not to increase in it, as it would have been expected. As a result the t test, the null hypothesis H0: $\beta 4 = 0$ is rejected and, by comparing the P-value with the threshold α, it can be argued that the coefficient is significant.
Therefore, the final net profit econometric model is as follows:

$$LN(PN) = 1.1858 - 5.7907RIE + 0.9267DIM - 4.2470STR_A \qquad (3)$$

In order to express an opinion on the validity of the model, it is necessary to interpret the ANOVA table coefficients and the values obtained for coefficients used in the analysis of the relationship between variables intensity. The table below shows the values obtained after the completion of the multiple regression.

Table 6 Estimate values of quality analysis coefficients for net profit model

Regression Statistics					
Multiple R	0.831171				
R Square	0.690846				
Adjusted R Square	0.673671				
Standard Error	0.793613				
Observations	58				
Anova					
	df	**SS**	**MS**	**F**	**Significance F**
Regression	3	76.00066	25.33355	40.22340	8.54947E-14
Residual	54	34.01034	0.62982		
Total	57	110.01100			

Source: Authors' processing

The multiple correlation coefficient is 0.831171, close value to the superior limit of the interval. This indicates a strong connection between the analyzed variables, namely net profit as a dependent variable and effective tax rate, firm size and asset structure as independent ones. Furthermore, through the report of determination, we can estimate that approximately 69.08% of the variance in net profit is explained by the regression model. The coefficient value is satisfactory, considering the relatively small number of explanatory factors used in the equation. The coefficient of determination is adjusted to about 2 percentage points lower than the initial one, value judged to be also satisfactory.

The role of systematic factors should be higher to the residual factors, as it happens in the studied model. Statistics F is computed with their help, whose value of 40.22340 is higher than that of tableF of 2.77576. As a consequence, the null hypothesis H_0: $\beta_2 = \beta_3 = \beta_4 = 0$ is rejected, so it can be stated that the action of the determinant factors is significantly different from the role of chance on net profit variation. Moreover, the value of Significance F is 8.54947E -14, well below the materiality threshold α, and we can thus say that the model is statistically relevant.

Another test used is the one on errors normality. Analyzing the residual variables distribution histogram and using the Jarque-Bera test, we decide on the assumption of errors normality. The graph below shows that the distribution of errors is a normal one, and, in addition, by comparing the value of Jarque-Bera test of 1.75 with the critical value selected from the χ^2 distribution with two freedom degrees of 5.9914, the decision of accepting the null hypothesis $H_{0:}$ *normal distribution of errors* is taken. The value of the probability associated to the Jarque-Bera test is 0.4166, higher than the one of the materiality threshold, therefore the same decision is obtained.

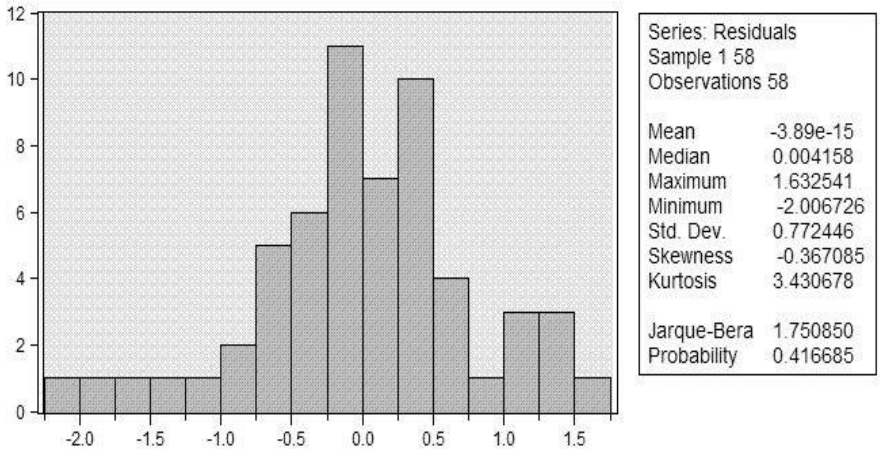

Figure 1. Histogram of errors in net profit model
Source: Authors' processing

The errors autocorrelation is achieved by means of the Lagrange Multiplier test, the model correction being necessary if the result indicates the presence of the phenomenon. It was found that the value of P-value associated to the coefficient of $\hat{e}_{t-1}$ is less than the materiality threshold, which implies the rejection of the null hypothesis H0: $\rho = 0$ there is no correlation in favor of the alternative. Consequently, we proceeded to the correction of the model, the unbiased estimates of the coefficients being shown in the table below:

Table 7. Estimated values of net profit model coefficients in the absence of autocorrelation

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	1.7796	2.5982	0.6849	0.4963	-3.4294	6.9886
RIE	-4.9061	1.3481	-3.6392	0.0006	-7.6089	-2.2033
DIM	0.8898	0.1380	6.4455	0.0000	0.6130	1.1665
STR_A	-4.3234	0.7343	-5.8876	0.0000	-5.7956	-2.8512

Source: Authors' processing

In terms of errors heteroscedasticity, after applying the White test, it was found that its statistics, represented by the product of the number of sample observations and R Square, has a value of 30.70 and is higher than the critical value selected from the distribution $\chi 2 = 16.91898$ (for $\alpha = 0.05$ and the number of degrees of freedom = 9). This is the reason why the alternative hypothesis H1 of heteroscedasticity is accepted. This observation will be mentioned in the limitations of the study, the reasons for this phenomenon being multiple: omitted independent variables outliers or variation of parameters.

Following the procedure applied to other models, for the econometric model of return of assets (ROA), an analysis of correlation coefficients set between variables is performed based on the following formula:

$$ROA = \beta_1 + \beta_2 RIE + \beta_3 DIM + \beta_4 STR_A + \beta_5 RDat_{TL} + \beta_6 LEV + e_t \qquad (4)$$

The identified situation reflects the fact that multicolinearity doesn't exist, the coefficients values being within the acceptable limit. Also, as in the case of financial return, none of the factorial variables has a positive influence on ROA, the values of correlation coefficients being negative. The table below summarizes the values obtained:

Table 8. Values of correlation coefficients in ROA model

	ROA	**RIE**	**DIM**	**STR_A**	**$RDat_{TL}$**	**LEV**
ROA	1					
RIE	-0.3427	1				
DIM	-0.3022	-0.0848	1			
STR_A	-0.4949	-0.0362	0.1846	1		
$RDat_{TL}$	-0.1612	0.1918	0.4921	-0.0345	1	
LEV	-0.1011	-0.1408	0.3111	-0.0187	0.4555	1

Source: Authors' processing

The results from testing the initial model indicated that there are estimated coefficients which are not statistically significant. The values obtained for P-value corresponding to the leverage or to long-term debt ratios are above the materiality threshold and, therefore, the recommended treatment is the exclusion of these insignificant variables from the model. Hence, the final model of return on assets (return on assets) is composed of three exogenous variables action, namely: effective tax rate, company size and asset structure. For a confidence level of 95%, the estimation of the coefficients related to above mentioned variables are shown in the table below:

Table 9. Estimated values of coefficients in ROA model

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.5306	0.1262	4.2058	0.0001	0.2777	0.7836
RIE	-0.3135	0.0846	-3.7052	0.0005	-0.4831	-0.1439
DIM	-0.0158	0.0066	-2.3843	0.0207	-0.0292	-0.0025
STR_A	-0.1840	0.0414	-4.4436	0.0000	-0.2670	-0.1010

Source: Authors' processing

As a result of the estimated coefficients substitution, the model becomes as follows:

$$ROA = 0.5306 - 0.3135RIE - 0.0158DIM - 0.1840STR_A \qquad (5)$$

Primarily, the low values obtained for P-value are found, which means that all estimated coefficients are significant and, therefore, their interpretation can be performed. As in the case of the financial return, only the free term of the regression determines a positive influence on the variation of the analyzed indicator. In addition, the coefficient *Intercept* is relatively high, implying the existence of other factors not included in the present model, which determines the increase in return on assets. The calculated value of t-test of 4.2058 is large enough that, when comparing to the critical value of the same test equal to 2.3056, the null hypothesis H0 of insignificance to be rejected. The result of P-value also supports the previous reasoning, because it is closer to 0 than to the materiality threshold.

For an increase of 1% of the effective tax rate, the return on assets will decrease by 0.3135 percentage points. This is the way of interpreting the estimated coefficient for variable *RIE*, for which the t-test must be performed. The calculated value of the test is equal to -3.7052, less than the critical one, so H0: $\beta 2 = 0$ is rejected in favor of alternative and the variable has an impact on the return on assets. In addition, the coefficient also passes the significance test, P-value of 0.0005 being much lower than the materiality threshold α.

The estimated coefficient of variable *DIM* is -0.0158, situation which indicates that assets value does not affect in a positive sense the dependent variable as it would have been believed. Nevertheless, the coefficient value is small enough so that a 1% increase in the value of total assets will result in a reduction of return on assets of 0.0157%. In order to analyze the importance of the variable in the model, the t-test is conducted. By comparing the computed value ($t_{computed}$ = -2.3843) with the critical one ($t_{critical}$ = -2.3056), the alternative hypothesis H_1: $\beta_3 \neq 0$ is accepted, thus part of the variation in return on assets arises from the changes in the value of total assets. Moreover, P-value equal to 0.0207 is below the materiality threshold α, which is why the coefficient passes the significance test.

As in the case of financial profitability, the estimated coefficient for variable STRA has a negative value, which indicates that an increase in assets structure ratio of one percentage leads to a decrease of return on assets of 0.1840 percentage points. The null hypothesis H0: $\beta 3 = 0$ is rejected as a result of t-test interpretation, its calculated value of -4.4436 being lower than the critical one. In addition, the estimated coefficient is significant, P-value having a value close to 0.

As a result of the interpretations made on the above factors, it is important that the validity of the model as a whole to be statistically tested. In this sense, the table below provides the necessary information for adopting the right decision.

Table 10. Estimate values of quality analysis coefficients for ROA model

Regression Statistics					
Multiple R	0.659293				
R Square	0.434668				
Adjusted R Square	0.403260				
Standard Error	0.049094				
Observations	58				
Anova					
	df	**SS**	**MS**	**F**	**Significance F**
Regression	3	0.10007	0.03336	13.83968	8.23E-07
Residual	54	0.13015	0.00241		
Total	57	0.23022			

Source: Authors' processing

The correlation coefficient value indicates that there is a sufficiently strong connection between the tax rate, company size and asset structure on the one hand, and return on assets as the dependent variable, on the other hand. Underlying this statement is the value actually recorded, in this case 0.659293, a value that is closer to the upper limit. The return on assets

variation is explained in proportion of 40.32% through the current model, having a relatively low value, but satisfactory for the number of the factorial variables retained in it.

ANOVA table leads to a decision on the validity of the econometric model. Y_t variation around the average breaks down in two elements: the explained variance, provided by the effects of factors included in the model, with the value of 0.10007 and the unexplained variance derived from the errors of the model, in value of 0.13015. Statistics F, whose value of 13.8398 is greater than the one of tableF of 2.77576, leads to the rejection of the null hypothesis H0: $\beta 2 = \beta 3 = \beta 4 = 0$. Thus, we can say that the action of determining factors is significantly different from the role of chance in variation on return on assets. In addition, to complement the opinion on the quality of the model, an analysis of the probability associated with the F-test is required. Value of Significance F of 8.23E-07, much lower than the materiality threshold α, confirms that the model is statistically relevant.

By testing the errors normality, we find that their variation in the profitability model is relatively high, the histogram showing an abnormal situation. It is noted that in this case, the chart below does not approach Gauss bell, so the errors do not follow a normal distribution. In order to obtain a confirmation of the graph method, the analysis of Jarque-Bera test result is necessary. Its computed value of 65.31525 is higher that the critical one of 5.9914, selected from χ^2 distribution with two freedom degrees, a reason why the decision of rejecting the null hypothesis H_0 is taken: normal distribution of errors. Is therefore irrelevant what method is chosen, be it the graphical one or the above mentioned test, because the same conclusion is reached: the model residuals do not show a normal distribution.

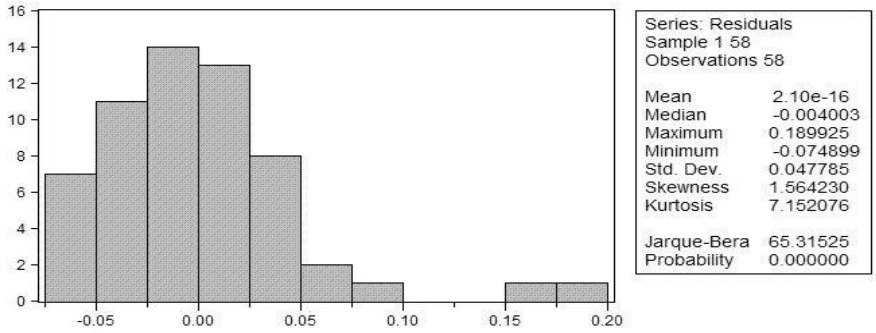

Figure 2. Histogram of errors in ROA model
Source: Authors' processing

The presence of the errors autocorrelation can influence the estimated values of the coefficients by the least squares method, these being able to remain unbiased, but not the best. Testing of the phenomenon existence is achieved by means of the Lagrange Multiplier model, the correction being needed if the result is positive. In the case of return on assets regression, it was found that the amount of P-value corresponding to $\hat{e}_{t-1}$ coefficient is less than the materiality threshold, which implies the rejection of the null hypothesis H0: $\rho = 0$ there is no correlation in favor of the alternative. The result obtained requires the correction of the model, the new values of the independent variables coefficients, being shown in the table below:

Table 11. Estimated values of ROA model coefficients in the absence of autocorrelation

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**
Intercept	0.5104	0.1414	3.6095	0.0007	0.2269	0.7938
RIE	-0.2959	0.0857	-3.4531	0.0011	-0.4678	-0.1241
DIM	-0.0147	0.0074	-2.9690	0.0441	-0.0296	0.0003
STR_A	-0.1938	0.0486	-3.9874	0.0002	-0.2912	-0.0964

Source: Authors' processing

The White test was used for testing the hypothesis of the constant variation of errors for each observation. Its statistics, represented by the product between the number of observations of the sample and R Square, has a value of 11.54067 and is less than the critical value selected from the $\chi 2$ distribution = 16.91898 (for $\alpha = 0.05$ and nine degrees of freedom), which is why the null hypothesis H0 of homoscedasticity will be accepted.

5. CONCLUSIONS

The purpose of this research was to identify the possible influence of corporate tax on the financial performance of a company. In this respect, after clarifying the concept of performance, two representative indicators were selected, namely net profit and economic profitability (return on assets). For each of them, a model was built for explaining the variation of the performance indicator, determined in a lesser or a greater extent also by the effective tax rate as a factorial variable. It stands to reason that in an economic entity, there is a set of variables that determine changes in its economic results, on the one hand, and in the management decisions of any kind, on the other hand. Thus, we considered essential, as in real life, to identify the impact of the tax in its interdependence with other factors and not individually, using the multiple regression analysis as a tool.

After the completion of the regression of net profit, it was found that not all five independent variables have an effect on it and, therefore, the insignificant ones were removed from the model. The analysis of the results obtained confirmed the hypothesis related to the impact of corporate tax, the effective tax rate negatively influencing the dependent variable. In addition, inside this model, we identified the strongest effect of the effective tax rate, resulting in a lower net profit with 5.63% compared to approximately 0.31% in case of return on assets.

As regards the other factorial variables of the model, firm size is favorably reflected in the net profit variation, while asset structure, contrary to the existing theory, determines the analyzed indicator decrease. Linked to model validity, tests applied determined voicing a positive overall opinion an on its quality. Therefore, it can be concluded that a percentage of 67.36% from the net result variance is explained by the regression model.

For return on assets, a regression model was built, whose composition consists of the final effective tax rate, firm size and structure of assets, as exogenous variables. We observed, except for the constant term, a negative influence of all the factors included in the model, the highest variation of return on assets being determined by the effective tax rate. As regards the other factors, both assets value and their structure determine within companies in the sample, a decrease in the studied indicator by 0.0158 percentage points, respectively 0.1840 percentage points. In terms of regression quality, F test confirmed the validity of the model, 40.32% of the return on assets variation being caused by the action of the determining factors.

As regards the limits of our research, it is important to mention that these are of a methodological nature. One reason is that the sample used comprises of 20 companies listed on the Bucharest Stock Exchange, value that can be considered relatively low. Also, because the analysis could not be performed on a single manufacturing sector because of insufficient data, there may be specific features of each sector that have not been taken into account. In addition, the limits of econometric modeling, as well as those from processing operations carried out by the author, are inherent in an empirical research. Not at last, the results of heteroscedasticity tests should be considered, which can also be part of the limitations associated with this study.

The main contribution brought by or research is the empirical analysis of the impact of corporate tax on company's performances. It was divided into two coordinates, with the intention to demonstrate and quantify the effect of taxation on each of the selected indicators: net profit and return on assets. The fact that in both models, the effective tax rate has passed the significance tests and also resulted in a negative effect on performance indicators may be an indication and a prerequisite for conducting future studies of higher magnitude, whose results can be generalized.

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