Financial and Bankruptcy Risk of Economic Entities. Analysis Models

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Abstract**:** *The paper purpose is to analyze the financial and bankruptcy risk that economic entities carry. We considered it appropriate to select some companies from the oil and gas industry, due to the challenges that this industry has gone through in recent years, from the point of view of technological changes, the volatility of production and the price of oil and gas. All these elements brought a significant risk to the companies in the industry, bringing challenges to their management. Moreover, to all these aspects related to the companies are added the geopolitical tensions that have often affected the medium- and long-term plans of the companies, as well as determine legislative changes. We used an econometric model built on the basis of data series organized in panel form, this being the most straightforward and most efficient way to analyze the risk and profitability of companies in a certain sector, when different companies are considered. We built econometric models to explain which are influencing factors on companies' profitability, and among the most important variables considered were those that measured performance, i.e., return on equity (ROE) and return on assets (ROA). Accordingly, the bankruptcy risk, credit risk and liquidity risk of each company among those taken into analysis was measured. By tracking the impact of these risks, we obtained results on the manner in which they influence financial performance.*

Keywords: risk of bankruptcy, financial risk, return on equity, return on assets

JEL Classification: G323, G33

1. Introduction

The risks can be viewed both from the point of view of managers and from the point of view of creditors, each of them being interested in organizations to function well, to make a profit, to have the lowest possible financial risk and to avoid bankruptcy.

The companies in the oil and gas industry under analysis belong to different countries and geographical regions, which allowed us to benefit not only from the effect of diversification, but also reduced the potential influence that can appear due to home-biases. In this respect, we developed an econometric model based on panel data series. The scope of this model is explaining which the most influencing factors on companies' profitability are.

The influencing factors were the same according to several papers in the specialized literature, and within them the emphasis was placed on the factors that measure the financial risk and the risk of bankruptcy. By tracking their impact, information can be obtained on how the situation of companies in this sector can deteriorate and how it can improve, based on the risk factors related to the financial component and bankruptcy.

2. The stage of knowledge

The financial diagnosis has a very important role in identifying the financial imbalances, focusing on the origin and the causes that generated them, being also important in identifying some recovery measures that could be implemented. In specialized

literature, financial diagnosis has the following objectives: identifying and quantifying the return on capital of the company, establishing the level of financial and economic balance, the latter aspect being very important in assessing the degree of risk involved by the company: economic, bankruptcy or financial.

Economic profitability (ROA - return on assets) is a measure for the efficient use of the company's assets. Thus, this economic recovery shows the efficiency with which the company's assets are used and can be extremely useful in the financial management of a company. To understand the rationality behind this indicator it is important to identify the effect and effort indicators. In this regard, there may be extensive discussions. Therefore, there are several rates in the literature called economic, each with its own formula, but also their own information capacity (Dragotă, V., and other, 2005).

Out of these formulas extracted from the specialized literature, the one that has gained the widest recognition in terms of use in financial diagnosis is the one in which net profit is related to total assets.

ROA can provide a clear dimension of how any firm uses its assets, meaning the extent to which it turns the money used to purchase equipment and machinery into profit.

A favourable situation for a company is a situation in which this rate is positive and is on an upward trend.

Another extremely important indicator which is used in company's performance evaluation of ROE (return on equity).

Specialized literature positions this rate as one of the most important, being an indicator which the measure of performance of most enterprises is based. The formula of this indicator (ROE) is represented by the ratio between the net profit (the company's result) and the own capitals (Stancu, I., 2007, p. 760).

Based on this margin, the company's shareholders can verify whether the capital investments have been made and how efficient are the methods of using the company's equity. According to a paper in the specialized literature, financial profitability "expresses the company's ability to distribute dividends to shareholders and increase reserves, which, in fact, represents an increase in shareholders' wealth." (Stancu, I., Stancu, D., 2012, p. 360). Based on this definition, it can be stated that a potential investor is always interested in the highest possible rate of financial return, which can show that the company has the ability to distribute dividends.

Based on the above, we believe that a company should generate a higher level of ROE (return on equity) than the return required by shareholders, so that it can be said that it is a successful management and that the company has performed. In most cases, the return that investors demand is compared to what can be obtained on the capital market, through investments in government securities or term deposits, obviously adjusting to the level of risk assumed for each of these categories of investments.

DuPont decomposition is a well-kwon approach in the literature and is very relevant for company's performance determinants.

According to the theory in the field of corporate finance, the rates of return on capital represent a synthesis of the interaction between: margin rate; rotation rate; capital structure rate

Using the DuPont breakdown, the influencing factors for financial profitability and economic profitability can be highlighted.

Using this diagnostic methodology helps determine the causal factors for economic profitability and financial profitability, according to the strategy that the company's management applies (Vintilă, G., and other, 2012).

According to economic theory, the rate of return on invested capital (ROIC) can be calculated based on the following formula, considering a net margin rate and a turnover rate (Dragotă, V., and other, 2005, p.58):

$$ROIC = \frac{EBIT(1-i)}{Economic\ Asset} = \frac{EBIT(1-i)}{Turnover} * \frac{Turnover}{Economic\ Asset}$$

In this breakdown, the first rate is a net margin and is influenced, first of all, by the sales of the company for which the analysis is performed. On the other hand, the second fraction in the formula is a turnover rate (shows the turnover rate) of the economic asset and reveals the value of the economic asset in turnover. Regarding this breakdown, it can be stated that a firm can increase the return on invested capital either by increasing the turnover rate of the economic asset or by increasing the net margin, meaning the first fraction of the previous formula.

Furthermore, according to the DuPont breakdown, the rate of economic profitability can be determined using a product from a commercial rate of return and a rate of rotation (speed of rotation). The formula obtained is as follows:

$$ROA = \frac{RE - IP}{AE} = \frac{RE - IP}{CA} * \frac{CA}{AE} = R_c * V_r$$

where:
RE - Operating result
IP - Income tax
CA – Turnover
AE – Economic Asset
Vr - Rotation speed (generally shows the manager's ability to effectively control and manage the company's assets in its interest)
Rc - Gross margin rate (commercial rate) - highlights the part of the turnover that belongs to a stakeholder, whether it is creditors, shareholders or others.

In addition to this breakdown for ROA, in the literature we find others, from which we chose the following, which shows the rate of return on a company's assets, which can be written as:

$$ROA = \frac{RE}{VA} * \frac{VA}{IMOB} * \frac{IMOB}{AE}$$

where:
VA = Value added in the company; IMOB = Net fixed assets

In this equation, the first fraction is represented by a gross margin rate, meaning it is represented by the share of the operating result in total value added. The second fraction is an efficiency indicator for the company's fixed assets, and the latest ratio (IMOB / AE) can be considered as a measure for the quality of the company's assets.

As we have done with the other performance rates, the DuPont breakdown can also be used for financial profitability (ROE), and the formula is as follows:

$$ROE = \frac{Net\ Profit}{Turnover} * \frac{Turnover}{Economic\ Asset} * \frac{Economic\ Asset}{Equity}$$

It is observed that the ROE was decomposed using three other elements:

- the first fraction is the rate of commercial profitability of a company;
- the second fraction (CA/AE) represents a turnover rate (turnover rate) of the economic asset and shows the profitability of the company;

- the last fraction, the last ratio represents a structure rate, this expressing the risk between the attracted capitals and its capacity to face the obligations assumed through financing, respectively reimbursements and remunerations of the attracted capitals. This last report can be written according to the degree of indebtedness, as will be presented below, also showing the connection with the risk posed by the company:

$$\frac{Economic\ Asset}{Equity} = \frac{Equity + Debts}{Equity} = 1 + \frac{Final\ Debts}{CPR}$$

In the evaluation of a company, the risk diagnosis is of particular importance, with its help being detected financial risks, economic risks, but also bankruptcy risks. In this sense, we presented the types of risks that can be found in the activity of a company, but also how they can be identified and, especially, quantified.

Any management strategy must take into consideration the importance of identifying and managing risks, this activity being a key element in the conduct of management. If the risks are understood, both increasing and decreasing, but also their sources, a series of measures can be implemented to moderate them and to reduce the negative effects, being able to identify even benefits. In the diagnosis of a company's risks, a very important role is played by the evaluation of the variability of the results obtained in the previous years, an evaluation that can give an image of what would happen in the following years, if the same trend is maintained.

Several authors define risk as a probability of failure or success, in which failure is the loss of a sum of money from an investment, while success is the obtaining of a profit from that investment.

Regarding the classification of risks, there are numerous works in the specialized literature that specify that economic risk could be classified into three categories, namely:

• exploitation risk - refers to the productivity of the activity for the company being analyzed;

• financial risk - highlights the degree of indebtedness for a company and captures whether the level of indebtedness can affect the health of the company;

• bankruptcy risk - highlights the level of solvency of the company (Vintilă, G., and other, 2016).

In order to evaluate the financial risk, several works in the specialized literature recommend us to use the leverage effect (Dragotă, V., and other, 2012). This type of risk can be determined similarly to the exploitation risk, but due to the fact that the financial risk occurs when the company contracts loans, the formula for calculating it will include interest expenses, to capture as accurately as possible the desired aspects.

Therefore, the financial leverage is calculated in the same way as the operating leverage, meaning it is calculated as the ratio between the turnover and the difference between the company's turnover and the financial profitability threshold, this time.

The formula we have identified for determining the threshold of financial profitability is the following:

$$Threshold\ of\ Financial\ Profitability = \frac{Fixed\ Expenses + Depreciation + Interest}{1 - \frac{Variable\ Expenses}{Turnover}}$$

Starting from the method of calculating this formula for the financial profitability threshold, it can be said that as the financial profitability threshold increases, the risk of bankruptcy will also increase. If a company has no debts, meaning if it has no interest expenses, the financial risk will be equal to the operating risk.

There is a comprehensive definition of bankruptcy risk in the literature, according to which the risk of bankruptcy to which a company is exposed reflects the consequences of all the risks it has assumed. At the same time, it can be stated that the analysis of the

bankruptcy risk can highlight "the company's ability to meet the commitments assumed to third parties and the assessment of its liquidity and solvency" (Stancu, I., Stancu, D., p.377). On the other hand, a high level of indebtedness is one of the main factors that can lead the company to not be able to pay (become insolvent). There are, in economic theory, several ways to determine and analyze this risk, using static analysis and dynamic analysis. Bankruptcy risk analysis, according to the financial-accounting theory, can be performed using financial equilibrium indicators, solvency rates and liquidity rates. These indicators are part of the static analysis and the dynamic analysis highlights the changes from one year to another, either of these indicators or of other variables that refer to the situation of the company and its financial health.

3. Research methodology

This paper aims to assess the bankruptcy and financial risk of companies from Oil and Gas industry. In this sense, we aimed to analyze what are the determinants of companies' profitability, profitability measured by ROE and ROA, and in the determinants we also included variables that measure the risk assumed by these companies (there are several types of risks: financial, solvency and liquidity risks); as independent variables we used: the average annual number of employees, total assets, tangibility of companies' assets, effective tax rate and capital structure (equity reported to total assets of the companies chosen for analysis). The variables tangibility and capital structure capture to some extent the risk of bankruptcy, while financial risk is captured by other variables, including ROE or ROA, which show how profitable the company is or how far we are from the loss threshold.

The general form of multifactorial regression econometric models is presented below. Thus, we built two models through which we tried to explain the performance captured by ROE, but also by ROA. For both models we used the data series organized in panel form, the estimation of the parameters being performed using Eviews. For each of the two models, results will be presented and will be commented from an econometric point of view, but also from an economic point of view.

$$ROE_{it} = \alpha_i + \beta_1 effective\ tax\ rate_{it} + \beta_2 capital\ structure_{it} + \beta_3 \ln(total\ assets)_{it} + \beta_4 \ln(number\ of\ employees)_{it} + \beta_5 tangible\ assets + \varepsilon_{it}$$

$$ROA_{it} = \alpha_i + \beta_1 effective\ tax\ rate_{it} + \beta_2 capital\ structure_{it} + \beta_3 \ln(total\ assets)_{it} + \beta_4 \ln(number\ of\ employees)_{it} + \beta_5 tangible\ assets + \varepsilon_{it}$$

Further, the approach continued by presenting the three types of estimates, which were made using panel data. These methods were estimated using Eviews and based on a specific test we chose the one that is most suitable for what is to be obtained in this paper.

The first estimation method is known in the specialized literature as pooled regression and involves estimating the parameters of the model without making further clarifications and other interventions on the method. This is the least flexible of the three methods that have been considered.

The second method is using fixed effects. This estimation method allows a higher flexibility than the previous one and offers the possibility of the constant within the models to vary from one estimation to another, depending on the class of regressors that have been used. Thus, taking into account the fixed effects adds value to the model and captures information that is not normally captured by the pooled regression method.

The third method of estimation is using random effects. This is the most flexible of the three estimation methods and allows a variation both according to the class of regressors and over time, being the method that can capture most of the information in the

data series used for estimation. All this additional information is reflected in the errors of the model, there is a possibility that it may differ from one class to another and from one period of time to another.

The specialized literature recommends the use of the Hausman test which helps to choose the most appropriate method. The assumptions on which the decision is made in the Hausman test are the following:

H0 (null hypothesis): The most appropriate method for estimation is using random effects

H1 (alternative hypothesis): The most appropriate method for estimation is using fixed effects

Based on these assumptions and estimates made in Eviews, the decision was made using a significance threshold of 5%. In this regard, we aimed to compare the probability associated with the test with 5%, this being the tolerated error for the test decision.

4. The data set

According to the information presented above, we have chosen a number of companies in the oil and gas industry, but from different countries and geographical regions, for the reasons already stated. The data series used in the model refer to the following companies: OMV Petrom SA, Royal Dutch Shell Group, Gazprom, Rompetrol SA, E.ON, MOL, British Petroleum, Total SA, OMV Group, Rosneft, Ecopetrol, Lukoil, ENI, Petrobras, Engie.

The following data sets will be used to construct the variables within the econometric model: net profit, total assets, EBIT, average number of employees registered each year, total assets of companies, fixed assets, intangible assets, tax actually paid and financial assets. These variables can be combined to arrive at the form of the variables that we considered useful in the process of analyzing the performance and risk of companies in the oil and gas sector. The results obtained will be presented using outputs from Eviews.

The data that were used in the model estimates have an annual frequency. The period for which data were obtained was 2009-2021, but the source of these data was represented by the Bloomberg terminal and we specify that we performed a series of processing to bring them in the form necessary for the study using Eviews.

An important processing is that performed for the variables: total assets and average annual number of employees. These are independent variables in the model and we applied them naturally logarithm to be normalized and to be easily used in estimation, without distorting the estimated parameters.

An important step is presentation of the table with descriptive statistics (table 1) to know the shape of the data series and their evolution.

Table 1. **Descriptive statistics for the data series within the model**

	ROE (%)	ROA (%)	Capital structure	Ln (assets)	Ln (number of employees)	Taxation	Tangibility
Min	-14.3	-7.5	0.1	7.10	7.05	0.01	0.26
Max	51.13	21.16	0.74	16.86	13.03	0.36	0.96
Average	6.1	4.85	0.45	11.95	10.70	0.21	0.70
Median	11.99	5.17	0.44	11.96	10.94	0.23	0.67
Skewness	-0.33	-0.89	-0.74	0.14	-0.36	-0.90	-0.15
Excess Kurtosis	4.4	1.61	2.17	-0.29	0.12	-0.01	0.11

Source: own calculations

Based on the data in table 1 we can say that the companies selected from the oil and gas sector registered ROE between -14.3% and 51.5%, and ROA between -7.5% and

21.1%. Thus, it can be stated that it is a variation of performance, being chosen companies from different profitability areas. It is also noteworthy that these performances have changed over time for the same companies. This volatility was generated, in particular, by oil price volatility, but also by a number of other elements, such as geopolitical tensions or legislative pressures, especially in the case of oil companies in Russia, Ukraine or the Persian Gulf.

Another aspect worth noting is the distribution of data series, where we can say that these are letokurtic distributions, where the value for excess kurtosis is positive. Also, the distributions are asymmetric to the right, according to most values for skewness. On the other hand, the exception to these statements are the series to which we applied natural logarithm, where the values for skewness and kurtosis are close to the theoretical values: 0 for skewness and 3 for kurtosis (0 for excess kurtosis, k-3).

First of all, we will present the dependent variables (ROE - return on equity, ROA - return on assets) within the regression model based on panel data and the formulas that were the basis for their calculation:

Variable	Variable's formula
ROE (return on equity)	$\frac{\text{Net Profit}}{\text{Equity}}$
ROA (return on assets)	$\frac{\text{EBIT}(1 - \text{tax rate})}{\text{Total assets}}$

The independent variables of the model are:

Independent variable	Variable's formula
The considered size of the company	$ln(Total\ Assets)$
Capital structure	$\frac{Equity}{Total\_Assets}$
The average number of employees each year	Number of employees
Level of indebtedness	$\frac{Financial\_Debts}{Equity}$
EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)	$\frac{EBITDA}{Turnover}$

5. The results of the research

Using the methodology described above, the two regression models will be estimated, which will try to explain the determinants for the performance of companies in the oil and gas sector, taking into account the risks captured by the independent variables.

We first estimated the model for ROE using pooled regression.

Table 2 presents each variable, the probability value for the Student test and the degree of determination for the entire model. Based on this information, we check whether the estimated parameters are statistically significant and we can interpret from an economic point of view the extent to which the variables used explain the variation in the performance of companies in the oil and gas sector.

Table 2. Estimation results using pooled regression for ROE

Variable	Coefficient	Prob
LN_ASSETS	0.174	92.8%
LN_NO_EMPLOYEES	8.058	2.4%
STRUCT_CAPITAL	1.507	0.0%
TANGIBILITY	-0.575	4.2%
CHARGING	2.104	0.1%
C	-1.572	0.1%
	Value	**Prob (F-Statistic)**
R-Squared	0.313074	0.0%

Source: own processing using Eviews and Excel

The first aspect that can be observed in table 2 is represented by the fact that most of the coefficients are significantly different from zero, ie they have the probabilities related to the t-Student test lower than the significance threshold of 5%. The only variable for which the coefficient estimated in Eviews is not less than 5% is that for the total assets for considered firms.

It is worth noting that a positive relationship was obtained between the number of employees, the actual taxation, the total assets, the capital structure and the ROE. Hence, an increase in ROE (return on equity) could bring a positive. On the other hand, a negative relationship was obtained between ROE and tangibility (the share of tangible assets in total assets). An increase in this last variable can lead to a negative impact in company's performance.

The value obtained for the model constant is negative. This shows that if all the variables considered in the model are zero, companies in the oil and gas industry will record a loss, and this will lead to a negative ROE. This result is not surprising, confirming a simple logic regarding the intermediate management balances at the level of any company in any industry.

Next, we made the estimate for the model that tries to explain ROA (return on assets) using the pooled regression method.

After estimating, using Eviews, the model for ROA, we presented in table 3 results obtained using pooled regression.

Table 3. Results obtained using pooled regression for ROA

Variable	Coefficient	Prob
LN_ASSETS	-0.196	22.1%
LN_NO_EMPLOYEES	0.378	19.6%
STRUCT_CAPITAL	0.120	0.0%
TANGIBILITY	-2.142	37.8%
CHARGING	1.192	82.0%
C	-7.571	4.5%
	Value	**Prob(F-Statistic)**
R-Squared	0.20993	0.0%

Source: own processing using Eviews and Excel

This time, it can be seen that only the coefficient related to the variable called "capital structure" was significantly different from zero, due to the fact that the probability for t-Student test is lower than 5%. On the other hand, a statistically significant result was obtained for the constant of the model. The results for all other variables led to less satisfactory results (coefficients are not significantly different from zero, based on the results from t-Student test from Eviews). If we follow the meaning of the relations obtained, it could be observed that a positive relationship was obtained between the dependent

variable ROA and taxation, the number of employees and the capital structure. On the other hand, for the company's assets, tangibility and ROA, a negative relationship was obtained. Therefore, an increase in these variables will lead to a decrease in the performance of oil companies as measured by ROA.

The case study was continued by presenting the results we obtained by applying the estimation method using fixed effects.

The first model for which the results will be presented is the one that aimed to explain the ROA variation based on independent variables, and the results are summarized in table 4.

Table 4. Summary table for the results of estimating the equation for ROA using fixed effects

Variable	Coefficient	Prob
LN_ASSETS	-0.275	10.3%
LN_NO_EMPLOYEES	0.157	88.0%
STRUCT_CAPITAL	0.187	0.0%
TANGIBILITY	-0.311	15.8%
CHARGING	0.474	37.9%
C	-10.849	35.4%
	Value	**Prob(F-Statistic)**
R-Squared	0.466238	0.0%

Source: own processing using Eviews and Excel

And this time significantly different parameters from zero were obtained only for one of the variables of the model: the capital structure. For all other coefficients, the probability value for the Student test was greater than 5%. It should be noted that the meaning of the relationships has remained the same as in the case of estimation using pooled regression.

The results obtained after the estimation was made using the fixed effects for the equation through which the explanation of the determinants of the performance measured by ROE was followed are presented in table 5.

Table 5. Estimation results for the ROE equation using fixed effects

Variable	Coefficient	Prob
LN_ASSETS	0.165	32.9%
LN_NO_EMPLOYEES	0.546	0.0%
STRUCT_CAPITAL	1.732	0.0%
TANGIBILITY	-0.346	0.0%
CHARGING	1.006	0.5%
C	-6.837	0.0%
	Value	**Prob(F-Statistic)**
R-Squared	0.466238	0.0%

Source: own processing using Eviews and Excel

Following the estimates using the fixed effects for the ROE equation, it was observed that the only statistically insignificant coefficient is that for the total assets of the company, the probability associated with it being higher than the significance threshold of 5%. For all other variables the coefficients were statistically significant. Also, the meaning of the obtained relations was the same as in the case of estimation using pooled regression.

The next method by which estimates were made is by using random effects, and the results will be presented below for the two models: the one that explains the ROE variation (table 6) and the one that explains the ROA variation (table 7).

Table 6. Estimation results for the ROE equation using random effects

Variable	Coefficient	Prob
LN_ASSETS	0.880	59.0%
LN_NO_EMPLOYEES	0.311	0.0%
STRUCT_CAPITAL	1.862	0.0%
TANGIBILITY	-0.365	9.8%
CHARGING	1.145	3.2%
C	-4.320	0.0%
	Value	**Prob(F-Statistic)**
R-Squared	0.37293	0.0%

Source: own processing using Eviews and Excel

Following the estimation, it was observed that for this case, in which random effects were used, parameters that are statistically significant are fewer. In this case, it is the coefficients for the number of employees, the effective tax rate (taxation) and the capital structure. On the other hand, it should be noted that the meaning of the relationships remained the same as for the other estimates (pooled regression and fixed effects).

Table 7. Estimation results for the ROE equation using random effects

Variable	Coefficient	Prob
LN_ASSETS	-0.253	0.0%
LN_NO_EMPLOYEES	0.380	41.1%
STRUCT_CAPITAL	1.642	0.0%
TANGIBILITY	-2.873	0.1%
CHARGING	0.415	0.0%
C	-1.164	3.1%
	Value	**Prob(F-Statistic)**
R-Squared	0.297473	0.0%

Source: own processing using Eviews and Excel

For this case it can be said that a single coefficient is not significantly different from zero, being the one for the variable called "ln_no_employees". For all other variables, coefficients significantly different from zero were obtained. Moreover, the same sense of relationships was obtained for these variables, being obtained direct relationships between ROA and number of employees, capital structure and taxation.

As mentioned above, we will go to make a decision on the most appropriate way to make the estimate, using the Hausman test implemented in Eviews; the test was applied, first of all, for the equation by which we explain the variation of ROE and it is observed that the associated probability is less than 5%, which suggests that the null hypothesis must be rejected and that the most appropriate estimation method is the one in which the fixed effects are taken into account.

We applied the same test for the ROA equation, having the same assumptions, but the probability resulting from the test applied in Eviews is higher than 5%, which suggests that the most appropriate method is the one using random effects.

6. Conclusions

The results obtained from the application of the models in Eviews were interpreted economically and verified from a statistical point of view. Most of the time, the form of these results was in line with expectations, and economic interpretations complemented the tables that summarized the output of Eviews. Thus, by applying the estimates, relationships were obtained between the variable that measures the number of employees and the profitability of companies in the industry, measured by financial profitability (ROE). The same positive relationship was obtained between ROE and capital structure, but also between ROE and the variable that captures the level of effective taxation. On the other hand, a negative relationship was obtained between ROE and the variable called tangibility, which measures the ratio between tangible assets and total assets. Last but not least, we recall the fact that between ROE and the total assets of the companies a statistically insignificant relationship was obtained.

The second equation for which estimates were made is the one that tried to explain the variation of ROA (return on firm assets). This time, the variable for which no significant parameter was obtained is the one for the total number of employees. For all other variables, statistically significant relationships were obtained, and the meaning of the relationships was as follows: a positive relationship between ROA (economic profitability of firms) and variables that measure effective taxation and capital structure and a negative relationship between ROA and total assets and the variable that measures the level of tangibility of the assets of these companies.

All the results presented showed that econometric models confirmed economic expectations and theory and often provided important interpretations and information regarding the determinants of the company's risk and performance, according to studies identified in the articles.

Obviously, there are ways in which this study can be extended, but also elements of research weakness, criticisms that could be brought to the methodology used. A first step that can give more significance to the case study is the inclusion of a larger number of variables in the model, but also the increase in the number of companies that have been considered. Moreover, the study can be extended by applying the same methodology to another sector and making a comparison with the sector of oil and gas production. We believe that this type of approach could bring important results for future research and could be a very good direction to expand this paper.

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