USING LINEAR REGRESSION IN THE ANALYSIS OF FINANCIAL-ECONOMIC PERFORMANCES

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Abstract: Seeing that the steady pace of development and evolution of modern society has left its mark on the phenomena in all fields of activity, including in the field of economics, the analysis of financial-economic performances, as a major preoccupation of firms, has made a huge qualitative leap, by shifting the focus to the exploitation of databases (through adequate techniques) and the thorough interpretation of results. Starting from the idea that in economics, as well as in other sciences, anything has the tendency to depend on anything else, in this paper we intended to develop an econometrical model capable of expressing the relation between the economic rate of return- as a fundamental indicator of expressing the firm's financial-economic performance- and its determinant factors. The multiple linear regression model has been developed through the analysis of data from 30 Romanian companies in the processing industry and by using the specific SPSS instruments, version 16.0.

JEL classification: C01, G30

Key words: multiple linear regression model, financial-economic performances, economic rate of return

1. The analysis of performances and the multiple linear regression

Taking into consideration the rich informational society at the present time, the analysis of financial-economic performances can be seen as a real challenge. The much easier and more rapid access to different financial and nonfinancial information and data of economic entities, determines the analysts to be less interested in the analysis and description of only one economic variable, but rather more interested in the analysis and description of relations between two or more economic variables.

In economic theory as well as in any other science, the idea that anything has a tendency to depend on one or more causes is plausible. Our research is also centered round this idea, and its main goal is to develop an econometrical model to examine the relation existent between different indicators resulted from the firm's financial statement and its performance, expressed through the economic rate of return. In other words, the analysis will be centered round the explanation of the evolution of rate of return depending on the evolution of main financial indicators available at the level of firm.

In order to carry out such an analysis we have used the multiple linear regression method. Briefly speaking, the goal of the multiple linear regression is to point out the relation between a dependent variable (explained, endogenous or resultative) and a great deal of independent variables (explanatory, factorial,

exogenous). With the help of multiple linear regression we can determine to what extent a part of the total variation of the dependent variable is influenced by the variation of the independent variables.

The general form of the equation of multiple linear regression is:

$$Y_i = \beta_0 + \beta_1 \cdot X_{i,1} + \beta_2 \cdot X_{i,2} + ... + \beta_k \cdot X_{i,k} + \varepsilon$$

and:

i = 1,2,…..,n are the observations from the sample;

Y_i = observation *i* of the dependent variable;

$X_1, X_2, ….,X_k$ = independent variables;

β_0 = constant(free term of equation);

$\beta_1, …., \beta_k$ = coefficients of independent variables;

ε = error term of equation.

Developing a multiple linear regression model involved the analysis of data from 30 Romanian companies in the processing industry, companies which are presented in the table in the annex no. 1.

The data analyzed refer to the financial statements of the fiscal year 2008 and were obtained using the access to the online database www.amadeus2.bvdep.com .

We took into consideration the companies in the same industry because there are factors specific to each filed of activity and we wanted to avoid adding dummy variables for the sector.

As a dependent variable we used the economic rate of return, because we consider that it synthesizes best a company's financial-economic performance.

Independent variables were selected by applying the statistical tests corresponding to the correlation analysis (dispersion diagram or Scatterplot and correlation coefficient) to a number of 20 potential variables. In other words, following the testing of the correlation between the economic rate of return and each of the 20 indicators of performance available at the level of firms (considered to be possible independent variables), there were identified and retained 6 independent variables as being linearly correlated with the economic rate of return.

The values registered by the dependent variable and the 6 independent variables, at the level of each of the 30 firms from the sample, are presented in the following table:

Table no. 1: The levels of the regression model variables

No	*Economic rate of return*	Good money	Gross operating surplus	Operating gross margin rate	Cash Flow /Turnover	EBIT margin	Total debt turnover
	Y	X1	X2	X3	X4	X5	X6
1	0,056	0,442	10383120	0,087	0,057	0,036	3,513
2	0,076	0,022	9869544	0,070	0,027	0,042	2,565
3	0,227	1,111	26685671	0,249	0,136	0,152	5,201
4	0,041	0,003	12138277	0,110	0,024	0,076	1,400
5	0,063	0,060	12032959	0,096	0,056	0,037	1,704
6	0,077	0,004	10798008	0,083	0,012	0,080	0,905
7	0,032	0,007	10696810	0,112	0,052	0,047	1,601

8	0,281	2,452	23165418	0,212	0,194	0,165	9,502
9	0,047	0,006	5421437	0,058	0,027	0,025	1,807
10	0,174	0,043	13324530	0,132	0,063	0,117	1,937
11	0,127	0,062	14044440	0,154	0,039	0,105	1,355
12	0,110	0,006	13390931	0,149	0,058	0,096	1,344
13	0,060	0,040	1492526	0,024	0,007	0,012	3,051
14	0,245	0,025	20313159	0,227	0,046	0,179	1,358
15	0,066	0,030	29643236	0,542	0,246	0,287	1,357
16	0,047	0,044	3735283	0,053	0,023	0,017	3,479
17	0,122	0,087	13251207	0,153	0,083	0,094	3,600
18	0,004	0,095	3989975	0,046	0,057	0,004	2,723
19	0,135	0,177	14794181	0,222	0,034	0,136	0,703
20	0,163	0,165	11972850	0,144	0,087	0,115	2,385
21	0,060	0,044	3873616	0,082	0,023	0,030	1,400
22	0,066	0,009	9019110	0,108	0,059	0,062	1,338
23	0,116	0,164	3811847	0,056	0,003	0,043	1,878
24	0,416	0,347	14421802	0,191	0,086	0,143	6,435
25	0,090	0,004	14018015	0,207	0,110	0,073	1,116
26	0,150	0,074	11856849	0,159	0,061	0,099	1,243
27	0,136	0,261	8376274	0,194	0,064	0,078	1,706
28	0,137	0,025	15355836	0,279	0,092	0,132	0,795
29	0,229	0,058	19331352	0,287	0,180	0,139	2,343
30	0,120	0,346	4741264	0,073	0,039	0,046	3,295

The variables presented in table no. 1 were determined for each firm, on the basis of the following calculation relations:

◊ ***Economic rate of return (R_{ec}):***

$$R_{ec} = \frac{Earnings\ before\ \text{interest and tax}\ (EBIT)}{Average\ balance\ of\ total\ assets(\overline{At})}, \qquad (1)$$

and:

$$EBIT = Gross\ profit + \text{interest expenses}, \qquad (2)$$

The average balance of total assets ($\overline{At}$), was determined as an average of the sums reported at the beginning and at the end of the financial period 2008.

◊ ***Good money (L_i):***

$$L_i = \frac{Liquid\ assets}{Current\ debts} \qquad (3)$$

◊ ***Gross operating surplus (GOS):***

$$GOS = VA + Se - It - Cp, \qquad (4)$$

and:

VA = Added value;

Se = Operating subsidies;

It = Value of rates and taxes owed (without tax profit and VAT);

Cp = Personnel expenditures (gross income and state budget contributions).

◊ ***Operating gross margin rate (R_{mb}):***

$$R_{mb} = \frac{Gross\ operating\ surplus\ (GOS)}{Turnover(T.O.)} \quad (5)$$

◊ ***Ratio between the cash flow and the turnover (CF/CA):***

$$CF\ /\ CA = \frac{Operational\ cash\ flow(CFO)}{Turnover(T.O.)}, \quad (6)$$

◊ ***EBIT Margin (M_{EBIT}):***

$$M_{EBIT} = \frac{Earnings\ before\ \text{int}erest\ and\ tax\ (EBIT)}{Total\ income(Vt)} \quad (7)$$

◊ ***Total debt turnover (R_{Dt}):***

$$R_{Dt} = \frac{Turnover(T.O.)}{Total\ debt(Dt)} \quad (8)$$

We don't pretend that the list of the above-mentioned variables is exhaustive, because the economic rate of return indicator can be influenced also by other factors beside the mentioned ones-factors that we will group into a stochastic variable called error.

We established and tested the following six hypotheses on this stochastic variable (error variable), but also on the form of the model and its other components:

1. The link between the dependent variable and the independent variables is linear;
2. Independent variables are random. Also, there is no linear relation between independent variables included in regression.
3. The expected value of the error term, ε, is zero, E(ε)= 0;
4. The variation of the error term , ε, is the same for all observations, $E(\varepsilon^2) = \sigma_\varepsilon^2$;
5. The error term, ε, is not correlated between observations $E(\varepsilon_t * \varepsilon_s)= 0$, $s \neq t$;

For the testing of the availability of hypotheses on which the regression model is based, as well as for the estimation of the model's parameters, the testing of these parameters and the validation of the regression model, we used different statistical tests offered by the instruments of the SPSS software (Statistical Package for the Social Sciences), as we will present further on.

2. Developing a multiple linear regression model

Taking into account the above-mentioned information, we developed the multiple linear regression model by using the specific SPSS instruments, version 16.0.

The stages of the multiple linear regression model and the results registered by using SPSS, are:

A. Determining and testing the correlation ratio

In order to determine and test the correlation ratio between the dependent variable and each independent variable we calculated the Pearson Coefficient and the Statistic-t test and the probability associated to it, for each combination of variables- the obtained results being presented in the following table:

Table no. 2: Partial correlation matrix

Correlations

		Economic_ rate_of_return	Good_money	Gross_ operating_ surplus	Operating_ gross_ margin_rate	Ratio_ between_the_ cash_flow_ and_the_ turnover	EBIT_Margin	Total_debt_ turnover
Pearson Correlation	Economic_rate_of_return	1,000	,475	,508	,372	,371	,571	,563
	Good_money	,475	1,000	,406	,149	,443	,276	,846
	Gross_operating_surplus	,508	,406	1,000	,862	,759	,908	,234
	Operating_gross_ margin_rate	,372	,149	,862	1,000	,771	,919	,000
	Ratio_between_the_ cash_flow_and_the_ turnover	,371	,443	,759	,771	1,000	,690	,396
	EBIT_Margin	,571	,276	,908	,919	,690	1,000	,138
	Total_debt_turnover	,563	,846	,234	,000	,396	,138	1,000
Sig. (1-tailed)	Economic_rate_of_return	.	,004	,002	,021	,022	,000	,001
	Good_money	,004	.	,013	,216	,007	,070	,000
	Gross_operating_surplus	,002	,013	.	,000	,000	,000	,107
	Operating_gross_ margin_rate	,021	,216	,000	.	,000	,000	,499
	Ratio_between_the_ cash_flow_and_the_ turnover	,022	,007	,000	,000	.	,000	,015
	EBIT_Margin	,000	,070	,000	,000	,000	.	,234
	Total_debt_turnover	,001	,000	,107	,499	,015	,234	.
N	Economic_rate_of_return	30	30	30	30	30	30	30
	Good_money	30	30	30	30	30	30	30
	Gross_operating_surplus	30	30	30	30	30	30	30
	Operating_gross_ margin_rate	30	30	30	30	30	30	30
	Ratio_between_the_ cash_flow_and_the_ turnover	30	30	30	30	30	30	30
	EBIT_Margin	30	30	30	30	30	30	30
	Total_debt_turnover	30	30	30	30	30	30	30

Table no. 2 is structured around three parts, in accordance with the significance of data, as it follows:

a) the first part encompasses the values of the Pearson correlation coefficients;

b) the second part encompasses the values of the significance threshold (Sig.) corresponding to the testing of the significance of values registered by Pearson coefficients;

c) the third part points out the number of observations considered (n=30 in our case).

The level of Pearson coefficient offers information on the meaning and intensity of the correlation between the analyzed variables. This coefficient can take value within the interval [-1, 1].

When appreciating the intensity of the correlations between variables we took into consideration also the thresholds of significance (Sig.), considering a minimal significance threshold of 0.05, below which coefficients are considered significant from a statistical point of view. In other words, Sig. values below 0.05 for each calculated coefficient suggest that there is a significant correlation between the analyzed variables.

B. Selecting independent variables in the model

In order to come up with the best combination of independent variables which explain the variation of the economic yield, we used the *backward* method, the obtained results being exposed in the following table:

Table no. 3: Selecting independent variables

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Total_debt_turnover, Operating_gross_margin_rate, Good_money, Ratio_between_the_cash_flow_and_the_turnover, Gross_operating_surplus, EBIT_Margin[a]	.	Enter
2	.	Gross_operating_surplus	Backward (criterion: Probability of F-to-remove >= ,100).
3	.	Operating_gross_margin_rate	Backward (criterion: Probability of F-to-remove >= ,100).
4	.	Good_money	Backward (criterion: Probability of F-to-remove >= ,100).

a. All requested variables entered.

b. Dependent Variable: Economic_rate_of_return

As we can notice in table no. 3, in the first stage, we introduced all considered variables in the model, while in the following stages we eliminated one after the other, along the line of the lowest influence on the economic yield the following independent variables:

- Gross operating surplus;
- Operating gross margin rate;
- Good money.

C. Estimating the model's parameters. Testing the significance of the model's parameters

We will carry the analysis of the model's parameters on the basis of the results in the following tables:

Table no. 4: Correlation coefficient (R)

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,815[a]	,664	,576	...	,664	7,578	6	23	,000
2	,815[b]	,664	,594	...	,000	,012	1	23	,914
3	,811[c]	,658	,603	...	-,006	,425	1	24	,521
4	,796[d]	,633	,591	...	-,025	1,809	1	25	,191

a. Predictors: (Constant), Total_debt_turnover, Operating_gross_margin_rate, Good_money, Ratio_between_the_cash_flow_and_the_turnover, Gross_operating_surplus, EBIT_Margin

b. Predictors: (Constant), Total_debt_turnover, Operating_gross_margin_rate, Good_money, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

c. Predictors: (Constant), Total_debt_turnover, Good_money, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

d. Predictors: (Constant), Total_debt_turnover, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

e. Dependent Variable: Economic_rate_of_return

Table no.4 contains the values of the R correlation coefficient at the level of the whole group of variables which form the regression models, calculated distinctly in each stage of the *backward* method of optimal assessment of linear regression.

As it concerns our study, due to the value calculated for the R correlation coefficient R=0.796, we can state that the independent variables detected within model no. 4 (Total debt turnover, ratio between the Cash flow and the turnover, and EBIT margin) are those which explain best the evolution of the dependent variable.

The same conclusion can be obtained by analyzing also the ANOVA table:

Table no. 5: ANOVA Table

ANOVA[e]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,147	6	,025	7,578	,000[a]
	Residual	,075	23	,003		
	Total	,222	29			
2	Regression	,147	5	,029	9,481	,000[b]
	Residual	,075	24	,003		
	Total	,222	29			
3	Regression	,146	4	,037	12,022	,000[c]
	Residual	,076	25	,003		
	Total	,222	29			
4	Regression	,141	3	,047	14,961	,000[d]
	Residual	,081	26	,003		
	Total	,222	29			

a. Predictors: (Constant), Total_debt_turnover, Operating_gross_margin_rate, Good_money, Ratio_between_the_cash_flow_and_the_turnover, Gross_operating_surplus, EBIT_Margin

b. Predictors: (Constant), Total_debt_turnover, Operating_gross_margin_rate, Good_money, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

c. Predictors: (Constant), Total_debt_turnover, Good_money, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

d. Predictors: (Constant), Total_debt_turnover, Ratio_between_the_cash_flow_and_the_turnover, EBIT_Margin

e. Dependent Variable: Economic_rate_of_return

Hence, through the ANOVA test the threshold of significance is calculated for each model, noticing that the registered values are below the significance threshold (0.05), which means that the independent variables explain the variation of the dependent variable.

Estimating the parameters of the regression model and testing their significance involves analyzing the results in table no. 6: *Regression model parameters.* In this table, in the first part we can find the coefficients of the regression model, standard errors, *t*-

test statistic value for each coefficient, as well as the value of the threshold of significance (Sig.).
As it is about a multiple regression, in the second part of the table, the colinearity statistics, tolerance and variation inflation factor (VIF) are specified, as it can be noticed:

Table no.6: Regression model parameters:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-,018	,038		-,469	,644		
	Good_money	-,055	,046	-,302	-1,195	,244	,229	4,375
	Gross_operating_surplus	-4,855E-10	,000	-,037	-,109	,914	,124	8,044
	Operating_gross_ margin_rate	-,250	,394	-,295	-,636	,531	,068	14,707
	Ratio_between_the_ cash_flow_and_the_ turnover	-,394	,404	-,266	-,974	,340	,195	5,124
	EBIT_Margin	1,476	,613	1,034	2,407	,025	,079	12,637
	Total_debt_turnover	,037	,013	,790	2,936	,007	,202	4,958
2	(Constant)	-,020	,032		-,620	,541		
	Good_money	-,057	,043	-,311	-1,337	,194	,258	3,870
	Operating_gross_ margin_rate	-,251	,385	-,296	-,652	,521	,068	14,704
	Ratio_between_the_ cash_flow_and_the_ turnover	-,406	,381	-,274	-1,065	,298	,211	4,745
	EBIT_Margin	1,439	,501	1,008	2,875	,008	,114	8,780
	Total_debt_turnover	,037	,012	,796	3,086	,005	,210	4,753
3	(Constant)	-,029	,028		-1,057	,301		
	Good_money	-,057	,042	-,309	-1,345	,191	,258	3,869
	Ratio_between_the_ cash_flow_and_the_ turnover	-,583	,263	-,395	-2,214	,036	,431	2,320
	EBIT_Margin	1,154	,241	,809	4,784	,000	,479	2,088
	Total_debt_turnover	,041	,011	,870	3,794	,001	,260	3,842
4	(Constant)	-,006	,022		-,261	,796		
	Ratio_between_the_ cash_flow_and_the_ turnover	-,588	,267	-,398	-2,198	,037	,431	2,320
	EBIT_Margin	1,085	,239	,760	4,533	,000	,502	1,994
	Total_debt_turnover	,029	,006	,616	4,661	,000	,808	1,237

a. Dependent Variable: Economic_rate_of_return

The analysis of the results in columns *t* and *Sig*, for the 4 different models confirms us the conclusion according to which the *Ratio between the cash flow and the turnover, the EBIT margin and the Total debt turnover* are variables which estimate best the evolution of economic efficiency. This conclusion is fostered by the values below 0.05 of the significance threshold that corresponds to each of these independent variables (Sig. 0.037 for the ratio between the cash flow and the turnover, and 0.00 for the other two independent variables), but also by the tolerance values for these three independent variables and VIF values.

Taking into consideration these aspects we will retain only the values estimated for the coefficients of no. 4 model in the previous table. Thus, the estimated values for the three parameters of the model and their significances are:

a) value of -0.588 for *the ratio between the cash flow and the turnover*, which means that when the indicator of the *ratio between the cash flow and the turnover* increases by one unit, while the other independent variables remain constant, the economic rate of return decreases on average by 0.588 units;

b) value of 1.085 for *EBIT margin,* which means that when *EBIT margin* increases by one unit, while the other characteristics remain constant, the economic rate of return increases by 1.085 units;

c) value of 0.029 for the *Total debt turnover,* that is, when the *Total debt turnover* increases by one unit, while the other independent variables remain constant, the economic rate of return increases by 0.029 units.

d) The free term has the value of -0.006 and does not have an economic interpretation.

D. Multicolinearity

The diagnosis of colinearity involves the analysis of results in the following table:

Table no. 7: Diagnosis of collinearity

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	Good_money	Gross_operating_surplus	Operating_gross_margin_rate	Ratio_between_the_cash_flow_and_the_turnover	EBIT_Margin	Total_debt_turnover
1	1	5,568	1,000	,00	,00	,00	,00	,00	,00	,00
	2	,882	2,512	,00	,13	,00	,00	,00	,00	,01
	3	,335	4,079	,11	,04	,00	,00	,04	,00	,04
	4	,132	6,497	,00	,14	,01	,00	,39	,03	,04
	5	,048	10,794	,40	,49	,01	,00	,05	,10	,59
	6	,024	15,170	,09	,14	,74	,26	,02	,01	,00
	7	,011	22,746	,40	,05	,24	,73	,50	,85	,31
2	1	4,628	1,000	,00	,00		,00	,00	,00	,00
	2	,856	2,325	,01	,15		,00	,00	,00	,01
	3	,333	3,727	,15	,04		,00	,05	,01	,04
	4	,123	6,140	,00	,17		,01	,41	,08	,04
	5	,047	9,888	,60	,62		,00	,05	,12	,64
	6	,012	19,292	,25	,00		,98	,49	,80	,27
3	1	3,807	1,000	,01	,01			,01	,01	,01
	2	,729	2,286	,03	,18			,01	,03	,01
	3	,301	3,554	,15	,01			,20	,06	,06
	4	,116	5,725	,00	,16			,66	,55	,07
	5	,047	9,004	,81	,64			,13	,35	,86
4	1	3,360	1,000	,02				,01	,01	,02
	2	,329	3,195	,05				,11	,12	,44
	3	,227	3,850	,48				,22	,03	,24
	4	,084	6,321	,46				,66	,83	,31

a. Dependent Variable: Economic_rate_of_return

The most important information transmitted by this table is represented by the values of the condition indexes. Theoretically, an index higher than 15 shows that there is a colinearity problem, while a value higher than 30 indicates serious colinearity problems. In our study, we come across values of the condition index, above 15, for models no. 1 and no. 2. Also from this point of view, model no. 4 represents the linear combination of independent variables which explain best the evolution of economic efficiency.

Taking into account the stages so far, the model of multiple linear regression is:

$$Y = -0,006 - 0,588 \cdot X_1 + 1,085 \cdot X_2 + 0,029 \cdot X_3 + \varepsilon$$

and:

Y = Economic rate of return

X_1 = Ratio between the cash flow and the turnover

X_2 = EBIT margin

X_3 = Total debt turnover

Or:

$$Economic\ rate\ of return = -0,006 - 0,588 \cdot (ratio\ between\ cashflow\ and\ turnover) +$$
$$+ 1,085 \cdot (EBIT\ margin) + 0,029 \cdot (Total\ debt\ turnover) + \varepsilon$$

The observance of hypotheses required by the regression analysis (errors are distributed normally, at average 0; errors have a constant variation; errors are independent of each other) was verified graphically using P-P plot and Scatterplot diagrams.

Figures no. 1 and no. 2 show how these hypotheses are respected:

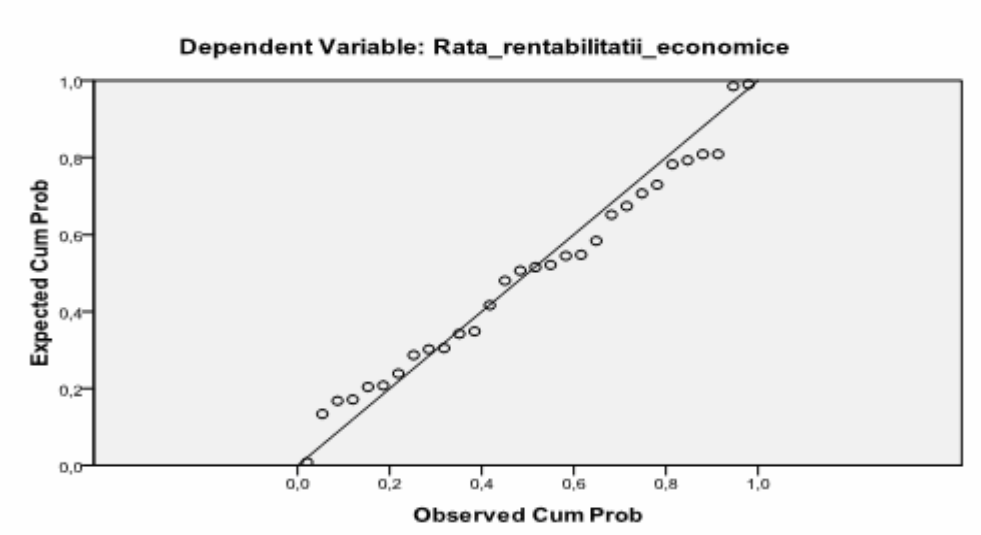

Figure 1: Normal P-P Plot Diagram

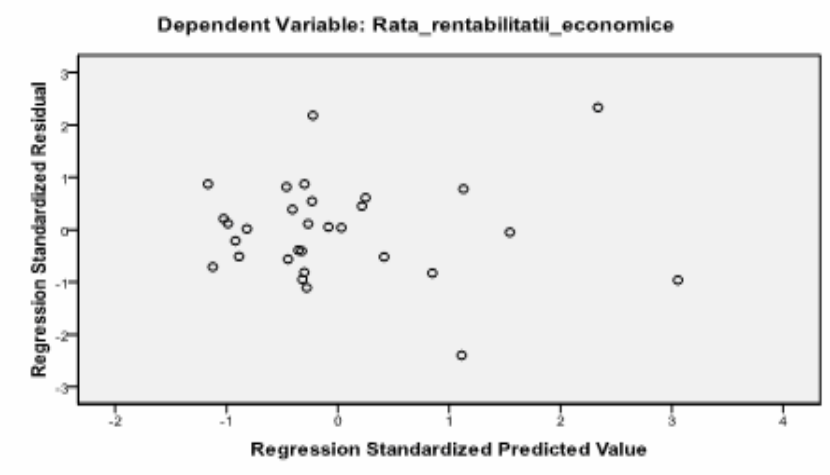

Figure 2: Scatterplot Diagram

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REFERENCES :

1. Andrei, T. Statistică şi econometrie, Ed. Economică, Bucureşti, 2003
2. Helfert, E. Tehnici de analiză financiară, Ed. BMT, Bucureşti, 2006
3. Jaba, E., Grama, A. Analiza statistică cu SPSS sub Windows, Editura Polirom, Iaşi, 2004
4. Spircu, L., Ciumara, R. Econometrie, Ed. Pro Universitaria, Bucureşti, 2007

ANNEX NO. 1

Table no. 1: Analyzed companies

No.	Name of firm	Processing industry	
		Code	Name
1	TABCO-CAMPOFRIO SA	10	Food industry
2	INDUSTRIALIZAREA LAPTELUI MURES SA	10	Food industry
3	CARNIPROD SRL	10	Food industry
4	GALMOPAN SA	10	Food industry
5	AGRO COMPANY SRL	10	Food industry
6	ZAHARUL LIESTI SA	10	Food industry
7	PAN GROUP SA	10	Food industry
8	PRODUCTIE ZARAH MODEN SRL	14	Clothing manufacturing
9	PRINCIPAL COMPANY SA	10	Food industry
10	OZTASAR SRL	14	Clothing manufacturing
11	DORNA SA	10	Food industry
12	CARREMAN ROMANIA SRL	13	Textile manufacturing
13	MARIBO PRODCARN SRL	10	Food industry
14	SUPREME CHOCOLAT SRL	10	Food industry
15	IASITEX SA	13	Textile manufacturing
16	LUCA SRL	10	Food industry
17	MEDA PROD 98 SA	10	Food industry
18	YARNEA SRL	13	Textile manufacturing
19	ZAHARUL SA	10	Food industry
20	NEGRO 2000 SRL	10	Food industry
21	AVI INSTANT SRL	10	Food industry
22	C+C SA	10	Food industry
23	STEILMANN ROMANIA SRL	14	Clothing manufacturing
24	MARCEL SRL	10	Food industry
25	CARMOLIMP SRL	10	Food industry
26	CORSSA SRL	14	Clothing manufacturing
27	TIP TOP FOOD INDUSTRY SRL	10	Food industry
28	ROULEAU-GUICHARD ROUMANIE SRL	14	Clothing manufacturing
29	BETTY ICE SRL	10	Food industry
30	LEFRUMARIN SRL	10	Food industry