# ANALYSIS OF THE INSOLVENCY OF ROMANIAN COMPANIES IN THE CONTEXT OF THE ECONOMIC CRISIS

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**Abstract:**

*This paper approaches an important topic in the field of insolvency, a present field, considering that bankruptcy threatens the development in good conditions of the activity of companies. Our approach concerns the analysis of the insolvency of Romanian trading companies in the context of the economic-financial crisis. Considering the current economic crisis, the problem of insolvency is very present. From an economic and financial perspective, insolvency is a reality of entrepreneurship, with a negative impact: it is conditioned and triggers inopportune and inappropriate management of the patrimony of economic units. Our aim is to perform a comparative analysis in time and space of the evaluation of the insolvency of trading companies, in order to grasp the common and specific elements in defining and presenting insolvency. In the practical part of the paper, for processing the data collected from the financial statements, we will use the SPSS software - Statistical Package for the Social Sciences. The database includes 30 insolvent companies in Romania, analyzed over a 5-year period. For a rigorous structure of the database, we will select the companies that perform their activity in several activity branches. The results of the research show the crisis that affects the analyzed Romanian companies.*

**Key words:** insolvency, insolvability, bankruptcy, ANOVA, economic-financial crisis

**JEL classification:** M41

## INTRODUCTION

The economic crisis is a present and controversial topic. Nevertheless, the importance of this topic is utterly uncontroversial: the effects of the crisis are painfully visible, and the only growing index refers to the number of companies that go bankrupt. The economic climate is gradually degrading, as anti-crisis measures take too long.

The present crisis is unique because it relies on the superposition of three types of crisis that appeared in different moments and that have distinct characteristics: a crisis of liquidity, a financial crisis, and a crisis of capitalism as a model. This extremely rare combination explains its extent and its deep effects, which are incomparable with those of the recession period of 1929-1932.

As a result of globalization, the economic-financial crisis was transmitted in waves of various amplitudes, sweeping all continents in turn. In the nowadays economic context, managers must rethink the entire business: the investment policy, the funding policy, the commercial credit policy. Any decision has a boomerang effect and may make the difference between continuing activity and suspending it.

At the world level, the most important topic under debate has been related to searching for solutions to end the crisis. The economic crisis is still a work in progress.

The effects of the crisis are similar in various economic geographic locations, but the solutions adopted are tightly connected to the peculiarities of the business environment, to the culture and values of society, to the existing resources, to the fiscal policy, etc.

In the context of the current economic crisis, the problem of insolvency is present. From an economic and financial perspective, insolvency is a reality of entrepreneurship, having a negative impact: it is conditioned and triggers inopportune and inappropriate management of the patrimony of the economic units.

### THE CURRENT RESEARCH STATUS

In this paper, we approached an important topic concerning insolvency, a present problem for most participants to the economic life that perform their activity while fearing the possibility of bankruptcy. Our approach refers to analyzing the insolvency of the trading companies in Romania in the context of the economic-financial crisis. Since we require a correct identification and a delimitation of the analyzed topic, it is essential to define the specific concepts. Because the procedure of insolvability is based on the notion of "insolvency", the paper starts by defining and delimiting this notion (Altman, E., Marco, G., Varetto, F., 1994).

According to Law no. 85/2006, modified by Law no. 169/2010, insolvency may be: insolvency presumed as obvious when the debt to the creditor is not paid within 90 days, and imminent insolvency, which appears when it is proven that the debtor will be unable to pay when the contingent liabilities are due. Another term used when speaking about insolvency is insolvability. Insolvability is when the debtor's assets are higher than their liabilities.

Law no. 381/2009 concerning the introduction of preventive concordat and the ad hoc mandate defines a new concept: "difficulty". It must be differentiated from "insolvency" in that the owner of the company in difficulty faces or is able to face contingent liabilities. Difficulty is characterized by a drop in the sales figure, losses, overproduction or too high stocks, by declining net assets and high liabilities. Also, a company in difficulty is unable to get healthy again by using its own resources, and is in danger of getting out of the economic life on the short or medium term, according to the legislation regarding the support from the state. Considering that unprofitable management may actually be the source of the problems that determine insolvency, Law no. 381/2009 encourages the early start of the insolvency procedure.

The definition of insolvency given by Law no. 85/2006 confronts the available monetary funds with liabilities. In order for the company not to become unable to pay its debts to its creditors on the due date, its administrator must create money reserves (Shin, K.S., Lee, Y.J., 2002). The requirement to make cash money unavailable, which contradicts the essentially dynamic nature of the current account, determines the obligation to come with a new definition for the term of insolvency, where the phrase "available cash" would be replace with the notion of "available assets" (Cao, Y., Chen, X., 2012). The insolvency procedure may be considered a forced takeover of the company's management by creditors with the support of the syndic judge (Gestel, T.V., Baesens, B., Suykens, J.A.K., Poel, D.V., Baestaens, D.E., Willekens, M., 2007).

The global economic crisis determined the appearance of insolvability for many companies that activate in Romania. There are three possible options for a company to become insolvent: volunteer restructuring, judicial restructuring, and bankruptcy. Each one of these options implies a specific approach, with different economic and legal effects. Insolvability has both material and psychological results that affect the partners (managers, staff, creditors) (Fang-Mei, T., Yi-Chung, H., 2010).

No equivalence should be considered between the notions of insolvency, bankruptcy, and insolvability. Although Anglo-Saxon literature considered that bankruptcy and insolvency are identical terms, European literature considers that bankruptcy is a much wider notion. The procedure of insolvency appears as a result of the two basic principles of commercial relations, that is, that trade is based on credit and commercial obligations are fulfilled on their due date. Therefore, the inability to pay causes an imbalance in trade, and the intervention of justice is motivated. Therefore, there must be a clear delimitation between the inability to pay (insolvency) and insolvability, respectively the refuse to pay.

Usually, it is enough not to pay a single commercial debt on its due date in order to allow the request to start the bankruptcy of a debtor. Insolvability is characterized by patrimonial assets lower than the liabilities. This insolvability can be solved by contracting credits, which will have no effects from a legal perspective. The impossibility to contract a credit may trigger the procedure of bankruptcy. Insolvency is defined as the lack of liquidity, of money funds that could be used to pay the debts on their due date, which means that insolvency is independent from insolvability. The

immediate effects of insolvency determine the possibility for the creditors to start the procedure of bankruptcy.

## RESEARCH METHODOLOGY

Our aim is to perform a comparative analysis, in time and space, of the evaluation of the insolvability of the trading companies, in order to grasp the common and specific elements in defining and presenting insolvency. For processing the data collected from the financial statements, we used the SPSS software - *Statistical Package for the Social Sciences*. The database includes 30 insolvent companies in Romania, analyzed over a 5-year interval. For a rigorous structure of the database, we will select the companies that perform their activity in several activity branches.

Data analysis will provide information on the causes that determined the insolvency of the companies. Some of the causes encountered in specialized literature are: massive investments for starting the activity, applying a very low sales price, the existence of undiscounted cash deposits older than 10 days. Also, another cause is that sometimes the company's management performs an extremely deficient activity, ignoring the clear signals of both economic-financial indicators and of the current activity, which results in: exceeding the prescription terms of certain liabilities that thus become unrecoverable and extreme increase of debts, especially to the state budget, the degree of indebtedness being extremely high, inappropriate management of the relationships with the suppliers and with the customers, usage of the owned resources with low efficiency, applying a faulty investment policy.

We will use statistical methods to perform the analysis of the risk of bankruptcy. In this sense, in order to make a global evaluation of the risk of bankruptcy, we will use statistical-mathematical and patrimonial models for evaluating insolvability. The sample is made up of 30 Romanian companies that became insolvent at the beginning of the year 2011. They were selected from the Bulletin of Insolvency Procedures published at the beginning of 2011. The analysis will be performed both in time and in space. The considered period is 5 years, respectively 2007-2011. The information was selected from the annual financial statements published on the Web site of the Ministry of Public Finances. The companies selected for the sample, which will be subject to analysis, will be grouped both according to their activity field and to the development region to which they belong. The activity fields considered in our study are: manufacture, trade, constructions, transport, and service provision. The sample structure according to the activity field is presented in the pie chart below.
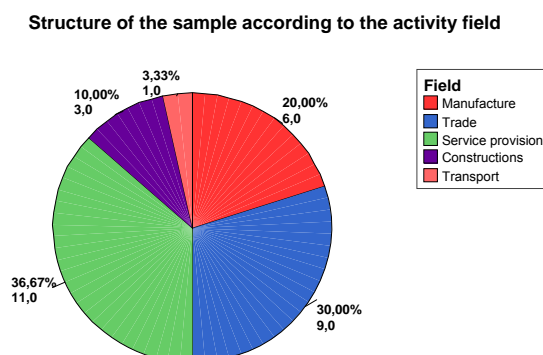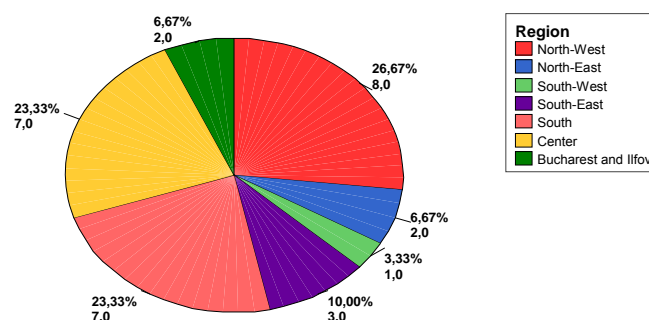


**Fig. no. 1 Structure of the analyzed sample according to the activity field**

We can notice that most companies belong to the activity field of Service Provision, followed by Trade and Manufacture. Only one company is included in the Transport category.

Our country is made up of eight development regions, according to their geographical position: North-West, North-East, South-West, South-East, South, West, Center, Bucharest and Ilfov. The pie chart below presents the sample structure according to the development region.
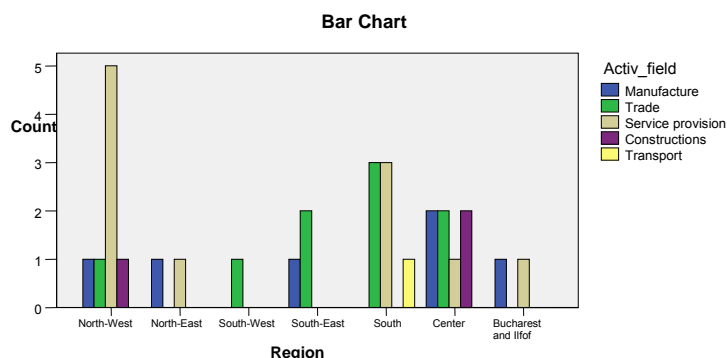
**Structure of the simple according to the development region**



**Fig. no. 2 Structure of the analyzed sample according to the development region**

From the data presented in the chart above, we can see that most companies, respectively 8, belong to the North-West region, followed closely by the regions of the South and Center, each composed of 7 companies in the analyzed sample. Only one company is in the South-West region, making this region the least represented.

**Table no. 1 Structure of the analyzed sample according to the activity field per region**

**Region * Activity_field Crosstabulation**

Count

| | | Activity_field | | | | | |
|---|---|---|---|---|---|---|---|
| | | Manufacture | Trade | Service provision | Construction | Transport | Total |
| Region | North-West | 1 | 1 | 5 | 1 | 0 | 8 |
| | North-East | 1 | 0 | 1 | 0 | 0 | 2 |
| | South-West | 0 | 1 | 0 | 0 | 0 | 1 |
| | South-East | 1 | 2 | 0 | 0 | 0 | 3 |
| | South | 0 | 3 | 3 | 0 | 1 | 7 |
| | Center | 2 | 2 | 1 | 2 | 0 | 7 |
| | Bucharest and Ilfov | 1 | 0 | 1 | 0 | 0 | 2 |
| Total | | 6 | 9 | 11 | 3 | 1 | 30 |

**Bar Chart**



**Fig. no. 3 Structure of the analyzed sample according to the activity field per region**

The region with the largest number of insolvent companies is North-West, and in this region, the companies activating in service provision have been the most affected by the crisis. In most analyzed regions, the field of service provision is the best represented, which shows that the effects of the economic-financial crisis were mainly felt by companies that activate in this activity branch.

**RESEARCH RESULTS**

As we mentioned above, there are several indicators to take into account when analyzing the risk of bankruptcy, respectively predicting bankruptcy. Starting from the evolution of the sales figure and shareholders' equity, which we used to forecast the evolution of the health of the

companies, we computed indicators and complex ratios that provide a broad image of the financial situation of Romanian companies. The most important indicators in analyzing the risk of bankruptcy, presented in specialized literature, are: financial profitability, the degree of indebtedness, profitability, general solvency (Pişleag, A., 2010).

The sales figure of the company is an indicator that reflects the economic growth of the company, determines its strategic position, and defines the place of the company in relation to its competitors, in the activity branch to which it belongs. For the considered sample, the sales figure is decreasing over the analyzed period.

**Table no. 2 The mean sales figure**

**Descriptive Statistics**

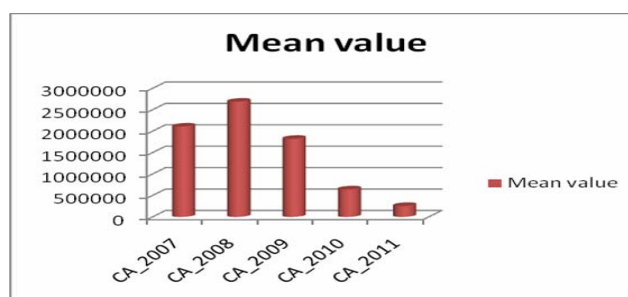|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| CA_2007 | 30 | ,00 | 25438078,00 | 2108666 | 4886904,332 |
| CA_2008 | 30 | 7062,00 | 32903069,00 | 2689814 | 6849938,771 |
| CA_2009 | 30 | ,00 | 21732447,00 | 1822306 | 4354472,986 |
| CA_2010 | 30 | ,00 | 6381521,00 | 641907,5 | 1427180,721 |
| CA_2011 | 30 | ,00 | 3928614,00 | 255336,0 | 753270,12625 |
| Valid N (listwise) | 30 |  |  |  |  |



**Fig. no. 4 Evolution of the sales figure over the period 2007-2011**

The shareholders' equity is the residual interest of the stockholders in the assets of a company after deducting all its liabilities. The obtained results indicate a descendent evolution of the shareholders' equity over the analyzed period, becoming negative in the years 2010, 2011.

**Table no. 3 Mean shareholders' equity**

**Descriptive Statistics**

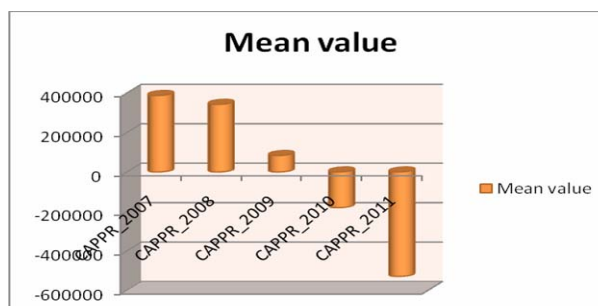|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| CAPPR_2007 | 30 | -191333 | 7684941 | 387573,3 | 1425054,882 |
| CAPPR_2008 | 30 | -774892 | 7857885 | 342737,4 | 1463877,555 |
| CAPPR_2009 | 30 | -3723216 | 7860962 | 83089,73 | 1656008,523 |
| CAPPR_2010 | 30 | -5804801 | 6353300 | -180750 | 1654549,894 |
| CAPPR_2011 | 30 | -5969783 | 125685,00 | -529257 | 1186847,576 |
| Valid N (listwise) | 30 |  |  |  |  |



**Fig. no. 5 Evolution of the shareholders' equity over the period 2007-2011**

The degree of indebtedness is a general indicator of indebtedness and computes the proportion to which total assets are funded by other sources than the shareholders' equity, such as credits, suppliers, and debts to the state. This indicator is the reverse of patrimonial solvency and

may have values smaller than or equal to 1. In normal activity conditions, the degree of indebtedness must be around 0.5. A limit under 0.3 indicates a reserve in resorting to credits and loans, and over 0.8, a dependence on credits, which is alarming.

The mean for this indicator was computed for only 26 companies in 2011 because of the null value of the total asset for 4 companies. We can notice that the mean values of the degree of indebtedness are very high, most exceeding the threshold of 1. This indicates complete dependence of the companies on external loans.

### Table no. 4 Mean degree of indebtedness

**Descriptive Statistics**

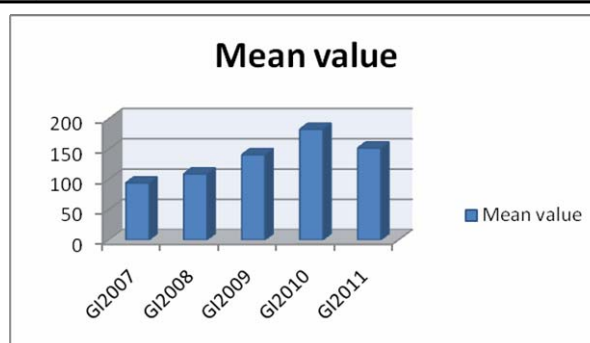|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| GI2007 | 30 | 11,79 | 198,79 | 94,4376 | 37,81323 |
| GI2008 | 30 | 23,14 | 288,28 | 109,2873 | 50,56255 |
| GI2009 | 30 | 23,27 | 432,20 | 140,9565 | 98,03264 |
| GI2010 | 30 | 23,54 | 554,66 | 182,9329 | 141,02960 |
| GI2011 | 26 | -145,00 | 473,35 | 151,9853 | 117,58224 |
| Valid N (listwise) | 26 |  |  |  |  |



**Fig. no. 6 Evolution of the degree of indebtedness over the period 2007-2011**

The efficiency of a company's usage of the resources in order to obtain profit is measured using profitability indicators. The vital objective for the survival of a trading company is obtaining profit on the long term, as this is the source that pays benefits to the shareholders for the social capital brought as a contribution. The indicator used into the analysis was computed as the ratio between the net result and the sales figure.

As we could see above, the net result was negative in the years 2008, 2009, 2010, and 2011, which leads to obtaining a profitability indicator with negative values for these years. The only year for which the mean computed for the analyzed indicator had a positive value is 2007. This value of 2.37% indicates a low mean profitability for the 30 companies included into the analysis.

### Table no. 5 The mean profitability indicator

**Descriptive Statistics**

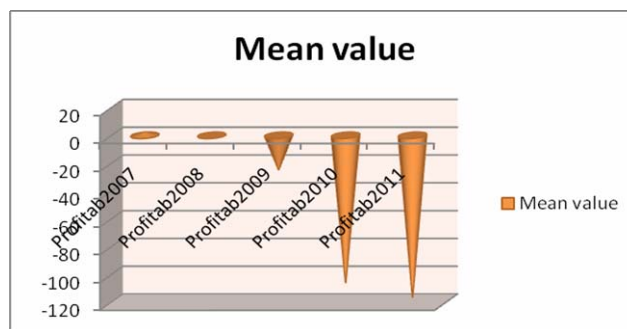|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Profitab2007 | 29 | -57,68 | 109,72 | 2,3683 | 32,21726 |
| Profitab2008 | 30 | -122,85 | 77,50 | -1,6164 | 34,19631 |
| Profitab2009 | 28 | -245,50 | 127,29 | -24,7252 | 76,77546 |
| Profitab2010 | 27 | -2041,86 | 125,32 | -105,8088 | 390,48211 |
| Profitab2011 | 15 | -1010,89 | 24,84 | -116,3303 | 262,36158 |
| Valid N (listwise) | 14 |  |  |  |  |

**Fig. no. 7 Evolution of profitability over the period 2007-2011**

The earnings of the company in relation to the shareholders' contribution to funding the business are shown by profitability indicators. Financial profitability was computed as the ratio between the net result and the shareholders' equity. High profitability of the shareholders' equity means that a small material investment of the shareholders was transformed into high profit, and this is the important for a business: maximize the results expected by the shareholders as a result of the investment they made.

The mean values of financial profitability indicate the problematic situation of the companies, which becomes more poignant in time, as the indicator has a negative mean value in the year 2011.

**Table no. 6 The mean profitability indicator**

**Descriptive Statistics**

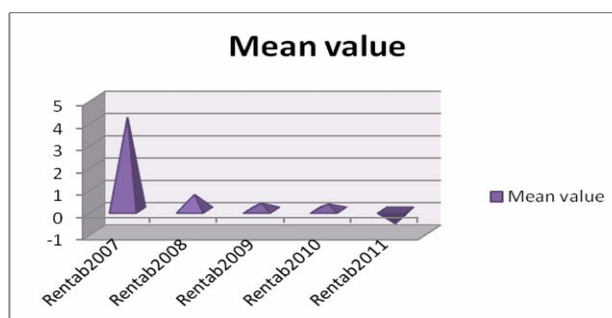|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Rentab2007 | 30 | -,47 | 106,28 | 4,1772 | 19,29717 |
| Rentab2008 | 30 | -1,22 | 8,82 | ,7048 | 1,95629 |
| Rentab2009 | 30 | -2,18 | 2,73 | ,3177 | ,92829 |
| Rentab2010 | 30 | -2,95 | 2,77 | ,2833 | ,96810 |
| Rentab2011 | 29 | -18,99 | ,78 | -,6074 | 3,56202 |
| Valid N (listwise) | 29 | | | | |



**Fig. no. 8 Evolution of financial profitability over the period 2007-2011**

The general solvency ratio (GSR) reflects the ability of a company to pay all its short, medium, and long term debts. It is computed as the ratio between total assets and total liabilities. This indicator reflects the coverage of the debts with assets and the possibility of the company to transform its assets into cash, in order to honor its payment obligations.

**Table no. 7 Mean general solvency ratio**

**Descriptive Statistics**

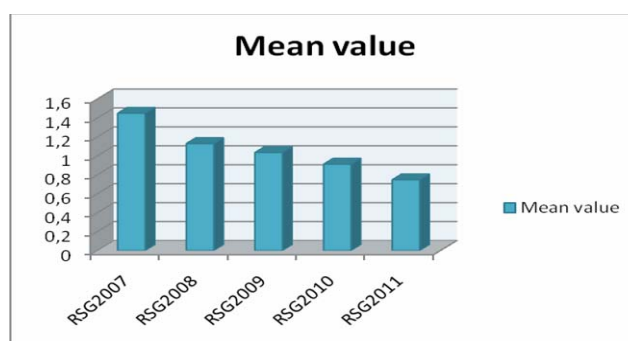|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| RSG2007 | 30 | ,50 | 8,48 | 1,4503 | 1,46567 |
| RSG2008 | 30 | ,35 | 4,32 | 1,1303 | ,71467 |
| RSG2009 | 30 | ,23 | 4,30 | 1,0356 | ,77424 |
| RSG2010 | 30 | ,18 | 4,25 | ,9124 | ,82977 |
| RSG2011 | 29 | -,69 | 4,25 | ,7483 | ,81349 |
| Valid N (listwise) | 29 | | | | |

**Fig. no. 9 Evolution of the general solvency ratio over the period 2007-2011**

Using the correlation analysis and the regression analysis, we will look at the connection between financial profitability, as a dependent variable, and the degree of indebtedness, profitability, and general solvency ratio, as independent variables. In order to determine this connection, we will use the SPSS software.

**Table no. 8 Correlation analysis using the Pearson coefficient**

**Correlations**

|  |  | Rentab | GI | Profitab | RSG |
|---|---|---|---|---|---|
| Rentab | Pearson Correlation | 1 | -,048 | ,075 | -,042 |
|  | Sig. (2-tailed) |  | ,800 | ,693 | ,827 |
|  | N | 30 | 30 | 30 | 30 |
| GI | Pearson Correlation | -,048 | 1 | -,102 | -,625** |
|  | Sig. (2-tailed) | ,800 |  | ,593 | ,000 |
|  | N | 30 | 30 | 30 | 30 |
| Profitab | Pearson Correlation | ,075 | -,102 | 1 | ,198 |
|  | Sig. (2-tailed) | ,693 | ,593 |  | ,294 |
|  | N | 30 | 30 | 30 | 30 |
| RSG | Pearson Correlation | -,042 | -,625** | ,198 | 1 |
|  | Sig. (2-tailed) | ,827 | ,000 | ,294 |  |
|  | N | 30 | 30 | 30 | 30 |

**. Correlation is significant at the 0.01 level (2-tailed).

The obtained results show the existence of a connection between the considered indicators. The value of the Pearson correlation coefficient suggests the existence of an indirect connection between financial profitability and the degree of indebtedness, respectively the general solvency ratio, and a direct connection between financial profitability and profitability.

In order to estimate the parameters of the regression model, the following results have been obtained using the SPSS software. SPSS draws a model using all the independent variables, through the Enter method.

**Table no. 9 The method used in drawing the model**

**Variables Entered/Removed** [b]

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | RSG, Profitab, GI [a] | . | Enter |

a. All requested variables entered.

b. Dependent Variable: Rentab

The equation of the resulting regression model is the following:

**Rentab = 2.801 – 0.007*GI + 0.004*Profitab – 0.730*RSG**

The negative value of the coefficient of factor variables indicates that there is a reverse variation between the indicators, the increase in the degree of indebtedness and the general solvency ratio having a negative influence over the evolution of financial profitability. On the other hand, the positive value of the coefficient of the Profitability factor variable shows the existence of a direct variation between the indicators, the increase in the profitability having a positive influence on the evolution of financial profitability.

## Table no. 10 The resulting regression model

**Coefficients** [a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2,801 | 3,050 | | ,919 | ,367 |
| | GI | -,007 | ,013 | -,125 | -,503 | ,619 |
| | Profitab | ,004 | ,008 | ,090 | ,453 | ,655 |
| | RSG | -,730 | 1,339 | -,138 | -,545 | ,590 |

a. Dependent Variable: Rentab

In table no. 13, the value of R square shows that 19% of the variance is explained by the regression model, and respectively the regression factors (degree of indebtedness, profitability, general solvency ratio) explain 19% of the variance of financial profitability.

## Table no. 11 Explanation of the model using the determination coefficient

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | ,136[a] | ,019 | -,095 | 4,24839 |

a. Predictors: (Constant), RSG, Profitab, GI

## Table no. 12 The ANOVA output

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 8,863 | 3 | 2,954 | ,164 | ,920[a] |
| | Residual | 469,268 | 26 | 18,049 | | |
| | Total | 478,131 | 29 | | | |

a. Predictors: (Constant), RSG, Profitab, GI

b. Dependent Variable: Rentab

The ANOVA table presents the results of the analysis of the variance of the dependent variable under the influence of regression factors and the residual factor. This means that it presents information on the sum of the squares of the deviations of the dependent variable, caused by the regression model and by the residual factor, the degrees of freedom, the estimations of the variances caused by the two sources of variance (regression and residue), the F and Sig ratio. *The sig value for F is not smaller than 0.05, therefore the linear relation between the considered variables is not significant.*

## CONCLUSIONS

The internationalization of the markets dominates the present economic activities. Companies are therefore forced to continuously look for ways to innovate and restructure. The key to survival in such an environment is adapting to the rhythm of change, turning to profit essential features: time, quality, quantity, and costs.

The government is the main pawn, together with the business environment, in stimulating economy, which will determine our economic future. Nowadays, companies no longer wander if they will encounter a major crisis in the future, but when, what type of crisis it will be, and how it will affect the company.

If in the periods of economic growth, insolvability appears as an isolated case, while in the conditions of an economic crisis, it becomes a continuous threat for any company. But to what extent can financial-accounting forecast calculations anticipate the future of a business? Can accounting foresee and prevent insolvency? What is the role played by the economic-financial analysis? Definitely, a diagnosis analysis might provide a partial answer concerning the future of

the activity and indicate the weaknesses to be corrected and the strengths to be capitalized upon. Maintaining insolvent debtors for a longer time in the trading system, without removing or reorganizing and reintegrating them, preserves the block of the commercial relations in which they are part, which results in restraining the freedom of action and in degrading the activity conditions of the other traders as well.

In conclusion, the only way to survive is rethinking the organization processes, both internally and externally. In the conditions of the lack of credits, of the low number of customers, of burdening taxation, of largely diminished export operations, reorganization is a solution for the present economic-financial problems. The complexity of the events prevents us to consider reorganization as the unique answer to all problems. There is no universally applicable recipe. Each company must compute its own costs in order to see which scenario fits it best.

In the analysis performed, we took into consideration only companies in difficulty, respectively those that started the insolvency process in the year 2011. In future studies, we will consider both bankrupt companies and companies with no financial difficulties in constructing our sample, in order to draw a statistical model for predicting bankruptcy.

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