ASPECTS REGARDING THE SCORE METHOD FOR THE BANKRUPTCY RISK PREDICTION

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Abstract: The analysis of rentability and bankruptcy risk for an economic entity is the most important condition that assure the efficacy and the competitiveness of the enterprise. Knowing the level of the rentability ratios, each manager may predict and plan the firm's activity in term of well development. The concern regarding the prediction of the bankruptcy risk was materialized, at the international level, beginning with the 60s from the previous century, in elaboration of a method known as "Score Method", which registered an important development because of the using of some statistical instruments for analyzing the financial situation, taking into consideration an ensemble of ratios. We want to underline, in this paper the importance of the rentability for each economical entity that is trying to survive in the great competition of the market. It can be appreciated that every economic agent, who wishes to remain a part of the competition, has adapt its policies and strategies in order to respond rapidly and efficiently to the new EU conditions. In the article below we also present some rules to respect in order to achieve a certain level of financial well health.

1. BROAD ECONOMIC POLICY GUIDELINES

The European Union must focus its policies on economic growth and employment in order to avoid bankruptcy risk and to achieve a healthy financial state for companies. The current broad economic policy guidelines regarding 2005-2008 years [Council Recommendation, 2005] reflect the new start for the Lisbon strategy. They focus on macroeconomic policies and on the measures and policies that the Member States should adopt to make Europe a more attractive place in which to invest and work.

The recommendation falls within the general framework of the Lisbon strategy: the European Union must mobilize all the resources available in order to achieve the objectives of this strategy, which is designed to make the EU economy the most competitive in the world by 2010.

The Council gives some macroeconomic policies that will create the conditions for more growth and jobs and will secure economic stability. Monetary policies can contribute to this by pursuing price stability.

The recommendation lists the following six economy policy guidelines to be implemented by the Member States:

- to secure economic stability for sustainable growth.
- to safeguard economic and fiscal sustainability.
- to promote a growth- and employment-orientated and efficient allocation of resources.
- to ensure that wage developments contribute to economic stability.
- to promote greater coherence between macroeconomic, structural and employment policies.

- to contribute to a dynamic and well-functioning EMU.

The microeconomic reforms needed to raise Europe's growth potential are given by the European Union Council. It considers that, in order to enhance the EU's growth potential, it is necessary to create jobs and increase productivity. An essential growth factor is investment in R&D, innovation and education. Their international dimension should be strengthened in terms of joint financing and reducing barriers to researcher and student mobility. The Council sets out ten guidelines for microeconomic reforms aimed at increasing growth potential. These are:

- to increase and improve investment in R&D (Research & Development). Businesses will need to play a key role in increasing and improving investment in this area.
  - improving framework conditions to ensure that companies operate in a sufficiently competitive and attractive environment;
  - allocating more effective and efficient public expenditure to this area;
  - developing public-private partnerships;
  - developing and strengthening centers of excellence of educational and research institutions;
  - improving the transfer of technologies between research institutes;
  - developing and making better use of incentives to leverage private R&D;
  - modernizing the management of research institutes and universities;
  - ensuring a sufficient supply of qualified researchers;
- to facilitate all forms of innovation. Member States should take measures to encourage cross-border knowledge transfer and public procurement of innovative products and services. Access to domestic and international finance should be improved. Effective and affordable means of enforcing intellectual property rights should be put in place;
- to facilitate the spread and effective use of information and communication technologies (ICT) and build a fully inclusive information society. Member States they should provide the necessary framework for the related changes in the organization of work in the economy and promote a European presence in the ICT sector.
- to strengthen the competitive edge of Europe's industrial base. This means establishing attractive framework conditions for manufacturing, enhancing competitiveness factors in response to the challenges of globalization, developing new technologies and creating new markets by promoting new technological initiatives based on public-private partnerships and creating business clusters within the EU;
- to encourage the sustainable use of resources and step up environmental protection.
- to extend and deepen the internal market.
- to ensure open and competitive markets in response to globalization.
- to create a more competitive business environment.
- to promote entrepreneurship and create a supportive environment for SMEs.
- to improve European infrastructure.

The Council calls upon Member States to take action along the lines set out in the recommendation with a view to updating the broad economic policy guidelines for 2007. The guidelines set out in the Annex to the Recommendation contain specific recommendations for each Member State.

2. THE GENERAL FRAME-WORK FOR RISK, RENTABILITY AND SCORE METHOD

Romania accession process to the European Union causes trade companies to change their structures, policies and concepts in order to meet the new requirements and thus stand up against the ever tightening competition on the Romanian market and even on the European market of trade companies.

Thus, the trade companies have to develop a market strategy that will give them a healthy financial structure, which means reaching and maintaining a well financial health state.

The functioning and development of the economic system of trade companies under optimum conditions involves necessarily the presence of a rentable economic activity, as a distinct expression of avoiding bankruptcy risk.

This risk may appear because of many factor, such as: the absence of the working capital, the absence of a managerial strategy, the lack of the financial knowlegement , low level of investments, etc. [Danescu Tatiana, 2003].

The risk is the variability of the profit toward rentability and shows the incapacity of the company's adaptation in time and with lowest cost to the variation of the medium condition.

The risk is an exogenous variable and is the antonym term for rentability.

Defining, rentability may be [Nistor E. Ioan, 2002] the collation between results and the resources used and it's necessary control a certain level of risk in order to get the estimate rentability.

We also remind that rentability is under the occurrence of the general risk near which a company develops its activity.

The evaluation of the bankruptcy's risk could be made using some prediction methods which consists in grouping indicators that are correlated with wealth or sickness' system of the enterprises [Eglem J.Y., Philipps A., 1999].

Rentability is a restriction that appears in different correlated aspects: assurance of the remuneration of the production element and of the capital used, administration of all resources in efficiency and efficacy terms. The complete financial diagnosis can not be realised without the analysis of the rentability and risk couple.

The methods for the risk's analysis are statistical techniques of the discrimination analysis. Using the proportional combination of some indicators can be made a delimitation of the companies: companies in bankruptcy state of function, companies in uncertainty state of function and companies in normal state function.

It's now important to talk about score function, the linear conflation of some indicators which can adjust very likely the bankruptcy risk.

A bankruptcy risk score is a number that indicates the likelihood of an individual filing for bankruptcy. Although it has been used for over twenty years to assess risk in lending, few consumers know of it. It is related to the better-known credit score, but unlike credit scores, bankruptcy risk scores are not sold to consumers by any of the credit bureaus. Consequentially, individuals have little or no way of knowing what their bankruptcy risk scores are or how to adjust them downward.

The score methods of bankruptcy risk evaluation uses the indicators that will be here mentioned: indicators of rentability, indicators of structure's rate of assets, liquidity's indicators or efficiency indicators. These indicators that show the performance of the enterprises must be chosen form independent point of view.

The score is a linear function of some variables (indicators) balanced with some coefficients. The variables are induced with the most little square methods. So, the function will be:

$$Z = a_1 \cdot r_1 + a_2 \cdot r_2 + a_3 \cdot r_3 + a_4 \cdot r_4 + a_5 \cdot r_5 \quad (1)$$

where:

$r_i =$ indicators of rentability and structure of the capitals (assets)

$a_i =$ wheights (correlation's coeficients of Z function regarding marginal value of the Z score to a unit r_i).

The score method is used in Romania only for theoretical and methodological evaluation of the financial performance of the enterprises.

In order to choose the enterprises which can access a credit product, banks used the score methods. But now, this method is used simultaneously with others techniques and methods wealth's evaluation of the firm.

Conan and Holder model and Altman model are two examples which use the score technique. Both models mentioned above use rentability in evaluation of the bankruptcy's risk.

The **Altman model** [Altman E.I., 1993], [Altman E.I., 1968]: five variables are chosen from a group of 66 companies - half of them with financial problems. The weight of rentability has a high value, 3.3. The score function of Altman model is:

$$Z = 3.3 \cdot r_1 + 1.4 \cdot r_2 + 1.2 \cdot r_3 + 1.0 \cdot r_4 + 0.6 \cdot r_5 \quad (2)$$

where:

$r_1 =$ Economic rentability rate

$$r_2 = \frac{\text{carry - forward \quad result}}{\text{total \quad activ}} \quad (3)$$

$r_3 =$ Structure rate of the net assets

$r_4 =$ Rotation of the total assets

$r_5 =$ Financial autonomy rate

The Z function value indicates the state of the enterprises, as we may see in the next table.

Table 1

The Z function values for Altman Model

Z value	Bankruptcy risk
Z<1.8	Company with high risk bankruptcy
1.8<Z<3	Company with normal risk bankruptcy
Z>3	Company with lower risk bankruptcy

Altman model is not very high recommended for being used because it refers to US companies from 28 years ago.

Another method can be used is the **Conan-Holder model** [Conan J., Holder M., 1979] that is based on 200 companies grouping from activity's type point of view.

The model offers as a scheme of rentability that includes GEE (gross exceed of exploitation) and total debts. The 3.3 weight becomes in this case -0.24.

The Z function of Conan-Holder model is:

$$Z = 0.24 \cdot r_1 + 0.22 \cdot r_2 + 0.16 \cdot r_3 - 0.87 \cdot r_4 - 0.1 \cdot r_5 \quad (4)$$

where:

$$r_1 = \frac{GEE}{total\ debts} \quad (5)$$

r_2 = Financial stability rate

r_3 = Current liquidity rate

r_4 = Financial expenses/ turnover

r_5 = Expenses with employees/ adjusted value

The model helps to group companies after the grade of the bankruptcy's risk using the value from Z function.

Table 2

The Z function values for Conan-Holder Model

Z	Clasification	Probability of risk bankruptcy (x)
-5<Z<3	Company with high risk bankruptcy	0.7<x<0.9
4<Z<8	Company with normal risk bankruptcy	0.45<x>0.65
9<Z>16	Company with lower risk bankruptcy	0.10<x<0.40

3. SPECIFIC LANDMARKS OF THE SCORE METHODS FOR A ROMANIAN ECONOMIC ENTITY

As a conclusion of the theoretical problems that we discuss in chapters above, even if the two models presented above aren't based on Romanian economical conditions, let's try to use them for M&R CONSULT S.R.L. in order to estimate the values for Z function and the risk of bankruptcy. We worked with effective balance sheet's information for 2006 and with estimated information for 2008.

In order to avoid bankruptcy risk and to achieve a healthy state for companies, the European Community gives Broad economic policy guidelines; regarding 2005- 2008 years.

The company we refer to will implement in 2008 a management program that includes the rules the European Council gives in order to raise Europe's and Romanian's growth potential.

The program includes:
• Implementing computing programs for investment risk parameters;
• Tracing and implementing the operational risk matrix;
• Incorporating the risk component in the investment / disinvestment decision by developing an application to simulate and assess risks.
• Supporting the ongoing development of employees' knowledge and performance;

• Implementing new operational procedures or reviewing the existing ones to comply with the legal regulations and to improve process efficiency.

We will study the Altman's model on S.C. M&R CONSULT S.R.L We will present the a weights and the R rentability and structure of the asset's indicators:

Table 3

Ratios values for M&R Consult S.R.L.

Rates	2007	2008
R1	0.2886	0.0336
R2	0.8587	0.8773
R3	0.0716	0.093
R4	0.01	0.0167
R5	0.5843	0.8616

Source: The balance-sheet of S.C. Consult S.R.L.

- for economic rentability rate   a = 3.3
- for carry-forword results / total activ   a = 1.4
- for structure rate of the net assets   a = 1.2
- for rotation of the total assets   a = 1
- for Financial autonomy rate   a = 0.6

And we obtained

Table 4

Z values calculated for Altman Model

Z values	2007	2008
Z	1.46244	3.0912

For the Conan–Holder's model on S.C. M&R CONSULT S.R.L. we have the following:
- for GEE / total debs   a = 0.24
- for Financial stability rate   a = 0.22
- for Current liquidity rate   a = 0.16
- for Financial expenses/ turnover   a = - 0.87
- for Expenses with employees/ adjusted value   a = - 0.1

And

Table 5

Ratios values for M&R Consult S.R.L.

Rates	2007	2008
R1	-0.038	-0.02
R2	-1.2962	-1.1435
R3	0.0108	0.0419
R4	0.5296	0.3661
R5	4.7666	7.2362

Source: The balance-sheet of S.C. Consult S.R.L.

and we obtained

Table 6

Z values calculated for Altman Model

Z values	2007	2008
Z	0.202534	0.115197

4. CONCLUSIONS

The complete financial diagnosis can not be realised without the analysis of the rentability and risk couple.

The score methods of bankruptcy risk evaluation uses the indicators that will be here mentioned: indicators of rentability, indicators of structure's rate of assets, liquidity's indicators or efficiency indicators. These indicators that show the performance of the enterprises must be chosen form independent point of view.

Conan and Holder model and Altman model are two examples which use the score technique. Both models mentioned above use rentability in evaluation of the bankruptcy's risk.

Because we used models that were made for other types of enterprises that develop their activities in different social, economic and politic medium we get different results.

Altman model shows a high bankruptcy risk in 2006 for our company (1.46244 <1.8) and a very low risk in 2007 (3.0912 > 3).

Conan-Holder model shows a high probability of risk for both periods (for Z=0.202534 $\Rightarrow$ probability of risk is 80% and for 0.115197 is 78%).

It is very easy to see that for Romanian economical medium the Altman model is suitable.

Europe is facing new challenges which call for action. It is enlarging, ageing, continuously integrating but also opening to the rest of the world. And the world is changing too. Building on its extraordinary history of achievement, Europe not only has what it takes to survive in the new global environment with an ageing society; it has also what it takes to thrive and prosper".

Regarding the new market condition, the analysis of risk becomes a very important element of the managerial policy for every economic entity and for its strategy of development.

The risk, at the economic entity's level is defined as the variability of the activity's results under the pression of the environment condition. And also may be defined as the antonym of rentability.

Knowing the rentability ratios, we can predict the bankruptcy risk and can plan the economic activity.

The concern regarding the prediction of the bankruptcy risk was materialized, at the international level, beginning with the 60s from the previous century, in elaboration of a method known as "Score Method".

So, no metter what objectives the company has, in order to assure the continuity of its activity, it should satisfy a major restriction: rentability which refers to the capacity of the company to obtain monetary surplus (profit) in order to allow it to respect its promises and to develop its activity.

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