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Aggregated Index for Modelling the Influence of Financial Variables on Enterprise Performance

Nicoleta Bărbuţă-Mişu

Dunarea de Jos University, Faculty of Economic Sciences, Galati, Romania,
nicoleta.barbuta@ugal.ro

Abstract: The aim of the paper is developing a financial performance aggregate index for modelling the relationship between some financial indicators and enterprise financial performance. The model was developed for enterprises acting in the building sector from Galati County – Romania, the source being bankruptcy risk models. To choose model variables was used discriminate analysis on 22 variables proposed that separate objectively performant by non-performant enterprises. The proposed model with five variables was tested using the initial sample of enterprises obtaining an average success ratio of 81.82%. Designing and development a model for evaluation financial performance is important and useful for ranking enterprises at national level.

Keywords: Risk of bankruptcy; Financial model; Discriminate analysis; Ranking enterprises, Financial performance; Financial indicators

1 Introduction

Creation and development of a model for evaluation, classification and ordering of enterprises after their financial performance at national level, it seems to be absolutely useful. Nationally, in general, enterprises are classified by size, turnover, capital, net income or by total assets, criteria that do not reflect a proper hierarchy, relevant in financial terms.

It is well known that a company that has the highest net profit is not the most profitable, whether it relates to a very large patrimonial asset or capital. Also, a company that has the highest turnover isn't the most profitable if the expenditure exceeds the turnover or total incomes. Even the use of the financial rates, individually, doesn't lead us to a relevant classification, as they take into account a limited number of indicators at the enterprise level.

For this reason, we propose a depth study of the most used ratios in the models for determining the bankruptcy risk and/or in banking practice. Using of many ratios, correlated in a Z score function is good for determining, by discriminate analysis, of those rates that distinguishes the best performance by underperforming companies. To create this model were used data extracted from the balance sheets, provided by the Trade Register, of 11 companies active in the construction sector, on a period of six years.

These companies were individually analyzed by several indicators to ranking them by financial performance. We note that such activity requires a lot of time, which is one reason for trying to create a simple relation, by few indicators, which lead us to the same hierarchy. Nobody wouldn't have time and patience necessary to study each company, individually, and then place them on a certain position in a hierarchy, after the values of indicators. Therefore, with this model we try to simplify the work of those who want to find quickly how performant is a company.

Another way used by banks to analyze the financial performance of the companies for bank lending, is the analysis of creditworthiness. This is based on the marks awarded to each of the criteria used to

arrive at an overall score, which can be used in enterprise ranking. The drawback of this solution is that the analysis of creditworthiness is not carry out to all companies of a particular area or all areas, but only those who resort to bank financing. Also, each bank uses its own criteria and in these circumstances can not make a unitary ranking of enterprises evaluated by different banks.

The present paper is organized as following: Section 2 begins with a review of theoretical and empirical literature, then data and methodology description with justification of variables used is given by Section 3; the proposed financial performance aggregate index is described in Section 4 and Section 5 concludes this study and summarizes the empirical results of this research.

2 Theoretical and Empirical Literature

Currently, the assessment of financial performance is achieved by models of assessing the bankruptcy risk. Certainly, according to determined values of Z score, the companies can be ranked by their performance, but the main purpose of creating these models was to study the risk of bankruptcy. This is reflected in the fact that a company with a very low risk of bankruptcy is considered efficient (performant) in financial terms.

Researchers of statistical models use financial rates for designing bankruptcy predictive functions. All bankruptcy predictive studies for enterprises are based on the original contribution of Beaver (1966) and Altman (1968, 1977, 1982). Beaver brought the most important contribution in univariate analysis of bankruptcy for an enterprise. Altman realized a multivariate analysis of bankruptcy which means that he developed a multiple discriminate analysis.

Beaver and Altman had many successors that developed performances of models of analysis the bankruptcy risk, initiating alternate analysis methods (Anghel, 2002). Thus, for bankruptcy prediction there were designed many models: Edmister models (Edmister, 1972), the Diamond model (Diamond, 1976), Yves Collongues model (Yves, 1976), the Deakin probabilistic model (Deakin, 1977), the Springate model (Springate, 1978), the Conan and Holder model (Conan & Holder, 1979), the Koh and Killough model (Koh & Killough, 1980), the Ohlson model (Ohlson, 1980), the Zavgren study (Zavgren, 1983), the Fulmer model (Fulmer, 1984), the model of Balance Exposure of France Bank, the model of the French Commercial Credit (CCF), Chartered Accountants model (CA Score – 1987), the Koh model (Koh, 1992), the AFDCC 2 Score Function (1999), the Shirata model (Shirata, 1999) designed in Japan on the basis of Anglo-Saxon school studies.

Also, Shumway (2001) elaborates a corporate bankruptcy prediction model based on the financial indicators of Altman (1968) and Zmijeski (1984) to which he adds the company history and the standard deviation of the return on equity and return on assets (Triandafil et al., 2008). Kahl (2002) elaborates a research based on a group of companies which are close to the corporate default threshold. He concludes that only a third of these companies manage to survive independently, while the other companies either are taken over or disappear. Consequently Saretto (2005) creates a model of corporate risk of bankruptcy assessment in a continuous way (Duration model) using financial ratios which reflect both book value and market value (Triandafil and Brezeanu, 2008).

Davydenko (2005) makes a research on the financial indicators which impact in an essential way corporate default probability. He finds a much more complex picture of financial distress than that of the world in which only the most distressed firms default: there is a large variation in the default boundary; default may be triggered by both low asset values and by liquidity shortages, and the importance of liquidity varies depending on costs of outside financing. This suggests that debt-pricing models may need to account not only for the firm's value of assets and its cash management policy, but also for factors that influence the costs of accessing outside financing.

Grammenos (Grammenos C.Th. et al., 2008) examined how shipping high yield bond defaults can be predicted at the time of the issue by using a combination of financial ratios and industry specific variables. The key financial variables that are associated with the probability of default are: the

gearing ratio, the amount raised over total assets ratio, the working capital over total assets ratio, the retained earnings over total assets ratio and an industry specific variable that captures the shipping market conditions at the time of issuance. The estimation results of the logit model indicate that higher gearing levels are associated with higher probabilities of default and that changes in the ratio – when these occur at levels above 65% – are positively related to the probability of default. Similarly, when companies raise an amount that exceeds their total assets by 80% or more, then the probability of default will also be high. On the other hand, the variable capturing the shipping market conditions is negatively related to the default probability of a company that issues high yield bonds; additionally, the working capital over total assets ratio, and the retained earnings over total assets ratio are also negatively related to the probability of default.

Davydenko (2010) studies the properties of the value-based default boundary and evaluates the relative importance of insolvency (low asset value relative to debt) and illiquidity (low liquid assets relative to current liabilities) in triggering default. Consistent with the core assumption of value-based models, the market value of assets is the most powerful variable explaining the timing of default, outperforming most available alternatives put together.

Sohn and Kim (2007) proposed the random effects logistic regression model for default prediction considering not only the SMEs' financial and non-financial characteristics, but also the uncertainty that cannot be explained by such characteristics. The empirical study results indicated that the classification accuracy of random effects logistic regression model is better than that of the fixed effects logistic regression model. Also, it is founded that stockholder's equity turnover, growth rate of stockholders' equity and growth rate of sales are no longer significant on default with random effects model. Consistently significant variables in both random effects and fixed effects logistic regression models are net income to stockholder's equity, net income to total assets, total assets turnover, growth rate of total assets, listed in the stock market or not, and technology experience score. From the results analyzed, it is recommended to use random effects logistic regression model in case of predicting the default of funded SMEs. Also, they suggested considering not only the financial variables but also the non-financial variables for establishing default prediction model with better prediction accuracy.

Li and Tang (2007) realized an empirical study on corporate governance mechanisms in China. The corporate governance index suggests that a favourable corporate governance mechanism is propitious to the improvement of corporate profitability, operating efficiency, growth ability, and the strengthening of financial flexibility and security. The corporate governance mechanisms, including controlling shareholders' governance, board governance, top management governance, information disclosure, stakeholders' governance and supervisor committee governance, determine whether the company owns a scientific decision-making mechanism. Moreover, a decision executing mechanism will affect the corporate value and performance directly. The empirical investigation demonstrated that the industry the company is in and the property of the first big shareholder greatly influence the financial safety, the performance and market value of the company, with an exception that the property of the first big shareholder does not significantly influence the cash flow per share and Tobin's Q value. They also find that low financial leverage actually improves the profitability, the stock expansion ability and market value of listed companies; however, as an important capital resource for the existence and development of a company, financial leverage also has a positive influence on the company when increasing the debt to a certain degree. The empirical results also demonstrate that large scale companies perform better on their profitability, the stock expansion ability, operational efficiency, financial elasticity and safety, while their market value is lower.

Also, the country and industry risk have become important elements of the corporate bankruptcy risk at the global level. RiskCalc Model success is due to the multinational companies' orientation towards emerging countries and international Moody's approach allowed them to perform a more rigorous credit risk management. Excepting emerging countries, Moody's has elaborated models in order to assess Expected Default Frequency (EDF) for every country (Fernandes F., 2005).

Currently, in Romania there isn't a model of assessing the risk of bankruptcy that can be applied nationally and for enterprises acting in all sectors. Nor we do not propose to realize this, because is very difficult and each sector has own particularities. But there were concerns in this regard, resulting the following models, applicable in some sectors of activity: Manecuta and Nicolae model (Manecuta & Nicolae, 1996) proposed for the metallurgical industry, the model B – Bailesteanu (Bailesteanu Ghe., 1998), the model I – Ivonciu (Ivonciu, 1998) and the bankruptcy risk analysis model at the level of Romanian companies or the bankruptcy prediction model, proposed by Siminica (2005).

Also, Mereuta, C. (1994) identifies priorities of the companies system applying the *ABC Method* used in management, based on principle "20/80", saying 20 percent of causes generates 80 percent of effects. After studying a nucleus of junction-companies, representing 80 percent of turnover, on profits, losses, financial expenditure, employees, etc., will find the definition of the performance of the entire system of companies in Romania. This is the mechanism of *junction analysis*, which targeted two things: to determine the degree of concentration of the system and to establish the degree of structural domination of the markets by leaders, concerned at what distance is the markets of perfect competition model. Also, there was designed an aggregate index of financial performance by financing, for the building sector enterprises from Galati County, using especially variables which reflect financing strategy of the enterprise (Barbuta-Misu, 2009).

3 Data and Methodology Description

The model designed in this paper is a small scale model because it takes into account only 11 enterprises acting in a single sector (building sector). The reason for using this reduced sample is difficulty of the data obtaining and the high costs of the Financial Statements from the Register of Commerce. For model elaboration were followed the next stages: compiling the database necessary for the case study; hierarchy of the building sector enterprises in accordance with their financial performances; designing the model for assessing the financial performance and finally testing the model to establish the relevance degree. The main conditions that must be met by all enterprises from the sample are: all enterprises to be included in the building sector; to grasp the evolution in time of the financial performance of the enterprises under study; to have a continuous activity throughout the analysed period; the selected sample must include not only enterprises showing high financial performance, but also low financial performance to permit to realize a hierarchy of the performance on a wider spacing of performance. One essential condition taken into account when establishing the sample was that the enterprises active in this sector to show continuous activity during the chosen time interval. We identified 11 enterprises: 2 large, 7 medium and 2 small. The selected and analysed enterprises represented, approximately 0.93% of the total number of active enterprises in the building sector, with a turnover of 35.85% of the turnover obtained in the Galati county building sector and, respectively, 5.78% of the total turnover of the Galati county. The methodology description for hierarchy the selected enterprise after the financial performance is the same presented in the paper *Modelling the Financial Performance of the Building Sector Enterprises – Case of Romania* (Barbuta-Misu, N., 2009).

The analyzed enterprises were grouped into performant and non-performant, as follows:

- the first 7 enterprises, with high financial performance, in descending order (Arcada Company, Vega 93, Constructii feroviare, Arcada, Constructia Avram Iancu, Confort and Moldovulcan);
- the next 4 enterprises, with low financial performance, in descending order (Consal, Constructii si reparatii, ICMRS, Sorex).

As in majority of bankruptcy models, in order to model the financial performance was used the score method, which has wide practical applications in bankruptcy prediction, and which entails finding a linear combination of financial rates thus allowing for the separation of bankrupting enterprises from

those that face no financial problems. The general form of this function is $Z = \sum_{i=1}^{n} a_i \times X_i$, where: a_i = weighting coefficient for financial ratio X_i; X_i = financial ratio i and i = number of financial ratios used, $i = 1 \div n$.

According to the Z scoring resulted for an enterprise, it is registered within a certain area of risk. Thus, we may say that the score is a method of external diagnosis that consists in measuring and interpreting the risk to which the investor, the creditor of the enterprise, is exposed at, and is also faced by the enterprise as a system in its future activity. It is based on elaboration of a value judgment which combines a linear group of financial rates or significant variables.

The detailed analysis of the sample allowed for establishing some clear differences between the two groups of enterprises, as it can be seen in Table 1. For this analysis was used both medium and median values of the financial ratios, which are more relevant as these cancel inconclusive values.

Starting from individual levels of these ratios (for each of the 11 enterprises in the sample) we have calculated the medium weighted ratios on the whole of performant and non-performant enterprises. The medium financial ratios for the whole of performant, and respectively, non-performant enterprises were calculated on the basis of the centralized balance for the two groups of enterprises. The values thus obtained were at the basis of pointing out the relevance of selected ratios for differentiating the two groups of parameters.

Table 1. Absolute changes of the medium and median values of the financial ratios

No.	Indicator	Performant enterprises		Non-performant enterprises		Absolute change	
		Medium	Median	Medium	Median	Medium	Median
1.	Net profit / Total assets	0,211	0,193	-0,313	-0,212	0.524	0.405
2.	Working capital / Total assets	0,020	0,024	-0,751	-0,429	0.771	0.453
3.	Retained earnings / Total assets	0,060	0,041	0,000002	0,000001	0.059998	0.040999
4.	Earnings before interest and taxes / Total assets	0,211	0,193	-0,313	-0,212	0.524	0.405
5.	Sales / Total assets	1,588	1,645	0,979	0,914	0.609	0.731
6.	Debts / Total assets	0,518	0,534	1,548	1,267	-1.03	-0.733
7.	Permanent financing / Total assets	0,032	0,028	0,030	0,022	0.002	0.006
8.	Current liabilities / Total assets	0,624	0,619	0,668	0,589	-0.044	0.03
9.	Current assets less inventories / Total assets	0,533	0,548	0,325	0,237	0.208	0.311
10.	Operational result / Economic assets	0,384	0,343	-0,067	-0,056	0.451	0.399
11.	Net profit / Own capital	0,392	0,320	-0,289	-0,168	0.681	0.488
12.	Current assets / Current debts	1,511	1,487	1,149	0,989	0.362	0.498
13.	Total assets / Total debts	1,942	1,871	1,088	1,056	0.854	0.815
14.	Debts / Own capital	1,162	1,232	-0,076	-0,191	1.238	1.423
15.	Financial debts / Total debts	0,122	0,131	0,065	0,025	0.057	0.106
16.	Net profit after tax /	0,342	0,351	-0,164	-0,133	0.506	0.484

	Total debts						
17.	EBITDA / Total debts	0,500	0,477	-0,112	-0,053	0.612	0.53
18.	Working capital / Total debts	0,040	0,053	-0,112	-0,142	0.152	0.195
19.	Net profit before taxes / Current liabilities	0,539	0,485	-0,194	-0,175	0.733	0.66
20.	Net profit / Sales	0,120	0,113	-0,353	-0,245	0.473	0.358
21.	Financial charges / Net turnover	0,017	0,018	0,013	0,006	0.004	0.012
22.	Personal expenses / Value added	0,429	0,476	1,061	1,026	-0.632	-0.55

Source: Calculus performed by the author;

Consequently, from the discriminate analysis it results that there are significant differences between the two groups of enterprises (performant and non-performant), for the majority of used ratios. Thus, we appreciate that the sample we used is representative for setting up the model of determining the financial performance and lead us to choose the following variables: Net profit / Own capital, Net profit / Total assets, Sales / Total assets, Debts / Own capital and Personal expenses / Value added.

4 The financial performance aggregated index description

In setting up our model we used those financial ratios that offer the best separation of the performant enterprises by the non-performant. So, there were considered the ratios that present the greatest value of the differences between medium, respectively median values. The 22 ratios were selected by the notoriety of their using in the literature (Beaver, 1966; Altman, 1968; Edmister, 1972; Deakin, 1977; Fulmer, 1984; Shirata, 1999; Shumway, 2001; Kahl, 2002; Davydenco, 2005; Saretto, 2005; Grammenos et al., 2008; Stroe & Barbuta-Misu, 2010), in banking (Sohn & Kim, 2007), and in the process of evaluating a firm for its investment worthiness (Nicolau, 2010).

All these ratios were calculated in the database for each of the 11 enterprises selected in our sample, for a six years period. Also for each enterprise we have established a medium level of these ratios.

In accordance with the individual score of each enterprise, the group of performant enterprises was further grouped in 3 subgroups, while the non-performant enterprises group was grouped in 2 subgroups (each group including the enterprises with the closest score), thus (Barbuta-Misu N., 2009): *group 1* composed of 2 enterprises with the highest financial performance (Arcada Company, Vega 93); *group 2* composed of 2 enterprises with medium financial performance (Constructii feroviare, Confort); *group 3* composed of 3 enterprises satisfactory financial performance (Arcada, Moldovulcan, Constructia Avram Iancu); *group 4* composed of 3 enterprises with lower financial performance (ICMRS, Constructii si reparatii, Consal); *group 5* composed of 1 enterprise with the lowest financial performance (Sorex).

For each group we have established the centralized balance, for calculation the medium level of the 5 ratios and then we granted a score to each group. The greatest score was given to the group of enterprises with the highest financial performance, and the lowest score went to the group of enterprises with the lowest financial performance: 4 points for group 1; 3 points for group 2; 2 points for group 3; 1 point for group 4 and -1 point for group 5, showing the lowest performance. The average values of the 5 ratios for the 5 groups of enterprises are presented in Table 2:

Table 2. Financial ratios for the 5 groups of enterprises

	X_{1_i}	X_{2_i}	X_{3_i}	X_{4_i}	X_{5_i}	Z_i
Group 1	0,4731	0,2101	1,6746	1,1677	0,3353	4
Group 2	0,1582	0,1311	1,5401	1,2727	0,8266	3
Group 3	0,1423	0,0679	1,3584	2,2498	0,6195	2
Group 4	-0,0274	0,0158	0,9777	-0,0928	1,0629	1
Group 5	-0,0397	-0,3305	1,0841	-8,4557	0,9728	-1

Source: Calculus performed by the author;

The relationship used to fit an enterprise in a given performance area is:

$Z_i = a_1 \times X_{1_i} + a_2 \times X_{2_i} + a_3 \times X_{3_i} + a_4 \times X_{4_i} + a_5 \times X_{5_i}$, where:

Z_i = financial performance aggregate index four group i, $i = 1 \div 5$;

X_{1_i} = Net profit / Own capital for group i;

X_{2_i} = Net profit / Total assets for group i;

X_{3_i} = Sales / Total assets for group i;

X_{4_i} = Debts / Own capital for group i;

X_{5_i} = Personal expenses / Value added for group i;

For estimation of the coefficients a_i we used the following equation system:

$$\begin{cases} 0{,}4731 \times a_1 + 0{,}2101 \times a_2 + 1{,}6746 \times a_3 + 1{,}1677 \times a_4 + 0{,}3353 \times a_5 = 4 \\ 0{,}1582 \times a_1 + 0{,}1311 \times a_2 + 1{,}5401 \times a_3 + 1{,}2727 \times a_4 + 0{,}8266 \times a_5 = 3 \\ 0{,}1423 \times a_1 + 0{,}0679 \times a_2 + 1{,}3584 \times a_3 + 2{,}2498 \times a_4 + 0{,}6195 \times a_5 = 2 \\ -0{,}0274 \times a_1 + 0{,}0158 \times a_2 + 0{,}9777 \times a_3 - 0{,}0928 \times a_4 + 1{,}0629 \times a_5 = 1 \\ -0{,}0397 \times a_1 - 0{,}3305 \times a_2 + 1{,}0841 \times a_3 - 8{,}4557 \times a_4 + 0{,}9728 \times a_5 = -1 \end{cases}$$

We solved the system of equations by Cramer's method, knowing that the system determinant is different from 0:

$$\Delta = \begin{vmatrix} 0{,}4731 & 0{,}2101 & 1{,}6746 & 1{,}1677 & 0{,}3353 \\ 0{,}1582 & 0{,}1311 & 1{,}5401 & 1{,}2727 & 0{,}8266 \\ 0{,}1423 & 0{,}0679 & 1{,}3584 & 2{,}2498 & 0{,}6195 \\ -0{,}0274 & 0{,}0158 & 0{,}9777 & -0{,}0928 & 1{,}0629 \\ -0{,}0397 & -0{,}3305 & 1{,}0841 & -8{,}4557 & 0{,}9728 \end{vmatrix} = 0{,}518414 .$$

Thus, result the following values of the coefficients:

$$a_1 = \frac{\Delta a_1}{\Delta} = \frac{4{,}473538}{0{,}518414} = 8{,}63 ; \; a_2 = \frac{\Delta a_2}{\Delta} = \frac{5{,}992748}{0{,}518414} = 11{,}56 ; \; a_3 = \frac{\Delta a_3}{\Delta} = \frac{0{,}891312}{0{,}518414} = 1{,}72 ;$$

$$a_4 = \frac{\Delta a_4}{\Delta} = \frac{0{,}362993}{0{,}518414} = 0{,}7 ; \; a_5 = \frac{\Delta a_5}{\Delta} = \frac{0{,}974482}{0{,}518414} = 1{,}88$$

The model of assessing the financial performance obtained is:

$$Z = 8{,}63 \times X_1 + 11{,}56 \times X_2 + 1{,}72 \times X_3 + 0{,}7 \times X_4 + 1{,}88 \times X_5 .$$

This model allows the classification of enterprises acting in the building sector, in a certain performance area. For this reason, there were firstly calculated the 5 financial ratios involved in the analysis, for determining the Z score. In accordance with its value, the enterprise will fit in one of the following 5 performance areas:

- if $Z \geq 3{,}5$ the enterprise has a very high financial performance;
- if $2{,}5 \leq Z < 3{,}5$ the enterprise has a medium financial performance;
- if $1{,}5 \leq Z < 2{,}5$ the enterprise has a satisfactory financial performance;
- if $0 \leq Z < 1{,}5$ the enterprise has a low financial performance;
- if $Z < 0$ the enterprise has a very low financial performance.

The interval limits are determined as a simple arithmetic average of scores granted for two consecutive groups of enterprises. The higher value of the Z score determined for an enterprise, more than the value of 1.5, (the limit that mathematically separates the enterprises with high financial performance apart from low financial performance ones), the greater possibility of obtaining a higher performance. To always have a higher financial performance, the recurrent calculation of the Z score is needed, as its reduction in value implies a reduction in the financial performance and, in these conditions, the managers should take measures for recovery.

This model was tested using the same sample of enterprises obtaining an average success ratio of 81.82%.

All *performant enterprises* (PF) were correctly included by applying the model of assessing the financial performance to the medium financial ratios (calculated for the latest six years), the success ratio being 100%. *For enterprises with low performances* (NPF), out of 4 included in the sample, only 2 of them were correctly included by applying the model to the medium financial ratios, the success ratio being of 50%.

The analysis of the prediction capacity of the Z model highlighted that the 1st type of error (non-performant enterprises classified as performant) show a lack of success degree of 50% for the medium values of ratios and the 2nd type of error (performant enterprises classified as non-performant) is 0% for the medium values of parameters.

5 Discussion and Conclusions

In this model, the estimated coefficients indicate a direct link between all financial variables and a higher financial performance of the enterprises that is an inverse relation between all financial variables and probability of bankruptcy. Thus, the most important variables that separate the performant enterprises or non-performant enterprises are return on equity and return on total assets. That means return on equity and return on assets has the greatest influence in the hierarchy of the building sector enterprises after their financial performance

About the inverse relation between staff costs rate and probability of bankruptcy we can argue that is an unusual situation that the share of staff costs in added value to be high to the enterprises with no risk of bankruptcy, especially because the high value of personnel expenses diminishing the profit. This situation show that the enterprise performance depends on the level of personnel incentive and that are some imbalances in the operating activity of the company, because the share of staff costs in value added is higher than it should be.

Although the model shows an inverse relationship between the rate of staff costs and risk of bankruptcy, the discriminate analysis shows that the rate of personnel costs is higher to bankrupt companies. This controversial issue is generated by the interpretation of the indicator. In the normal activity, the share of personnel costs should be between 25-60% of value added. Above this level, the activity efficiency is compromised (Stroe & Barbuta-Misu, 2010).

The model designed in this paper has some limits related to the small number of enterprises included in the sample, as was argued by difficulty to find medium and large sized enterprises with continuous activity in the period analysed in the Galati County. So, the model relevance can be improved by including the greatest possible number of enterprises in the sample, from national level. As it can be observed, this sector is experiencing profound changes in the interval studied which shows that the model will have to be adjusted periodically, in accordance with the evolutions registered in the

building sector. Also, the increase of the prediction power of the model can be realized by inclusion of some non-financial variables that assure better prediction accuracy as shown Keasey and Watson (1991) or Sohn and Kim (2007). Thus, a future research may consist in taking into account as non-financial variables four comprehensive macro-categories of leadership attitudes and behaviours reflected in 4R model: research, relationship, reputation and recognition (Boca, 2011).

In conclusion, comparing of the models and parameters values of the international recognised models and the model designed in this paper taking into account the specificity of the Romanian economy we saw clear the significant differences related to variables that separate enterprises in bankrupt and non-bankrupt. So, it results that models for assessing the risk of bankruptcy are relevant only if there are satisfied conditions related to the presence of some similar economic characteristics in the analyzed period and enforceability on some enterprises in the sector of activity had referred to. This sustains the findings of Argenti (1976) who had analysed the aspects of bankruptcy risk and had reached the conclusion that financial indicators had different values for each particular case. Also, many external factors as global financial crisis (Tudor F., 2011) can change the influence of the variables on the enterprise financial performance.

Finally, we consider that the model of assessing the financial performance has a wide use as it allows to ranking enterprises active in the building sector in terms of their financial performance. Also, the prediction capacity was proved by the 81.82% rate of success.

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