

ANALYSIS OF IMPACT OF NON-FINANCIAL CRITERIA AND Z-SCORE IN ACCOMMODATION FACILITIES IN SLOVAKIA

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Abstract: In times of financial crisis plays an important role prediction of the development financial - economic situation of most enterprises. There are predictive models that can help us detect early deterioration of the financial situation. This article deals the analysis of the impact of selected non-financial criteria to assess the financial health of accommodation facilities using the Altman Z - SCORE. The analysis was based on the financial statements enterprises selected for the 2008 - 2011. Financial situation was assessed by two modifications Z - SCORE. The impact of selected non-financial criteria of financial health were analyzed using the appropriate statistical methods, which confirmed the connection between the assessment of the financial health of accommodation facilities and class of accommodation and company size defined by the number of beds which are typical characteristics enterprises providing hotel services.

Keywords: financial indicators, non-financial criteria, Z-score, accommodation facilities

JEL Classification: O11, O12, O16

1. INTRODUCTION

At present, the negative developments in the global economy reflected in the financial results and financial position of most enterprises and company management looking for ways to detect as early as possible causes of the deterioration of their financial situation. One way is the application of appropriate models for forecasting financial situation, using information from financial - economic analysis. There are several models to assess the financial health of companies, which are created from various financial indicators are a tool for early detection of adverse financial developments. The oldest bankruptcy models include the Altman Z-score, which was founded in 1968 and has undergone various modifications. Modifications of the model contain several financial ratios proportional which have their weight and the impact of indicator is expressed in the models. Some non-financial criteria can have a significant impact on the assessment of the financial situation of the company and it is the subject of our further research.

2. FORMULATION OF THE SCIENTIFIC PROBLEM

The object of scientific study is investigating the effects of selected non-financial indicators enterprises to assess the financial health of enterprises using Altman Z - score. The research sample consists of 46 randomly chosen accommodation facilities that provide accommodation services and by SK NACE Rev. 2 belong to the 551 - Hotels and similar accommodation. The substrate processing were secondary data from financial statements of selected enterprises for the years 2008 - 2011. The non-financial indicators were selected for the research sample following variables: the legal form, the size of enterprises and class of accommodation. In the article, we used the method of analysis, synthesis and comparison. Processing input data and calculations modifications Z-score was used MS Excel 2007 and verification of statistical context was used Chi - square test, which is part of the SPSS software.

3. ANALYSIS Z - SCORE

The first version of the model, which was designed for joint stock companies with the public traded shares (Z - SCORE), was published by E. I. Altman in 1968. In 1983 model was redesigned for companies that do not trade in financial markets (Z 'SCORE) and in 1995 created a version for non-manufacturing companies (Z'' SCORE).

Table 1 Modification of the Altman Z-score

	EQUATION MODEL
AZ1	$Z - SCORE = 1,2X_1 + 1,4X_2 + 3,3X_3 + 0,6X_4 + 0,999X_5$
AZ2	$Z' - SCORE = 0,717 X_1 + 0,847 X_2 + 3,107X_3 + 0,420X_4^* + 0,998X_5$
AZ3	$Z'' - SCORE = 6,56X_1 + 3,26X_2 + 6,72X_3 + 1,05X_4^*$

$X_1 = (\text{Current Assets} - \text{Current Liabilities}) / \text{Total Assets}$

$X_2 = \text{Retained Earnings} / \text{Total Assets}$

$X_3 = \text{Earnings before Interest and Taxes} / \text{Total Assets}$

$X_4 = \text{Market Value of Equity} / \text{Total Liabilities}$

$X_4^* = \text{Book Value of Equity} / \text{Total Liabilities}$

$X_5 = \text{Sales} / \text{Total Assets}$

Table 2 Evaluation of modifications of models AZ2 and AZ3

ZONE	AZ2	AZ3
„SAFE“ ZONE	$AZ2 \geq 2,9$	$AZ3 \geq 2,6$
„GREY“ ZONE	$1,23 < AZ2 < 2,9$	$1,1 < AZ3 < 2,6$
„DISTRESS“ ZONE	$AZ2 \leq 1,23$	$AZ3 \leq 1,1$

Source: [1, 2]

4. RESULTS AND DISCUSSION

For the evaluation financial health of a selected group we chose models AZ2 and AZ3, which were appropriate for our research file. Model AZ1 we did not apply because stock companies included in the research sample, not sell their shares in the market. The financial situation using the models AZ2 and AZ3 with regard of years we bring in the following graphic form.

According to the financial situation of enterprises using AZ2 is more than half of enterprises in the distress zone throughout the period under, and in 2009 it was 65.2%. Number of enterprises moves in the grey zone at about the same level in the range of 8 - 10 enterprises. The safe zone

Analysis of Impact of Non-financial Criteria and Z-score in Accommodation Facilities in Slovakia

during the years 2008 - 2010 is still 8 enterprises to improve there in 2011, when the number of enterprises in this area increased by 4, which can be evaluated positively.

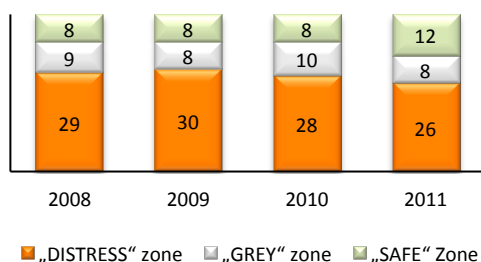


Figure 1 Results by the financial situation of model AZ2

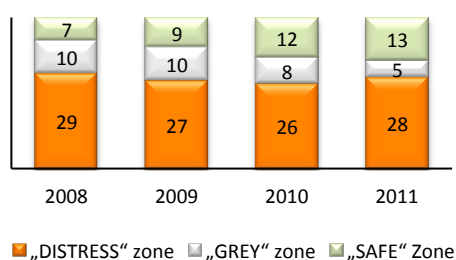


Figure 2 Results by the financial situation of model AZ3

According to the model AZ3 there is a slight improvement in the financial situation enterprises, while there is a positive shift towards the safe zone. Also according to this variant of the model is still in the distress zone for more than half of the enterprises, the most of them in 2008. In the grey zone saw an increase in the number of enterprises in 2008 and 2009 compared with the model AZ2 and in 2011 within this zone is only 5 enterprises. The safe zone, the situation improved since 2009, but the most significant increase was in 2010, when in that area included to 12 of enterprises, while the model AZ2 in the same year, only 8 enterprises.

When comparing the two models leads to the conclusion that the model AZ3 evaluates the financial situation enterprises milder and with this model, we achieved slightly better results due to reducing the number of indicators and increase the weighting of individual indicators introduced into model.

In the following part of the article will be devoted to the analysis of selected non-financial indicators. The first non-financial indicator is a legal form of enterprises. In the survey sample are represented 56.5% limited liability companies and 43.5 % joint stock companies.

The second of non-financial indicators is the class of accommodation (number of stars), which created the following structure survey sample - 3 enterprises in Class 1 *, 6 enterprises in Class 2 *, 15 enterprises in Class 3 *, 20 enterprises in class 4 * and 2 enterprises in Class 5 *. The third non-financial indicator was the size of enterprises. This indicator we examined in terms of staff and in terms of the number of beds and an overview of accommodation facilities bring in the following tables.

The object of our research was to determine whether there is a relationship between selected non-financial criteria and the status of the financial health of enterprises designated using the Altman Z-score (AZ2, AZ3). The

variable "state of financial health" is presented by the financial situation enterprises using the zones Z-score model. On statistical verification, we used the chi - square test.

Table 3 Enterprises by number of employees

Category of size enterprise	Number of employees	Number of enterprises
Micro	4 – 9	5
Small	10 - 49	22
Medium	50 – 249	17
Large	250 - 499	2

Table 4 Enterprises by number of beds

Category of facilities	Number of beds	Number of enterprises
Small	to 25	2
Medium	25 - 99	11
Large	100 - 249	23
	over 250	10

Table 5 Evaluation of the relation between non-financial criteria and the financial health

NON-FINANCIAL CRITERIA	MODEL	CHÍ SQUARE TEST	p- value
Legal form	AZ2	2,052	0,358
	AZ3	1,224	0,542
Class of accommodation	AZ2	34,306	0,001
	AZ3	41,629	0,001
Number of employees	AZ2	14,569	0,024
	AZ3	10,466	0,106
Number of beds	AZ2	10,961	0,090
	AZ3	17,780	0,007

Statistically significant connection between the legal form and status of the financial health was not confirmed for any applied model. Statistically significant relation between the number of employees and the financial health was confirmed only for model AZ2. For model AZ3 was confirmed a statistically significant relation between the number of beds and the status of financial health. We were confirmed for both model a significant statistical connection between class facilities and status of financial health of enterprises.

5. CONCLUSION

Statistical analysis examining connections between selected non-financial criteria and status of financial health evaluated using two modifications of the Altman Z-score we come to the conclusion, that the class of accommodation is a typical characteristic the hotel business and is suitable for inclusion in a group of indicators that could modify the one of prediction model. Even though the relation between the number of beds and the number of employees is always confirmed in only one of the models, we recommend the following non-financial criteria included in the group of indicators for modified of prediction models. The results of analysis will become the focus of our further research aimed at creating a modified prediction model. Modified prediction model would contain selected financial indicators and selected non-financial criteria which reveal specifics of businesses, providing services for accommodation, catering and relaxation for domestic and foreign visitors to Slovakia.

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