

ANALYSIS OF THE FINANCIAL POSITION OF MILL COMPANIES IN VOJVODINA

ANALIZA FINANSIJSKOG POLOŽAJA MLINSKIH PREDUZEĆA U VOJVODINI

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ABSTRACT

The subject of this research is the financial position of mill companies in Vojvodina. The specific aim of the research is to analyze the is to compare the applied models for the analysis of the financial position. The basis of the analysis are the financial reports of the observed companies in the period from 2015 to 2019. The analysis of the financial position was performed using two models: Altman's Z-score model and Kralicek's Quick test model. These models use standard financial ratio indicators to assess the risk of bankruptcy of companies, i.e. their financial stability and profitability. The obtained results suggest that the company MLINTEST stood out as the most successful company and that the company KIKINDSKI MLIN stood out as the company with the worst financial position. Both models gave similar results, and their further use is recommended when analyzing the financial position of mill companies in Vojvodina. financial position, i.e. to assess the risk of bankruptcy of medium-sized mill companies in Vojvodina. The general aim of the research

Keywords: Altman Z-score, Kralicek's Quick test, mill companies, bankruptcy.

REZIME

Analiza finansijskog položaja, tj. rizika bankrotstva dobija sve veći značaj u današnjoj ekonomiji, jer su za njene rezultate zainteresovane sve strane u poslovanju. Osnovu analize finansijskog položaja čine finansijski izveštaji, na osnovu kojih se izračunavaju određeni ratio pokazatelji koji su neophodni za primenu različitih modela za ocenu finansijskog položaja, tj. rizika bankrotstva preduzeća. Rezultat dosadašnjih istraživanja jesu mnogobrojni modeli za ocenu finansijskog položaja preduzeća. Predmet ovog istraživanja je finansijski položaj mlinskih preduzeća u Vojvodini. Konkretni cilj istraživanja je ocena finansijskog položaja, odnosno procena rizika od bankrotstva mlinskih preduzeća srednje veličine u AP Vojvodini. Opšti cilj rada je poređenje primenjenih modela za ocenu finansijskog položaja. Osnov analize čine finansijski izveštaji posmatranih preduzeća u periodu od 2015. do 2019. godine. Ocena finansijskog položaja izvršena je primenom dva modela: Altmanovog Z-score modela i Kralicek Quick test modela. Ovi modeli koriste standardne finansijske ratio pokazatelje kako bi ocenili rizik bankrotstva preduzeća, odnosno njihovu finansijsku stabilnost i profitabilnost. Dobijeni rezultati sugerišu da se kao najuspešnije preduzeće izdvojilo preduzeće MLINTEST, a da se kao preduzeće sa najlošijim finansijskim položajem izdvojilo preduzeće KIKINDSKI MLIN. Oba modela dala su slične rezultate, te se preporučuje njihova dalja upotreba prilikom ocene finansijskog položaja mlinskih preduzeća u Vojvodini.

Ključne reči: Altman Z-skor, Kralicek Quick test, mlinskapreduzeća, bankrotstvo.

INTRODUCTION

The failure of a company's business causes huge financial and non-financial losses, which is why a timely prediction of a company's bankruptcy is very important for all business stakeholders (Ijaz *et al.*, 2013). These forecasts are based on the company's financial statements, which are the main sources of information about the company's operations and can serve various purposes: to measure efficiency and effectiveness, profitability, to project future cash flows and to predict future business (Alihodžić, 2013). Although forecasting future financial position of the company includes various factors, both financial and non-financial and qualitative, the traditional analysis of financial statements through certain financial indicators is still most often used (Stanišić *et al.*, 2013). According to Rahman *et al.* (2017), the main purpose of applying these analyzes is to assess the future potential of the company, for proper planning of financial goals. The most commonly used models for assessing the financial position of companies and predicting bankruptcy in the world are Altman's Z-Score model, Kralicek's DF indicator, Kralicek's Quick test, Taffler's model and others (Alihodžić, 2013; Machek, 2014).

Over the past few decades, there have been major modifications in the food sector, driven by changes in lifestyle, demographics, and eating habits (Živković *et al.*, 2014). These modifications have left consequences on the financial position of all food companies, including mill companies, so the subject of research is the analysis of the financial position of medium-sized mill companies that operated in the territory of Vojvodina in the period from 2015 to 2019. The aim of the research is to determine the financial position of individual companies, as well as to make a comparison between the applied models for analyzing the financial position of companies: Altman's Z-score model and Kralicek's Quick test.

MATERIAL AND METHOD

In 1968, Edward I. Altman defined a model for predicting the bankruptcy of American companies, which is known in the literature as Altman's Z-score model (Rajin *et al.*, 2016). Using the method of multivariate discriminant analysis, the author analyzed the impact of 22 financial ratio indicators on the probability of bankruptcy. Of all the observed indicators, five stood out as significant and a model was obtained that has the following form (Altman, 1968):

$$Z = 1.2 \cdot X_1 + 1.4 \cdot X_2 + 3.3 \cdot X_3 + 0.6 \cdot X_4 + 1.0 \cdot X_5 \quad (1)$$

Where the indicators are defined as follow:

- Z –the value of the discriminatory function,
- X_1 –ratio of working capital to total assets,
- X_2 – ratio of retained earnings to total assets,
- X_3 – ratio of earnings before interest and taxes to total assets,
- X_4 – ratio of market value equity to total liabilities,
- X_5 – ratio of sales to total assets.

Based on the obtained value of Z-score indicators, companies are classified into three zones. If the value of the Z-score indicator is higher than 2.67, it is considered that the company is financially stable and is in the white zone, i.e. that there is no risk of bankruptcy. If the value of the Z-score indicator is between 1.81 and 2.67, the company is considered financially unstable and is in the gray zone. If the value of the Z-score indicator is less than 1.81, it is considered that the company is at risk of bankruptcy and it is in the black zone.

The second model applied in this paper, for the analysis of bankruptcy, is the Kralicek's Quick test. The Kralicek's Quick test is a model formed based on balance sheet reports of companies from Germany, Switzerland and Austria, European companies, in the 1990s (Šverko-Grdić et al., 2017). This test is based on the calculation of four ratio indicators which are assigned certain points from 1 to 5, which indicate the quality of the financial position of the company. The first two ratio indicators are an indicator of financial stability, and the other two indicators are an indicator of the company's profitability. Companies with a healthy financial position are evaluated with 1 or 2, 3 points to indicate a good financial position; 4 points a bad financial position; and 5 points represents the risk of insolvency (Vukadinović et al., 2018). The result of the financial position was obtained based on the average values of the first and second indicators, i.e. financial stability indicators and profitability indicators:

Table 1. The methodology of Kralicek's Quick test

Indicators	1 Excellent	2 Very good	3 Good	4 Bad	5 Risk of Insolvency
X_1	>0.3	0.2-0.3	0.10-0.2	0.0-0.1	Negative
X_2	< 3	3-5	5-12	12-30	>30
	S1= ($X_1 + X_2$)/2 Financial stability				
X_3	>0.1	>0.08-0.10	0.05-0.08	0.00-0.05	Negative
X_4	>0.15	0.12-0.15	0.08-0.12	0.00-0.08	Negative
	S2= ($X_3 + X_4$)/2 Total performance and profitability				
	T= [($X_1 + X_2$)/2+($X_3 + X_4$)/2]/2 Total rating				

Where the indicators are defined as follows:

- X_1 - ratio of total equity to total liabilities,
- X_2 -ratio of total liabilities minus cash to net profit plus amortization,
- X_3 -ratio of earnings before interest and taxes to total assets,
- X_4 -ratio of net income plus amortization to business earnings.

RESULTS AND DISCUSSION

The results of the research show the financial position of five medium-sized mill companies: DOO MB KOMERC RUMA, KIKINDSKI MLIN AD KIKINDA, DANUBIUS D.O.O. NOVI SAD, ŽITO-BAČKA DOO and MLINTEST DOO ŠID. According to the Law on Accounting, medium-sized companies are those that do not exceed the threshold values of two of the three criteria: average number of employees 250, operating

income 40,000,000.00e and value of total assets 20,000,000.00e ("Official Gazette of RS", No. 73/2019). Based on the financial reports of these companies, from 2015 to 2019, the indicators required to define the Z-score and Kralicek's Quick test of the model for predicting bankruptcy were calculated.

The calculated values of the Z-score indicator for the observed mill companies are shown in Table 2.

Table 2. Values of Z-score indicators for observed mill companies

Company	Value of Z' indicator				
	2015	2016	2017	2018	2019
MB KOMERC	2.30	2.23	2.42	2.29	2.13
KIKINDSKI MLIN	1.33	0.74	1.12	0.26	0.25
DANUBIUS	2.29	2.22	2.66	1.72	1.74
ŽITO-BAČKA	3.66	3.01	3.26	3.45	2.63
MLINTEST	3.29	4.05	8.88	6.88	8.16

Based on the value of the Z-score indicator for the company MB KOMERC, it can be noticed that this company operated in the gray zone during the entire observed period, i.e. that there is a certain risk of bankruptcy of this company, but it can easily be prevented by improving the liquidity and profit rate of this company. The company KIKINDSKI MLIN was in the black zone during the entire observed period, i.e. in the bankruptcy zone, which is certainly a consequence of the fact that the company recorded negative business results from 2015 to 2019. In the first three years of the observed period, the company DANUBIUS was in the gray zone, and in 2018 and 2019, due to the reduction of the liquidity rate and the profit rate, it moved to the black zone of business. Based on the value of the Z-score indicator for the company ŽITO-BAČKA, it can be noticed that the company in all years of the observed period, except in 2019, when it moved to the gray zone, was in the white zone, i.e. the zone of a successful business. From 2015 to 2019, the company MLINTEST was in the white zone, and based on that, it can be concluded that this company is not at risk of bankruptcy. Based on Fig. 1, it can be seen that based on the results of Altman's Z-score model, the company MLINTEST stands out as the most successful company and the company KIKINDSKI MLIN as the worst.

The assessment of the financial position of the observed mill companies was performed using Kralicek's Quick test (Table 3).

Based on the results of Kralicek's Quick test, it can be concluded that the company MB KOMERC had good solvency during the entire observed period ($2.5 < T < 2.75$). Also, with this company, it can be noticed that the profitability of the company during the entire observed period is at a relatively low level ($3 < B < 3.5$). The company KIKINDSKI MLIN had a bad financial position during the entire period ($3.5 < T < 4$). The reason for such a bad result is the negative result that the company achieved in the period from 2015 to 2019. The company DANUBIUS and ŽITO-BAČKA also had problems with profitability during the observed period ($B = 4$), but during the entire period, they were in the zone of good solvency ($2.75 < T < 3.5$). In all years of the observed period, except 2017, MLINTEST was in the zone of very good solvency ($1.5 < T < 2.25$). Based on Fig. 2, it can be seen that based on the results of Kralicek's Quick test of the model, the company MLINTEST stands out as the most successful company and the company KIKINDSKI MLIN as the company with the most insolvent business.

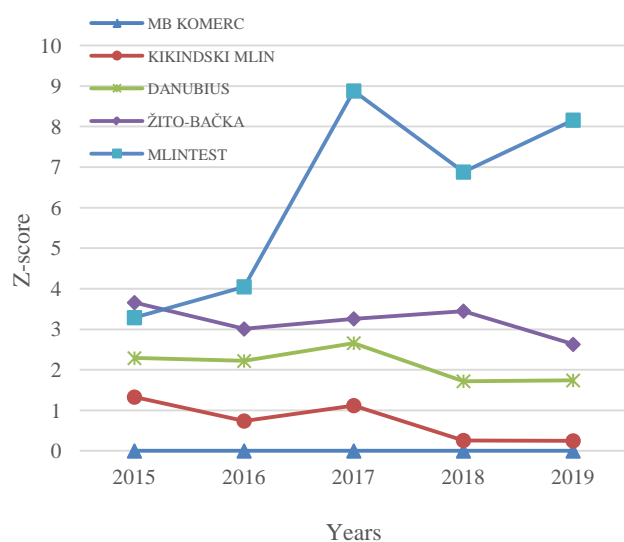


Fig. 1. Results of Z-score indicators of observed mill enterprises

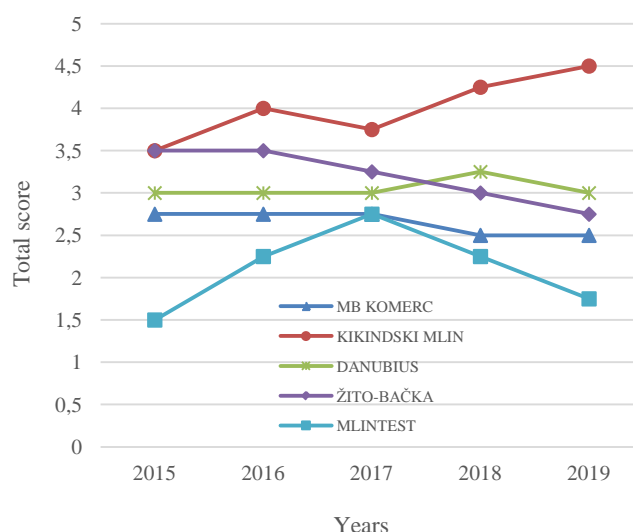


Fig. 2. Results of Kralicek's Quick test of the observed mill companies

Table 3. Results of Kralicek's Quick test

Company	Year	Indicators				Points				Scor		
		X1	X2	X3	X4	P1	P2	P3	P4	A	B	T
MB KOMERC	2015	0.30	6.46	0.10	0.08	2	3	2	4	2.5	3	2.75
	2016	0.34	8.53	0.06	0.05	1	3	3	4	2	3.5	2.75
	2017	0.35	7.33	0.07	0.05	1	3	3	4	2	3.5	2.75
	2018	0.37	6.22	0.08	0.07	1	3	2	4	2	3	2.5
	2019	0.38	6.37	0.09	0.07	1	3	2	4	2	3	2.5
KIKINDSKI MLIN	2015	0.57	24.08	-0.01	0.02	1	4	5	4	2,5	4,5	3,5
	2016	0.38	-52.81	-0.03	-0.02	1	5	5	5	3	5	4
	2017	0.48	87.89	-0.02	0.01	1	5	5	4	3	4,5	3,75
	2018	0.21	-68.21	-0.04	-0.01	2	5	5	5	3,5	5	4,25
	2019	0.11	-13.53	-0.11	-0.09	3	5	5	5	4	5	4,5
DANUBIUS	2015	0.60	8.87	0.03	0.06	1	3	4	4	2	4	3
	2016	0.68	5.89	0.04	0.07	1	3	4	4	2	4	3
	2017	0.70	5.62	0.04	0.07	1	3	4	4	2	4	3
	2018	0.62	12.86	0.03	0.04	1	4	4	4	2,5	4	3,25
	2019	0.63	9.38	0.04	0.06	1	3	4	4	2	4	3
ŽITO-BAČKA	2015	0.38	25.36	-0.01	0.01	1	4	5	4	2,5	4,5	3,5
	2016	0.26	24.61	0.01	0.01	2	4	4	4	3	4	3,5
	2017	0.30	26.51	0.01	0.01	1	4	4	4	2,5	4	3,25
	2018	0.38	8.26	0.05	0.02	1	3	4	4	2	4	3
	2019	0.40	6.38	0.05	0.03	1	3	3	4	2	3,5	2,75
MLINTEST	2015	0.81	1.67	0.08	0.11	1	1	1	3	1	2	1,5
	2016	0.87	1.91	0.03	0.08	1	1	3	4	1	3,5	2,25
	2017	0.95	-1.69	0.04	0.08	1	5	2	3	3	2,5	2,75
	2018	0.93	0.86	0.03	0.07	1	1	3	4	1	3,5	2,25
	2019	0.94	0.34	0.06	0.09	1	1	2	3	1	2,5	1,75

CONCLUSION

Based on the results of the applied models for bankruptcy assessment, i.e. financial position of mill companies can be concluded:

- Based on the value of Altman's Z-score indicator, the company MB KOMERC was in the gray zone during the entire period, i.e. there was a risk of bankruptcy. In contrast to these results, the results of the Kralicek's Quick test showed that the company had good solvency throughout the observed period.

-The results of Altman's Z-score indicator showed that the company KIKINDSKI MLIN was in the black zone, i.e. In the bankruptcy zone, in accordance with these results are the results of the Kralicek's Quick test, which showed that the company had bad solvency, i.e. a bad financial position during the entire observed period.

-The company DANUBIUS, according to the results of the Z-indicator, was in the gray zone until 2018, and in 2018 and 2019 it would operate in the black zone, i.e. bankruptcy zones.

Based on the value of Kralicek's Quick test, this company was in the zone of good solvency during the entire period.

- The values of the Z-score indicator indicate that the company ŽITO-BAČKA was in the white zone in the first four years of the observed period, and in 2019 it will move to the gray zone. The results of Kralicek's Quick test showed that the company had a good financial position during the entire period.

-The company MLINTEST, according to the results of Altman's Z-score indicator, was in the white zone. In accordance with this are the results of the Kralicek's Quick test, which showed that the company in all years, except 2017, was in the zone of very good solvency.

By analyzing the obtained results, it can be concluded that the company MLINTEST stood out as the most successful company, and as the company with the highest risk of bankruptcy, i.e. the worst financial position, the company KIKINDSKI MLIN.

Based on the results of this research, it can be seen that the application of Altman's Z-score model and Kralicek's Quick test in most of the observed reducers gave the same results, and it is recommended to use both models to assess the financial position of mill companies in AP Vojvodina.

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