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VALIDITY OF THE ASSUMPTION OF CONTINUITY OF OPERATIONS TO COMPILE FINANCIAL STATEMENTS OF COMPANIES IN THE PERIOD OF COVID-19

Validnost pretpostavke o neograničenosti poslovanja za potrebe sastavljanja finansijskih izveštaja preduzeća u periodu Kovid 19

Abstract

The subject of the research is testing the risk of bankruptcy and assessing the validity of the assumption of going concern to compile financial reports of selected companies in the food industry during the period of Covid-19. The analysis included five companies each from different sectors of food and beverage production, which operate in the territory of the Republic of Serbia. For bankruptcy risk, testing selected companies used the Z-score model created by Edward Altman in 1993, which was adapted to developing countries. The research period includes 2019 and 2020. Data for the preparation of the paper were taken from financial reports, notes to financial reports and auditor's reports published on the website of the Serbian Business Registry Agency.

The research results show that the Covid-19 pandemic affected the operations of companies in the food industry and caused the need for a more cautious assessment of the assumption of continuity of operations to compile the company's financial reports by managers and auditors. The research also established that different companies within the same sector can be affected with different intensities, hence it is not possible to isolate the production sector within the food industry that is more significantly exposed to the consequences of the pandemic.

Keywords: *financial reporting, going concern, Altman's model, Covid-19 pandemic, food industry*

Sažetak

Predmet istraživanja je testiranje rizika od bankrota i procena validnosti pretpostavke o neograničenosti poslovanja za potrebe sastavljanja finansijskih izveštaja odabranih preduzeća prehrambene industrije u periodu Kovid-19. Analiza obuhvata po pet preduzeća iz različitih sektora proizvodnje prehrambenih proizvoda i oblasti proizvodnje pića, koja posluju na teritoriji Republike Srbije. Za testiranje rizika od bankrota odabranih preduzeća korišćen je Z-score model kreiran od strane Edvarda Altmana (*Edward Altman*) 1993. godine, koji je prilagođen zemljama u razvoju. Period istraživanja obuhvata 2019. i 2020. godinu. Podaci za izradu rada preuzeti su iz finansijskih izveštaja, napomena uz finansijske izveštaje i izveštaja revizora objavljenih na sajtu Agencije za privredne registre Republike Srbije.

Rezultati istraživanja pokazuju da je pandemija Kovid-19 uticala na poslovanje preduzeća iz domena prehrambene industrije i uslovila potrebu za opreznijom procenom pretpostavke o stalnosti poslovanja za potrebe sastavljanja finansijskih izveštaja preduzeća od strane menadžera i revizora. Istraživanjem je takođe utvrđeno da različita preduzeća u okviru istog sektora mogu biti pogođena različitim intenzitetom, otuda nije moguće posebno izolovati sektor proizvodnje u okviru prehrambene industrije koji je značajnije izložen posledicama pandemije.

Cljučne reči: *finansijsko izveštavanje, pretpostavka o stalnosti poslovanja, Altmanov model, pandemija Kovid-19, prehrambena industrija*

Introduction

In a dynamic and highly competitive business environment, due to the influence of numerous internal and external factors, the business of every company is faced with numerous challenges and risks. The challenge that businesses around the world have been facing for the last three years is the Covid-19 pandemic. The Covid-19 virus has caused serious health and socio-economic consequences. To a large extent, the Covid-19 pandemic has contributed to the increase in the number of insolvent companies, and thus the number of bankrupt companies worldwide. For this reason, there is a need to assess the continuity of business, as the key precondition for the survival, growth, and development of a company.

The subject of the research is testing the risk of bankruptcy of selected companies in the food industry and assessing the validity of the assumption of going concern to compile financial statements in the period of Covid-19. The analysis includes five companies each from the field of food production (meat processing and preservation; production of dairy products and processing and canning of fruits and vegetables) and beverage production areas.

The bankruptcy risk testing of selected food industry companies and the assessment of the validity of the assumption about the continuity of business in the period of Covid-19 were carried out using the Z-score model created by Edward Altman 1993, which was adapted to the common business conditions of developing countries. In addition, the obtained results were compared with the Auditor's Report. The research period includes 2019 and 2020. Namely, the goal is to see if there are significant differences in KPIs in the period before and in the period after the declaration of the pandemic. The following criteria were used when selecting the sample of companies included in the analysis:

- large and medium-sized legal entities classified according to the Accounting Law of the Republic of Serbia;
- whether companies are obliged to legally audited financial statements;

- an explanation in the Notes to the company's financial statements whether the Covid-19 pandemic affected the business;
- availability of data on the site Serbian Business Registry Agency (SBRA).

The data for the research was taken from the financial reports which are published on the website of the Serbian Business Registry Agency (SBRA). The financial statements that were used for the analysis are the balance sheet, income statement, and notes to the financial statements. In addition to the aforementioned financial reports, the auditor's reports for 2019 and 2020 were also used, which were also published on the SBRA website.

The theoretical framework of research

The going concern principle in accounting theory implies that the company will continue to operate in the foreseeable future. This means that the company will not be forced to cease operations and liquidate its assets shortly. Since the lifetime of the company is not predetermined and is unlimited in time, permanent financial reporting is necessary every year [13].

The going concern assumption is contained in the Conceptual Framework for Financial Reporting (2010) issued by the International Accounting Standards Board. Within International Accounting Standards 1 - *The presentation of financial reports* emphasizes the continuity of operations as one of the basic assumptions of financial reporting. According to this standard, management is required to determine the entity's ability to continue operating indefinitely when preparing financial statements.

The principle of continuity of operations is basically an accounting concept, but this issue is mostly considered from the point of view of audit requirements [9, p. 187-196]. That is why the principle of the entity's ability to continue operating is included in one of the International Standards on Auditing. In question is the International Standard on Auditing 570 - *Going concern*.

IAS 570 requires the auditor to consider the correctness of the assumption about the continuity of the audit client's business during the planning and execution of the audit procedures and the assessment of the obtained results.

To assess the existence of doubts about the company's ability to continue operating, the auditor needs to consider management's plans for future operations and obtain sufficient evidence to confirm whether a material uncertainty exists. Events and circumstances that may cause doubt about the principle of continuity of the audit client's business are [12]:

1. financial conditions (balance of net liabilities or net current liabilities, indications that creditors will suspend financial support, unfavorable key financial indicators, etc.);
2. business circumstances (intentions of the management to liquidate the entity or to suspend operations, loss of key management without a secured replacement, loss of the main market, etc.);
3. other events (non-compliance with capital regulations or other legal or regulatory requirements, litigation, lack of insurance or insufficient insurance in case of disasters, etc.).

The Covid-19 pandemic affected the company's operations because it led to the following consequences [4]:

- temporary interruption of work;
- decrease in demand for goods and services;
- lack of resources to operate, including inventory and employees;
- inability to repay loans, leases, or other due debts;
- inability to collect claims;
- reduction of capital due to the devaluation of assets and/or reduced volume of trading;
- loss of the fair value of assets, especially when it was expected that these assets would be realized in the short term.

The aforementioned consequences were also reflected in financial reporting and auditing, especially in the assessment of the assumption of continuity of operations by management and auditors. Auditors should pay special attention to the assessment of the business continuity of the company during the pandemic for two basic reasons. First, the Covid-19 pandemic initially had a negative impact on tourism, hospitality, and similar sectors, but quickly spread to the global economy. For this reason, all companies, to a greater or lesser extent, are exposed to events and conditions that may cause

significant doubts regarding the continuity of business. Secondly, the numerous measures of almost all countries in the fight against the spread of the Covid-19 virus have significantly limited the traditional way of conducting audits and challenged auditors to overcome these limitations to adequately carry out the necessary procedures [7, p. 77-93].

The declaration of a pandemic of the Covid-19 virus did not affect the recognition and measurement of assets, capital, and liabilities in the financial statements published for the year 2019, because the pandemic is considered a non-adjusting subsequent event. However, if the management of the company determines that the crisis that occurred in 2020 negatively affects the financial position of the company, then relevant information must be disclosed in the notes to the financial statements. In the notes, it is necessary to describe the consequences of the crisis that occurred after the reporting date, the assessment of the financial effects of the consequences, and the measures taken by the management to eliminate or mitigate the negative effects of the crisis [8].

Auditors must determine whether changes in businesses due to the Covid-19 virus affect their determination of materiality. If the auditors use the same criteria as in the previous period, the report should explain why they are relevant in the current circumstances. Measures implemented to prevent the Covid-19 virus have limited access to audit clients, and thus the way audits are performed has largely changed. Namely, the pandemic caused the application of alternative procedures and greater use of technology [17]. Remote auditing includes the use of cameras, drones, artificial intelligence assessment tools, and other technologies [3, p.14-19].

Fraud risks increase significantly during a crisis. In the conditions of the financial crisis, which encourages an uncertain and unstable business environment, some companies make more cautious assessments, others are prone to aggressive assessments, and others use unethical moves to avoid showing a deteriorating business result, which leads to fraud in financial statements [14]. The crisis caused by the Covid-19 pandemic and the resulting shutdown of the economy has fueled disruptions that increase the likelihood of fraud in the next few years [10].

The Covid-19 pandemic is a “perfect storm” for fraud risk, and auditors should be vigilant [6].

Methodology

Various statistical and econometric methods and models are used to predict financial distress in a company that can threaten the continuity of business and leads to bankruptcy. The most commonly used empirical model for assessing the risk of potential bankruptcy of a company is called the Z-score model [11]. In 1968, Edward Altman created the Z-score model in the United States of America, based on the financial performance of 66 companies, half of which were successful, while the other half went bankrupt.

To develop his first model, Altman used multivariate discriminant analysis of financial indicators. Altman’s original model predicts the probability of bankruptcy by combining five financial indicators that are multiplied by the weighting of the influence of each of them. The obtained value of the sum of the weighted indicators (Z-score) determines whether the company has a risk of going bankrupt in the next two years or whether it is a financially healthy company whose operations are safe [5].

In addition to the original model setup, Altman made several modifications to the model. In this paper, the Z-score model created in 1993 was used to test the risk of the cessation of operations of selected companies. The model is adapted to manufacturing and non-manufacturing industrial companies, as well as companies operating in developing countries. The modified Z-score model is represented by the following function [1]:

$$Z'' = 6,56 \times X_1 + 3,26 \times X_2 + 6,72 \times X_3 + 1,05 \times X_4$$

Where Z represents the dependent variable, i.e. the value of the discriminant function, and the independent variables of X1 to the X4 the following relations:

$$X_1 = \text{working capital} / \text{total asset};$$

$$X_2 = \text{retained earnings} / \text{total asset};$$

$$X_3 = \text{earnings before interest and taxes} / \text{total asset};$$

$$X_4 = \text{market value of equity} / \text{book value of total debt}.$$

To reduce the influence of the activity to which the company belongs, variable X_5 was excluded from the model, given that the ratio of sales revenue to total assets differed significantly depending on the sector of activity [2]. According to this model, companies with a Z''-score index value greater than 2.60 operate in the so-called “safe zone”, while companies with a Z''-score index value less than 1.10 operate in the problematic “bankruptcy zone”. If companies achieve a value of the Z''-score index in the interval from 1.11 to 2.59, it is a “grey zone” of financial stability.

Results

Sector: Processing and canning of meat and meat products

It includes the processing and canning of meat and the production of meat products. The companies, which were selected for analysis within this branch, are shown in Table 1.

According to Altman’s 1993 model, the calculated value of the Z-score of the index indicates that the companies “Neoplanta”, “Carnex” and “Mesokombinat” are financially stable, i.e. operating in a safe zone. The implied probability that any of the mentioned companies will find themselves in bankruptcy in the next two years is small. The company “Yuhor” operates in the bankruptcy zone, with a high probability of bankruptcy in the next two years, while the company “IM Topola” operates in the gray zone of financial security. Table 2 shows the calculated values of the Z''-score index and the estimated probability of bankruptcy, after which the situation in each of the selected companies is explained.

Table 1. Basic data on companies within the meat processing branch

Name of company	Year of establishment	Company category	Changes in the result in 2020 compared to 2019
Neoplanta	1980	Large legal entity	Increase in net loss
Yuhor	1902	Large legal entity	Increase in net profit
Carnex	1958	Large legal entity	Increase in net profit
IM Topola	1972	Medium legal entity	Increase in net profit
Mesokombinat	1961	Medium legal entity	Increase in net profit

Source: Processing by the authors based on data taken from the SBRA website

Although enterprise “Neoplanta” operates in the safe zone, it has had a deterioration in financial performance as well as value Z'' -score index 2020 (4.90) compared to 2019 (7.33). In the Notes to the financial statements of this company, it is stated that the Covid-19 pandemic had a negative impact on the business of the company. Additional pressure on the operations of the company “Neoplanta” during the pandemic was the increase in the prices of raw materials, as well as the consequences of the African swine fever. New circumstances imposed the need for business transformation, which required additional investments. In the following period, the company expects a negative short-term effect on income and cash inflows, but not a disruption of the company’s ability to invest in the foreseeable future. According to the auditor’s opinion, the financial statements give an objective and true presentation, in all materially significant aspects, and were compiled by the assumption of the going concern.

The value of the Z'' -score index, as well as most of the financial indicators of “Carnex” is smaller in 2020 compared to 2019. The exception is the improvement in rentability (X_3), due to the increase in profit before interest and taxes. Sales took place smoothly on the domestic market, as well as abroad, with minor logistical problems related to the transportation of goods. The company, in the previous period, had no problem in providing the necessary raw materials and materials for the production

process, because a significant part of the raw materials is procured on the domestic market. However, in the event of an extension of the duration of the Covid-19 pandemic, the risk for business is the number of available feedlots on the territory of Serbia. Given that the company “Carnex” fulfills its obligations on the maturity date not expect liquidity problems, the principle of continuity of operations continues to be applied. The auditor for the company’s financial statements in 2020 issues an unqualified opinion, which is by the obtained values Z'' -score index.

The company “Yuhor” with realized Z'' -score index of -0.84 in 2019, i.e. -0.70 in 2020, is financially unstable and operates in the bankruptcy zone. In the Notes to the financial statements, it is emphasized that the Covid-19 pandemic and the measures taken to prevent it did not affect the company’s financial performance, nor is it expected to have a significant impact on operations in the future. Current liabilities exceed current assets, which management explains in the Notes as a consequence of short-term financial liabilities with related legal entities. Given that the company made a net profit in 2020, the management of the company believes that there is no uncertainty regarding liquidity and that the company will be able to regularly settle its due obligations, which also means that the financial statements were prepared following the principle of going concern. In the report, the auditor expresses a positive opinion of the business

Table 2. Values of the Z'' score index of companies within the meat processing branch

	Neoplanta		Carnex		Yuhor		IM Topola		Mesokombinat	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
NWC ¹	853894	763385	6105768	4722168	-1016923	-1015055	49006	177980	70691	95904
Retained profit	1495607	1572807	5442046	4308251	22118	58198	261885	299068	297188	270617
EBIT	-55498	-187980	682926	803998	30205	87014	96211	93440	16388	33316
Total equity	4204792	4004254	11024208	9870855	1617658	1631960	452592	485980	301913	341431
Revenues from sales	4645801	4528355	8843772	8453506	4685004	5155489	1836478	2011469	975251	995097
Total assets	5033951	5305730	16242649	14999039	4442158	4624762	1734322	1818627	611476	611476
Total liabilities	829159	1301476	5218441	5128184	2824500	2992802	1281730	1332647	309563	270045
X_1	0.1696	0.1439	0.3759	0.3148	-0.2289	-0.2195	0.0283	0.0979	0.1156	0.1568
X_2	0.2971	0.2964	0.3350	0.2872	0.0050	0.0126	0.1510	0.1644	0.4860	0.4426
X_3	-0.0110	-0.0354	0.0420	0.0536	0.0068	0.0188	0.0555	0.0514	0.0268	0.0545
X_4	5.0712	3.0767	2.1125	1.9248	0.5727	0.5453	0.3531	0.3647	0.9753	1.2643
Z'' score	7.3319	4.9027	6.0589	5.3830	-0.8385	-0.6998	1.4212	1.9063	3.5470	4.1653
Probability (%)	0.0654	0.7372	0.2331	0.4573	69.8142	66.8141	19.4476	12.9401	2.8005	1.5287

Source: Author’s processing based on data from financial reports taken from the SBRA website

1 Net working capital

of the company, without indicating the possibility of bankruptcy in the future. Since in 2020, the probability of bankruptcy in the next two years amounted to 66.81%, the question arises of the adequacy of the opinion expressed by the auditor and the application of the assumption of going concern.

The bankruptcy of the company within two years is also possible for the company "IM Topola" because it operates in the gray zone of financial security, i.e. the Z"-score value index in 2019 was 1.42, and in 2020 it was 1.91. The Covid-19 pandemic and restrictive measures had an impact on the company's operations in the segment of procurement of raw materials and export of finished products. In the company itself, measures have also been introduced to ensure the safety of employees at the workplace and prevent the spread of the virus. In addition, the supply of basic raw materials functioned without a hitch. Preventive measures to prevent the spread of the virus and a secure procurement channel enabled the continuity of sales activities. Business obligations and loan obligations are settled regularly and, based on the conducted analysis the company is expected to be able to fulfill obligations on the due date in the foreseeable future. Based on the above, the financial statements were prepared in accordance with the principle of continuity of operations. The auditor's opinion on the operations of the company "IM Topola" is positive, although the company has certain problems in business because the probability of bankruptcy in the next two years according to the data for 2020 is 12.94%.

The business of the company "Mesokombinat" is financially stable as indicated by the obtained Z"-score index whose value in 2019 was 3.55, and in 2020 it was 4.17. During the state of emergency, the Covid-19 pandemic led to a drop in production and sales by around 5%, primarily due to the closure of catering facilities. In June 2020, the

situation stabilized, which made it possible to return the economic activities of the company to regular flows. The management estimates that through rational business operations, it will be able to achieve positive results and will be able to secure enough liquid assets to finance its operations in the future, as well as that the pandemic will not call into question the company's ability to operate according to the principle of continuity. According to the auditor's opinion, the company's financial statements were prepared on all materially significant issues according to IFRS. The auditor draws attention to the note attached to the financial statements, which states that the situation with the Covid-19 pandemic will not call into question the company's ability to continue operations on a going concern basis, stressing that his opinion has not been modified regarding this issue.

Sector: Production of dairy products

It includes the production of milk, cheese, ice cream, and other frozen edible dough. The considered companies are shown in Table 3.

Analyzing companies within the branch of dairy products production, it is observed that the company "Imlek" belongs to the bankruptcy zone and has the highest probability of going bankrupt in the next two years. The company "Mlekara Kuc" is in the gray zone of financial security, while the companies "Somboled", "Mlekara Sabac" and "Lazar" are in the safe financing zone. Table 4 shows the calculated values of the Z" score index and the estimated probability of bankruptcy, after which the situation in each of the selected companies is explained.

In 2019, the company "Imlek" had a Z"-score index of 2.22, which is a value that indicates the gray zone of financial security. The worse financial condition of the company in 2020 was also reflected in the value of the

Table 3. Basic data on companies within the branch production of dairy products

Name of company	Year of establishment	Company category	Changes in the result in 2020 compared to 2019
Imlek	1976	Large legal entity	Reduction in net profit
Somboled	1934	Large legal entity	Increase in net profit
Mlekara Sabac	1931	Medium legal entity	Reduction in net profit
Mlekara Kuc	1993	Medium legal entity	Reduction in net profit
Lazar	1998	Medium legal entity	Reduction in net profit

Source: Processing by the authors based on data taken from the SBRA website

Z'' score index, which was reduced to 0.98, whereby the company was placed in the bankruptcy zone. The probability that bankruptcy proceedings will be initiated against the company "Imlek" in the next two years has increased from 9.82% (in 2019) to 27.31% (in 2020). The Covid-19 pandemic did not have a significant impact on the company's sales and procurement market, except that part of the company's administrative activities were reoriented to work from home. In the Notes to the financial statements, it is stated that the reason for the worsening financial condition of the company is significant damage to the factory in Belgrade due to a fire that occurred in September 2018. The auditor expresses a positive opinion about the business of the company, without pointing out the current problems in the business and the possibility of bankruptcy in the coming period.

The company "Somboled" operates successfully, which confirms obtained value of the Z''-score index, which was 8.76 in 2019, and 8.49 in 2020. The implied probability of starting bankruptcy over the company "Somboled" in the next two years is insignificant. After the outbreak of the pandemic, the company implemented measures aimed at rationalizing costs, increasing employee productivity, and increasing revenue. Thanks to the implemented measures, the difficult business conditions caused by the Covid-19 pandemic did not have a negative effect on the company's operations. As the company's liquidity is stable, the management estimates that the company's operations under assuming the continuity of business

will not be threatened in the future. The auditor for the company's financial statements issues an unqualified opinion, which is adequate according to the obtained values of the Z''-score index.

The company "Mlekara Sabac" operates in a safe zone of financial security. However, in 2020 compared to 2019, there was a decrease in net profit, deterioration of financial indicators, as well as the value of the Z''-score index. During April and May 2020, due to the new business conditions caused by the Covid-19 pandemic, there was a drop in demand for products on the market by about 35% and 11%, respectively. After that, the situation stabilized in the domestic market, while the production of products intended for the foreign market was reduced due to the low tourist season. Of the adopted economic measures of the government to reduce the negative effects caused by the pandemic, the company used direct grants from the budget in the form of non-reimbursable funds that were used for the payment of salaries and compensation of employees for May, June, July, August and September 2020. Despite the difficult business conditions, the management of the company estimated that the business activities will not be suspended, i.e. the assumption of unlimited business operations is fulfilled.

Bankruptcy of the company within two years is possible for the company "Mlekara Kuc", because it operates in the gray zone of financial security, i.e. the value of the Z''-score index in 2019 was 1.17, and in 2020 it was 1.68. The company was negatively affected by the

Table 4. Values of the Z'' score index of companies within the branch production of dairy product

	Imlek		Somboled		Mlekara Sabac		Mlekara Kuc		Lazar	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
NWC	5698914	1946382	2694463	3041184	593275	693155	-10745	100885	125106	94991
Retained profit	4380367	1402535	2571238	3090910	149988	207111	306182	319157	578529	614943
EBIT	5631052	1970221	597423	615249	95470	89649	58306	32792	54381	46830
Total equity	8632510	10205253	4008980	4528652	1118475	1175598	321362	334337	585816	622230
Revenues from sales	20983528	22134894	8181509	8510992	3708894	3718668	2003755	1950534	1444844	1413499
Total assets	45408092	45359322	5349802	6148971	2247995	2738875	1503665	1416027	1070647	1128929
Total liabilities	36775582	35154069	1340822	1620319	1129520	1563277	1182303	1081690	484831	506699
X ₁	0.1255	0.0429	0.5037	0.4946	0.2639	0.2531	-0.0071	0.0712	0.1169	0.0841
X ₂	0.0965	0.0309	0.4806	0.5027	0.0667	0.0756	0.2036	0.2254	0.5404	0.5447
X ₃	0.1240	0.0434	0.1117	0.1001	0.0425	0.0327	0.0388	0.0232	0.0508	0.0415
X ₄	0.2347	0.2903	2.9899	2.7949	0.9902	0.7520	0.2718	0.3091	1.2083	1.2280
Z'' score	2.2176	0.9790	8.7607	8.4902	3.2739	2.9163	1.1629	1.6823	4.1381	3.8959
Probability (%)	9.8180	27.3091	0.0157	0.0205	3.6477	5.1354	23.8139	15.6791	1.5702	1.9920

Source: Author's processing based on data from financial reports taken from the SBRA website

Covid-19 pandemic, because many employees were sick, which led to a decrease in efficiency and productivity. The pandemic has caused a drop in demand for more expensive products in the catering and hotel industry due to the ban on gatherings, while the demand for the company's products in markets and basic food stores has increased. The management of the company believes that the property, financial and profitability position of the company enables the survival of the company for a long period of time and that the state of the economy and future measures of economic and monetary policy will not have a significant negative impact on the future financial position and results of the company's operations. The auditor expresses a positive opinion about the operations of the company "Mlekara Kuc", without indicating the possibility of bankruptcy in the coming period, which is not in accordance with the obtained research results, which show that the probability of bankruptcy in the next two years, according to the data for 2020, is 15.68%.

With the realized value of the Z''-score index of 4.14 in 2019 and 3.90 in 2020, the operations of the company "Lazar" are financially stable and belong to the safe financing zone. The implied probability of starting bankruptcy in the company in the next two years is negligible, that is, according to the data for 2019 and 2020, it was 1.57% and 2%, respectively. The Covid-19 pandemic had no significant negative effects on the operations of the company "Lazar". Of the economic measures adopted by the state to reduce the negative effects caused by the pandemic, the company used deferred payment of taxes and contributions to wages. The financial statements, as stated in the Notes to the financial statements, have been prepared under the assumption of going concern. Based on the audit of the financial statements, the auditor expresses a positive

opinion about the business of the company, which is in accordance with the research results.

Sector: Processing and canning of fruits and vegetables

It includes the processing and canning of potatoes, the production of fruit and vegetable juices, and other processing and canning of fruits and vegetables. The selected companies for analysis from this branch of the food industry are shown in Table 5.

Based on the value Z''-score index, the business operations of "Nektar", "Polimark", "Bahus" and "Geneza" are financially safe, while the probability of starting bankruptcy over the mentioned companies in the next two years is insignificant. Business operations of "Friglo" are risky, with a high probability of bankruptcy. Table 6 shows the calculated values of the Z''-score index and the estimated probability of bankruptcy, after which the situation in each of the selected companies is explained.

Company "Nektar" operates in a safe zone of financial security. However, in 2020, compared to 2019, there was a decrease in net profit, deterioration of financial indicators, as well as the value of the Z''-score index. After learning about the outbreak of the Covid-19 pandemic, the company took measures to protect customers and employees by ensuring safe working conditions and providing services without disruption. During the course of 2020, the company "Nektar" used the benefits of the Government of the Republic of Serbia, delaying payment of taxes and contributions on the wages of employees for the months during which the state of emergency lasted. According to the auditor's opinion, the financial reports show the objective and true financial condition of the company, as well as the results of its operations.

Table 5. Basic data on enterprises within the branch of fruit and vegetable processing

Name of company	Year of establishment	Company category	Changes in the result in 2020 compared to 2019
Nektar	1998	Large legal entity	Reduction in net profit
Polimark	1989	Medium legal entity	Increase in net profit
Bahus	1991	Medium legal entity	Increase in net profit
Geneza	1994	Medium legal entity	Increase in net profit
Friglo	2016	Medium legal entity	Increase in net profit*

Source: Processing by the authors based on data taken from the SBRA website
*2019. in 2020, the company had a net loss, while in 2020 it made a net profit

The company “Polimark” operates successfully, which confirms obtained value of the Z'' -score of the index, which was 19.86 in 2019, and 17.13 in 2020. The Covid-19 pandemic did not affect the decrease in turnover and profitability of the company’s operations. Although in the coming period he expects the price of raw materials to rise, as well as the extension of payment terms, the management believes that the profitability and liquidity of the company will not be threatened, as well as that the company will have adequate funds to continue operating according to the principle of continuity. The auditor expressed a qualified opinion because the company did not recognize revenues arising from contracts concluded with customers, in accordance with the requirements of IFRS 15 - *Revenues from Contracts with Customers*.

With the realized value of the Z'' -score index of 2.84 in 2019 and 3.75 in 2020, the company “Bahus” operates in the safe zone of financial security. When considered individually, indicators of liquidity (X_1), profitability (X_2), rentability (X_3), and financial structure (X_4) also improved in 2020 compared to 2019. The management of the company performed an analysis of the impact of the Covid-19 pandemic on the business of the company, based on which it concluded that there is no risk regarding the continuation of the business, i.e. the principle of going concern is not threatened. According to the auditor’s opinion, the company’s financial statements were prepared on all materially significant issues in accordance with IFRS.

The company “Geneza” is also in the safe financing zone because the obtained value of the Z'' -score index of this company is higher than the threshold value of 2.6. The value of the Z'' -score index, as well as other financial indicators of the company “Geneza” is higher in 2020 compared to 2019. In the Notes to the financial statements, it is pointed out that the financial statements were prepared under the assumption that the company will operate for an unlimited period, as well as that the Covid-19 pandemic did not affect the company’s operations. The auditor’s opinion about the operations of the company “Geneza” is positive, which is in accordance with the research results.

Unlike the previously analyzed companies within the branch of fruit and vegetable processing and canning, the company “Friglo” has the worst financial performance. With the realized value of the Z'' -score index of 2.84 in 2019, i.e. 0.81 in 2020, the company “Friglo” is financially unstable and operates in the bankruptcy zone. The Covid-19 pandemic affected the business of this company by reducing imports and exports, as well as by making it difficult to find a carrier for international transport. The decision on limiting the price and margin of basic foodstuffs [16] adopted by the Ministry of Trade affected the prices of this company. The financial statements, as stated in the Notes to the financial statements, have been prepared under the assumption of going concern. In the Report, the auditor expresses a positive opinion about the business of the company, without indicating the possibility of bankruptcy in the following period, which

Table 6. Values of the Z'' score index of companies within the branch of fruit and vegetable processing

	Nektar		Polimark		Bahus		Geneza		Friglo	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
NWC	4402670	3577909	2600890	3147127	85304	175593	327112	407210	-966951	305680
Retained profit	7904199	7183740	4014466	4536626	290346	321368	736559	844130	6304	10400
EBIT	908123	555690	773212	952910	29019	40287	87355	131401	-139511	28443
Total equity	8023540	7303077	4183681	4704742	338991	370013	778019	885590	-148379	-145700
Revenues from sales	6386764	5914942	3743184	4053473	817519	629985	902328	964936	1023427	1277907
Total assets	15637849	15569983	4547158	5244589	814075	843920	1113767	1226614	2611993	2569237
Total liabilities	7614309	8266906	363477	539847	475084	473907	335748	341024	2760372	2714937
X_1	0.2815	0.2298	0.5720	0.6001	0.1048	0.2081	0.2937	0.3320	-0.3702	0.1190
X_2	0.5055	0.4614	0.8829	0.8650	0.3567	0.3808	0.6613	0.6882	0.0024	0.0040
X_3	0.0581	0.0357	0.1700	0.1817	0.0356	0.0477	0.0784	0.1071	-0.0534	0.0111
X_4	1.0537	0.8834	11.5102	8.7150	0.7135	0.7808	2.3173	2.5969	-0.0538	-0.0537
Z'' score	4.9914	4.1790	19.8587	17.1281	2.8389	3.7470	7.0428	7.8678	-2.8360	0.8117
Probability (%)	0.6751	1.5083	0.0000	0.0000	5.5260	2.3046	0.0873	0.0383	94.4590	30.7522

Source: Author’s processing based on data from financial reports taken from the SBRA website

is not in accordance with the obtained research results. The probability of bankruptcy of the company “Friglo” in the next two years was 94.46% in 2019, while in 2020 it was reduced to 30.75%. Based on the decrease in the probability of bankruptcy, as well as the improvement of other financial indicators in 2020 compared to 2019, it can be concluded that this company had significant problems in business even before the outbreak of the Covid-19 pandemic.

Sector: Production of beverages

It includes the production of distilled alcoholic beverages, grape wine, beverages and other fruit wines, non-distilled fermented beverages, beer, malt, soft drinks, mineral water, and other bottled water. The companies selected for analysis are shown in Table 7.

All companies that are the subject of analysis within the branch production of beverages in 2019 and 2020 had a Z''-score index greater than the threshold value of 2.6, which shows that their business is financially stable. The implied probability that one of the mentioned companies

will find itself in bankruptcy in the next two years is insignificant. Table 8 shows the calculated values of the Z'' score index and the estimated probability of bankruptcy, after which the situation in each of the selected companies is explained.

The company “Heineken Srbija” operates in a safe zone of financial security. However, in 2020, compared to 2019, there was a decrease in net profit, deterioration of all financial indicators, as well as the value of the Z''-score index. Despite the decrease in results, the company achieved its business plans in 2020, while the management estimates that there are no indications of non-fulfillment of plans in the foreseeable future. Given that the company implemented the plan for 2020, it is concluded that the Covid-19 pandemic did not significantly affect the business, but the management states that if the pandemic continues, the consequences may affect the volume of business, cash flows, and profitability. On the day of issuing the financial statements, the company “Heineken Srbija” fulfilled its obligations on the due date, therefore it continues to apply the principle of continuity of operations as a basic assumption for the preparation of financial statements. The

Table 7. Basic data on companies within the branch beverage production

Name of company	Year of establishment	Company category	Changes in the result in 2020 compared to 2019.
Heineken Srbija	2007	Large legal entity	Reduction in net profit
Apatinska pivara	1756	Large legal entity	Increase in net loss*
Rubin	1955	Large legal entity	Reduction in net profit
Valjevska pivara	1860	Medium legal entity	Increase in net loss
Voda Vrnjci	1969	Medium legal entity	Increase in net loss*

Source: Processing by the authors based on data taken from the SBRA website

*2019. in 2020, the company had a net loss, while in 2020 it made a net profit

Table 8. Values of the Z'' score index of companies within the sector beverage production

	Heineken Srbija		Apatinska pivara		Rubin		Valjevska pivara		Voda Vrnjci	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
NWC	1078090	469030	900623	1021090	1151606	1682787	179266	194688	473688	552563
Retained profit	1984823	1051058	7662795	7662795	2789338	2849125	0	0	985407	990869
EBIT	1824331	1253429	726207	-55414	242101	169451	-15976	-32010	72946	-67559
Total equity	7215948	6494646	11601795	11376975	6819547	6181094	910389	1159355	1609772	1541438
Revenues from sales	11339648	10671551	10494576	9284860	2951351	2400628	508264	521978	1118709	922639
Total assets	11060268	10166429	16257484	15744098	10071883	8857149	1093496	1535714	1761381	1785894
Total liabilities	3844320	3671783	4655689	4367123	3252336	2676055	183107	376359	151609	244456
X ₁	0.0975	0.0461	0.0554	0.0649	0.1143	0.1900	0.1639	0.1268	0.2689	0.3094
X ₂	0.1795	0.1034	0.4713	0.4867	0.2769	0.3217	0.0000	0.0000	0.5595	0.5548
X ₃	0.1649	0.1233	0.0447	-0.0035	0.0240	0.0191	-0.0146	-0.0208	0.0414	-0.0378
X ₄	1.8770	1.7688	2.4920	2.6051	2.0968	2.3098	4.9719	3.0804	10.6179	6.3056
Z'' score	4.3038	3.3254	4.8167	4.7239	4.0161	4.8488	6.1977	3.9260	15.0151	10.2051
Probability (%)	1.3337	3.4709	0.8028	0.8803	1.7704	0.7777	0.2030	1.9340	0.00003	0.0037

Source: Author's processing based on data from financial reports taken from the SBRA website

auditor for the company's financial statements expresses an unqualified opinion, which is in accordance with the obtained values of the Z'' -score index.

The business of the company "Apatinska pivara" is financially stable as indicated by the obtained Z'' -score index, the value of which was 4.82 in 2019, and 4.72 in 2020. Due to the taken measures aimed at limiting the spread of the Covid-19 virus, the company's business activities are limited. For this reason, in 2020 compared to 2019, the company had a significant drop in sales revenue and profit before taxation and interest, which led to a negative business result. In the Notes to the financial statements, the management points out that due to the unpredictability of the pandemic, it is unable to quantitatively assess the future consequences of the pandemic on the company's operations. In addition to difficult business conditions, the application of the principle of business continuity is not questioned, because the company has adequate resources to continue business in the foreseeable future. The auditor for the operations of the company "Apatinska pivara" expresses a positive opinion, without indicating the loss realized due to difficult business conditions during the period of Covid-19.

The presented data show that the company "Rubin" with a Z'' -score index of 4.02 in 2019 and 4.85 in 2020 operates in a safe zone of financial stability. The Covid-19 pandemic had a negative impact on all business segments of the "Rubin" company during 2020 and the beginning of 2021. Due to the closure of catering establishments, the consumption of the company's products was reduced, which resulted in a drop in sales revenue by around 19% and profit before taxation and interest by around 30% in 2020 compared to 2019. During the period of Covid-19, the company was engaged in the development of new products, primarily canned products, to adapt to the new market situation. The effects of the launch of new products will be considered only after the publication of the financial statements for 2021. The company, in the observed period, applies the principle of continuity of operations as a basic assumption for compiling general-purpose financial reports. According to the auditor's opinion, the company's financial statements give an objective and true presentation, of all materially significant issues, by IFRS.

The obtained Z'' -score index values of 6.20 in 2019 and 3.93 in 2020 indicate that the company "Valjevska pivara" belongs to the safe zone of financial security. The impact of the Covid-19 pandemic on the company's operations was significant, as stated in the Notes to the financial statements. To overcome the challenges in business caused by the pandemic, the company used the possibility of deferred payment of taxes and contributions to wages and the right to use funds within the framework of fiscal benefits and direct government grants. The implementation of measures to prevent the spread of the virus and the procurement of basic raw materials without interruption during 2020 enabled the continuity of sales activities, which confirms the value of sales revenue, which has increased compared to 2019. Liabilities from the business are settled regularly and based on the conducted analyses, the management expects to be able to continue to settle them regularly in the foreseeable future. Based on the above, the financial statements were prepared by the principle of continuity of operations. The auditor expressed a qualified opinion, due to the impossibility of determining whether real estate, plant, and equipment were presented truly and fairly. In addition, the company did not calculate the provision for severance pay by IAS 19 - *Employee benefits* and did not record the allowance for receivables for expected credit losses in accordance with the requirements of IFRS 9 - *Financial instruments*.

The company "Voda Vrnjci" has a successful and financially secure operation, which confirms Z'' -score index value that was 15.02 in 2019, and 10.21 in 2020. In 2020, the consequences of the resulting crisis, caused by the spread of the Covid-19 virus, affected the business operations of companies in all segments. For this reason, the company had a net loss in 2020 compared to 2019 when it had a net profit. The value of the Z'' -score index, as well as most of the company's financial indicators, is also lower in 2020 compared to 2019. The placement of products to catering establishments, as well as to key and local customers in the trade sector was significantly reduced, which led to a drop in sales revenue by 18% in 2020 compared to 2019. The company accepted the Government's measures that related to financial benefits and direct grants to business entities in the private sector. In 2021, sales growth compared

to 2020 is planned as well as the introduction of new products into the company's production program, which will enable greater participation of the company both in the domestic and foreign markets. Results achieved in 2021 will be able to be seen only after the publication of the financial statements for 2021. Although it is assumed that the pandemic will affect the company's operations in 2021 as well, the management does not expect that the principle of business continuity will be threatened. Based on the audit of the financial statements, the auditor expresses a positive opinion of the company's operations but draws attention to the note attached to the financial statements, which states that the pandemic could have a significant impact on the company's operations.

Conclusion

The Covid-19 pandemic has affected the operations of most selected companies in the food industry. The new business circumstances imposed the need to transform the business, ensure the safety of employees at the workplace and prevent the spread of the virus. Companies, which marketed a large part of their products to the catering and hotel sector, had a drop in sales due to the complete interruption of catering facilities during the state of emergency, and later due to the ban of gatherings of people in larger groups. In the case of certain companies, the pandemic has caused difficulties in the procurement of raw materials and the export of finished products. However, the Covid-19 pandemic did not have significant negative effects on business activities, sales volume, and profitability of certain food industry companies in the Republic of Serbia. Consequently, the research results show that if we analyze the same branch of the food industry, there are companies whose operations are more or less significantly affected by the events and conditions during the period of Covid-19. The extent to which the pandemic will affect the company's operations primarily depends on its financial stability and the results of its business in the previous period. For this reason, it is not possible to single out a special sector of the food industry in which business operations of companies are at risk to a greater extent during the period of Covid-19.

The management of all companies, in the Notes to the financial statements, states that the companies have adequate resources to continue operations for the foreseeable future and that the Covid-19 pandemic has not called into question the application of the going concern assumption. However, in the case of certain companies, it was determined using the Z"-score model that there is a high probability of initiating bankruptcy proceedings in the next two years, while this was not stated in the Notes to the financial statements. The auditor's report also expresses a positive opinion of the financial statements of some companies, without indicating the possibility of bankruptcy in the future. The foregoing points to the need for a more adequate assessment of the assumption of continuity of operations by the auditor, as a basic assumption to compile financial statements.

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