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Warnings of financial fraud in travel agencies in the Republic of Serbia during the COVID-19 pandemic

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Abstract

Purpose – The purpose of this paper is to determine the change in warning signs of fraud in the financial reports of travel agencies during the COVID-19 pandemic compared to the pre-pandemic period and to investigate a potential increase in the risk of bankruptcy in travel agencies during the same period. **Methodology** – The methodology used in the research comprises the analytical methods of forensic accounting (Beneish model and Altman Z-score), as well as descriptive statistics. **Findings** – The results of the research show that there is a certain increase in warning signs during the pandemic compared to the period before the pandemic and there the risk of bankruptcy in travel agencies increases during the pandemic. **Implications** – The theoretical implications of the study relate to expanding our knowledge about the importance of analytical techniques of forensic accounting and quantifying the probability of manipulation in the travel agencies' financial reports. The practical implications of the work relate to the usefulness of the results for authorized fraud investigators as well as for investors in travel agencies. On the other hand, the results can be useful for clients of travel agencies when selecting travel agencies.

Keywords: warning signs, fraud, travel agencies, COVID-19 pandemic
JEL classification: M48, Z39

Znakovi upozorenja na postojanje finansijskih prevara u turističkim agencijama u Republici Srbiji tokom pandemije COVID-19

Sažetak

Svrha – Cilj ovog rada je utvrđivanje promene u znakovima upozorenja na prevare u finansijskim izveštajima turističkih agencija tokom pandemije COVID-19 u odnosu na period pre pandemije i proučavanje potencijalnog povećanja rizika od stečaja turističkih agencija tokom istog perioda. **Metodologija** – Metodologija koja je u istraživanju korišćena jesu analitičke metode forenzičkog računovodstva (*Beneish*-ev model i *Altman*-ov Z-score), kao i deskriptivna statistika. **Rezultati** – Rezultati istraživanja pokazuju da postoji izvesno povećanje znakova upozorenja tokom pandemije u odnosu na period pre pandemije, kao i da postoji povećanje rizika stečaja kod turističkih agencija u periodu tokom pandemije.

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Implikacije – Teorijske implikacije rada se odnose na proširivanje teorijskih znanja o značaju analitičkih tehnika forenzičkog računovodstva i kvantifikovanju verovatnoće izvršenih manipulacija u finansijskim izveštajima turističkih agencija. Praktične implikacije rada se ogledaju u koristima rezultata za ovlašćene istražitelje prevara u poslovanju, kao i za investiture u turističke agencije. S druge strane, klijentima turističkih agencija rezultati mogu biti korisni u smislu izbora turističke agencije.

Ključne reči: znakovi upozorenja, prevara, turističke agencije, pandemija COVID-19
JEL klasifikacija: M48, Z39

1. Introduction

The pandemic caused by the COVID-19 virus might have been expected from a medical perspective at some point. However, no one expected such scope of the pandemic. The consequences of the pandemic are still being felt, not only on people's lives and their physical and mental health, but also on the growth and development of economies in all countries. Not a single country, regardless of its economic power, was prepared for the negative consequences of the COVID-19 pandemic. In their study, Milunović et al. (2023) found that the inflation rates in the countries they examined rose after 2020 as a result of the COVID-19 pandemic. The fact is that more economically developed countries had more resources to help their citizens and their economies, but no a single country expected such a negative economic impact and was not adequately prepared. The characteristics of this pandemic (isolation of people, keeping distance, easy transmission of the virus, wearing masks etc.) led to the fact that the negative impact of the COVID-19 pandemic was not the same for all industries.

Certain industries adapted more quickly to the situation, some were not affected to a large extent, while some were severely impacted. One of these industries was tourism and hospitality. Hotels were closed, the number of tourists decreased significantly, trips and flights were canceled, resulting in a complete shutdown of the industry at one point. It should be noted that many countries tried to financially help tourism companies, but the consequences, however, had a huge negative impact on their operations. In such circumstances, companies resorted to various tactics in order to survive the crisis period. Some of them took on additional debt, others cut costs, some went bankrupt, while some made frauds in financial statements (i. e. created false financial statements) in order to present their business as more successful.

The subject of the paper is potential fraudulent behavior of travel agencies during the COVID-19 pandemic. In this regard, we employ some well-known models for fraud detection, such as the Beneish model and Altman Z-scores, in order to examine the extent of travel agencies with potential fraudulent behavior. These models have been widely employed in recent research, both in developed and developing countries (e.g. Atik Yildirim & Kovačević, 2022; Ebaid, 2023; Kukreja et al., 2020; MacCarthy, 2017; Suffian et al., 2022), Serbia being no exception (Dimitrijević & Danilović, 2017; Dimitrijević et al., 2018; Knežević et al., 2021; Milašinović et al., 2022) and even in the tourism and hospitality industry (Milašinović et al., 2022).

The aim of the research is to analyze, using analytical techniques of forensic accounting, the existence of warning signs of possible fraud in the financial reports of travel agencies in the Republic of Serbia during the COVID-19 pandemic.

Besides the introduction and conclusion, the paper consists of three parts. The theoretical background is given in the second part of the paper, while the research materials and

methods are presented in the third part of the paper. The fourth part of the paper covers the main research results and their discussion.

2. Background

The negative effects of the COVID-19 pandemic are the subject of numerous studies. Since the negative impact of the pandemic have been transfered to tourism and hospitality in particular, many scholarly papers focus on this industry. Saputra (2023) states that the COVID-19 pandemic has had a significant adverse impact on the tourism sector in Europe, particularly affecting the hotel industry. This indicates that the hotel sector in various countries has been severely affected by the rising number of COVID-19-related deaths. Suffian et al. (2022) explore the impact of fraudulent activities committed by Malaysian tourism sector companies during the COVID-19 pandemic on their financial performance. Their research provides evidence supporting the notion that corporate fraud influences firm performance, in line with the principles of agency theory. Specifically, involvement in fraudulent practices appears to bolster financial performance, as indicated by an increase in return on equity. However, the authors ultimately conclude that engaging in unethical behavior of this nature could have detrimental effects on the long-term performance of the company. However, their conclusion highlights the potential long-term repercussions of such unethical behavior on the company's performance.

Jagtap et al. (2023) conducted an analysis of the COVID-19 pandemic's impact on the tourism sector in India. Their findings indicate a substantial effect on India's tourism industry, resulting in considerable economic losses, job reductions, and a notable decline in household income. Pavlović et al. (2021) examined how the COVID-19 pandemic has influenced the tourism sector in Serbia. Their conclusion suggests that the Serbian tourism industry will require several years to recover from the impact of the pandemic. Despite the implementation of various measures by the national government to support the sector, it is evident that this assistance alone will not suffice to safeguard and rescue all participants in the tourism market. Radivojević (2020) stresses that the Republic of Serbia belongs to the countries with a moderate risk related to the changes in the tourism sector due to pandemic, since the tourism industry has a significant share (but, on the other hand, still lower than in some other countries) in the aggregate exports and overall workforce size within the Republic of Serbia.

Despite the substantial impact of the pandemic on tourism, the loss of jobs may not significantly disrupt population movement in the short term. The reasons "behind this population resilience may be related to government and familiar support" (Sass et al., 2023, p. 9). The public health crisis has markedly altered the perception of travel and prompted shifts in tourist behavior. A crucial factor influencing tourist travel is the preservation of both mental and physical well-being, highlighting that destinations offering a secure environment for tourists are poised for long-term competitiveness. Accordingly, on a national scale, there has been a notable rise in domestic tourist demand for destinations within Serbia during the COVID-19 period (Mandarić et al., 2022).

We have tested two research hypotheses in this paper:

H_1: The COVID-19 pandemic has led to an increase in warning signs of fraud in travel agencies in the Republic of Serbia;

H_2: In addition to the existence of a larger number of warning signs, analytical techniques of forensic accounting do not indicate the possibility of bankruptcy of travel agencies in the Republic of Serbia.

3. Materials and methods

The research in this paper employs analytical methods of forensic accounting (Beneish model and Altman Z-score) to analyze warning signs in the official financial reports of travel agencies during the COVID-19 pandemic. For these purposes, fifty travel agencies registered in the Republic of Serbia were analyzed. The officially published financial reports (retrieved from the Serbian Agency for Business Registers (2024)) of these travel agencies for the period 2019-2022 are used in the analysis. This period was considered in order to study the travel agencies before and during the COVID-19 pandemic. The sample and the analytical techniques used to study the warning signs in the travel agencies are briefly explained below.

3.1. Sample description

The sample used in the paper includes 50 travel agencies that are members of the National Association of Travel Agencies (YUTA). Of the observed 50 travel agencies, 35 belong to the group of micro enterprises, 13 belong to the group of small enterprises, while 2 belong to the group of medium-sized enterprises, whereby the number of employees was used as the criterion for the size of the enterprise (micro enterprise: less than 10 employees; small enterprise: between 10 and 50 employees; medium-sized enterprise: between 50 and 250 employees and large enterprise: more than 250 employees), according to the Law on Accounting (Official Gazette of the Republic of Serbia, 2021). Sampled travel agencies are travel agencies with a high reputation in the Republic of Serbia and are representative of the tourism sector.

Tables 1 and 2 present the results of the descriptive statistics of the main financial indicators of the sampled travel agencies. In these tables, ratio indicators of profitability (ROA - Return on Assets and ROE - Return on Equity), liquidity (CR - Current Ratio; QR - Quick Ratio and LR - Liquid (Cash) Ratio) and leverage (LEV) are calculated.

Table 1: Descriptive statistics for the main financial indicators

	Mean	**Median**	**Minimum**	**Maximum**	**Standard deviation**
ROA	0.005	0.017	-1.171	0.412	0.165
ROE	-0.116	0.062	-25.242	5.310	2.310
CR	2.340	1.207	0.000	74.214	6.301
QR	1.588	0.845	0.000	44.633	4.176
LR	0.411	0.215	0.000	5.431	0.582
LEV	0.898	0.797	0.000	7.428	0.826

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Table 2: Dynamics of median values for the main financial indicators

	2019	**2020**	**2021**	**2022**
ROA	0.022	0.005	0.016	0.046
ROE	0.144	0.013	0.062	0.135
CR	1.227	1.111	1.214	1.358
QR	0.852	0.760	0.875	0.975
LR	0.221	0.212	0.183	0.240
LEV	0.799	0.831	0.816	0.736

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Based on Tables 1 and 2, it can be unequivocally concluded that the main financial indicators are the most unfavorable in 2020, that is, the year in which the pandemic was declared. In 2020, compared to 2019, there is a deterioration in the main financial indicators that were analyzed, while in 2021, there is a slight improvement in the situation, since the effects of the pandemic were less pronounced in 2021 compared to 2020. In other words, the indicators in 2021 were close to the level identified in 2019. Then, in 2022, when the consequences of the pandemic were even less noticeable, it can be seen that almost all of the analyzed main financial indicators were at a level that is more favorable than in 2019, i.e. the year before the pandemic.

3.2. Beneish model

The Beneish model is based on some ratios developed specifically for the fraud investigation. Then, based on the calculated ratios, conclusions are made about the reliability of the financial reports of the company under the investigation. In addition, this model provides information about warning signs ("red flags") in a company's financial statements, thus directing fraud investigators to critical balance sheet items. However, this analytical technique does not provide guarantees that the fraud has occurred within a critical balance sheet item, but rather warns the fraud investigator to further investigate this balance item.

In the 1999 research, Indiana University professor Messod Beneish developed a quantitative model for fraud detection in financial reporting. This model assesses the probability that a company has manipulated its reporting by calculating various ratios that indicate the degree of change between certain financial statement positions. Searching for variables that could be included in a model for detecting fraud in financial statements, Beneish came up with a model that includes a maximum of eight variables. These variables are (Dimitrijević et al., 2018, p. 1324-1325):

1. Days' Sales in Receivables Index (DSRI): used to measure changes in the ratio of trade receivables and sales turnover;
2. Gross Margin Index (GMI): represents the ratio of the current year's gross margin to the previous year's gross margin;
3. Asset Quality Index (AQI): it is obtained by comparing fixed assets (without plant, property and equipment) and total assets in two consecutive years;
4. Sales Growth Index (SGI): it is obtained by comparing the sales turnover in the current year with the sales turnover from the previous year;
5. Depreciation Index (DEPI): used to compare depreciation costs (related to the property, plant and equipment) in previous and current year;
6. Leverage Index (LVGI): used to measure ratio of total debt and total assets in two consecutive years;
7. Total Accruals to Total Assets (TATA): it is obtained as a ratio of total accruals and total assets. Total accruals are calculated as the change in net working capital (excluding cash) less depreciation;
8. Sales, General and Administrative expenses Index (SGAI): used to measure the ratio of sales, general and administration expenses (related to sales turnover) for the current year compared to the previous year.

Based on these variables, Beneish developed two indicators – M(5) and M(8), which consist of five and eight variables, respectively (Kušter, 2021, p. 19):

$$M(5): -6.065 + 0.823\ DSRI + 0.906\ GMI + 0.593\ AQI + 0.717\ SGI + 0.107\ DEPI \quad (1)$$

$$M(8): -4.840 + 0.920\ DSRI + 0.528\ GMI + 0.404\ AQI + 0.892\ SGI + 0.115\ DEPI - 0.172\ SGAI + 4.679\ TATA - 0.327\ LVGI \quad (2)$$

According to Beneish, the M-score greater than -2.22 indicates that there is a possibility that a company is involved in fraudulent financial reporting. However, the limit values for each of the eight indicators of this model are defined (Table 3), so the possibility of fraud in financial statements can be investigated at the indicator-level. The limit values suggest investigator how to interpret the calculated ratios.

Table 3: Limit values of variables in Beneish model

Variables	Financial reports without fraud	Fraudulent financial reports
DSRI	1.031	1.465
GMI	1.014	1.193
AQI	1.039	1.254
SGI	1.134	1.607
DEPI	1.001	1.077
SGAI	1.054	1.041
LVGI	1.037	1.111
TATA	0.018	0.031

Source: Beneish (1999, p. 27)

3.3. Altman Z-score

In 1968, Professor Edward Altman developed a model that can be used to predict bankruptcy. In Altman model, five indicators are calculated in order to indicate whether the company will fall bankrupt. Mathematically, the model may be expressed as follows (Altman, 1968, p. 594):

$$Z = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 0.999\ X_5 \quad (3)$$

where Z is the Altman Z-score and the other elements marked with X are calculated as follows:

- X_1 = Net current assets / Total assets;
- X_2 = Net current assets / Total assets;
- X_3 = EBIT (Earnings before interest and taxes) / Total assets;
- X_4 = Market value of equity / Book value of total liabilities;
- X_5 = Sales revenue / Total assets

It should be noted that for companies whose Z-score is less than 1.80, there is a high probability of bankruptcy. If the Z-score is greater than 3.00, the probability of bankruptcy is very low. The range between 1.81 and 2.99 represents the so-called "zone of ignorance" or "uncertainty zone" as it is difficult to determine the probability of bankruptcy. Since the Z-score was only applicable to public stock companies (due to the X_4 indicator), Altman developed a new model with new weights, which can also be applied to companies whose shares are not publicly listed (Altman et al., 2017, p. 142):

$$Z' = 0.717\ X_1 + 0.847\ X_2 + 3.107\ X_3 + 0.420\ X_4 + 0.998\ X_5 \quad (4)$$

where X_4 is calculated as the ratio of the book value of equity to the book value of total liabilities. For companies with Z' less than 1.23, there is a high probability of bankruptcy, while when the Z' is greater than 2.90, there is a very low probability of bankruptcy. When the value of the Z'-score is between 1.23 and 2.90, the probability of bankruptcy cannot be determined with certainty ("uncertainty zone").

Although improved, Altman score still had an important shortcoming – it did not consider the differences in the industries, since in certain cases the likelihood of financial distresses depends on the industry, as some activities are riskier than others. In order to solve such problem and enable better comparability between companies, a model with four variables was developed, as follows (Altman & Hotchkiss, 2006, p. 248):

$$Z'' = 3.25 + 6.56\ X_1 + 3.26\ X_2 + 6.72\ X_3 + 1.05\ X_4 \quad (5)$$

where the X_4 variable is calculated as in the Z' model, and for companies that have a negative value of Z", the probability of bankruptcy is very high.

4. Results and discussion

The following part of the paper presents the results of the research using the previously explained analytical methods of forensic accounting. Tables 4, 5 and 6 show the results of the Beneish model, while Tables 7, 8 and 9 show the results of the Altman Z-scores. In this regard, it should be noted that in the case of the Beneish model in 2019, only 49 travel agencies (not 50) are studied, as it was not possible to calculate M-indicators for one tourist agency.

In general, the number of travel agencies with "red flags", based on the Beneish model, is approximately the same in 2019 and 2020, while this number significantly increases in 2021. After this, the number of such companies significantly decreased in 2022. The presented results indicate that the most frequent occurrence of "red flags" was in the second year of the pandemic, in 2021. Although the pandemic started in 2020, its effects were most pronounced in 2021 – similar is the situation with frauds in the financial statements as travel agencies were the most motivated in the given period to commit frauds. Considering the limited movement and travel of the population, along with the applied health and other measures to overcome the pandemic, it can be clearly concluded that the greatest risk for the existence of fraud in the financial statements of travel agencies was in 2021.

Investigating at the indicator-level, it can be seen for each indicator that a significant number of travel agencies appear to submit fraudulent financial statements. In addition, a significant number of them lie in the "uncertainty zone". It may be noted that SGAI is the variable of the Beneish model where the limit value is exceeded the most frequently. However, it should be noted that a certain adjustment of this variable has been made. Since the costs of sales, management and administration are not explicitly stated in the official income statement applied in the Republic of Serbia, the labor costs are used instead of them. This is due to the fact that in the Republic of Serbia, the method of total costs is used (where the expenses are classified according to their nature, and not according to their function as in cost of goods sold method).

On the other hand, summarized indicators M(5) and M(8) indicate that the number of travel agencies with suspicions of the fraud is significantly higher in 2021 than in the previous two observed years. In 2019, there were 21 travel agencies in which at least one of these two M-indicators exceeded the limit of -2.22. In addition, according to the M(8), the number of travel agencies that exceeded the limit of -2.22 is the same in 2019 and 2020, despite the fact that the pandemic appeared at the end of the first quarter of 2020.

Table 4: Descriptive statistics for the Beneish model

	Mean	Median	Minimum	Maximum	Standard deviation
DSRI	2.385	0.739	0.000	96.668	7.846
GMI	0.638	0.303	-367.716	445.897	45.548
AQI	2.087	0.000	-58.720	185.883	15.535
SGI	1.797	1.139	0.000	29.970	3.049
DEPI	0.681	0.634	0.000	16.250	1.331
LVGI	1.058	0.993	0.000	4.001	0.386
TATA	-0.030	-0.027	-3.165	1.757	0.364
SGAI	1.678	0.921	0.000	31.839	3.019
M(5)	-0.925	-3.387	-334.547	406.125	42.752
M(8)	-0.561	-2.695	-193.440	241.378	25.989

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Table 5: Dynamics of median values for the Beneish model

	2019	2020	2021	2022
DSRI	0.795	1.918	0.697	0.407
GMI	0.902	-0.023	0.376	0.473
AQI	0.000	0.000	0.000	0.000
SGI	1.102	0.309	1.474	1.723
DEPI	0.548	0.684	0.311	0.817
LVGI	0.990	1.034	0.971	0.989
TATA	-0.026	-0.014	-0.025	-0.038
SGAI	0.947	1.847	0.532	0.826
M(5)	-3.496	-3.516	-2.244	-3.531
M(8)	-2.782	-3.257	-1.685	-2.652

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Table 6: Distribution of sampled travel agencies by Beneish model values

	Without fraud risk				Uncertainty zone				Fraud risk			
	2019	**2020**	**2021**	**2022**	**2019**	**2020**	**2021**	**2022**	**2019**	**2020**	**2021**	**2022**
DSRI	31	17	29	45	9	3	5	1	9	30	16	4
GMI	28	47	30	36	5	0	3	4	16	3	17	10
AQI	42	38	40	42	4	2	2	2	3	10	8	6
SGI	27	47	20	5	16	2	8	17	6	1	22	28
DEPI	39	37	38	42	2	2	4	1	8	11	8	7
LVGI	39	27	34	32	3	6	6	3	7	17	10	15
TATA	30	29	32	32	3	2	2	2	16	19	16	16
SGAI	14	7	9	14	0	0	1	0	35	43	40	36
M(5)	32	35	25	38	/	/	/	/	17	15	25	12
M(8)	31	31	22	31	/	/	/	/	19	19	28	19

Note: In the table is presented number of sampled travel agencies

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

However, the situation worsens in 2021, since as many as 28 of the 50 travel agencies (58% of the sample) have the M(8) above the limit. This may be taken as a direct consequence of financial reporting in the conditions of the COVID-19 pandemic, because in 2021 the pandemic had a far greater impact than in the year it appeared. After a certain time of presence of the pandemic, it should be talked about massive manipulative financial reporting, since more than a half of the analyzed travel agencies included in the sample had at least one of the two M-indicators exceeding the limit value. However, in 2022, 19 travel agencies had warning signs of fraud in their financial statements (according to M(8) indicator), which means that the number of travel agencies with warning signs of fraud in their financial statements returns to the level from period before 2021.

Table 7: Descriptive statistics for Altman Z-scores

	Mean	**Median**	**Minimum**	**Maximum**	**Standard deviation**
Z'	2.625	1.251	-6.855	60.164	6.954
Z''	6.733	5.517	-41.562	155.196	15.952

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Table 8: Dynamics of median values for Altman Z-scores

	2019	**2020**	**2021**	**2022**
Z'	1.493	0.636	1.080	1.564
Z''	5.874	4.450	5.417	6.284

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

Table 9: Distribution of sampled travel agencies by Altman Z-scores

	Without bankruptcy risk				**Uncertainty zone**				**Bankruptcy risk**			
	2019	**2020**	**2021**	**2022**	**2019**	**2020**	**2021**	**2022**	**2019**	**2020**	**2021**	**2022**
Z'	13	4	7	13	17	13	14	21	20	33	29	16
%	26%	8%	14%	26%	34%	26%	28%	42%	40%	66%	58%	32%
Z''	48	46	45	47	/	/	/	/	2	4	5	3
%	96%	92%	90%	94%	/	/	/	/	4%	8%	10%	6%

Note: In the table is presented number of sampled companies

Source: Authors' calculation, based on the Serbian Agency for Business Registers (2024)

In the next part of our empirical analysis, we extended our research with the Altman Z-scores. The original Z-score was not used because this model requires the analyzed companies to be public stock companies, while none of the sampled travel agencies operate in this legal form. Out of the sampled 50 travel agencies, 20 agencies had a high probability of entering bankruptcy and financial difficulties in 2019, while in 2020 that number is as high as 33, and then in 2021 it drops to 29 travel agencies. In 2022, the number of travel agencies with a high probability of financial difficulties is only 16. Thus, the trend that existed in the Beneish model may be only partially found in the Altman model, since the largest number of travel agencies with warning signs to accounting fraud (according to the Beneish model) is present in 2021, while the largest number of travel agencies with a high probability of bankruptcy (according to Altman model) is present in 2020. Also, if the change in the structure of the sample is observed in the context of the risk of bankruptcy according to the Z'-score, it can be unequivocally concluded that the largest number of travel agencies with a high risk of bankruptcy is present in 2020 (66%), as well as that the smallest number of travel agencies that have no risk of bankruptcy (8%) is present in the same year.

Considering the data from Altman Z"-score, it is clear that there are some important differences compared to the Z'-score, as it can be noted that there is a significantly smaller number of companies with a high probability of financial difficulties. Namely, it may be noted that the largest number of travel agencies with a high probability of bankruptcy (5 travel agencies) occurred in 2021, which is in accordance with the results of the Beneish model presented earlier, according to which most companies had indications of fraud in their financial statements for 2021.

In addition, special attention should be paid to the situation in 2021. Although the Benish model showed that there are indications of manipulative financial reporting in the extremely large number of travel agencies, Altman Z'-score shows that in 2021 there is a smaller number of travel agencies with a high probability of financial distress compared to 2020. It should also be considered that in 2021 there were extremely unfavorable business conditions for travel agencies, so there is a well-founded suspicion that some travel agencies opted for fraudulent financial reporting in order to present the performance in 2021 better than it actually was.

5. Conclusion

The pandemic caused by COVID-19, which swept the world in early 2020, had a negative impact on all industries around the world. However, some of them were affected to a greater extent, as is the case with tourism and hospitality. Various factors influenced this negative effect (quarantine, travel ban, social distancing etc.). Many countries have applied various economic measures to help this industry, but the negative financial effect was felt by travel agencies and hotels, restaurants and other companies belonging to this industry. For these reasons, this paper applies two analytical techniques of forensic accounting (the Beneish model and Altman Z-scores) to the financial reports of 50 travel agencies in the Republic of Serbia in order to examine whether some of the travel agencies manipulated their financial data and commit fraud to improve their financial performance.

Despite a certain discrepancy in the trend of Beneish model and Altman Z-scores, the research results showed that both the number of travel agencies with suspicions of fraudulent financial reporting and number of travel agencies with a high probability of bankruptcy increased after the declaration of the pandemic and the state of emergency in the Republic of Serbia. In this regard, the first research hypothesis is confirmed (H_1: The COVID-19 pandemic has led to an increase in warning signs of fraud in the travel agencies in the Republic of Serbia).

In addition, it is important to note that there is a particular risk for travel agencies that appeared (according to the Beneish model) to have fraudulent financial reporting. Therefore, we employed Altman Z-scores and showed that there is an increase in probability of financial difficulties in 2020, observing total number of sampled travel agencies. This means that along with the increase in the number of travel agencies that have reported warning signs of fraud, there is also an increase in warning signs of bankruptcy, observed in the total number of travel agencies, which means that second research hypothesis is not confirmed (H_2: In addition to the existence of a larger number of warning signs, analytical techniques of forensic accounting do not indicate the possibility of bankruptcy of travel agencies in the Republic of Serbia). For that reason, it may be concluded that, despite the increase in the number of warning signs during the pandemic, there is increase in the risk of bankruptcy. This fact could indicate that there is a possibility that travel agencies with warning signs of frauds did not necessarily commit those fraudulent acts to conceal the risk of bankruptcy, but might have done so for other reasons, such as borrowing under more favorable conditions, retaining competitiveness, clients, and so on.

The results presented in the paper have certain theoretical and practical implications. The theoretical implications of this work relate to the expansion of knowledge about the importance of analytical techniques of forensic accounting. The theoretical considerations in the paper can help to understand the quantification of the probability of the manipulation in the financial statements. The practical implications refer to the fact that forensic accountants, fraud investigators, as well as economic and financial analysts can use the results of this research to conduct other similar research studies in future. In addition, since the results indicated that certain travel agencies manipulated their financial reports during the pandemic, the results of the work have implications in terms of predicting and preventing travel agency fraud if similar crisis occur in the future. Since the objective is not only to detect fraud, but also to prevent it, we believe that presented results can contribute to it. Also, the results of the work can have an impact on the travel agencies, which prepare financial reports. This impact is reflected in the fact that preparers of financial statements will be discouraged from committing financial statement fraud if they know that such fraud may be detected by forensic accounting. Therefore, travel agencies should strengthen their internal controls to reduce the vulnerability of financial statements to fraud. Finally, the results can be useful to business partners and clients of travel agencies, since clients have a certain degree of aversion to any type of travel agency fraud. Therefore, clients will choose those travel agencies where there is a low probability of manipulations, and avoid those travel agencies where there is a high probability of manipulations.

This research also has certain limitations. The analysis was conducted on a sample of only 50 travel agencies over a period of four years. Also, no information on sales revenue was available for certain travel agencies, so the amount of total business revenue was used. Approximate values were also used for certain expenditures. Since for the Beneish model, the information on the amount of the purchase value of the goods sold is required, for majority of the travel agencies this information was not available, because travel agencies do not sell goods, and therefore do not have the amount of purchase value of the goods sold in their profit and loss account, which is why instead of the amount of the purchase value of the goods sold, the amount of total business expenses was used. Then, for the SGAI indicator, it is necessary to have information on administrative expenses that do not exist in the official balance sheet in the Republic of Serbia, which is why administrative expenses are taken as salary expenses, salary compensation and other personal expenses. The next limitation of this study is related to the fact that lower ratings of the Z'-score could simply reflect the fact that business entities due to pandemic had worse financial performance and were therefore more exposed to bankruptcy to a greater extent.

Further research could include larger samples, as all travel agencies that are members of the National Association of Travel Agencies (YUTA) might be included in the sample. Also, future research could include travel agencies from neighboring countries, where a comparison of the results obtained for travel agencies in the Republic of Serbia and those neighboring countries could be made. The time period of observation could also be longer.

Conflict of interest

The authors declare no conflict of interest.

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Appendix

List of sampled travel agencies

Name of the travel agency	ID number	Name of the travel agency	ID number
1A Travel	20405317	Kontiki Travel & Service	20899999
Allegra Krstarenja	21490423	Lui Travel	17170368
Amigo Travel	17474294	Maestro Travel	21072907
Amos Travel	20850779	Malutas Travel	20104112
A-Superturs	20800585	Mediteraneo Holidays	17380699
Bancor Sea & Ski	21260436	Minos Travel	08795312
Belvi Travel	06037763	Montesol Travel	07524579
Beosonic	06932894	Namesis	06211283
Bon Voyage	08589046	Nitravel	17468898
Calypso Tours International	20317779	Odeon World Travel	20370424
Champions Travel	21007412	Oktopod	17205196
Cosmopolis	20721979	Olympic Travel	20807628
Dream Land Travel	21399752	Omega Travel	20096268
Elnos Tours	08580006	Pierre Travel	07914253
Fantast Tourist	20024925	Plana Tours	07613857

Felix Travel	20957654	Ponte Travel	06176275
Filip Travel	06963838	Robinzon	17075365
Galileo Tours	21132535	Rubicon Travel	20653655
Globus Travel	17132300	Sabra Company	17130609
Halo Tours	17307398	STUP Travel	08009961
Holiday	07361491	Sunline Travel	17463977
International Line	08660263	Supernova Travel	20243988
Jumbo Travel	20117826	TraveLux	21146692
Jungle Travel	20211857	Turisttrade	07755384
Karavan International	07690886	Viva Travel	21214035