ISSN 1611-1699 / eISSN 2029-4433

VILNIUS TECH
Vilnius Gediminas Technical University

JOURNAL of BUSINESS ECONOMICS & MANAGEMENT

2024
Volume 25
Issue 4
Pages 774–788

https://doi.org/10.3846/jbem.2024.22029

TOURISM BUSINESS MANAGEMENT IN THE ASPECT OF EARNINGS MANAGEMENT BY TRAVEL AGENCIES IN TIMES DISEASE THREATS – EVIDENCE FROM POLAND

Iwona FRANCZAK [1]✉, Daniel BAKOTA [2]

[1]*Faculty of Finance, Department of Accounting, University of Economics in Katowice, Katowice, Poland*
[2]*Faculty of Social Sciences, Department of Social Policy, Social Work and Tourism, Jan Dlugosz University in Czestochowa, Czestochowa, Poland*

Article History:
- received 7 December 2023
- accepted 15 May 2024

Abstract. This study examines the existence of earnings management by travel agencies operating in Poland at the time of global disease threats over the last decade. To measure earnings management the estimation of total discretionary accruals was used constituting some changes in the working capital. Among the available research methods, hypothesis verification procedures based on panel models have been selected**.** It is found, that in the times of economic prosperity, the phenomenon of earnings management does not occur as it is not necessary. In tough years, when the actual financial result becomes unsatisfactory, shaping the result is used as a tool for its correction. Interpretation of the results requires caution due to their sensitivity to the adopted research methodology. They should be treated as an incentive to a thorough analysis of the content of financial statements and to research into the earnings management of tourism businesses.

Keywords: business management, accounting, earnings management, tourism business, travel agency, disease threats.

JEL Classification: M21, M41, Z32, Z33.

✉Corresponding author. E-mail: ***iwona.franczak@uekat.pl***

1. Introduction

Owners or managers in charge of tourism businesses set themselves the strategic goal, among other things, to maximize the benefits of the entities they manage. Among the key issues in the field of management sciences the concepts of risk and uncertainty should be mentioned. They have a significant impact on businesses. These are the concepts that are closely related to appropriate risk management, consisting, among others, in predicting certain market behaviours and an appropriate managers' response to these behaviours in order not only to minimize risk, but also to take advantage of certain emerging market opportunities (Janasz et al., 2007). In this article, the emerging risk for tourism businesses has been narrowed down to a catastrophic event, and as an example of such event, the occurrence of global disease threats over the last decade has been taken into account.

Nowadays, one can easily move around all continents of the world. However, it entails a number of negative consequences that have a significant impact on tourism. This is because

there is a high risk of spreading dangerous diseases that over time may turn into epidemics or pandemics. One of the largest epidemics in the last decade was the Ebola hemorrhagic fever epidemic (2014–2016). The place where a case of infection with this virus was first recorded was Guinea in West Africa. Next this virus spread at an express pace to other countries such as: Congo, Liberia, Senegal, Sierra Leone and many others. Some cases were also recorded in the USA and isolated cases in Europe. It is estimated that over 28,000 people have been infected and over 11,000 have died (Medonet, 2020).

Over more than a decade, humanity has also been and continues to be a witness to dangerous and deadly pandemics. Among them, one of the most dangerous ones was the SARS-CoV-2 coronavirus pandemic. The first mention of the emergence of a new disease was recorded in the Chinese city of Wuhan at the end of 2019. The disease quickly began to cover larger and larger areas to finally reach all continents (Duszyński et al., 2020). According to the data of November 2023, the pandemic has already claimed over 6.9 million people, and over 772 million people have been infected with these numbers still changing (World Health Organization [WHO], 2023).

The tourism industry was negatively affected by both the Ebola hemorrhagic fever epidemic (Sifolo & Sifolo, 2015; Amankwah-Amoah, 2016; Cahyanto et al., 2016; Novelli et al., 2018; Maphanga & Henama, 2019), and the pandemic of SARS-CoV-2 coronavirus (Abu Bakar & Rosbi, 2020; Falcon et al., 2020; Piluso & Ricci, 2020; Harchandani & Shome, 2021; Lagos et al., 2021; Skare et al., 2021; Barotsaki, 2022; Vemberi et al., 2022; Liu et al., 2023).

Global disease threats significantly affect the financial situation of tourism businesses. In terms of survival and development, such businesses experience significant uncertainty. The emerging financial pressure may change the current financial strategy of managers towards the so-called earnings management, i.e. the use of accounting procedures allowing for distortions in the values of the financial result. The emergence of the phenomenon of earnings management is a consequence of the reorientation of accounting objectives in terms of decision-making usefulness. Accounting should support the management processes as regards allocating financial capital, not just reflect reality. The information provided by accounting is to make it possible to predict the benefits of the use of financial capital and thus to manage financial risk (Smejda, 2012).

The identified research gap in the aspect of earnings management is a small scope of research into the relationships between the occurrence of global disease threats and the size of the earnings management by tourism businesses, including travel agencies. The main purpose of the article is therefore to verify the existence of earnings management by travel agencies operating in Poland at the time of global disease threats over the last decade. Demonstrating earnings management through the selection of accounting policy instruments has required the use of appropriate econometric methods, leading to the quantification of the relationship between the studied variables. Among the available research methods, hypothesis verification procedures based on panel models have been selected**.**

The remaining part of this article is organized as follows: Section 2 presents the theoretical background of this study, Section 3 is devoted to the research methodology, Section 4 focuses on the results and discussion, and the last section contains the conclusions of the research, limitations, implications, as well as the scope of future research.

2. Theoretical background

2.1. Global disease threats and the activity of Polish travel agencies in the last decade

Each business is exposed to various types of risk factors that may affect its functioning. Managers may take certain actions to prevent risk or mitigate its impact on the functioning of a company. The risk management method developed in the form of a policy has an impact on many aspects of business functioning, and improper risk management can lead to the loss of the ability to achieve strategic goals of an organization (Fliegner, 2018).

Maintaining or improving a competitive position, increasing revenues, acquiring new customers, as well as improving reputation are examples of signs of success in running a business. However, the prospects of achieving success are strongly dependent on the conditions that are imposed by the environment. It is particularly difficult to initiate entrepreneurial behaviours and to achieve success when running a business during a crisis (Jedynak & Bąk, 2022).

An internal crisis that affects a single company most often makes it temporarily or permanently impossible to achieve success. Then, the management of such business is most often focused on maintaining business continuity and preventing collapse. On the other hand, external crises whose probability of occurrence is not influenced by individual companies, may constitute a serious obstacle to conducting business (Jedynak & Bąk, 2022).

Such type of crises in the case of travel agency industry are certainly situations caused by global disease threats. The Ebola hemorrhagic fever epidemic, covering only the western part of Africa, resulted in the entire continent being perceived as a risk area, which undoubtedly affected the local tourism sector (World Travel & Turism Council [WTTC], 2018). However, despite the fact that the Polish Ministry of Foreign Affairs advised against travels to the countries where there was no real control over the spread of the virus, Poles still opted for trips to African countries in travel agencies (Newsweek, 2014).

In turn, the SARS-CoV-2 coronavirus pandemic had a much worse impact on the activities of travel agencies. Closing borders led to a significant reduction in the operation of numerous travel agencies or even to their closure (Staszewska, 2022). The improvement in the situation in Poland was to be brought about by the actions taken by the state. At that time, some acts constituting the so-called "Anti-Crisis Shield" were adopted (Sejm Rzeczypospolitej Polskiej, 2020a, 2020b, 2020c, 2020d). Despite the state provided aid, travel agencies continued to face serious difficulties on their way. Therefore, further steps were taken and another act was adopted, which introduced changes in this respect (Sejm Rzeczypospolitej Polskiej, 2020e). Under the act, the Tourist Refund Fund was then established (October 1, 2020), the purpose of which – for cancelling a tourist event in connection with the SARS-CoV-2 coronavirus pandemic – was to refund money. Another form of securing interests of travel agency customers was the Tourist Assistance Fund introduced on January 1, 2021 aimed at supporting tourism companies in the event of extraordinary circumstances. The introduction of a tourist voucher, which could be used to pay for, among others, holidays organized by a travel agency, was also of great support (Kraś, 2022).

Tourism businesses (including travel agencies) that have been struggling to recover after the pandemic are also currently facing a crisis related to the rising costs of living putting household budgets under pressure. Thus, discretionary items such as tourism are first in line for potential cuts. In 2022, 6.3 million customers visited Polish travel agencies. This was 19% less than in the memorable and so far the best year in organized tourism i.e. 2019 (Turystyka, 2023).

2.2. Managing financial results of businesses

The approach that looks at a business through the prism of decisions taken assumes that the information provided by accounting plays a key role in decision-making. This does not apply to all information about the company's activities, but only to that which is significant for decision-making. In the contractual approach, the business organization model assumed the participation of individual contract partners from the point of view of their interests. The organization itself did not require goals, but only the expression of the participation of the interests of individuals. The decision-making approach considers a company a social organism, resulting in the interests of numerous decisions made (Smejda, 2012).

According to the agency theory and positive accounting theory, agents always find incentives to manage results to present the best possible image of a given entity, due to, for example, professional prestige, maintaining their jobs, or the achievement of certain financial volumes by the entity they manage. In the private sector, the agent's perspective raises the expectation that there are conditions in which agents will try to maximize their usefulness by manage financial data presented to their superiors (Wójtowicz, 2010). One might assume that the main motivation for taking such actions is to change the views of outsiders on the financial situation and financial results of an entity in given periods. The justification for such action is, from the point of view of the agency theory, a common claim that it results from the efforts of agents (drawing up reports) to maximize their assets at the expense of the principal, e.g. through the use of creative accounting techniques to justify bonuses or other incentives that, without creative action in given periods, the persons concerned or the community of such persons would not be entitled to (Wójtowicz, 2010).

The reporting of individual entities can be considered the main information carrier for all users. Nistor and Stefanescu indicate that reports are considered a key tool for the accountability of managers before different users (Nistor & Stefanescu, 2012).

Piosik assumes that earnings management constitutes a goal or a set of goals adopted by the management board of the reporting entity and the integrated set of instruments of its/their implementation (of accounting type related to the adopted methods and, above all, estimates in accounting and of material type related to the transactions carried out), which result in the failure to show the (short-term) financial result that is known to the management board, and which would be shown in the financial statements in the absence of the use of a specific subgroup of goals and instruments. It is assumed that earnings management is carried out in correspondence with the adopted accounting policy of a reporting entity (especially as regards accounting instruments), and therefore is in accordance with the balance sheet law (Piosik, 2016). Similarly, McKee states that earnings management implies a legitimate and lawful process of making reporting decisions in order to achieve predictable financial results. This process should not be equated with illegal activities to manipulate financial statements (McKee, 2005). Jones defines earnings management as such application of the flexibility of solutions adopted in accounting as part of the management of a specific entity so as to present the image of the entity, paying particular attention to the interest of those drawing up financial statements (Jones, 2011). Similarly, other authors perceive this issue as the use of specific accounting policy instruments in order to appropriately present the financial situation of a given entity as regards those drawing up financial statements (Amat & Gowthorpe, 2004).

In the private sector, the concept of earnings management is typically associated with measures to shape financial performance figures to better align them with the objectives

of the entities, or alternatively (or collectively) to shape balance sheet structure figures to achieve similar effects, both to understate liabilities and to overstate assets. Schilit divides creative accounting techniques into seven key categories: recording revenue too early, recording false revenue, increasing revenue through one-off profits, shifting current expenditure to a later or earlier period, not recording or improperly reducing liabilities, shifting current revenue to a later period, and shifting future expenditure to the current period through special charges in a given period (Schilit, 2002).

The Polish-language literature analysed the determinants of earnings management through accounting (Wójtowicz, 2010; Grabiński, 2016; Piosik, 2016). According to Grabiński, the process of earnings management is influenced by factors specific to an entity (company size, level of debt, profitability). The second group consists of macroeconomic factors. In the period of crisis, earnings management is limited, in the period of recovery it is more intense. The third group of determinants are cultural factors (Grabiński, 2016). Wójtowicz shows that small profits are reported much more often than small losses and this regularity prevails in times of economic difficulties (Wójtowicz, 2010).

The literature review shows, however, that the global results regarding the strength and direction of the relationship between the crisis and earnings management are not unambiguous. The results of some empirical studies indicate that the crisis increases the level of earnings management (Saleh & Ahmed, 2005; Chia et al., 2007; Ahmed et al., 2008; Ahmad-Zaluki et al., 2011), whereas the results of other studies provide different conclusions (Graham & King, 2000; Davis-Friday et al., 2006; Choi et al., 2011; Filip & Raffournier, 2014).

Referring to the impact of the SARS-CoV-2 coronavirus pandemic on the process of earnings management, the researchers mainly state that the crisis resulting from the pandemic intensified the process of earnings management (Lassoued & Khanchel, 2021; Yan et al., 2022; Aljughaiman et al., 2023). Managers sought to demonstrate an acceptable level of financial performance to consequently mitigate the effects of the pandemic in the eyes of investors and stakeholders.

3. Research methodology

In connection with the concept of using creative accounting practices adopted in the literature to earnings management by companies, the main goal of the research was set i.e. to verify the existence of earnings management by travel agencies operating in Poland in the times of global disease threats over the last decade.

In connection with the adopted research goal, the main hypothesis of the research has been put forth:

- H: Accounting policy instruments are used in travel agencies in Poland in order to earnings management.

In order to prove the main hypothesis, detailed hypotheses will be verified:

- H1: There is a relationship between the use of accounting policy instruments in order to earnings management and the size of the travel agency.
- H2: There is a relationship between the use of accounting policy instruments in order to earnings management and the occurrence of global disease threats.
- H3: There is a negative relationship between the use of accounting policy instruments in order to earnings management and the audit of the financial statements by a statutory auditor.

The selection of travel agencies was based on the Polish classification of economic activity – PKD 2007, i.e. 79.12. After removing entities with missing financial data for all the examined years and taking into account the activities of travel agencies in 2014 and the continuation of their activities until 2022, the study has included 202 travel agencies.

The occurrence of shaping the financial result in the entities surveyed was examined on the basis of the Jones model (Jones, 1991). To measure the shaping of the results the estimation of total discretionary accruals was used constituting some changes in the working capital called total accruals (*TA – total accruals*).

$$TA_{i,t} / A_{i,t-1} = \beta_1(1/A_{i,t-1}) + \beta_2(\Delta REV_{i,t} / A_{i,t-1}) + \beta_3(PPE_{i,t} / A_{i,t-1}) + \zeta_{it}, \quad (1)$$

where: $TA_{i,t}$ – total accruals of the *i-th* entity in year *t*; $A_{i,t-1}$ – total assets of the *i-th* entity of year *t*–1; $\Delta REV_{i,t}$ – change in revenues from the sale of the *i-th* entity of year *t*; $PPE_{i,t}$ – gross value of tangible fixed assets of the *i-th* entity of year *t*.

In the first stage of the research, variables that may significantly affect the analysed dependent variable of the model were specified (Table 1). The most common determinants of earnings management in the literature are, among others, size of an entity, debt level or profitability of an entity (Wójtowicz, 2010; Ahmad-Zaluki et al., 2011; Choi et al., 2011; Grabiński, 2016). Thus, they were also included in the model.

Table 1. Description of the adopted variables

Variable name	Description
$EM_{i,t}$	*Earnings Management* – total discretionary accruals treated as residuals from the Jones model (1991).
$SIZE_{i,t}$	Size of the company measured as the natural logarithm of total assets.
$LEV_{i,t}$	Indicator measuring financial risk of the *i-th* entity by determining to what extent assets are financed by debt.
$ROA_{i,t}$	Return on assets converted to the annual scale.
$CFO_{i,t}$	Cash flows from operating activities divided by the sum of assets from the *t* period.
$AUD_{i,t}$	Qualitative variable assuming the value of 1, if the financial statements were audited by a statutory auditor in year *t*, 0 otherwise.
$COV_{i,t}$	Qualitative variable assuming the value of 1 if there is a global disease threat (SARS-CoV-2 coronavirus pandemic) in 2020, 0 otherwise.
$EB_{i,t}$	Qualitative variable assuming the value of 1 if there is a global disease threat (EBOLA) in *2015*, 0 otherwise.
YEAR	Variable determining the unit of time in the study for the one-way model of random effects.

In econometric studies by combining data in the form of time series with cross-sectional data, a cross-sectional-temporal sample is created (Welfe, 1977). Econometric models estimated on the basis of such data form a group of the so-called error component regression models called panel models (Greene, 2003; Baltagi, 2008; Mátyás & Sevestre, 2008; Andreß et al., 2013). The panel data analysis method, compared to other methods, is characterized

by several advantages that are significant for the achievement of the objectives of this study, i.e.:

- they make it possible to obtain higher efficiency of econometric estimates in relation to estimates based on cross-sectional data or on time series owing to the use of variability both between entities and variability over time,
- they allow us to reduce the load on estimators caused by unobserved independent variables.

In empirical research, two types of panel models are most often used, i.e. models with spatial decomposition i.e. *one-way error component regression models* also referred to as one-way error models, as well as models with spatial and temporal decomposition i.e. *two-way error component regression models* referred to as two-way error models (Muszyńska, 2006). The construction of one-way error models is based on the assumption that research units (or groups of units) differ from each other by certain characteristics that remain constant over time for a given entity. The linear one-way error model can be presented as follows (Muszyńska, 2006):

$$y_{it} = \alpha + X'_{it}\beta' + u_{it}; \tag{2}$$

$$u_{it} = \mu_{it} + v_{it}, \tag{3}$$

where: *i, t* – indices denoting the unit of study and time, respectively; X_{it} – vector of observations on exogenous variables; α, β – structural parameters of the model; u_{it} – random component of the model; μ_{it} – unobservable and not included in the regression equation individual effect[1] specific to a given unit studied; v_{it} – the remaining, purely random part of the random component.

The group effects $\mu_{i,t}$ are interpreted as individual characteristics of the studied entities that are not subject to change over time.

Two-way error models, in turn, take into account the existence of not only group effects, but also time effects. They assume the possibility that at a given moment the same random disorder occurs in all units of the study. The construction of linear two-way error models is identical to the construction of one-way error models, and only the random component is decomposed into three components (Muszyńska, 2006):

$$u_{it} = \mu_{it} + \lambda_{it} + v_{it}, \tag{4}$$

where: λ_{it} – is an unobservable and time-specific effect not included in the regression equation.

The group effects are not subject to change over time μ_{it} while time effects remain constant for all study units.

In view of the above, the next step of the study, using the presented independent variables, was to construct a model of panel multiple regression. The step regression procedure allowed us to distinguish an initial list of determinants characterized by the largest degree of correlation with the dependent variable and the smallest one with other independent variables (Stanisz, 2007). The data panel after taking into account outliers, made it possible to obtain a sample, with an observation size of N = 1616, for 202 entities in 8 periods. All calculations were made with GRETL 2020b software.

[1] Since the individual effect may result from the entity belonging to the i-th group, it is often also referred to as the group effect.

4. Results and discussion

In the next step of the study, the descriptive statistics of the variables were analyzed. Table 2 shows the results of the descriptive statistics of quantitative variables studied.

Table 2. Descriptive statistics of quantitative variables studied (source: own)

Variable name	Average	Median	Min.	Max.	Stand. deviation	Variable coefficient	Perc. 5%	Perc. 95%
$EM_{i,t}$	0.002	–0.01	–0.38	0.82	0.14	33.74	–0.23	0.25
$SIZE_{i,t}$	8.504	8.22	3.61	13.98	2.01	0.24	5.67	12.34
$LEV_{i,t}$	12.014	0.00	0.00	162.28	21.58	1.79	0.00	50.85
$ROA_{i,t}$	5.403	3.82	–80.00	78.82	24.58	5.05	–25.17	35.96
$CFO_{i,t}$	0.002	0.00	–0.65	0.37	0.08	26.47	–0.07	0.12

Among the variables analysed, the variable determining discretionary non-monetary accruals ($EM_{i,t}$) reached values of 0.002 on average with these values deviating from the average by 0.141. The coefficient of variation of the variable studied was 33.74. The variable determining the size of travel agencies ($SIZE_{i,t}$) reached values of 8.504 on average with these values deviating from the average by 2.01. The coefficient of variation of the variable studied was 0.24. The variable determining the extent to which assets are financed by debt ($LEV_{i,t}$) reached values of 12.014 on average with these values deviating from the average by 21.58. The coefficient of variation of the variable studied was 1.79. The variable determining travel agency profitability ($ROA_{i,t}$) reached values of 5.403 on average with these values deviating from the average by 24.58. The coefficient of variation of the variable studied was 5.05. The last quantitative value determining the volume of cash flows from operating activity ($CFO_{i,t}$) reached values of 0.002 on average with these values deviating from the average by 0.08. The coefficient of variation of the variable studied was 26.47.

Table 3 shows the frequency of occurrence of zero-one variables studied.

Table 3. Frequency table of qualitative variables studied

Variable name	Value			
	0		1	
	Number	Frequency	Number	Frequency
$COV_{i,t}$	1414	87.5%	202	12.5%
$EB_{i,t}$	1414	87.5%	202	12.5%
$AUD_{i,t}$	1193	73.81%	423	26.19%

The qualitative variable $AUD_{i,t}$ assuming the value of 1, if the financial statements were audited by a statutory auditor in year t, 0, otherwise, mostly assumed the value of 0, i.e. 1193

observations, which constituted 73.81% of the studied entities of the panel, while 26.19% of the entities of the panel had the financial statements audited in the period studied.

The resulting regression model is presented in the following equation:

$$EM_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 CFO_{i,t} + \beta_5 COV_{i,t} + \beta_6 EB_{i,t} + \beta_7 AUD_{i,t} + \varepsilon_{it}. \quad (5)$$

In the first step of the analysis conducted, the correctness of using the least squares estimation method (CLS) was verified. In the performed diagnostic tests, the Wald test statistic was $F(200, 1295) = 1.72$ with the value of $p = 0.01$, which gave grounds to reject the H_0 hypothesis that the CLS panel model is correct, compared to the H_1 hypothesis that the model with permanent effects is more appropriate. Subsequently, the Breusch-Pagan test, where the test statistic was: $LM = 3.21$ with p-value < 0.04. Low p-value means rejection of the H_0 hypothesis that the CLS panel model is correct, compared to the H_1 hypothesis that the model with random effects is more appropriate. The Hausman test statistics: $H = 5.762$ with a p-value *of* 0.41 confirmed the correctness of using a model with random effects.

The cumulative regression model performed for the above-mentioned statistical tests still showed the presence of heteroscedasticity, so the parameters of the next model with the correction introduce resistant standard errors. It does not change the values of the estimated parameters, but only the assessment of errors. First, the two-way error model was subject to estimation of the following form:

$$EM_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 CFO_{i,t} + \beta_5 COV_{i,t} + \beta_6 EB_{i,t} + \beta_7 AUD_{i,t} + u_{it}. \quad (6)$$

The results of the estimation of the two-way error model with random effects are presented in Table 4.

Table 4. Assessment of parameters of two-way model with random effects dependent variable $EM_{i,t}$

Variable	Coefficient	Standard error	*t*-student	*p*-value
const	–0.057	0.027	–2.507	0.01
$COV_{i,t}$	0.028	0.011	2.588	0.00*
$EB_{i,t}$	0.000	0.008	0.214	0.93
$LEV_{i,t}$	–0.001	0.002	–0.830	0.42
$SIZE_{i,t}$	–0.003	0.003	–1.180	0.03*
$AUD_{i,t}$	–0.020	0.010	–1.875	0.04*
$ROA_{i,t}$	–0.008	0.001	–24.11	0.23
$CFO_{i,t}$	–0.783	0.044	–19.92	0.00*
Between = 0.0003; Within = 0.0026; Theta = 0.28; R^2= 0.85				
Breusch-Pagan Test: Test statistics: Chi-square (1) = 3.108 with *p*-value < 0.05 Hausman test: Chi-square test statistic (6) = 6.914 with *p*-value = 0.33 Test for normal distribution of residuals: Test statistics: Chi-square (2) = 5.835 with *p*-value < 0.06 Test for autocorrelation of residuals: Test statistics: *F* (1.199) = 4.285 with *p*-value = 0.06				

Note: **p*-value <0.05.

The results of the analysis indicate factors which in a statistically significant way affect the level of earnings management, which include, among others, the occurrence of the COVID-19 year ($COV_{i,t}$; assessment of the parameter β_5 = 0.028, p = 0.00), size of a travel agency, measured total assets ($SIZE_{i,t}$); assessment of the parameter β_1 = –0.003, p = 0.03) and the $AUD_{i,t}$ variable (assessment of the parameter β_7 = –0.020, p = 0.04) meaning that the financial statements were audited by a statutory auditor. It is worth noting that the control variables behave as expected, i.e. the larger the entity, the lower the level of earnings management (Atiase, 1985). In addition, the results of the regression analysis indicate that the agencies characterized by higher flows from operating activities are characterized by a lower level of shaping balance sheet profits.

The estimated panel model explains 85% of the impact of selected independent variables on the shaping of the financial result by travel agencies. Variance within groups higher than between groups in the correct random model indicates that the model better explains the differentiation between individual entities over time than within these entities. The results also allow us to conclude that unobservable conditions in entities that do not change over time, i.e. in the case of a two-way error model taking into account random effects related to a specific entity and time effects[2], account for 28% of the total random error.

Next one-way error model was subject to estimation of the following form:

$$EM_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 CFO_{i,t} + \beta_5 COV_{i,t} + \beta_6 EB_{i,t} + \beta_7 AUD_{i,t} + \beta_8 YEAR + u_{it}. \quad (7)$$

The results of the estimation of the one-way error model with random effects are presented in Table 5.

Table 5. Assessment of parameters of one-way model with random effects, dependent variable $EM_{i,t}$

Variable	Coefficient	Standard error	*t*-student	*p*-value
const	0.025	3.568	0.006	0.994
$COV_{i,t}$	0.027	0.012	2.227	0.03*
$EB_{i,t}$	0.001	0.011	0.062	0.95
$LEV_{i,t}$	–0.001	0.000	–0.599	0.55
$SIZE_{i,t}$	–0.004	0.003	–1.079	0.03*
$AUD_{i,t}$	–0.018	0.010	–1.678	0.09
$ROA_{i,t}$	–0.008	0.000	–25.91	0.30
$CFO_{i,t}$	–0.918	0.032	–27.94	0.00*
YEAR	–0.000	0.002	–0.025	0.97
Between = 0.0003; Within = 0.0026; Theta = 0.27; R^2 = 0.83				
Breusch-Pagan Test: Test statistics: Chi-square(1) = 3.297 with p-value < 0.05 Hausman test: Chi-square test statistic (7) = 7.589 with p-value = 0.36 Test for normal distribution of residuals: Test statistics: Chi-square(2) = 6.298 with p-value < 0.06 Test for autocorrelation of residuals: Test statistics: F(1.199) = 4.579 with p-value = 0.07				

Note: *p-value < 0.05.

[2] Showing effects common to all entities in individual years, i.e., for example, a change in the economic situation.

The results of the analysis indicate factors which in a statistically significant way affect the level of earnings management, which include, among others, the occurrence of the COVID-19 year ($COV_{i,t}$; assessment of the parameter $\beta_5 = 0.027$, $p = 0.03$), size of a travel agency, measured total assets ($SIZE_{i,t}$); assessment of the parameter $\beta_1 = -0.004$, $p = 0.03$).

The estimated panel model explains 83% of the impact of selected independent variables on the shaping of the financial result by travel agencies. Variance within groups higher than between groups in the correct random model indicates that the model better explains the differentiation between individual entities over time than within these entities. The results also allow us to conclude that unobservable conditions in entities that do not change over time, i.e. in the case of a two-way error model taking into account random effects related to a specific entity and time effects[3], account for 27% of the total random error.

5. Conclusions

Modern companies control tangible, intangible or human resources, which gives a lot of power to people managing them. The task of accounting is, among others, to communicate the use of controlled resources to a wide range of stakeholders interested in the effects of the entity's activities. Reliable communication about the effectiveness and economy of the undertaken activities, and, above all, about their compliance with applicable customs and social standards requires not only appropriate development of the accounting information system, but also at the level of an entity management setting goals to be achieved that serve not only the needs of a company, but are also to contribute to meeting the expectations and interests of stakeholders, primarily the owners of the capital invested in an entity.

Managing a business entity in a crisis situation of such nature as a pandemic or epidemic is a challenge for businesses due to difficulties in identifying, analysing and assessing the risks associated with such threats. These difficulties may be caused by the dynamics and unpredictability of economic and social changes caused by an epidemic/pandemic.

In connection with the adopted research methodology, i.e. the analysis of the regression model on panel data that is taking into account information about objects and their simultaneous characteristics in individual periods made it possible to reduce the measurement error, which may result from omitting important variables unobservable for these objects. This is because such models take into account the impact of two types of factors on the analysed objects. As a result of the study carried out on the two-way and one-way error model the variables of $COV_{i,t}$, $SIZE_{i,t}$ turned out to be significant. In turn, the qualitative variable $AUD_{i,t}$ turned out to be significant only in the two-way error model, which took into account random effects related to a specific entity and time effects illustrating the effects common to all entities in individual years e.g. a change in the economic situation.

The $COV_{i,t}$ variable indicating the occurrence of the year of the SARS-CoV-2 coronavirus pandemic, significantly influenced the earnings management by travel agencies operating in Poland. In turn, the variable $EB_{i,t}$ turned out to be statistically insignificant, which can be explained by the fact that despite the Ebola hemorrhagic fever epidemic in 2014–2016, Poles did book trips to Africa. The magnet – taking into account 2014 – was, among others, the lower price of trips than in the previous year. The discounts reached up to as much as 20%. In addition, the countries where cases of the disease were recorded were not yet explored by Polish tourists.

[3] Showing effects common to all entities in individual years, i.e., for example, a change in the economic situation.

An interesting result of the study is the relationship between the size of an entity and the occurrence of the earnings management, where the sign at the $SIZE_{i,t}$, variable is different from the expected one. On the other hand, the result of the relationship between the $AUD_{i,t}$ variable meaning that the report has been audited by a statutory auditor is consistent with the expectations. If the financial statements was audited by a statutory auditor, earnings management was less intensive. The above thesis may also explain the negative relationship between the size of an entity and using earnings management by travel agencies.

In connection with the above, the adopted detailed hypotheses have been verified positively. To sum up the conducted research on the reporting data for the years 2014–2022 of randomly selected travel agencies operating in Poland, it should be pointed out that these entities use accounting policy instruments to shape the financial result in times of global disease threats.

In the times of economic prosperity earnings management does not occur as it is not necessary. In tough years, when the actual financial result becomes unsatisfactory, shaping the result is used as a tool for its correction. The above conclusions have important implications. The findings presented in the article will help decision-makers better understand the quality and clarity of financial statements of travel agencies. The conducted research has an impact on deepening the knowledge of, among others, stakeholders, auditors of financial statements or researchers on the use of earnings management in financial reports of travel agencies.

However, research limitations, such as the size of the sample resulting from the annual and only complete financial statements of travel agencies, should be taken into account. Interpretation of the results also requires caution due to their sensitivity to the adopted research methodology.

The results achieved in the work may be a step towards taking further actions, to a much wider extent, and should be treated as an incentive for a thorough analysis of the content of financial statements and for research on the use of earnings management in financial reports of tourism businesses. The results of the research may constitute a basis for a comparative analysis, taking into account the use of earnings management by the same or other tourism businesses in the period of disease threats, e.g. in the Visegrad Group countries (Poland, Czech Republic, Slovakia, Hungary) or in countries neighbouring Poland which are in the euro area (Germany, Slovakia, Lithuania). In addition, the subject of earnings management by tourism businesses can be related not only to disease threats, but also to natural threats (e.g. earthquakes, volcanic eruptions, floods) and military threats (e.g. terrorism, armed conflicts).

Author contributions

Iwona Franczak and Daniel Bakota conceived the study and were responsible for the design and development of the data analysis. Iwona Franczak and Daniel Bakota were responsible for data analysis and data interpretation. Iwona Franczak and Daniel Bakota wrote the first draft of the article.

Disclosure statement

The authors have no competing financial, professional, or personal interests from other parties.

References

Abu Bakar, N., & Rosbi, S. (2020). Effect of Coronavirus disease (COVID-19) to tourism industry. *International Journal of Advanced Engineering Research and Science*, *7*(4), 189–193. https://doi.org/10.22161/ijaers.74.23

Ahmad-Zaluki, N. A., Campbell, K., & Goodacre, A. (2011). Earnings management in Malaysian IPOs: The East Asian crisis, ownership control, and post-IPO performance. *The International Journal of Accounting*, *46*(2), 111–157. https://doi.org/10.1016/j.intacc.2011.04.001

Ahmed, K., Godfrey, J. M., & Saleh, N. M. (2008). Market perceptions of discretionary accruals by debt renegotiating firms during economic downturn. *The International Journal of Accounting*, *43*(2), 114–138. https://doi.org/10.1016/j.intacc.2008.04.002

Aljughaiman, A. A., Nguyen, T. H., Trinh, V. Q., & Du A. Q. (2023). The Covid-19 outbreak, corporate financial distress and earnings management. *International Review of Financial Analysis*, *88*, Article 102675. https://doi.org/10.1016/j.irfa.2023.102675

Amankwah-Amoah, J. (2016). Ebola and global airline business: An integrated framework of companies' responses to adverse environmental shock. *Thunderbird International Business Review*, *58*(5), 385–397. https://doi.org/10.1002/tie.21789

Amat, O., & Gowthorpe, C. (2004). *Creative accounting: Nature, incidence and ethical issues* (UPF Working Paper, 749). SSRN. https://doi.org/10.2139/ssrn.563364

Andreß, H.-J., Golsch, K., & Schmidt, A. W. (2013). *Applied panel data analysis for economic and social surveys*. Springer. https://doi.org/10.1007/978-3-642-32914-2

Atiase, R. K. (1985). Predisclosure information, firm capitalization, and security price behavior around earnings announcements. *Journal of Accounting Research*, *23*(1), 21–36. https://doi.org/10.2307/2490905

Baltagi, B. H. (2008). *Econometric analysis of panel data* (3rd ed.). John Wiley & Sons Ltd., Chichester.

Barotsaki, A. (2022). The impact of the COVID-19 pandemic on tourism. *Archives of Hellenic Medicine*, *39*(3), 412–414.

Cahyanto, I., Wiblishauser, M., Pennington-Gray, L., & Schroeder, A. (2016). The dynamics of travel avoidance: The case of Ebola in the U.S. *Tourism Management Perspectives*, *20*, 195–203. https://doi.org/10.1016/j.tmp.2016.09.004

Chia, Y. M., Lapsley, I., & Lee H.-W. (2007). Choice of auditors and earnings management during the Asian financial crisis. *Managerial Auditing Journal*, *22*(2), 177–196. https://doi.org/10.1108/02686900710718672

Choi, J. H., Kim, J. B., & Lee, J. J. (2011). Value relevance of discretionary accruals in the Asian financial crisis of 1997–1998. *Journal of Accounting and Public Policy*, *30*(2), 166–187. https://doi.org/10.1016/j.jaccpubpol.2010.09.002

Davis-Friday, P. Y., Eng, L. L., & Liu, C. S. (2006). The effects of Asian crisis, corporate governance and accounting system on the valuation of book value and earnings. *The International Journal of Accounting*, *41*(1), 22–40. https://doi.org/10.1016/j.intacc.2005.12.002

Duszyński, J., Afelt, A., Ochab-Marcinek, A., Owczuk, R., Pyrć, K., Rosińska, M., Rychard, A., & Smiatacz, A. (2020). Zrozumieć COVID-19. *ACADEMIA. Magazyn Polskiej Akademii Nauk*, *4*(64), 1–80.

Falcon, V. V., Sanchez, F. C., & Fernandez, A. J. R. (2020). Impact of COVID-19 on world tourism. *Revista Universidad y Sociedad*, *12*, 207–216.

Filip, A., & Raffournier, B. (2014). Financial crisis and earnings management: The European evidence. *The International Journal of Accounting*, *49*(4), 455–478. https://doi.org/10.1016/j.intacc.2014.10.004

Fliegner, W. (2018). Model dojrzałości zarządzania ryzykiem i jego aspekty procesowe oraz informatyczne. *Finanse, Rynki Finansowe, Ubezpieczenia*, *4*(94), 185–195. https://doi.org/10.18276/frfu.2018.94/1-16

Grabiński, K. (2016). Wpływ kryzysu gospodarczego na aktywne kształtowanie wyniku finansowego w europejskich spółkach giełdowych. *Zeszyty Teoretyczne Rachunkowości*, *87*(143), 29–42. https://doi.org/10.5604/16414381.1207431

Graham, R., & King, R. D. (2000). Accounting practices and the market valuation of accounting number: evi-dences from Indonesia, Korea, Malaysia, the Philippines, Taiwan and Thailand. *The International Journal of Accounting*, *35*(4), 445–470. https://doi.org/10.1016/S0020-7063(00)00075-3

Greene, W. H. (2003). *Econometric analysis* (5th ed.). Prentice Hall, Upper Saddle River, Macmillan Publishing Company, New York.

Harchandani, P., & Shome, S. (2021). Global tourism and COVID-19: An impact assessment. *Tourism*, *69*(2), 262–280. https://doi.org/10.37741/t.69.2.7

Janasz, K., Janasz, W., & Wiśniewska, J. (2007). *Zarządzanie kapitałem w przedsiębiorstwie*. Difin, Warszawa.

Jedynak, P., & Bąk, S. (2022). Kluczowe czynniki sukcesu w zarządzaniu przedsiębiorstwami podczas pandemii COVID-19. *Studia i Prace Kolegium Zarządzania i Finansów*, *184*, 65–78. https://doi.org/10.33119/SIP.2022.184.5

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, *29*(2), 193–228. https://doi.org/10.2307/2491047

Jones, M. J. (2011). *Creative accounting, fraud and international accounting scandals*. John Wiley & Sons. https://doi.org/10.1002/9781119208907

Kraś, J. (2022). Wpływ działań podejmowanych przez państwo na sektor turystyki po wybuchu pandemii COVID-19. *Cywilizacja i Polityka*, *20*, 309–321.

Lagos, D. G., Poulaki, P., & Lambrou, P. (2021). COVID-19 and its impact on tourism industry. *Coronavirus Disease – COVID-19*, *1318*, 815–824. https://doi.org/10.1007/978-3-030-63761-3_45

Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 pandemic on earnings management: An evidence from financial reporting in European firms. *Global Business Review*. https://doi.org/10.1177/09721509211053491

Liu, Y., Cheng, X., Liao, S. S., & Yang, F. (2023). The impact of COVID-19 on the tourism and hospitality Industry: Evidence from international stock markets. *North American Journal of Economics and Finance*, *64*, Article 101875. https://doi.org/10.1016/j.najef.2022.101875

Maphanga, P. M., & Henama, U. S. (2019). The tourism impact of Ebola in Africa: Lessons on crisis management. *African Journal of Hospitality, Tourism and Leisure*, *8*(3), 1–13.

Mátyás, L., & Sevestre, P. (2008). *The econometrics of panel data. Fundamentals and recent developments in theory and practice* (3rd ed.). Springer. https://doi.org/10.1007/978-3-540-75892-1

McKee, T. E. (2005). *Earnings management. An executive perspective*. Thomson, Mason, Ohio.

Medonet. (2020). *Koronawirus nie jest pierwszy. Największe epidemie ostatnich lat*. https://www.medonet.pl/koronawirus/to-musisz-wiedziec,najwieksze-epidemie-ostatnich-lat--koronawirus--sars--ptasia-grypa--ebola,artykul,15776010.html

Muszyńska, J. (2006). Modelowanie danych panelowych. *Zeszyty Naukowe Państwowej Wyższej Szkoły Zawodowej we Włocławku*, *1*, 213–236.

Newsweek. (2014). *Polaków wczasy z Ebolą w tle*. https://www.newsweek.pl/polska/ebola-wyjazdy-do-afryki-nadal-popularne-newsweekpl/ev1kdn2

Nistor, C. S., & Stefanescu, C. A. (2012). Public vs. banking sector accounting – How far is Romania from international referential? *Acta Universitatis Danubius*, *8*(3), 86–100.

Novelli, M., Burgess, L. G., Jones, A., & Ritchie, B. W. (2018). 'No Ebola...still doomed' – The Ebola-induced tourism crisis. *Annals of Tourism Research*, *70*, 76–87. https://doi.org/10.1016/j.annals.2018.03.006

Piluso, A., & Ricci, A. (2020). COVID-19 impact on „tourism globalization". *Documenti Geografici*, *2*, 213–231.

Piosik, A. (2016). *Kształtowanie wyniku finansowego przez podmioty sprawozdawcze w Polsce. Diagnoza dobrej i złej praktyki w rachunkowości*. Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach.

Saleh, N. M., & Ahmed, K. (2005). Earnings management of distressed firms during debt renegotiation. *Accounting and Business Research*, *35*(1), 69–86. https://doi.org/10.1080/00014788.2005.9729663

Schilit, H. M. (2002). *Financial shenanigans – How to detect accounting Gimmicks and Fraud in financial reports* (2nd ed.). McGraw-Hill Education.

Sejm Rzeczypospolitej Polskiej. (2020a). *Ustawa z dnia 2 marca 2020 r. o szczególnych rozwiązaniach związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19 innych chorób zakaźnych oraz wywołanych nimi sytuacji kryzysowych (Dz.U. 2020, poz. 374 z późn. zm.)*. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000374

Sejm Rzeczypospolitej Polskiej. (2020b). *Ustawa z dnia 31 marca 2020 r. o zmianie ustawy o szczególnych rozwiązaniach związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19, innych cho-*

rób zakaźnych oraz wywołanych nimi sytuacji kryzysowych oraz niektórych innych ustaw (Dz.U. 2020, poz. 568). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000568

Sejm Rzeczypospolitej Polskiej. (2020c). *Ustawa z dnia 31 marca 2020 r. o zmianie niektórych ustaw w zakresie systemu ochrony zdrowia związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19 (Dz.U. 2020, poz. 567)*. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000567

Sejm Rzeczypospolitej Polskiej. (2020d). *Ustawa z dnia 31 marca 2020 r. o zmianie ustawy o systemie instytucji rozwoju (Dz.U. 2020, poz. 569)*. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000569

Sejm Rzeczypospolitej Polskiej. (2020e). *Ustawa z dnia 17 września 2020 r. o zmianie ustawy o szczególnych rozwiązaniach związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19, innych chorób zakaźnych oraz wywołanych nimi sytuacji kryzysowych oraz niektórych innych ustaw (Dz.U. 2020, poz. 1639)*. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200001639

Sifolo, N., & Sifolo, P. P. S. (2015). The tourism inconvenience of the Ebola epidemic: Lessons for the South African tourism sector. *African Journal of Hospitality, Tourism and Leisure*, *4*(1), 1–11.

Skare, M., Soriano, D. R., & Porada-Rochon, M. (2021). Impact of COVID-19 on the travel and tourism industry. *Technological Forecasting and Social Change*, *163*, Article 120469. https://doi.org/10.1016/j.techfore.2020.120469

Smejda, M. (2012). Determinanty zarządzania zyskami. Studia Ekonomiczne. *Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego w Katowicach*, *125*, 173–190.

Stanisz, A. (2007). *Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Modele liniowe i nieliniowe* (tom 2). StatSoft Polska.

Staszewska, A. (2022). Zarządzanie kryzysem w turystyce podczas pandemii COVID-19. *Zeszyty Naukowe Wydziału Zarządzania GWSH*, (17), 100–109.

Turystyka. (2023). *Ponad 6 milionów klientów w biurach podróży. Nie wszyscy jeszcze jednak wrócili*. https://turystyka.rp.pl/biura-podrozy/art37895781-ponad-6-milionow-klientow-w-biurach-podrozy-nie-wszyscy-jednak-jeszcze-wrocili

Vemberi, Y., Fitriastuti, L. I., Affan, J., & Herawan, T. (2022). Covid-19 Impact on Tourism and Hospitality: A Review of the Evidences. *Quality-Access to Success*, *23*(190), 156–169. https://doi.org/10.47750/QAS/23.190.18

Welfe, W. (Ed.) (1977). *Ekonometryczne modele rynku, tom I: Metody ekonometryczne*. PWE, Warszawa.

World Health Organization. (2023). *WHO Coronavirus (COVID-19) dashboard*. https://covid19.who.int

World Travel & Turism Council. (2018). *Impact of the Ebola epidemic on travel & tourism*. https://wttc.org/Portals/0/Documents/Reports/2018/Impact%20of%20the%20Ebola%20epidemic%20on%20Travel%20and%20Tourism%202018.pdf?ver=2021-02-25-182521-103

Wójtowicz, P. (2010). *Wiarygodność sprawozdań finansowych wobec aktywnego kształtowania wyniku finansowego*. Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.

Yan, H. M., Liu, Z. Y., Wang, H. Y., Zhang, X. H., & Zheng, X. L. (2022). How does the COVID-19 affect earnings management: Empirical evidence from China. *Research in International Business and Finance*, *63*, Article 101772. https://doi.org/10.1016/j.ribaf.2022.101772