

Original Article

Survival and Transformation: Assessing the Financial Resilience of Indonesian Tourism Companies Pre, During, and Post-COVID-19

¹Muhammad Rizqon, ²Dr. Irni Yunita
^{1,2}Telkom University, Indonesia.

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Abstract: The COVID-19 pandemic and government mobility restrictions significantly impacted the performance of tourism sector companies, although they demonstrated rapid recovery post-restrictions. This study compared five bankruptcy prediction models (Altman, Springate, Zmijewski, Zavgren, and Ohlson) to identify the most accurate model for predicting bankruptcy among Indonesian companies, particularly in the tourism sector. The assessment of bankruptcy prediction accuracy considered not only the comparison of interpretation results with the cutoff value criteria but also the alignment with companies' general performance patterns before, during, and after the pandemic. The study involved 29 tourism companies listed on the Indonesia Stock Exchange from 2018 to 2022, utilizing the paired sample t-test difference test technique for hypothesis testing. The results revealed significant differences between the models in predicting potential bankruptcy, with the Springate model exhibiting the highest accuracy at 77%, followed by Altman at 50%, Zmijewski at 49%, Ohlson at 40%, and Zavgren at 28%. The score graph patterns produced by the Springate, Altman, Zmijewski, and Zavgren models were found to be most suitable for describing the conditions of the COVID-19 pandemic. Additionally, the study compared the financial conditions before, during, and after the pandemic, revealing significant differences before and during the pandemic according to the Springate model. In contrast, no significant differences were observed before and after the pandemic. To maximize the benefits of bankruptcy prediction models, the study recommends their use in conjunction with vertical analysis, which compares performance from year to year.

Keywords: Bankruptcy, Covid-19, Financial Analysis, Indonesian Stock Exchange, Tourism.

I. INTRODUCTION

The tourism sector holds significant importance as a driver of economic growth and a major contributor to the nation's foreign exchange earnings. Despite its resilience and substantial growth in previous years, the emergence of the COVID-19 pandemic in 2020 led to a severe downturn in the sector, resulting in substantial financial losses and operational closures for numerous businesses within the industry. This unprecedented disruption prompted a profound impact on the financial health and performance of tourism-related companies, as evidenced by significant decreases in foreign exchange earnings and share prices, as well as the closure of hotels and restaurants.

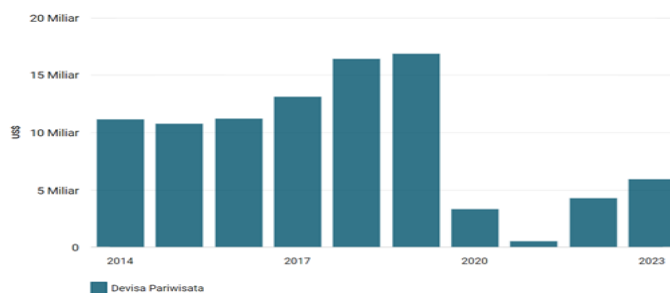


Figure 1: Foreign Exchange in the Tourism Sector in 2014-2022

Source: Databoks (2023)

As the effects of the pandemic gradually subside, the tourism sector is showing signs of recovery, with an anticipated increase in foreign tourist visits and foreign exchange income. This post-pandemic recovery presents an intriguing opportunity for research, particularly in examining the financial dynamics of tourism sector companies. Specifically, the study aims to investigate the applicability of bankruptcy prediction theory as an analytical tool for assessing the financial well-being of these companies throughout the pandemic and subsequent recovery period.



The research focuses on publicly listed tourism sector companies, encompassing 29 carefully selected entities from the trade and investment services sector, as well as the tourism, hotel, and restaurant industries. By employing purposive sampling, the study seeks to provide valuable insights into the financial trajectories of these companies during and after the COVID-19 pandemic, thereby shedding light on the alignment of bankruptcy prediction theory with the observed financial distress and subsequent recovery within the tourism sector.

The literature review highlights the extensive history of bankruptcy prediction models, including the Multiple Discriminant Analysis (MDA) method introduced by Altman in 1968, as well as subsequent models by Springate, Zmijewski, Zavgren, and Ohlson. While the Altman model has been widely used in Indonesia, recent studies have explored alternative models and compared their accuracy in predicting financial distress and bankruptcy. Notably, research has focused on assessing the performance of these models before, during, and after the COVID-19 pandemic, recognizing the unique challenges and opportunities presented by this unprecedented global event.

The proposed research, titled "Bankruptcy Analysis of Tourism Sector Companies Listed on the Indonesia Stock Exchange Before, During, and After the Covid-19 Pandemic," seeks to contribute to this body of knowledge by testing the accuracy and applicability of various bankruptcy prediction models within the context of the tourism industry. The study will compare the performance of the Altman Z-Score method, Springate, Zmijewski, Zavgren, and Ohlson models, aiming to identify the most accurate and suitable predictive model for assessing the financial health of tourism sector companies.

Furthermore, the research will analyze the impact of the COVID-19 pandemic on the financial distress of these companies, utilizing paired sample t-tests to compare their financial performance before, during, and after the pandemic. This analysis will provide valuable insights into the specific effects of the pandemic on the tourism sector and the subsequent recovery of these companies. The study seeks to contribute to the development of more precise and effective bankruptcy prediction models tailored to the unique characteristics of the tourism industry while also considering the influence of external factors such as the COVID-19 pandemic. By enhancing the understanding of financial distress and recovery within the tourism sector, the research aims to provide valuable insights for stakeholders and contribute to the resilience and sustainability of tourism companies in Indonesia.

Finding the best accurate model for anticipating financial trouble in tourism companies registered on the Indonesia Stock Exchange is one of the research's many goals, along with examining bankruptcy forecasts based on multiple models of prediction. Additionally, the study seeks to analyze the differences in bankruptcy prediction results according to the Altman, Springate, Zmijewski, Zavgren, and Ohlson models for the period 2018-2022 and to assess the condition of these companies before, during, and after the COVID-19 pandemic using each prediction model. Furthermore, the research aims to test whether the companies experienced financial distress during the pandemic and whether this distress decreased after the easing of restrictions on activities.

In addition, it provides significant benefits to both academics and financial management practitioners. For academics, it will enrich the research repertoire on bankruptcy prediction models, offering empirical testing of the most accurate and feasible prediction models while considering the specific conditions and situational factors of the tourism industry. It will also serve as a valuable reference for further research based on different objects and environmental conditions. It will also provide material for a more in-depth study of bankruptcy prediction in abnormal conditions, such as those experienced during the Covid-19 pandemic.

For financial management practitioners, particularly companies, the research findings can be utilized to anticipate potential financial distress and prevent bankruptcy, especially in uncertain economic and global conditions. By using proven prediction models, companies can take responsive and solutive actions to prevent severe financial conditions or bankruptcy. Additionally, the study is expected to encourage investors to utilize bankruptcy analysis as a fundamental instrument in making investment decisions, emphasizing the importance of fundamental analysis and the company's financial condition based on financial statements. These objectives and benefits underscore the significance of the research in contributing to the understanding and proactive management of financial distress within the tourism sector, particularly within the framework of the Covid-19 pandemic and other potential economic uncertainties.

II. LITERATURE REVIEW

A) *Financial Statement*

Financial statements, as defined by the Statement of Financial Accounting Standards in the basic framework of preparing and presenting Financial Statements Par.7, are a crucial component of the financial reporting process (IAI, 2020). They encompass balance sheets, income statements, statements of changes in capital, cash flow statements, and notes to financial statements, along with additional integral information. Weygandt et al. (2020) emphasize that financial statements

serve as the primary means through which a company communicates its financial information to external parties, providing a quantified history of the company in monetary terms. These statements are structured presentations of an entity's financial position and performance, aiming to offer valuable insights for most users in making economic decisions (IAI, 2022).

Furthermore, financial statement analysis, as described by Harahap (2013:193), involves breaking down the items within financial statements into smaller units of information and examining their significant relationships, both quantitative and non-quantitative, to gain a deeper understanding of the company's financial condition. Similarly, Hery (2015:113) defines financial statement analysis as a process of dissecting financial statements into smaller elements and analyzing each element to obtain a more precise understanding of the financial position and performance, ultimately aiding in decision-making.

B) Financial Distress and Bankruptcy

Financial distress refers to a significant decrease in a company's financial condition, often resulting from management's inability to oversee the company effectively. This leads to operating losses or cash flows that are insufficient to cover operating expenses. Prolonged financial distress can ultimately lead to bankruptcy, which represents the most severe stage of financial distress, characterized by the company's inability to meet its debts (Kristanti, 2019). This not only impacts the company's financial system but also the organization as a whole.

The literature on predicting financial difficulties suggests that variables commonly used as predictors of bankruptcy can be categorized into financial ratios, macroeconomic variables, corporate governance, and other special variables (Kristanti, 2019). Companies that manage to avoid financial distress typically exhibit strong financial performance, as indicated by their financial ratios (Kristanti et al., 2016). While financial distress often signals the potential for factual bankruptcy, it is important to note that not all companies facing financial distress will necessarily go bankrupt. Some companies are able to navigate through challenging periods by taking appropriate precautions (Kristanti et al., 2023). Various factors, both internal and external, can contribute to the financial difficulties experienced by a company. Internally, issues related to human resources, product quality, pricing, technology, marketing, and distribution can trigger financial distress. Externally, factors such as socio-cultural environment, macroeconomic conditions, technology, legal regulations, and natural disasters can also play a role in exacerbating a company's financial challenges (Kristanti, 2019).

C) Bankruptcy Prediction Model

Research on the topic of bankruptcy prediction has been carried out both by researchers in various foreign countries and researchers in Indonesia. Some popular prediction models are used as analytical tools, namely the Altman model (Z-Score), Zmijewski model (X-Score), Ohlson model (O-Score), Zavgren model (Y-Score), and Springate model (S-Score).

D) The First Altman Model

After researching selected variables and samples, Altman produced the first bankruptcy prediction model aimed at predicting the bankruptcy of a publicly traded manufacturing company. The first Altman model was formulated with the following equation:

$$Z = 1,2 X1 + 1,4 X2 + 3,3 X3 + 0,6 X4 + 1,0 X5$$

Information:

Z= Bankruptcy Score

X1= Working Capital/Total Assets

X2= Retained Earning/Total Assets

X3= Earning Before Interest and Tax/Total Assets

X4= Market Value Equity/Book Value of Debt

X5 = Sales/Total Assets

The Springate model, developed by Gorgon L.V. Springate in 1978, utilizes step-wise multiple discriminate analysis to select four out of nineteen financial ratios to distinguish companies in the bankruptcy zone from those in the safe zone. The model is represented by the equation $S = 1.03X1 + 3.07X3 + 0.66X6 + 0.4X5$, where S is the Springate value, and X1, X3, X6, and X5 represent specific financial ratios. A cutoff value of 0.862 is applied to the Springate model, where an S value below 0.862 predicts potential bankruptcy, while a value above 0.862 indicates a healthy company (Ayu, 2008: 18).

Zmijewski (1983) developed the X-Score model, which uses financial ratios to detect corporate financial failures. The model is represented by the equation $X\text{-Score} = -4.3 - 4.5X7 + 5.7X8 - 0.004X9$, where X7, X8, and X9 represent specific financial ratios. A cutoff point value of 0 categorizes companies as healthy if the X-Score is below the cutoff point and as financially distressed if it is above the cutoff point (Hidayat, 2015).

The Zavgren model, based on logit analysis, was developed in the 1980s and early 1990s. It uses a multivariate function with various coefficients over independent variables to calculate the probability of bankruptcy (Pi). The model includes seven

financial statement ratios: INV, REC, CASH, QUICK, ROI, DEBT, and TURNOVER. Each ratio's coefficient affects the probability of bankruptcy, with a negative coefficient increasing the probability and a positive coefficient decreasing it. The model provides insights into the impact of different financial ratios, such as inventory turnover, accounts receivable turnover, cash ratio, quick ratio, return on investment, debt ratio, and asset turnover, on a company's risk of financial distress (Stinkney, 1996: 511; Maryanti, 2012).

These models offer valuable tools for assessing and predicting financial distress and bankruptcy, providing insights into the financial health of companies based on specific financial ratios and cutoff values.

E) Research Method

This study employed quantitative comparative research, specifically focusing on the analysis of bankruptcy potential within the tourism industry companies listed on the Indonesia Stock Exchange for the period of 2018-2022. The study's design makes use of secondary data in the form of audited financial statements that may be found on the Indonesia Stock Exchange's official website and other relevant websites.

a) Altman Z-Score Model

The Altman Z-Score model has the following formula:

$$Z = 0,717X1 + 0,847X2 + 3,107X3 + 0,420X4 + 0,998X5$$

The explanation of each variable is as follows:

- Z = Bankrupy index
- X1 = Working Capital/Total Assets
- X2 = Retained Earning/Total Assets
- X3 = Earning Before Interest and Tax/Total Assets
- X4 = Book Value Equity/Book Value of Debt
- X5 = Sales/Total Assets

The multivariate discriminant evaluation function's overall index is represented by Z. Altman classifies the Z value into three distinct groups and claims that its cutoff values can indicate the likelihood that the company would go bankruptcy in the future:

- a. If the value of $Z < 1.23$, then it includes a bankrupt company.
- b. If the value of $1.23 < Z < 2.9$, then it includes a gray area (it cannot be determined whether the company is healthy or bankrupt).
- c. If the Z value is >2.9 , then it includes companies that are not bankrupt

b) Springate Model

The Springate model is formulated with the following equation:

$$S = 1,03 X1 + 3,07 X3 + 0,66 X6 + 0,4 X5$$

The explanation of each variable is as follows:

- S = Springate value
- X1 = Working Capital/Total Assets
- X3 = Net Profit Before Interest and Taxes/Total Assets
- X6 = Net Profit Before Taxes/Current Liabilities
- X5 = Sales/Total Assets

Springate (1978) suggests that the cutoff value applicable to this model is 0.862. An S value smaller than 0.862 indicates that the company is predicted to go bankrupt.

c) Zmijewski Model

Zmijewski's model is formulated with the following equation:

$$X\text{-Score} = -4,3 - 4,5 X7 + 5,7 X8 - 0,004 X9$$

The explanation of each variable is as follows:

- X-Score = Nilai Zmijewski
- X7 = Earning After Tax/Total Assets x 100% (Return On Asset)
- X8 = Total Debt/Total Asset x 100% (Debt Ratio atau Leverage)
- X9 = Current Asset / Current Liabilities (Current Ratio atau Likuiditas)

The categorization of companies in Zmijewski's model is based on a cutoff value of 0 (zero). If the X-Score value < 0 , then the company is in a healthy condition. Conversely, if the X-Score value is >0 , then the company is in a state of bankruptcy

(financial distress).

d) Zavgren Model

The Zmijewski model has the following formula:

$P_i = 1 / (1 + e^y)$ where $e = 2,718282$

$$Y = 0,23883 - 0,108INV - 1,583REC - 10,78CASH + 3,074QUICK + 0,486ROI - 4,35DEBT + 0,11TURN$$

The explanation of each variable is as follows:

Pi = probability of bankruptcy of the company

Y = Zavgren Value

INV = Average inventory/sales

REC = Average receivables/average inventory

CASH = Cash + securities/total assets

QUICK = Seamless-setup/smooth debt asset

ROI = Net operating profit/(total current assets)

DEBT = Long-term debt/(total assets- current debt)

TURN = Sales / (Working capital + Fixed assets)

An independent variable with a negative coefficient can increase the probability of bankruptcy since a negative coefficient will lower to close to 1/1 or 100%. While an independent variable with a positive coefficient can decrease the probability of bankruptcy of the company because the positive coefficient will increase to close to an infinite positive number (~), resulting in Pi (probability of bankruptcy of the company) close to zero.

F) Ohlson Model

Ohlson's model has the following formula:

$$O = -1,32 - 0,407A + 6,03B - 1,43X1 + 0,0757C - 2,37X7 - 1,83D + 0,285E - 1,72F - 0,521G$$

The explanation of each variable is as follows:

O = Nilai Ohlson

A = Log (total assets/GNP price-level index)

Total assets are obtained from the company's balance sheet, while Indonesia's GNP index data is obtained from www.bi.go.id

B = Total liabilities/total assets

X1 = Working capital/total assets

C = Current liabilities/current assets

X7 = 1 if total liabilities > total assets; 0 if vice versa

D = Net income/total assets

E = Cash flow from operations/total liabilities

F = 1 if Net income is negative; 0 if vice versa

G = (NI_t-NI_{t-1})/(NI_t+ NI_{t-1}), where NI_t is the net income for the current period.

The population of interest for this study consists of tourism sector companies listed on the Indonesia Stock Exchange within the specified observation period. The rationale for selecting the 2018-2022 period is to capture data before and after the COVID-19 pandemic, with the data collection limit set in 2022, following the lifting of pandemic-related restrictions. The sampling technique employed is purposive sampling, which involves selecting samples based on predetermined criteria and considerations. The criteria for sample selection include the availability of complete audited financial statements for the 2018-2022 period from tourism companies listed on the Indonesia Stock Exchange. The data analysis methods to be utilized in this study include descriptive statistics, normality tests, hypothesis testing using parametric methods such as paired sample t-test and independent sample t-test, as well as non-parametric methods like the Mann-Whitney test. Additionally, the accuracy of prediction models will be tested, with calculations for accuracy rate, Type I error, and Type II error.

In addition, the present study endeavors to elucidate the calculation process of the bankruptcy prediction models, namely Altman, Springate, Zmijewski, Zavgren, and Ohlson, within the context of the tourism industry. The investigation encompasses a comprehensive analysis of these models, with a particular focus on their application to the financial data of companies listed on the Indonesia Stock Exchange from 2018 to 2022. The initial phase of the study involves the computation of scores for each bankruptcy prediction model, followed by a comparative assessment against the respective cutoff values associated with these models. Subsequently, a critical evaluation of the normality of the data is conducted, employing the Kolmogorov-Smirnov test, with the alternative utilization of the Mann-Whitney test in the event of non-normal distribution. Furthermore, the study employs the paired sample t-test to ascertain significant differences between the prediction results of the aforementioned models. Upon establishing the presence of significant disparities in the prediction outcomes, the subsequent

phase of the research entails the determination of the most accurate model for forecasting bankruptcy within the tourism sector. This involves a meticulous examination of the scoring results vis-à-vis the criteria of negative equity and negative net income, with a focus on ascertaining the correctness of predictions and the subsequent derivation of accuracy and conformity rates for each model.

Furthermore, the study delves into the temporal dimension by investigating potential differences in bankruptcy and financial distress before, during, and after the COVID-19 pandemic, utilizing paired sample t-tests to discern fluctuations in the financial health of companies during these distinct temporal phases. The research methodology is underpinned by purposive sampling, with a specific focus on companies that have issued complete and audited financial statements, thereby ensuring the robustness and reliability of the data under scrutiny.

III. RESULTS AND DISCUSSION

A) Altman Model

The Altman model utilized in this study is the second revised Altman model, which is applicable to both public and private companies. The Z-Score calculation is performed using the following formula:

$$[Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.988X_5]$$

In this study, the Z-Score value was calculated to be 1.7530, leading to a "Grey Area" (G) interpretation. The specific steps involved in obtaining these figures and interpretations are outlined below.

a) Z-Score Calculation

- The Z value is determined using the formula: $[Z = 0.717X_1 + 0.847X_2 + 3.107X_3 + 0.420X_4 + 0.988X_5]$ Substituting the calculated values: $[Z = 0.717(0.1744) + 0.847(0.2749) + 3.107(0.0491) + 0.420(2.8240) + 0.988(0.0566) = 1.7530]$

b) Interpretation of Z-Score

Based on the predefined cutoff values:

- If $(Z < 1.23)$, the company is categorized as bankrupt.
- If $(1.23 < Z < 2.9)$, the company is categorized as being in the "Grey Area" (critical).
- If $(Z > 2.9)$, the company is categorized as not being bankrupt.
- Consequently, KPIG issuers in 2018 are classified as being in the critical area (G).

This section presents the results of the Altman Model Calculation (Z-Score) and its interpretation based on the cutoff values for tourism companies listed on the Indonesia Stock Exchange for the 2018-2022 period.

B) Springate Model

The Springate model employed in this study utilizes the following formula for S-Score calculation:

$$[S = 1.03X_1 + 3.07X_3 + 0.66X_6 + 0.4X_5]$$

For the KPIG issuers in 2018, the S-Score was calculated to be 0.7913, leading to a "B" (Bankrupt) interpretation.

a) S-Score Calculation

The S value is determined using the formula: $[S = 1.03X_1 + 3.07X_3 + 0.66X_6 + 0.4X_5]$ Substituting the calculated values: $[S = 1.03(0.1744) + 3.07(0.0491) + 0.66(0.6642) + 0.4(0.0566) = 0.7913]$

b) Interpretation of S-Score

Based on the predefined cutoff value:

- If $(S < 0.862)$, the company is classified as bankrupt.
- If $(S > 0.862)$, the company is classified as not bankrupt.
- Consequently, the KPIG issuer in 2018 is classified as "Bankrupt" (B).

This section presents the results of the Springate Model Calculation (S-Score) and its interpretation based on the cutoff value for the KPIG issuers in 2018.

C) Zavgren Model

Based on the extensive information provided, it seems that the Y score value for the KPIG issuers in 2018 is 7.4440, with the interpretation of "TB" (Not Bankrupt). The probability of bankruptcy, calculated using the formula $P_i = 1/(1+e^y)$, yields a very small chance of bankruptcy at 0.0585%. Furthermore, the Zavgren model's interval range for the 2018-2022 period indicates that the Y score is far above the upper limit, leading to the interpretation of "Healthy" or "Not Bankrupt."

It appears that the company in question is in a financially stable position and is not at risk of bankruptcy based on the Y score and the Zavgren model's interval range. If there are any specific details or further analysis you would like to include, and please feel free to provide additional information.

D) Ohlson Model

The O score for KPIG issuers in 2018 was calculated to be -2.3539 using the Ohlson model. According to the model's interpretation criteria, if the O score is less than 0.38, the company is predicted not to go bankrupt. Therefore, for KPIG issuers in 2018, with an O score of -2.3539, it is interpreted as "Healthy" or "Not Bankrupt."

It seems that the company is in a financially stable position and is not predicted to go bankrupt based on the O score and the Ohlson model's cutoff value. If there are any specific details or further analysis you would like to include, and please feel free to provide additional information.

Table 1: Composite Score

2018-2022 Composite Score					
Year	2018	2019	2020	2021	2022
Combined Flat-2 Score	0,7757	0,9123	-0,2972	0,4144	0,7537
Up / (Down)		18%	-133%	239%	82%

Source: Processed by author

The bankruptcy prediction analysis for 29 tourism companies listed on the Indonesia Stock Exchange from 2018 to 2022 reveals significant fluctuations in their performance. The combined average scores for various bankruptcy prediction models show a clear impact of the COVID-19 pandemic. In 2020, the companies experienced a sharp decline of 133% due to the pandemic's social restrictions, followed by a remarkable recovery in 2021 and 2022, with increases of 239% and 82%, respectively. The Altman model, specifically, indicates that these companies were in a critical condition (gray area) throughout this period, with scores above 1.23 but below 2.9. While there was a slight 4% increase in 2019, a 27% decrease in 2020 was observed due to the pandemic. The subsequent recovery in 2021 and 2022 aligns with the improving pandemic conditions. However, the companies have not yet surpassed their pre-pandemic performance levels. This analysis underscores the profound impact of the COVID-19 pandemic on the tourism industry's financial health.

Table 2: Growth Tourism Company Sales for the 2018-2022 Period

No.	Kode Emiten	2018	2019	2020	2021	2022
1	KPIG		7%	-36%	3%	60%
2	INPP		17%	-56%	8%	123%
3	MAPB		20%	-34%	19%	41%
4	FAST		11%	-28%	0%	21%
5	SHID		-18%	-62%	18%	30%
6	PIZZA		12%	-13%	-1%	6%
7	PJAA		6%	-97%	840%	149%
8	JGLE		-1%	-69%	-2%	121%
9	ARTA		-2%	-62%	23%	43%
10	CLAY		-3%	-82%	-43%	551%
11	JJHD		-1%	-37%	0%	40%
12	IKAI		650%	10%	101%	26%
13	PSKT		-10%	-38%	11%	25%
14	EAST		19%	-42%	38%	69%
15	PTSP		15%	-48%	14%	31%
16	FITT		17%	-43%	62%	20%
17	PNSE		-1%	-65%	-10%	108%
18	AKKU		-80%	85%	-99%	50%
19	BAYU		15%	-77%	-11%	266%
20	HRME		81%	-57%	40%	30%
21	PDES		-10%	-84%	-87%	1525%
22	PUDP		-22%	-18%	-1%	753%
23	ESTA		91%	8%	304%	22%
24	DFAM		7%	-43%	-5%	-17%
25	PGLI		-11%	-33%	9%	40%
26	ICON		2%	-29%	-2%	22%
27	JSPT		-16%	-54%	-6%	149%

28	SOTS		6%	-53%	23%	57%
29	CSMI		-11%	-62%	-20%	-16%
	Average		8%	-41%	4%	47%

Source: Processed by the author (2023)

According to the table, anomalies were observed in the sales performance of several issuers, notably AKKU (18) and PUDD (22), whose sales increased in 2020 while others experienced a decline. Similarly, in 2021, these issuers experienced a sales decline while others saw an increase. This suggests that the impact of the pandemic was felt in 2021 for AKKU and PUDD, while other issuers experienced it in 2020. In 2022, overall sales of issuers showed an increase, except for certain issuers still recovering from pandemic conditions, such as DFAM (24) and CSMI (29). The S score appears to be directly proportional to the constituent variables, with sales being a decisive factor that can impact net profit and working capital. The analysis of sales variables demonstrates their direct influence on the score, which is logical given the constraints imposed by social restrictions and pandemic-related disruptions on the ability of tourism companies to generate sales. Companies capable of reducing operational expenses may mitigate losses, while those unable to do so, often due to humanitarian considerations, may experience substantial losses or negative profits. The decision to cut operating expenses is contingent upon the company's working capital. Companies with substantial working capital can weather the pandemic-induced reduction, whereas those with limited working capital may face immediate challenges.

IV. CONCLUSION

This study conducted on the bankruptcy prediction of 29 tourism companies listed on the Indonesia Stock Exchange for the 2018-2022 period, utilizing five bankruptcy prediction models (Altman, Springate, Zmijewski, Zavgren, and Ohlson), yields several significant conclusions. Firstly, the average scores derived from all prediction models, employing vertical analysis to compare scores annually, demonstrate alignment with the conditions of the COVID-19 pandemic, significantly impacting the performance of tourism companies during the 2018-2022 period. Notably, the Altman, Springate, Zmijewski, and Zavgren models exhibit patterns closely corresponding to the effects of the COVID-19 pandemic, whereas the Ohlson model does not entirely align, indicating a lack of recovery from the pandemic's impact in 2021-2022. Secondly, upon comparing the average scores with the cutoff value, the Altman and Zavgren models classify tourism companies for the 2018-2022 period as being in critical condition (gray area), the Springate model categorizes companies as being in a state of bankruptcy, and the Zmijewski and Ohlson models categorize companies as being in good health. Statistical testing confirms differences in the interpretations of predictive models, particularly in the Altman, Springate, Zmijewski, Zavgren, and Ohlson models' predictions of bankruptcy among the tourism companies listed on the Indonesia Stock Exchange during the 2018-2022 period.

Furthermore, accuracy tests utilizing negative net income and negative equity parameters as indicators of bankruptcy reveal that the Springate model exhibits the highest accuracy in predicting bankruptcy at 77%, followed by the Altman model at 50%, Zmijewski at 49%, Ohlson at 40%, and Zavgren at 28%. The paired sample t-test indicates a significant difference in conditions before (Pre) and during the pandemic (Pandemic) according to the Springate model. In contrast, no significant difference is observed in conditions before (Pre) and after the pandemic (Post). Lastly, according to the Springate model, tourism companies experienced significant financial stress during the pandemic, followed by a period of recovery afterwards. This is supported by vertical analysis and graphic patterns, as well as the average difference test of conditions before the pandemic (Pre) and during the pandemic (Pandemic), and the average difference test of pandemic conditions (Pandemic) with conditions after the pandemic (Post).

Furthermore, it is important to acknowledge certain limitations. The research focuses solely on companies within the tourism industry sector listed on the Indonesia Stock Exchange. Future research should encompass other sectors with distinct characteristics and sensitivities in responding to the COVID-19 pandemic. The study's timeframe spans from 2018 to 2022, and subsequent research should cover a longer period to ascertain the companies' recovery from the impact of the COVID-19 pandemic. The study employs the criteria of negative equity and negative net income to assess a company's financial distress, and future research should consider the utilization of other relevant criteria. It is essential to recognize that the bankruptcy prediction model relies on financial statement data, which inherently possesses limitations. Therefore, this analysis should be complemented by other analytical tools to evaluate a company's and industry's conditions comprehensively. Company management and stakeholders should utilize bankruptcy prediction models in conjunction with other analytical tools to assess a company's health comprehensively. For instance, employing vertical analysis to compare a company's conditions from year to year would be beneficial.

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