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## Financial Distress Prediction Study in Retail Companies

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### Abstrak

*Pesatnya perkembangan digitalisasi pembayaran dan timbulnya wabah covid-19 membawa perubahan minat belanja konsumen menjadi belanja dengan layanan online. Perubahan minat belanja konsumen dan penurunan daya beli yang disebabkan oleh situasi ekonomi dan keterbatasan mobilitas ini memiliki dampak pada kondisi keuangan perusahaan yang dikhawatirkan akan mengalami kondisi finansial distress. Finansial distress adalah kondisi penurunan keuangan perusahaan disertai ketidakmampuan perusahaan untuk membayar hutang yang telah jatuh temponya. Penelitian ini bertujuan untuk mengetahui dan menganalisis resiko terjadi finansial distress pada perusahaan yang diteliti. Data yang digunakan adalah data sekunder berupa laporan keuangan PT Matahari Putra Prima Tbk, PT Matahari Departement Store Tbk dan PT Ramayana Lestari Sentosa Tbk pada periode 2017-2021, yang akan diolah menggunakan tiga model analisis prediksi finansial distress yakni model zmijewski, model altman dan model springate. Hasil yang diperoleh pada penelitian ini adalah PT Matahari Putra Prima Tbk berada pada kondisi berbahaya tahun ke tahun dengan menggunakan 3 model prediksi, sedangkan perusahaan lain, berada pada kondisi aman. Hal ini berarti strategi yang dilakukan PT Matahari Putra Prima Tbk dengan memberikan program diskon dan bekerjasama dengan GoMart dan Tokopedia belum berhasil mengatasi kondisi keuangan perusahaan.*

**Kata Kunci :** *Finansial Distress, Model Zmijewski, Model Altman, Model Springate*

### Abstract

*Developments in the digitalization of payments and the emergence of the Covid-19 outbreak, brought a change in consumer shopping interest to shopping with online services. This change in consumer spending interest and the decline in purchasing power caused by the economic situation and the limitation of mobility have an impact on the financial condition of companies that are feared to experience financial distress. Financial distress is a condition of the company's financial decline accompanied by the company's inability to pay debts that have matured. This study aims to find out and analyze the risk of financial distress in the company under study. The data used is secondary data in the form of financial statements of PT Matahari Putra Prima Tbk, PT Matahari Departement Store Tbk and PT Ramayana Lestari Sentosa Tbk in the 2017-2021 period, which will be processed using three financial distress prediction analysis models, namely the zmijewski model, the altman model and the springate model. The*

results obtained in this study are that PT Matahari Putra Prima Tbk is in a dangerous condition year after year using 3 prediction models, while other companies, are in a safe condition. This means that the strategy carried out by PT Matahari Putra Prima Tbk by providing discount programs and collaborating with GoMart and Tokopedia has not succeeded in overcoming the company's financial condition.

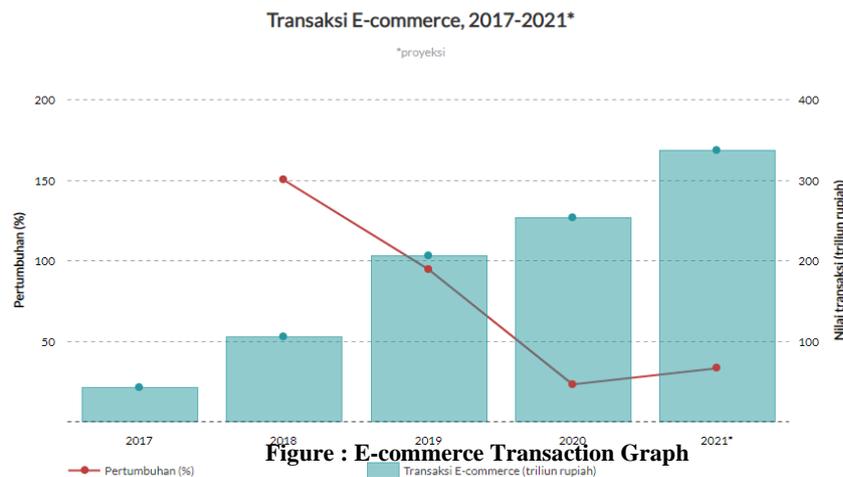
**Keywords :** Financial Distress, Zmijewski Model, Altman Model, Springate Model

## 1. Introduction

The purpose of building and establishing a company is to generate a high level of profit and have the ability to compete in the business world for a long time. But this is certainly not easy where each company must have its own obstacles in realizing it. Especially in the current era of digital development, which has resulted in a shift in consumer shopping interest to online-based. The rapid development of payment digitalization and the Covid-19 outbreak that is currently hitting Indonesia have a major role in the development of the business world, especially in the retail sector.

The proliferation of online shop businesses in Indonesia accompanied by rules for working from home has made people to reduce outdoor activities and choose to do activities from home only. This causes consumers to use online services more often than offline services where these two services both provide needs for consumers. But the change in consumers' decision to use online services is not only caused by the rapid development of the technological world and the ongoing Covid-19 pandemic case but there are other things that also affect consumers' decisions to shop using online services such as the convenience obtained by consumers, then the completeness of the information received, the consumer confidence that arises in online services, and the cost and time efficiencies that consumers expect. Shopping using online services also has convenience and benefits for consumers where consumers do not need to leave the house according to government regulations and consumers can also save transportation costs to shop offline, then consumers are easier to compare the prices of goods from each store, and currently there are also many payment methods digitized so as to facilitate consumer transactions [1].

Along with the development of digitization of payments that continues to grow, the growth of e-commerce transactions or online shopping services also continues to increase. Based on the e-commerce transaction chart, we can see that in 2017-2021 below, we can see that every year the value of e-commerce transactions continues to increase even in 2021, Bank Indonesia (BI) projects to reach IDR 337 trillion with a growth of 33.2 percent. The highest growth in e-commerce transactions occurred in 2018 at 150.24 percent [2]



Source: Lokadata.Beritagar.Id (2022)

The growth and increase in e-commerce transactions every year certainly has a big influence on the financial condition of companies that sell their products offline because people are also starting to rarely shop at offline stores. It is feared that this consumer change will cause the company to experience financial distress. Financial distress is a condition in which a company experiences a decline in financial condition that occurred over the past few years before being declared bankrupt or liquidated and resulted in the company not having the ability to repay their debts. The threat of bankruptcy can be experienced by all companies, both small, large and medium business entities. This threat occurs in companies that are unable to compete or develop in running their business. Bankruptcy is the accumulation of mismanagement of a company to run its business operations in the long term to achieve its economic goals. Which means, bankruptcy does not occur suddenly but begins with a financial distress warning where the company experiences financial difficulties in generating profits or earning income which continues to decline from year to year [3]. As well as many factors that caused the company to experience financial difficulties and decided to disband.

Financial distress analysis is one of the ways that can be used to predict the latest company conditions. This analysis is very useful for companies to anticipate if they are declared to be experiencing financial distress conditions. The sooner you know the signs of going bankrupt, of course, the better for the company to take precautions/improvements to the company's management. Since a long time ago, several researchers have begun to develop several prediction analysis models that are expected to help potential investors and creditors in choosing companies where to invest or put their funds so that they are not trapped in financial distress problems in the company. In analyzing financial distress many models were found such as the beaver (1966), Altman (1968), Zmijewski (1984), Springate (1978) and Grover (2001) models. Where each model produces different predictions. In this study, three prediction models were used, namely the zmijewski model, altman model, and springate model [4] Changes in consumer spending interest and a decrease in purchasing power caused by the economic situation and mobility restrictions due to Covid-19 have an impact on the financial condition of companies that are feared to experience financial distress. Thus, the purpose of this study is to find out whether retail trading industry companies in Indonesia have bankruptcy by comparing three models of financial distress predictions with the research objects of general trading subsector retail companies, namely PT Matahari Putra Prima Tbk, PT Matahari Departement Store Tbk and PT Ramayana Lestari Sentosa Tbk. The latest in this study is the use of 3 methods of predicting financial distress to be compared and the period of the year, namely 2017 to 2021, where in 2020 there was Covid-19 which allowed companies to experience financial difficulties.

## **2. Literature Review**

### **2.1 Retail Companies**

Retail [5], are all business units that carry out activities of selling goods or services directly for the last consumer / user and are no longer used for business or resold. So a retail company is a company that works in the retail business.

### **2.2 Electronic Commerce (E-Commerce)**

E-commerce is a transaction activity covering a variety of business activities ranging from purchases to sales carried out through internet network media. E-Commerce includes the distribution, sale, purchase, marketing and service of a product carried out in an electronic system [6]

### **2.3 Financial Distress**

Financial distress is where a company experiences a decline in financial condition that occurs before going bankrupt or liquidated and the company's inability to pay its obligations

that have matured [3], whereas according to Foster (1986) financial distress is defined as a severe liquidity problem that cannot be resolved without the resolution of operations or the structure of a resizable entity [7]

#### 2.4 Zmijewski Model (X-Score)

This model was first developed by Zmijewski (1984). At that time Zmijewski conducted a study by re-examining the results of previous studies with a period of 20 years. By conducting an analysis of liquidity ratios, leverage and measuring the company's performance. Equation of this model :

$$X = -4,3 - 4,5X_1 + 5,7X_2 - 0,004X_3$$

Where:

X<sub>1</sub> = Return On Asset or ROA

X<sub>2</sub> = Debt Ratio

X<sub>3</sub> = Current Ratio

#### 2.5 Altman Model (Z-Score)

This model was developed by Edward I. Altman (1968) using Multiple Discriminant Analysis or MDA which uses 5 types of financial ratios that will show the level of probability of bankruptcy and this model is also a tool to find out how the company's financial performance [8] Equation of this model:

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Where:

X<sub>1</sub> = Working Capital : Total Assets

X<sub>2</sub> = Retained Earnings : Total Assets

X<sub>3</sub> = Earnings before interest and taxes : Total Assets

X<sub>4</sub> = Book Value of Equity : Total Liabilities

#### 2.6 Springate Model (S-Score)

This model was carried out by Gordon L. V. Springate (1978), which was a development of the Altman model (1968). This model uses the Multivariate Discriminants Analysis (MDA) technique by using 4 financial ratios in predicting potential bankruptcies that have an accuracy rate of up to 92.5% and can be used as a bankruptcy early warning system [8].

$$S = 1.03X_1 + 3.07X_2 + 0.66X_3 + 0.4X_4$$

Where:

X<sub>1</sub> = Working Capital : Total Assets

X<sub>2</sub> = Net Profit before interest and taxes : Total Assets

X<sub>3</sub> = Net Profit before taxes : Current Liability

X<sub>4</sub> = Sales : Total Assets

### 3. Research Model

#### 3.1 Population and Sample

This study used empirical studies. Empirical studies themselves are studies carried out based on experimental data from observations, experiences, trials for research or secondary data. The population in this study are 27 retail companies listed on the Indonesia Stock Exchange in the 2017-2021 period. By using the side purposive method as follows:

1. Retail companies listed on the IDX for the 2017-2021 period

2. Retail companies that have complete financial report data for the 2017-2021 period
3. Retail companies that sell daily goods.

Then a sample of 3 companies was obtained, namely PT Matahari Putra Prima Tbk (MPPA), PT Matahari Department Store Tbk (LPPF) and PT Ramayana Lestari Sentosa Tbk (RALS).

### 3.2 Data Sources

The data used in this study is secondary data obtained from the company's quarterly financial statements. Secondary data in this study is sourced from the Indonesia Stock Exchange (IDX) with the [www.idx.co.id](http://www.idx.co.id) website. And the data collection technique used is a documentation technique, namely by analyzing the secondary data obtained.

### 3.3 Analytical Techniques

The data analysis technique in this study is to use three financial distress models, namely:

#### 3.3.1 Zmijewski Model

$$X = -4.3 - 4.5X_1 + 5.7X_2 - 0.004X_3$$

Where the classification of the company's condition can be seen with an X-Score value [9], if:

$X < 0$  , in good health

$X > 0$  , in a state of financial distress

#### 3.3.2 Altman Model

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Where the classification of company conditions can be seen with the Z-Score value [7], if:

$Z > 2.60$  , in good health

$1.10 < Z < 2.60$  , are in ash ash state

$Z < 1.10$  , in financial distress

#### 3.3.3 Springate Model

$$S = 1.03X_1 + 3.07X_2 + 0.66X_3 + 0.4X_4$$

Where the classification of company conditions can be seen with the S-Score value [10], if:

$S > 0.862$  , in good health

$S < 0.862$  , in a state of financial distress

## 4. Results And Discussion

Financial distress analysis is carried out by calculating predetermined financial ratios and then entering the results of financial ratios into the zmijewski model equation, altman model and springate model to determine the score whether the company is in a healthy condition, gray area or is in a state of financial distress.

### 4.1 Zmijewski Model

**Table 1 : Zmijewski Model Prediction Results (X-Score)**

Company Name	Year	X-Score	Interpretation
PT Matahari Putra Prima Tbk (MPPA)	2017	1,20	Dangerous
	2018	0,87	Dangerous
	2019	1,26	Dangerous
	2020	1,57	Dangerous

	2021	1,01	Dangerous
Average		1,12	
PT Matahari Department Store Tbk (LPPF)	2017	-2,63	Safe
	2018	-1,64	Safe
	2019	-1,94	Safe
	2020	1,50	Dangerous
	2021	-0,28	Safe
Average		-1,00	
PT Ramayana Lestari Sentosa Tbk (RALS)	2017	-3,06	Safe
	2018	-3,28	Safe
	2019	-3,34	Safe
	2020	-2,51	Safe
	2021	-2,80	Safe
Average		-2,99	

#### 4.2 Altman Model

Table 2 : Altman Model Prediction Results (Z-Score)

Company Name	Year	X-Score	Interpretation
PT Matahari Putra Prima Tbk (MPPA)	2017	1,20	Dangerous
	2018	0,87	Dangerous
	2019	1,26	Dangerous
	2020	1,57	Dangerous
	2021	1,01	Dangerous
Average		1,12	
PT Matahari Department Store Tbk (LPPF)	2017	-2,63	Safe
	2018	-1,64	Safe
	2019	-1,94	Safe
	2020	1,50	Dangerous
	2021	-0,28	Safe
Average		-1,00	
PT Ramayana Lestari Sentosa Tbk (RALS)	2017	-3,06	Safe
	2018	-3,28	Safe
	2019	-3,34	Safe
	2020	-2,51	Safe
	2021	-2,80	Safe
Average		-2,99	

#### 4.3 Springate Model

Table 3 : Springate Model Prediction results (S-Score)

Company Name	Year	S-Score	Interpretation
PT Matahari Putra Prima Tbk (MPPA)	2017	0,57	Dangerous
	2018	0,13	Dangerous
	2019	0,38	Dangerous
	2020	0,06	Dangerous
	2021	0,20	Dangerous
Average		0,03	
PT Matahari Department Store Tbk (LPPF)	2017	2,77	Safe
	2018	2,21	Safe
	2019	2,45	Safe

Company Name	Year	S-Score	Interpretation
	2020	0,57	Dangerous
	2021	1,21	Safe
Average		1,62	
	2017	2,57	Safe
	2018	2,82	Safe
PT Ramayana Lestari Sentosa, Tbk (RALS)	2019	2,70	Safe
	2020	1,39	Safe
	2021	1,55	Safe
Average		2,21	

#### 4.4 Discussion

Based on Table 1, Table 2, and Table 3, it was found that the MPPA in the Zmijewski model analysis had the highest average X-Score value of 1.12, and in these three financial distress predictions analyses the MPPA was expressed as a distressed or dangerous financial condition in five consecutive years. The financial decline was caused by an increase in consignment costs that suppressed net sales, as well as the amount of expenses that must be borne by the company such as cost of goods sold, selling expenses as well as general and administrative expenses. Even so, MPPA is still trying to optimize its sales in stores by providing discount programs and starting to provide online sales in several marketplaces that collaborate with them, namely GoMart and Tokopedia. When viewed in the predicted results, the defense strategies they chose did not have a significant impact on this company.

RALS had the highest average value in the Altman model analysis of 8.11 and in the Springate model of 2.21 and was expressed to be in good health for a period of five consecutive years. This result is the same as the real situation where to maintain its condition RALS continues to innovate by transforming for the better, as well as opening outlets with a different concept than before. LPPF in the three models of financial distress analysis was stated to be in financial distress in 2020 this condition was caused by the government to close mall operations and development centers during the implementation of strict community activities during the COVID-19 pandemic. But to stay afloat in the following year in 2021, LPPF took digital initiatives such as creating a Matahari.com website and Android and iOS-based applications.

Based on the results of the same model calculations as the previous research journal [4] the prediction results with the same model as the 2017-2018 period have the same predictions, namely for MPPA in conditions that have the potential for financial distress for two consecutive years, even so MPPA has been able to survive until now by still trying to optimize its sales in offline stores and now they are starting to provide online sales in several marketplaces that they work with. As well as LPPF and RALS in good health. As well as based on the results of the calculation using 3 prediction models, the Zmijewski model is the simplest prediction model in its calculations. While the Springate prediction model is a prediction model that has an accuracy of 92.5% [8] in predicting potential bankruptcy where this model focuses more on the value of current liabilities which have an influence on the current condition of a company, and the calculation results of this prediction model are also in accordance with the real situation company field.

#### 5. Conclusions and Suggestions

The results obtained in this study are that PT Matahari Putra Prima Tbk is in a dangerous condition year after year using 3 prediction models, while other companies, are in a safe condition. This means that the strategy carried out by PT Matahari Putra Prima Tbk by providing discount programs and collaborating with GoMart and Tokopedia has not succeeded in overcoming the company's financial condition. The three prediction models used in this study all stated the same predicted results even though the ratios used were different.

For further research it is recommended that you can add a few more models or be able to use other models in the study. In addition, it is hoped that the next study can use samples that are different from this study so that it can add variants in the next study.

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