

Potentials Of Financial Distress Before And During Covid-19 Pandemic In Food And Beverage Companies Listed On The Indonesia Stock Exchange

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Abstract.

The study aims to determine the level of financial distress in food and beverage companies listed on the Indonesia Stock Exchange (IDX) before and during the Covid-19 pandemic. The model used is the Zmijewski and Springate models. The research used is comparative quantitative research. The samples taken are all food and beverage companies in Indonesia listed on the Indonesia Stock Exchange (IDX) for the 2019 and 2020 period, which are 32 companies. The Bank's financial report data is taken through the IDX's official website, namely <https://www.idx.co.id>. The expected results in this study are more food and beverage companies experiencing financial distress during the Covid-19 pandemic than before the Covid-19 pandemic and there are potential differences in financial distress before and during covid-19 in food and beverage companies.

Keywords: Financial Distress, Food and Beverage Company, Covid-19, Altman, Springate, Zmijewski.

I. INTRODUCTION

Covid-19 has a negative impact on all aspects, especially the economy. Many companies in Indonesia have been affected by the cases from the Covid-19 pandemic that have not decreased. One of them is a company in the manufacturing sector. Manufacturing industry is a sector that has a vital role in the growth of the national economy. In April 2020 the Purchasing Manager's Index (PMI) of manufacturing companies in Indonesia decreased to 27.5 and industrial utilities decreased up to 50 percent. The decrease in utility is due to decreased purchasing power (Cahyani, 2020). The manufacturing sector has three main sectors, namely the miscellaneous industry sector, the basic and chemical industry sector, and the consumer goods industry sector. Food and beverage companies are a sub-sector of the consumer goods industry. The food and beverage industry is concerned with food security, which is a basic need for everyone. So it is very important to maintain this sector. The sustainability of food and beverage companies also has a big impact due to the uncertainty of current conditions (Prakoso, 2020). According to Whitaker (1999) financial distress is a situation when the net operating income of a company is negative for a period of several years and has not paid dividends for more than one year, laid off workers, or even eliminated dividend payments.

There are several models to analyze the financial distress of a company such as the Altman, Grover, Taffler, Springate, Zmijewski, and others models. This research uses Altman, Springate, and Zmijewski models. Many studies have been conducted in an effort to predict the occurrence of potential financial distress with different models. For example, the results of Ilham's research (2018) which measured financial distress in Islamic banks in Indonesia after the global crisis from 2010 to 2016 with the Altman Z-Score model. The results of his research stated that during that period there were several banks experiencing financial distress, gray area, and non-financial distress conditions. After that, the research of SI et al. (2021) which estimates and compares the financial distress model of crude oil companies with the Altman and Springate models. The results show that the accuracy of the Springate model is higher than that of the Altman model. Then the research of Patel et al. (2021) which detects financial distress in the automotive industry in India using the Altman, Grover, Springate, Zmijewski model. The results of the study show that the company's financial performance did not change significantly and the four models used showed the same level of financial difficulty significantly.

Based on the research above, the researcher is interested in conducting a study entitled "Potentials of Financial Distress Before and During Covid-19 Pandemic in Food and Beverage Companies Listed on the Indonesia Stock Exchange". Researchers observed financial distress with the Altman, Springate, and Zmijewski models so that it would produce any food and beverage companies that experienced financial distress and non-financial distress. In (Modjo, 2020) it is said that the national economy is unprotected to the

Covid-19 pandemic. The World Bank estimates that national economic growth will erode by -3.5% to 2.1% in 2020. In addition, the IMF also estimates that Indonesia's economic growth will only reach 0.5% in 2020, far from the previous year's 5.02%. . Therefore, there is urgency in measuring the potential for financial distress as can be seen from the impact felt by many companies related to the economy during the Covid-19 pandemic.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Financial statements

Financial statements are information that shows a picture of the financial condition of a company which can later be used as an overview of the company's financial performance. Information from the financial statements can be used as a tool to analyze whether the company is good or not for the interested parties. Financial statements consist of balance sheets, income statements, reports of changes in capital, cash flow statements, and notes to financial statements (Hidayat, 2018).

Financial Distress

Financial distress is a condition when the company's equilibrium cannot be achieved in the current situation (Tron, 2021). One of the characteristics of a company experiencing financial distress is when the company experiences liquidity cannot fulfill its obligations to the bank. The financial distress model helps companies detect financial failures before bankruptcy occurs. The research was conducted by measuring and viewing the company's financial statements. Therefore, the company's accounting information must also be complete. Variables that affect financial distress are liquidity, leverage, and profitability (Yustika, 2015).

Altman models

Altman (1968) was the first to apply multiple discriminant analysis. MDA is a statistical technique that makes it possible to identify various types of financial ratios that have the most significant value affecting an event, and develop a model that can be easily drawn from that event. Altman's Z-score prediction model has several modifications to create a new equation that can be used by any company. Altman Z-score prediction model is more than 80% accurate (Sari, 2015). The following is the Z-Score equation modified by Altman et al in 1995:

$$Z'' = 6.56 (X1) + 3.26 (X2) + 6.72 (X3) + 1.05 (X4)$$

Where :

$Z'' = Z''$ -score

X1 = Working capital / Total assets

X2 = Retained earnings / Total assets

X3 = Earning before interest and taxes / Total assets

X4= Book value of equity / Book value of debt

(Altman, 2000)

If the Z''-score <1.1 means that it is a company that is experiencing financial distress, if the Z''-score of 1.1 <Z'' < 2.6, then it is in gray area (cannot be determined whether the company is healthy or in financial distress), and if the Z''-score > 2.6, it is a company that is in non-financial distress condition. (Abadi & Ghoniyah, 2016).

Springate models

Springate (1978) is a development of the Altman Model. The model uses four financial ratios to predict the possibility of financial distress in a company. This Springate model can be used to predict financial difficulties with an accuracy of up to 92.5%. The formula for the Springate Model is:

$$S = 1.03 (X1) + 3.07 (X2) + 0.66 (X3) + 0.4 (X4)$$

Where :

S = S-score

X1 = Working capital / Total assets

X2 = Net profit before interest and taxes / Total assets

X3 = Net profit before taxes / Current liabilities

X4 = Sales / Total assets

If the S-score is $S > 0.862$, then the company is classified as healthy/ non-financial distress and if the S-score is $S < 0.862$, the company is classified as a company experiencing financial distress.

Zmijewski models

The analysis used in Zmijewski (1984) is the analysis of liquidity ratios, leverage, and company performance measurement. The model is the result of a 20-year study using a sample of 75 bankrupt companies and 73 healthy companies from 1972 to 1978, the F-Test indicator on the group ratio rate of return, liquidity, leverage turnover, fixed payment coverage, trend, firm size, and stock. return volatility, shows a significant difference between healthy and unhealthy companies. Then this model produces the following formula:

$$X = -4.3 - 4.5 (X1) + 5.7 (X2) - 0.004 (X3)$$

Where :

X = X-score

X1 = ROA (Return on Assets)

X2 = Leverage (Debt Ratio)

X3 = Liquidity (Current Ratio)

If the X-score is more than 0 (zero) then the company is in financial distress, but if the X-score is less than 0 (zero) then the company is predicted in non-financial distress.

Conceptual Hypothesis

Companies Experiencing Financial Distress During the Covid-19 Pandemic

The Covid-19 pandemic has a huge impact on the sustainability of the food and beverage industry. The impact is the closure of a number restaurant and changes in consumer behavior. Consumers prefer healthy, hygienic and safe food and drinks to easy and instant food and drinks (Prakoso, 2020). Research (Permana et al., 2017) predicts financial distress before the Covid-19 in manufacturing companies. The results show a fairly high level of the company's unhealthy status. For the Zmijewski model in this study, 18.5% of companies are in an unhealthy status and for the Springate model, there are 32.5% of companies that experience an unhealthy status. So there is a possibility that the scale of companies experiencing unhealthy status will increase due to the pandemic conditions. Wulandari (2021) calculates the level of financial distress with the Springate model in manufacturing companies during the 3rd quarter of 2020 (during the COVID-19 pandemic), the result is that more companies experience financial distress.

1. H_{1a}: The number of companies experiencing financial distress increased during the Covid-19 pandemic using the Altman model.
2. H_{1b}: The number of companies experiencing financial distress increased during the Covid-19 pandemic with the Springate model.
3. H_{1c}: The number of companies experiencing financial distress increased during the Covid-19 pandemic using the Zmijewski model.

Financial Distress Potential During Covid-19.

The impact of Covid-19 on the economy and financial markets is enormous. Such as the lockdown and travel bans (Baig et al., 2021). Therefore, the sustainability of food and beverage companies has a big impact due to the uncertainty of current conditions (Prakoso, 2020). According to research conducted by Ilham (2018), there are several Islamic banking companies that experienced financial distress during the 2010-2016 global crisis. Covid-19 is also one of the global crisis, as stated by UN Secretary General Antonio Guterres that the Covid-19 pandemic is the worst global crisis since World War II (Berty, 2020). During the global crisis, not only Islamic banking companies experienced financial distress, other companies were also affected. One of them is a manufacturing company that is also experiencing the impact of the Covid-19 pandemic (Kholisdinuka, 2020). Food and beverage companies are one of the existing manufacturing sectors. Research by Fathonah et al. (2021) proved by several types of financial distress measurement models, namely Altman, Springate, Zmijewski and Taffler in automotive companies before and during the pandemic. Two of them (Altman and Zmijewski) showed an increase in the percentage of companies experiencing financial distress. Likewise, companies in other sectors such as the food and beverage sector can be affected.

1. H_{2a}: The potential for financial distress is greater during Covid-19 than before Covid-19 in food and beverage companies using the Altman model.
2. H_{2b}: The potential for financial distress is greater during Covid-19 than before Covid-19 in food and beverage companies with the Springate model.
3. H_{2c}: The potential for financial distress is greater during Covid-19 than before Covid-19 in food and beverage companies with the Zmijewski model.

III. METHODS

Types of research

This type of research is a comparative quantitative research. Quantitative is a systematic research on each part and phenomena and its relationship. Comparability is a problem where the problem formulation of the study compares the existence of one/more variables in two/more different samples at different times (Siyoto & Sodik, 2015).

Population and Research Sample

Population is a generalization area consisting of objects/subjects that have qualities and characteristics that are applied by researchers to be studied and drawn conclusions. (Anshori & Iswati, 2009). The population of this study are Food and Beverage Companies in Indonesia which are listed on the Indonesia Stock Exchange (IDX) for the period 2019 and 2020. The sample is a certain part selected from the population (Silalahi, 2009). The sample selection of this research is based on purposive sampling method. Purposive sampling is a sampling technique by determining certain criteria in order to obtain an appropriate sample. Samples will be taken from the entire population of 32 companies, namely ADES, AISA, ALTO, BTEK, BUDI, CAMP, CEKA, CLEO, COCO, DLTA, DMND, ENZO, FOOD, GOOD, HOKI, ICBP, IIKP, FISH, INDF. , CHEESE, MLBI, MYOR, PANI, PCAR, PMMP, PSDN, ROTI, SKBM, SKLT, STTP, TBLA, and ULTJ.

Data and Data Sources

The data used is quantitative data, where the data is calculated on a numerical scale (numbers). This study uses secondary data types. Secondary data is data collected from second hand / from other sources that were available before the research was conducted (Silalahi, 2009). Secondary data is taken from the financial statements of food and beverage companies in Indonesia which have been published on the official websites of each company and the IDX website in 2019 and 2020.

IV. RESULT AND DISCUSSION

Results

Descriptive Statistical Analysis

Descriptive statistics provide an overview of data with average values (mean), standard deviation, variance, maximum, minimum, sum, range, kurtosis, and skewness (Ghozali, 2018). The following are the results of descriptive statistics for each variable calculated using SPSS software version 28:

Table 1. Descriptive Statistics Test

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ALTMAN_FD2019	32	-5.529	16.439	4.85553	4.868296
ALTMAN_FD2020	32	-1.683	14.209	4.75300	4.176088
SPRINGATE_FD2019	32	-0.008	3.529	1.48003	0.964159
SPRINGATE_FD2020	32	-1.485	28.652	1.99341	4.965786
ZMIJEWSKI_FD2019	32	-4.952	3.722	-2.01081	1.721445
ZMIJEWSKI_FD2020	32	-3.879	0.810	-2.05034	1.284019
Valid N (listwise)	32				

Classic Assumption Test

Table 2. Normality test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
ALTMAN_FD2019	0.185	32	0.007	0.916	32	0.016
ALTMAN_FD2020	0.197	32	0.003	0.911	32	0.012
SPRINGATE_FD2019	0.155	32	0.050	0.942	32	0.085
SPRINGATE_FD2020	0.392	32	0.000	0.338	32	0.000
ZMIJEWSKI_FD2019	0.107	32	.200*	0.939	32	0.070
ZMIJEWSKI_FD2020	0.125	32	.200*	0.945	32	0.106

Hypothesis T-Test

T-Test of Altman Model

Table 3. Wilcoxon Test of Altman Model

Related-Samples Wilcoxon Signed Rank Test Summary	
Total N	32
Test Statistic	235.000
Standard Error	53.479
Standardized Test Statistic	-0.542
Asymptotic Sig.(2-sided test)	0.588

In the Altman model, the Wilcoxon Signed Rank test used because the data were not normally distributed. The significance value of the Altman model is 0.588, the value is greater than 0.05, meaning that H0 is accepted and Ha is rejected. This shows that there is no difference in the level of financial distress before and during Covid-19.

Springgate Model T-Test Test

Table 4. Wilcoxon Test of Springgate Model

Related-Samples Wilcoxon Signed Rank Test Summary	
Total N	32
Test Statistic	164.000
Standard Error	53.479
Standardized Test Statistic	-1.870
Asymptotic Sig.(2-sided test)	0.061

In the Springgate model, the Wilcoxon Signed Rank test used because the data were not normally distributed. The significance value of the Springgate model is 0.061, the value is greater than 0.05, meaning that H0 is accepted and Ha is rejected. This shows that there is no difference in the level of financial distress before and during Covid-19.

Zmijewski Model T-Test Test

Table 5. Paired Sample T-Test of Zmijewski Model

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ZMIJEWSKI_FD2019	-2.01081	32	1.721445	0.304311
	ZMIJEWSKI_FD2020	-2.05034	32	1.284019	0.226985

Paired Samples Correlations				
		Significance		
	N	Correlation	One-Sided p	Two-Sided p

Pair 1	ZMIJEWSKI_FD2019 ZMIJEWSKI_FD2020	&	32	0.521	0.001	0.002
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Paired Samples Effect Sizes						
		Standardizer ^a	Point Estimate	95% Confidence Interval		
				Lower	Upper	
Pair 1	ZMIJEWSKI_FD2019 - ZMIJEWSKI_FD2020	Cohen's d	1.518958	0.026	-0.321	0.372
		Hedges' correction	1.556985	0.025	-0.313	0.363

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation of the mean difference.

Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

In the Zmijewski model, a Paired Sample T-Test used because the data were normally distributed. The significance value of this model is 0.884, the value is greater than 0.05, meaning that H0 is accepted and Ha is rejected. This shows that there is no difference in the level of financial distress before and during Covid-19. The effect of the Covid-19 pandemic on financial distress is 37%, which means that the Covid-19 pandemic has little effect on financial distress.

Discussion

Companies Experiencing Financial Distress During the Covid-19 Pandemic

Table 6. Summary

MODEL	2019 (companies)	2020 (companies)	DESCRIPTION
ALTMAN	3	4	FD
	8	6	GA
	21	22	NFD
SPRINGATE	10	11	FD
	22	21	NFD
ZMIJEWSKI	3	1	FD
	29	31	NFD

The table above shows that with the Altman and Springate models, the number of companies experiencing financial distress during the Covid-19 pandemic has increased. The increase in the number of companies was not too significant, both models only experienced an increase of 1 company. Meanwhile, in the Zmijewski model the number of companies decreases. The decrease in the number of companies is higher than the increase in the Altman and Springate models, which are 2 companies. However, this value is still considered insignificant because the changes are small.

Potential Financial Distress During Covid-19.

The results of the Paired Sample T-Test and Wilcoxon's T-Test in this study prove that there is no significant difference in the potential for financial distress before and during Covid-19. The probability value in the Altman, Springate, and Zmijewski models is greater than the significance level value of 0.588 > (0.05), 0.061 > (0.05), 0.884 > (0.05). Not experiencing a significant difference means that the food and beverage companies are most likely safe from financial distress.

V. CONCLUSION

Conclusion

1. There is an increase in the number of companies experiencing financial distress during the Covid-19 pandemic with the Altman and Springate models.
2. There is a decrease in the number of companies experiencing financial distress during the Covid-19 pandemic with the Zmijewski model.

3. There is no significant difference in the potential for financial distress before Covid-19 and during Covid-19 using the Altman, Springate, and Zmijewski models.

Research Limitations

1. The number of samples and the period is limited to 2019 and 2020 for food and beverage companies listed on the IDX.
2. There are only 3 models used in this study, namely Altman, Springate, and Zmijewski.
3. There is only one variable in this study, which is financial distress.

Suggestion

1. For the next researcher
 - a. Researching other sectors that may be affected by the Covid-19 pandemic.
 - b. The period of the research period should be increased again so that later it will produce more accurate information. If the pandemic is over, research can be done with the period before, during, and after the Covid-19 pandemic.
 - c. Adding other financial distress prediction models, for example Grigaravičius, Grover, Ohlson, Taffler, Tishaw and others
 - d. Adding other variables that may also affect many things in this study.
2. For companies

The existence of research on financial distress can be the basis for company management in making company policies and strategies that are suitable for these days so the company's performance, both operational and financial, remains stable and does not experience a decline.

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