Jumek : Jurnal Manajemen dan Ekonomi Kreatif
Vol.2, No.1 Januari 2024
e-ISSN: 2964-1241; p-ISSN: 2964-1632, Hal 110-119
DOI : https://doi.org/10.59024/jumek.v2i1.282

Analysis Of Financial Distress In The Covid 19 Pandemic Era

Vania Noventilia Mangelep
Accounting Study Program, FEB, Universitas Negeri Manado, Indonesia

Nikolas F. Wuryaningrat
Accounting Study Program, FEB, Universitas Negeri Manado, Indonesia

Frida M. Sumual
Accounting Study Program, FEB, Universitas Negeri Manado, Indonesia

Corresponting author: vaniamangelep@gmail.com

Abstract*: This research aims to find out (1) find out whether there are differences in scores between the Altman, Springate, Zmijeski, and Grover models in predicting Financial Distress, (2) find out which companies remain healthy (green area) or do not experience Financial Distress and which companies which ones are unhealthy (red are) or experiencing Financial Distress. This research uses data from company financial reports with Special Notifications published on the Indonesia Stock Exchange website for 2020-2021. The sampling technique used purposive samples to obtain 10 companies that could be used as research. The results of this research show that the Altman model and the Grover model have the same score, namely an accuracy level of 40% and an error type of 20%, followed by the Zmijewski model with an accuracy rate of 30% and an error type of 30% and the Springate model an accuracy rate of 10% and an error type of 30%.*

Keywords: *Financial Distress, Altman Z-Score, Springate, Zmijewski, Covid19*

INTRODUCTION

In 2020, WHO announced that the world was facing a major outbreak, the Corona Virus Infectious Disease 2019 or COVID-19. This pandemic first occurred in Wuhan and began to spread to other countries. The spread of COVID-19 occurred very quickly until the end of 2020. The spread of the COVID-19 pandemic is very dangerous, and the death rate caused by this virus is quite high. As of October 2020, the number of positive cases of COVID-19 worldwide had reached 1 million people (WHO, 2020).

On March 2, 2020, Indonesia announced for the first time that COVID-19 cases had entered the country. COVID-19 cases are increasing significantly and require the Indonesian government to stop the spread of this virus by implementing a Large-Scale Social Restrictions policy or PSBB (Aeni, 2021).

Economic conditions experienced quite a big shock due to COVID-19 and the Large-Scale Social Restrictions or PSBB policy. The COVID-19 virus is a virus that threatens public health (Yanti et al., 2021) and also threatens the world economy, which is called a once-in-century or financial crisis (Chairul & Muhammad, 2020).

The International Monetary Fund, abbreviated (IMF), stated that world economic growth since the COVID-19 pandemic decreased by 0.1-0.2% to 3.3% in 2020 (Shihombing, 2020). Indonesia is also experiencing the same thing; the Indonesian Minister of Finance said

Received November 09, 2023; Accepted Desember 11, 2023; Accepted Januari 31, 2024
* Vania Noventilia Mangelep, vaniamangelep@gmail.com

that economic growth could be depressed to the level of 2.5% to 0% if the country does not develop a good and certainly appropriate strategy to prevent economic depression. (Hanoatubun, 2020) predicting financial distress in a company is very necessary for stakeholders. Financial distress is an early warning system or system model to recognize early symptoms of financial distress in a company (Hirawati, 2017).

The method that can be used to detect the level of bankruptcy and signs of bankruptcy of a company is Financial Distress, where research is measured using four methods, namely the Altman Z-score, Springate, Zmijeski and Grover methods (Priambodo, 2016).

The Altman Z-score method is a bankruptcy method that refers to the company's financial ratios. The Altman Z-score method is a score determined from a standard financial calculation that will indicate the level of probability of company bankruptcy (Sinaga, 2023). The Springate method is a method that uses the same technique as Altman, namely Multiple Discriminant Analysis (MDA); the Springate model uses 4 financial ratios from 19 financial ratios in various literature. The Springate method is formed by designing and re-evaluating the Altman Z-score (Kristanti et al., 2016). Zmijewski is a bankruptcy prediction method using probit techniques in calculating indicators (Ramdani, 2020). The Grover method is formed by designing and re-evaluating the Altman Z-score (Gunawan et al., 2017).

Every company can experience financial distress if the economic conditions in that country cause an economic crisis or originate from internal and external company factors (Nilasari & Haryanto, 2018).

The impact of COVID-19 on the Indonesian economy is a very large increase in economic uncertainty. The economic condition of a country is correlated with the condition of its capital market, but capital markets tend to be more reactive to crises. Uncertainty in demand for goods and services then affects companies' revenue profits on the Indonesian Stock Exchange (Susilawati et al., 2020).

Based on the background described and several studies carried out, researchers want to know which companies are experiencing financial distress or are in an unhealthy condition and which companies are not experiencing financial distress or are in a healthy condition during the COVID-19 era. Researchers also want to know which of the four models can predict financial distress.

METHOD

The type of research used in this research is descriptive quantitative research using a case study research approach whose aim is to collect data where the data that has been collected will then be processed and presented again and accompanied by analysis using theories and

previous research that has been studied so that it can provide a clear picture. clearer (Sugiyono, 2013).

Descriptive research methods can present data from company financial reports, and then an analysis of potential financial difficulties will be carried out using several financial difficulty prediction models.

This research empirically analyzes which companies fall into the green, grey, and red zone categories in the COVID-19 era. This research will compare the Altman, Springate, Grover, and Zmijewski models based on the difference in scores from each financial distress prediction model and obtain one prediction model that has the highest level of accuracy in predicting financial distress conditions in companies with special notifications on the Indonesia Stock Exchange for the 2020-2020 period. 2021.

The population that will be observed in this research are companies with special notifications on the Indonesian stock exchange in 2020-2021. Sample selection was done using a purposive sampling technique, namely, sample selection based on certain criteria. The research will use the criteria: Companies with special notifications on the Indonesia Stock Exchange in the 2020 and 2021 periods. Issued and published complete financial reports during the 2020-2022 period. Companies that have complete data during the year of observation.

Table 1. Sample List of Companies with Special Notifications

No	Company name	Stock code
1	Bakrieland Development Tbk	ELTY
2	Pool Advista Indonesia Tbk	POOL
3	PT Cahaya Bintang Medan Tbk	CBMF
4	Aksara Global Development Tbk	GAMA
5	Multi Agro Gemilang Plantation Tbk	MAGP
6	PT Tridomain Performance Materials Tbk.	TDPM
7	PT Armidian Karyatama Tbk	ARMY
8	PT Capri Nusa Satu Properti Tbk.	CPRI
9	PT Bhakti Agung Propertindo Tbk.	BAPI
10	PT Trinitan Metals and Minerals Tbk	PURE

The data collection technique used in this research is the documentation method. The documentation method seeks data regarding things or variables in the form of books, meeting minutes and so on. (Arikunto, 2013). The documentation method used in this research is company financial reports with special notifications on the Indonesia Stock Exchange from 2020-2021. From these financial reports, researchers can see indicators predicting financial difficulties using the Altman, Springate, Grover, and Zmijewski models that can be analyzed. Data obtained from these documents can be used as a basis for research to analyze the company's financial difficulties.

This research begins with data collection; after the data is collected, it will be processed and analyzed to find out the conclusion of the research conducted. (Sugiyono b. d., 2015). This research uses four bankruptcy prediction analysis models: the Altman Z-Score Model, Springate Model, Zmijewski Model and Grover Model. The data analysis stages in this research are to obtain the required data, namely company financial reports with special notifications for 2020-2021. Calculate the company's financial ratios using the Altman, Grover, Springate and Zmijewski models. Compare scores between companies to find out which companies have the potential to enter the green zone, grey zone, and red zone.

RESULT AND DISCUSSION

1. Results of Altman method financial distress analysis calculations

Altman z-score formula

Z= 6,65X1 + 3,26X2 + 6,72X3 + 1,05X4

Where :

X1 = Working capital/total assets

X2 = Retained Earnings/total assets

X3 = EBIT/total assets

X4 = Market value of equity/total liabilities

Altman uses cutoff values of 2.675 and 1.81. If the Z value obtained is more than 2.675, the company is predicted not to experience financial distress. A company whose Z value is between 1.81 and 2.675 means the company is in the grey area.

Table 2. Altman Method Calculation Results

No	Stock code	2020		2021	
		Score	Zone	Score	Zone
1	ELTY	-5,001	Red	-0,95	Grey
2	POOL	-1,172	Red	0,576	Grey
3	CBMF	-0,723	Grey	0,736	Grey
4	GAMA	-1,309	Red	-1,157	Red
5	MAGP	-3,716	Grey	-3,167	Grey
6	TDPM	-1,42	Red	-0,66	Grey
7	ARMY	4,831	Green	-16,096	Red
8	CPRI	0,334	Grey	0,08	Grey
9	BAPI	0,151	Grey	0	Grey
10	PURE	0,462	Grey	1,007	Grey

Source: processed data

Information:

Green: healthy

Grey: safe

Red: unhealthy

2. Results of financial distress analysis calculations using the Springate method

Springate Formula

S = 1.03X1 + 3.07X2 + 0.66CX3 + 0.4X4

Where :

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 score obtained is S > 0.862 then the company is classified as healthy and if the score S < 0.862 then the company is classified as experiencing Financial Distress.

Table 3. Springate Method Calculation Results

No	Stock code	2020		2021	
		Score	Zone	Score	Zone
1	ELTY	2,971	Green	0,926	Green
2	POOL	0,635	Grey	-5,001	Red
3	CBMF	-1,48	Red	-1,172	Red
4	GAMA	0,008	Grey	-0,723	Red
5	MAGP	-1,272	Red	-1,309	Red
6	TDPM	-0,099	Grey	-3,716	Red
7	ARMY	0,033	Grey	-1,42	Red
8	CPRI	-0,51	Grey	4,831	Red
9	BAPI	0,38	Grey	0,334	GRey
10	PURE	-2,556	Red	0,151	Grey

Source: processed data

Information:

Green: healthy

Grey: safe

Red: unhealthy

3. Results of financial distress analysis calculations using the Zmijeski method

Zmijeski formula

X = -4.3 – 4.5X1 + 5.7X2 – 0.004X3

Where :

A = EAT/total assets

B = Total debt/total assets

C = Current assets/current liabilities

Zmijewski (1984) states that a company is considered to be experiencing Financial Distress if the X value is greater than 0. This means that companies whose X value is greater than or equal to 0 are predicted to experience Financial Distress in the future. On the other hand, companies whose X value is less than 0 are predicted not to experience financial distress.

Table 4. Calculation Results of the Zmijewski Method

No	Stock code	2020		2021	
		Score	Zone	Score	Zone
1	ELTY	0,455	Green	1,816	Green
2	POOL	0,082	Green	0,103	Green
3	CBMF	-2,084	Red	-2,364	Red
4	GAMA	-0,846	Grey	-1,004	Red
5	MAGP	-1,132	Red	-2	Grey
6	TDPM	-0,635	Grey	-0,619	Grey
7	ARMY	-0,609	Grey	-0,803	Grey
8	CPRI	-0,496	Grey	-0,326	Grey
9	BAPI	3,937	Green	3,908	Green
10	PURE	-3,208	Red	-4,205	Red

Source: processed data

Information:

Green: healthy

Grey: safe

4. Results of financial distress analysis calculations using the Grover method

Grover's formula

$G = 1.650X1 + 3.404X2 – 0.016ROA + 0.057$

Where :

X1 = Working capital / total assets

X2 = Earnings before interest and taxes / total assets

ROA = Net income / total assets

The Grover model categorizes companies in financial distress with a score of less than or equal to -0.02 ($G \leq -0.02$). Meanwhile, the value for companies categorized as not experiencing financial distress is more than or equal to 0.01 ($G \geq 0.01$).

Table 5. Grover Method Calculation Results

No	Stock code	2020		2021	
		Score	Zone	Score	Zona
1	ELTY	2,971	Green	-6,185	Red
2	POOL	0,635	Green	-0,95	Grey
3	CBMF	-1,48	Red	0,576	Grey
4	GAMA	0,008	Green	0,736	Red
5	MAGP	-1,272	Red	-1,157	Red
6	TDPM	-0,099	Grey	-3,167	Red
7	ARMY	0,033	Green	-0,66	Grey
8	CPRI	-0,51	Grey	-16,096	Red
9	BAPI	0,38	Grey	0,08	Green
10	PURE	0,556	Grey	1,007	Green

Source: processed data

Information:

Green: healthy

Grey: safe

Red: unhealthy

5. Calculation of Accuracy Level and Error Type

a. Altman Method

Table 6. Accuracy calculations and types of errors for the Altman method

Information	Red Zone	Grey Zone	Green Zone	Total
Altman method calculation	2	4	4	10
Level of accuracy		40%		
Error Type		20%		
Grey Area		40%		

Source: data processed by researchers

Formula:

Accuracy Rate = (Number of correct predictions)/(number of hits) x 100%

Accuracy Rate = (Number of errors)/(number of samples) x 100%

Based on data from the table, the Altman method obtains an accuracy of 40% from calculations for a sample of 10 companies. Analysis of the analytical method shows that four companies are declared to be in a healthy condition. The Altman method error type is 20%; it can be seen that two companies are in bankruptcy. While the grey area is 40%, it can be seen that four companies cannot determine whether the company is bankrupt or healthy.

b. Springate Method

Table 7. Accuracy calculations and error types for the Springate method

Information	Red Zone	Grey Zone	Green Zone	Total
Springate method calculation	3	6	1	10
Level of accuracy		10%		
Error Type		30%		
Grey area		60%		

Source: data processed by researchers

Formula:

Accuracy Rate = (Number of correct predictions)/(number of hits) x 100%

Accuracy Rate = (Number of errors)/(number of samples) x 100%

Data from the table, the Altman method obtains an accuracy of 10% from calculations for a sample of 10 companies. Analysis of the analytical method can be seen that one company is declared to be in a healthy condition. The Altman method error type is 30%, it can be seen that three companies are in bankruptcy. While the gray area is 60%, it can be seen that six companies cannot determine whether the company is bankrupt or healthy.

c. Zmijeski method

Table 8. Accuracy calculations and error types of the Zmijewski method

Information	Red Area	Grey Area	Green Area	Total
Zmijewski method calculation	3	4	3	10
Level of accuracy		30%		
Error Type		30%		
Grey area		40%		

Source: data processed by researchers

Formula:

Accuracy Rate = (Number of correct predictions)/(number of hits) x 100%

Accuracy Rate = (Number of errors)/(number of samples) x 100%

Data from the table, the Altman method obtains an accuracy of 30% from calculations for a sample of 10 companies. Analysis of the analytical method can be seen that one company is declared to be in a healthy condition. The Altman method error type is 30%, it can be seen that three companies are in bankruptcy. While the gray area is 40%, it can be seen that four companies cannot determine whether the company is bankrupt or healthy.

d. Metode Grover

Tabel 9. Perhitungan Akurasi dan tipe Error metode Grover

Information	Red Area	Grey Area	Green Area	Total
Grover method calculations	3	4	3	10
Level of accuracy		40%		
Error Type		20%		
Grey area		40%		

Based on data from the table, the Altman method obtains an accuracy of ~0% from a sample calculation of 10 companies. Analysis of the analytical method shows that four companies are declared to be in a healthy condition. The Altman method error type is 40%; it can be seen that four companies are in bankruptcy. While the grey area is 20%, it can be seen that the two companies cannot determine whether the company is bankrupt or healthy.

Table 10. Summary of Comparison Results of Accuracy Levels and Error Types.

Metode	Tingkat Akurasi	Tipe Error
Altman	40%	20%
Springate	10%	30%
Zmijewski	30%	30%
Grover	40%	20%

Source: data processed by researchers

By comparing the level of accuracy and type of error of the four methods, we can conclude that the most accurate method and the lowest type of error are the Altman and Grover methods. These two methods have the same level of accuracy and type of error. Meanwhile, Zmijewski has an accuracy rate of 30% with a type error of 30%, followed by the Springate method at 10% with a type error of 30%. In the era of the COVID-19 pandemic, Altman and Grover's method predicts that four companies will not experience financial distress and will be included in the green or grey area category. Two companies will have an error of 20% and be included in the red category.

CONCLUSION

Based on the research results, the Altman and Grover methods are appropriate for analyzing financial distress in predicting bankruptcy in companies with special notifications on the Indonesian Stock Exchange. The accuracy and type of error show a value of 40% for green zone or grey area companies and 20% for red zone or red area companies in the COVID-19 pandemic era.

Based on the limitations of this research, which only uses four methods, the researcher provides suggestions for conducting further research using other prediction models. The research carried out is also limited to the quarterly financial report data used; data that better shows real financial conditions is the annual financial report.

REFERENCES

Altman, E. (1968). Financial rasio, discriminant analysis and prediction of corporate bankcrupty. *journal of finance, 23* (4), 589-609.

Arikunto, S. (2013). prosedur penelitian suatu pendekatan praktik. In S. Arikunt. Jakarta: Rineka Cipta.

Chairul, I. B., & Muhammad, N. A. (2020). Ancaman krisis ekonomi global dari dampak penyebara virus corona(covid-19). *AkMen, 17* (1), 710.

Dwijayanti, S. P. F. (2010). Penyebab, dampak, dan pbediksi dari financial distress serta solusi untuk mengatasi financial distress. Jurnal Akuntansi Kontemporer, 2(2).ISO 690

Hanoatubun, S. (2020). Dampak covid-19 terhadapa perekonomian Indonesia. *journal of education psychology an counseling, 2* (1), 151.

Haryetti. (2010). Analisis financial distress untuk memprediksi risiko kebangkrutan perusahaan (studi kasus pada industri perbankan diBEI). *jurnal ekonomi, 18* (2), 24.

Hirawati, H. (2017). Analisis prediksi financial distress berdasarkan model Altman dan Groveer pada perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia. *Riset ekonomi manajemen*, 2.

Kumajas, L. I. (2022). Financial distress perusahaan transportasi di Indonesia sebelum dan saat pandemi COVID-19. *Jurnal Informasi, Perpajakan, Akuntansi, Dan Keuangan Publik*, *17*(1), 19-38.

Muhyiddin. (2020). covid-19, new normal dan perencanaan pembangnan di Indonesia. *The Indonesia journal of davelopment planning, IV* (2), 248.

Ni Putu Emy, D. Y., I Made Arie, D. P., Wisnawa, G. A., Ni, P. D., Agustina, & Diantari, N. P. (2020). gambaran pengetahuan masyarakat tentang covid-19 dan perlaku masyarakat dimasa pandemi covid-19. *jurnla keperawatan jiwa, 8*, 491.

Ni, M. e., & Maria M, R. S. (2013). Prediksi kebangkrutan dengan model Grover, Altman Z-score, Springate, Zmijewski pada perusahaan food and beverage di bursa efek Indonesia. *E-jurnal Akuntansi unversitas Udayana, 5* (2), 419. 65

Nilasari, D., & Haryanto, M. (2018). Mempredksi perusahaan yang berpotensi mengalami masalah keuangan dengan model altman, springate, dan zmjewski. *Di Ponegoror journal of management, 7* (2), 2. *Journal of Risk and Financial Management*, *1*

Platt, & platt. (2020). Volume 3, Nomor 3, Tahun 2014, Halaman 1-11. prediksi financial distress perusahaan manufaktur,1.

Platt, H. D., & Platt, M. B. (2008). Financial distress comparison across three global regions.

Priambodo, D. (2016). Analisis perbandingan model, Altman, Springate, Grover, dab, Zmijewski dalam memprediksi Financial distress (studi empiris pada perusahaan sektor pertambangan yang terdaftar di bursa efek indonesia peroded 2012-2015). *jurnal pendidikan akuntansi* , 2.

Priambodo, D., & Pustikaningsih, A. (2018). Analisis Perbandingan Model Altman, Springate, Grover, Dan Zmijewski Dalam Memprediksi Financial Distress (Studi Empiris Pada Perusahaan Sektor Pertambangan Yang Terdaftar Di Bursa Efek Indonesia Periode 2012-2015). *Jurnal Profita: Kajian Ilmu Akuntansi*, *6*(4).*Jurnal Akuntansi AKUNESA*, *7*

Ramadhan, F. A., & Wuryani, E. (2018). Pengaruh Prediksi Kebangkrutan Terhadap Harga Saham Perusahaan. *Applied Business and International Management (IJABIM)*, 8-15. 66(1), 129-162. (1), 1-23.

Shihombing, L. (2020). penyebaran covid-19 dan respons internasonal. *Bidang hubungan international info singkat*, *7*, 8.

Springate, G. (1978). Predicting the possibility of failure in a canadian firm. *M.B.A Researchproject Simon fraser Universty*.

Sugiyono. (2013). penelitian kuantitatif. In Sugiyono, *metode peneltian kuantitatfatif, kualitatif dan R&D* (pp. 7-8). Bandung: Alfabeta,Bandung.

Sugiyono, b. d. (2015). metode penelitian kombinas(mix methods). In Sugiyono. Bandung: Alfabeta.

Supriati, D., Bawono, I. R., & Anam, K. C. (2019). Analisis Perbandingan Model Springate, Zmijewski, Dan Altman Dalam Memprediksi Financial Distress Pada Perusahaan Manufaktur Yang Terdaftar Di Bursa Efek Indonesia. *Journal of Applied Business Administration*, *3*(2), 258- 270.

Triwahyuningsi. (2012). Financial distree. *pengaruh struktur corporate Governance dan foinancial distress terhadap financiial distress* , 1-2.

Utami, D., & Kawulur, H. R. (2020). Analysis of Bankruptcy Prediction by Altman Z-Score Modification (Study at PT BPR Primaesa Sejahtera Kota Manado). *International Journal of Applied Business and International Management* (IJABIM), 8-15.

Wahyuni & Rubiyah. (2021). Analisis financial distress menggunakan metode Altman Zscore, Springate, Zmijewski dan Grover pada perusahaan sektor perkebunan yang terdafpata di Bursa Efek Indonesia.