SIMBA

7th SEMINAR INOVASI MANAJEMEN BISNIS DAN AKUNTANSI

ANALYSIS OF FINANCIAL DISTRESS PREDICTION IN CONVENTIONAL BANKING COMPANIES IN INDONESIA FOR THE PERIOD 2020-2024 USING THE ALTMAN Z-SCORE MODEL

Dewi Pujawati Soekarno[1)], Anny Widiasmara[2)], Juli Murwani[3)].
[1]Faculty of Economics & Business, Universitas PGRI Madiun
email: dewi_2103101013@mhs.unipma.ac.id
[2]Faculty of Economics & Business, Universitas PGRI Madiun
email: annywidiasmara@unipma.ac.id
[3]Faculty of Economics & Business, Universitas PGRI Madiun
email: jmuwarni@unipma.ac.id

Abstrak

Maksud studi ini guna mengkaji perkiraan *financial distress* terhadap perbankan konvensional Indonesia selama kurun waktu 2020–2024 melalui penerapan model *Altman Z-Score*. *Financial distress* menggambarkan situasi krisis finansial yang bisa menjadi pertanda awal dari kebangkrutan perusahaan. Sektor perbankan menjadi objek penting dalam penelitian ini mengingat tingginya risiko sistemik yang dapat ditimbulkan apabila terjadi kegagalan pada bank. Pendekatan yang dipilih dalam studi ini ialah deskriptif kuantitatif, di mana data yang dipakai merupakan laporan keuangan sekunder dari 32 perbankan konvensional tercatat pada BEI. Metode *Altman Z-Score* dipakai guna mengukur serta mengklasifikasikan tingkat kesehatan keuangan perusahaan terbagi atas tiga klasifikasi, yakni sehat, zona abu-abu, dan kategori risiko tinggi. Temuan riset membuktikan jika penerapan model *Altman Z-Score* mampu secara efektif meramalkan keadaan finansial perbankan, sekaligus menyajikan informasi krusial manajemen, penanam modal, maupun pihak regulator guna menentukan langkah strategis menghindari potensi kegagalan**.**

Kata Kunci: *Financial Distress, Altman Z-Score,* Perbankan Konvensional, Laporan Keuangan, Prediksi Kebangkrutan

Abstract

The study aims to assess the effectiveness of the Altman Z-Score model in predicting financial distress among conventional banks in Indonesia from 2020 to 2024. Financial distress refers to a situation where a financial institution faces instability, which can be an early sign of possible insolvency. The banking sector was chosen for this research because the failure of a single bank can lead to significant systemic risks. The study uses a descriptive quantitative method and relies on secondary data, specifically financial reports from 32 conventional banks listed on the Indonesia Stock Exchange. The adjusted Altman Z-Score model is used to evaluate and categorize the financial health of these banks into three categories: stable, gray zone, and vulnerable. The

results indicate that the Altman Z-Score model is a dependable tool for forecasting the financial status of banks and provides useful insights for managers, investors, and regulators in making informed decisions to prevent insolvency.
Keywords: *Poor Financial Condition, Altman Z-Score, Traditional Banks, Financial Statements, Bankruptcy Prediction*

A. INTRODUCTION

Bankruptcy is the biggest threat to companies, including banks, one of which is caused by fraud or abuse of authority (Zefanya Aprilia, 2024), although research shows that financial statement fraud does not directly affect bankruptcy (Sriminingsih & Isnawati, 2024). The potential for bankruptcy remains, so banks need to implement continuous mitigation and prevention measures (Rais Sani Muharrami1, 2018), given the high systemic risk that could affect national economic stability. for example, throughout 2024, 20 rural banks were closed, mostly due to illegal credit collusion, and the case of Bank Muamalat showed an NPF ratio of more than 7%, putting pressure on profitability despite increased assets. Apart from fraud, bankruptcy is also triggered by bad loans, weak governance, and owner intervention in operations (Sriminingsih & Isnawati, 2024), while external factors such as the COVID-19 pandemic in Nepal reduced remittances by 0.5%, weakened foreign exchange reserves, put pressure on the tourism sector, and increased the risk of banking bankruptcy (Paudel, 2020). In general, business failure occurs when a company is unable to meet its financial obligations, such as being unable to pay debts, bankruptcy, delisting, or government intervention (Altman et al., 1977; Wu, 2010;Meeks & Meeks, 2009), while financial difficulties arise when liabilities exceed assets and become more severe if fixed costs remain high or debt is managed inefficiently (Levratto, 2013; McKee, 2003; Ahn, 2001).

Bankruptcy is characterized by the inability to pay obligations to suppliers, banks, employees, and the government, which results in losses for stakeholders and economic slowdown (Gyawali, 2023). Therefore, it is important to identify early signs of declining performance, such as declining sales, liquidity, and profits, as well as increasing debt and decreasing market share (Ropega, 2011; Ooghe & De Prijcker, 2008; Koksal & Arditi, 2004; Crutzen & Caille, 2008).

Through financial reports, the condition and performance trends of banks can be analyzed so that bankruptcy can be detected early. This early detection serves as an early warning system to help management take anticipatory measures to maintain financial stability.

In line with this, various bankruptcy prediction models have been developed, one of which is the Altman Z-Score introduced by Edward I. Altman. This model uses Multivariate Discriminant Analysis (MDA) to combine several financial ratios in predicting corporate bankruptcy (Nurdin & Irsyad., 2012; Altman, 2000). Hadi (2012) found that the Z-Score was more accurate than Springate and Zmijewski in predicting the delisting of manufacturing companies, while Kusdiana (2014) proved its superiority over the CAMEL method in the banking sector with an accuracy of up to 100% in 2007–2011. Based on these empirical findings, the Altman Z-Score is considered relevant and feasible for evaluating the possibility of bankruptcy, particularly in the conventional banking sector in Indonesia. Therefore, this study is titled: "Analysis of Financial Distress Prediction in Conventional Banking Companies in Indonesia for the Period 2020–2024 Using the Altman Z-Score Model".

Literature Review and Research Hypothesis

Signaling Theory

Ross's signaling theory, 1977 in Wulandari, 2020 states that companies convey information through financial reports to reduce information asymmetry and influence market perceptions. In predicting financial distress, this information becomes a performance indicator for management and a consideration for investors and creditors, so it is important that it is accurate, complete, and timely.

Financial Distress

Financial distress is financial difficulty due to management failure, characterized by decreased liquidity, reduced assets, and potential bankruptcy, which impacts employees, clients, and borrowing costs (Zulaecha & Mulvitasari., 2018). (Altman, 2005) defines financial distress as various forms of financial difficulties that are often identified with bankruptcy, failure, or

insolvency. This condition reduces stakeholder confidence and, without proper handling, becomes a strong signal of impending bankruptcy.

Financial Distress Indicators

According to Platt & Platt (2006) in (Carolina Verani et al., n.d.), indicators of financial distress in companies include: (1) Reduction in employees and unpaid dividends, (2) Long-term debt obligations greater than cash flow, (3) Negative net operating income, (4) Changes in equity prices, (5) Company operations suspended by authorities and required to restructure, (6) Violation of debt obligations. (7) Negative earnings per share (EPS).

Financial Statement Analysis

Financial statement analysis is a way to assess a company's condition and support business decisions, including evaluating growth, sustainability, or potential failure through financial ratios (Kasmir in Apriani et al., 2023; Saeful Falah et al., 2022). In this study, the Altman Z-Score method was applied to estimate the risk of financial distress as an early warning system for companies and stakeholders, as well as a basis for performance evaluation and management strategy planning Mendrofa et al., 2024.

Altman Z-Score Bankruptcy Prediction Method

Banking financial analysis includes the Altman Z-Score concept, its application in the industry, and its methodological challenges, with the aim of predicting the likelihood of bankruptcy using models such as the Altman Z-Score, Ohlson O-Score, and Zeta Model. The Altman Z-Score was introduced in 1968 for manufacturing companies through five key financial ratios (Altman, 1968) and was later adapted for banking with the Z'-Score, which emphasizes equity market value and liability structure (Altman, 2000b), serving as a tool for evaluating the financial condition of financial institutions.

Z'-Score for Banking

The Z'-Score model is a modified Z-score method tailored for the banking sector with four main components: working capital compared to total assets, retained earnings compared to total assets, EBIT compared to total assets, and the ratio of market value of equity to liabilities. The difference from the Z-Score lies in the emphasis on market value of equity, which is more relevant in measuring the stability and solvency of banks. The use of this model has proven effective in predicting bankruptcy risk, so it can be used by regulators and analysts to identify high-risk banks and formulate mitigation strategies (Altman, 2000b; Altman, E. I., Sabato & Wilson, 2002).

B. METHOD

This study uses a quantitative descriptive method with secondary data from the financial reports of conventional banks listed on the IDX for the period 2020–2024. The research was conducted online from March to July 2025 using data from the IDX website (www.idx.com). This study applied a quantitative descriptive approach using secondary data from the financial reports of 32 conventional banks listed on the IDX (Indonesia Stock Exchange) in 2020–2024, obtained through the IDX website and the banks' official websites. The sample was selected using purposive sampling based on data completeness. The research variables used four Altman Z'-Score ratios: **X1 (Working Capital/Total Assets), X2 (Retained Earnings/Total Assets), X3 (EBIT/Total Assets), and X4 (Book Value of Equity/Book Value of Debt)**, with data collection using documentation techniques.

Data analysis was performed using the Altman Z'-Score multivariate discriminant model with the formula:

$Z = 6.56X1 + 3.267X2 + 6.72X3 + 1.05X4.$

Explanation :

X1	X2	X3	X4	Z
Net Working Capital to Assets	*Retairned Earning to Total Assets*	*Earnings Before Interest Total Assets*	*Book Value Of Equity to Book Value of Total Debt*	*Overall Index*

The interpretation of the results is divided into three categories:

1.Z' > 2.90: The business is classified as Safe and has a minimal risk of failure.

2.Z' 1.23-2.90: The bank is classified as Grey, which means that the bank is not completely safe, so there is potential for financial problems, but it is not too risky.

3. Z' < 1.23: The bank is in a high-risk (Distress) condition, with a high probability of bankruptcy.

C. RESULTS AND DISCUSSIONS

In this study, financial distress is measured using the Altman Z-Score method, which is a bankruptcy prediction technique through the calculation of financial ratios that are entered into a discriminant formula. The formula used refers to the modified Z-Score model (Kasmir, 2014:132).

Table 1. Calculation of Financial Distress in Conventional Banking in 2020

NO	KODE	X1	X2	X3	X4	Altman Z Score	Zona
1	AGRO	-4,19	0,03	0,02	0,19	-3,96	Distress Zone
2	ARTO	0,24	-0,51	-0,58	1,37	0,51	Distress Zone
3	BACA	-2,98	0,14	0,03	0,09	-2,72	Distress Zone
4	BSWD	-1,20	-0,05	0,29	0,42	-0,55	Distress Zone
5	NOBU	0,58	0,10	0,03	0,13	0,84	Distress Zone
6	AMAR	-1,06	0,03	0,04	0,37	-0,62	Distress Zone
7	BABP	0,19	-0,15	0,01	0,16	0,21	Distress Zone
8	BBCA	-0,12	0,47	0,21	0,22	0,77	Distress Zone
9	BVIC	-3,21	-0,03	-0,04	0,13	-3,16	Distress Zone
10	PNBN	-3,21	2,31	0,13	0,29	-0,48	Distress Zone
11	BBHI	0,25	0,04	0,12	0,16	0,57	Distress Zone
12	BBMD	-1,64	0,21	0,20	0,41	-0,81	Distress Zone
13	BBNI	1,23	0,39	0,04	0,16	1,83	Grey Zone
14	INPC	-0,21	0,05	0,01	0,14	-0,01	Distress Zone
15	SDRA	-3,23	0,09	0,08	0,25	-2,81	Distress Zone
16	BBRI	-3,59	0,26	0,13	0,18	-3,02	Distress Zone

17	BBTN	1,32	0,11	0,04	0,07	1,53	Grey Zone
18	BBYB	0,71	-0,03	0,02	0,27	0,97	Distress Zone
19	BGTG	1,31	-0,53	0,01	0,28	1,06	Distress Zone
20	MAYA	-0,41	0,09	0,01	0,17	-0,14	Distress Zone
21	BINA	0,08	0,04	0,02	0,18	0,32	Distress Zone
22	BKSW	1,48	-0,64	-0,10	0,30	1,04	Distress Zone
23	BMAS	-4,43	0,08	0,06	0,15	-4,14	Distress Zone
23	BMAS	-3,69	-0,03	0,02	0,33	-3,37	Distress Zone
25	BMRI	-2,73	0,25	0,11	0,18	-2,19	Distress Zone
26	BNBA	-3,29	1,26	0,05	0,26	-1,72	Distress Zone
27	BNGA	1,93	1,62	3,91	1,04	8,50	Safe Zone
28	MEGA	-2,17	0,42	0,22	0,20	-1,33	Distress Zone
29	BNII	-3,74	0,20	0,07	0,20	-3,27	Distress Zone
30	BNLI	-3,23	0,15	0,05	0,23	-2,80	Distress Zone
31	BSIM	1,00	0,08	0,02	0,20	1,30	Grey Zone
32	NISP	-4,23	0,28	0,09	0,18	-3,68	Distress Zone

Source: Data processed by Microsoft Excel 25

Based on the 2020 Altman Z-Score calculation, the majority of 32 conventional banks in Indonesia face liquidity pressure with a negative X1 ratio, such as Bank Raya, Maspion, and OCBC NISP. The X2 ratio is generally low, indicating minimal contribution from retained earnings, while X3 is also low, reflecting limited operating profits. X4 varies, with CIMB Niaga performing strongly, but several banks showing high leverage. Overall, these conditions illustrate liquidity and leverage pressures exacerbated by the COVID-19 pandemic, increasing the risk of financial distress.

Table 2. Calculation of Financial Distress in Conventional Banking in 2021

NO	KODE	X1	X2	X3	X4	Altman Z Score	Zona
1	AGRO	-3,06	-0,54	-1,32	0,18	-4,74	Distress Zone
2	ARTO	4,01	2,19	0,01	2,19	8,40	Safe Zone
3	BACA	-2,09	0,15	0,05	0,22	-1,67	Distress Zone
4	BSWD	-0,62	-0,08	0,07	0,95	0,32	Distress Zone
5	NOBU	0,37	0,07	0,03	0,10	0,57	Distress Zone
6	AMAR	-1,73	0,02	0,00	0,27	-1,44	Distress Zone
7	BABP	0,55	-0,12	0,01	0,21	0,65	Distress Zone
8	BBCA	-0,20	0,46	0,21	0,21	0,68	Distress Zone
9	BVIC	-3,13	-0,02	0,09	0,15	-2,89	Distress Zone
10	PNBN	-3,20	2,76	0,08	0,33	-0,03	Distress Zone
11	BBHI	1,36	0,07	0,32	0,41	2,16	Grey Zone
12	BBMD	1,60	0,21	0,28	0,39	2,48	Grey Zone

13	BBNI	0,89	0,37	0,09	0,16	1,51	Grey Zone
14	INPC	-0,04	0,07	-0,05	0,19	0,17	Distress Zone
15	SDRA	-2,87	0,11	0,09	0,28	-2,38	Distress Zone
16	BBRI	-3,29	0,30	0,16	0,22	-2,61	Distress Zone
17	BBTN	1,21	0,12	0,05	0,07	1,45	Grey Zone
18	BBYB	0,95	-0,03	-0,59	0,36	0,69	Distress Zone
19	BGTG	1,57	-0,38	0,01	0,35	1,56	Grey Zone
20	MAYA	-0,07	0,08	0,00	0,14	0,15	Distress Zone
21	BINA	-2,13	0,04	0,02	0,20	-1,87	Distress Zone
22	BKSW	1,37	-1,29	-0,56	0,31	-0,18	Distress Zone
23	BMAS	-3,58	0,06	0,05	0,11	-3,36	Distress Zone
23	BMAS	-3,64	0,00	0,03	0,32	-3,29	Distress Zone
25	BMRI	-2,49	0,27	0,15	0,18	-1,89	Distress Zone
26	BNBA	1,06	1,12	0,04	0,37	2,59	Grey Zone
27	BNGA	0,73	1,66	1,95	4,72	9,06	Safe Zone
28	MEGA	-4,20	0,42	0,25	0,18	-3,35	Distress Zone
29	BNII	-3,68	0,23	0,09	0,22	-3,15	Distress Zone
30	BNLI	-3,38	0,15	0,04	0,19	-3,00	Distress Zone
31	BSIM	1,22	0,08	0,02	0,20	1,53	Grey Zone
32	NISP	-4,33	0,30	0,10	0,19	-3,75	Distress Zone

Source: Data processed by Microsoft Excel 25

The 2021 Altman Z-Score calculation shows that the majority of 32 conventional banks in Indonesia are still under pressure in terms of liquidity, profitability, and leverage. The X1 ratio is mostly negative, X2 is low, and X3 is relatively low, while X4 varies from strong to negative. These conditions reflect the post-pandemic recovery phase, but the risk of financial distress remains high.

Table 3. Calculation of Financial Distress in Conventional Banking in 2022

NO	KODE	X1	X2	X3	X4	Altman Z Score	Zona
1	AGRO	-1,77	-0,66	0,06	0,34	-2,03	Distress Zone
2	ARTO	2,89	1,59	0,01	1,06	5,54	Safe Zone
3	BACA	-1,73	0,13	0,04	0,44	-1,13	Distress Zone
4	BSWD	-0,21	-0,05	0,08	1,28	1,11	Distress Zone
5	NOBU	0,39	0,08	0,04	0,10	0,60	Distress Zone
6	AMAR	1,32	-0,09	-0,30	2,51	3,45	Safe Zone
7	BABP	0,67	-0,09	0,06	0,20	0,84	Distress Zone
8	BBCA	-0,23	0,48	0,26	0,21	0,73	Distress Zone
9	BVIC	-3,34	0,14	0,09	0,17	-2,94	Distress Zone
10	PNBN	-3,26	0,30	0,13	0,33	-2,50	Distress Zone
11	BBHI	3,07	0,04	0,21	1,45	4,77	Safe Zone

12	BBMD	1,68	0,23	0,27	0,40	2,57	Grey Zone
13	BBNI	0,31	0,39	0,15	0,17	1,01	Distress Zone
14	INPC	0,01	0,08	0,02	0,20	0,31	Distress Zone
15	SDRA	2,49	0,17	0,15	0,25	3,06	Safe Zone
16	BBRI	-3,53	0,33	0,23	0,20	-2,76	Distress Zone
17	BBTN	1,34	0,14	0,06	0,08	1,62	Grey Zone
18	BBYB	0,89	-0,11	-0,27	0,25	0,76	Distress Zone
19	BGTG	2,20	-0,40	0,04	0,57	2,41	Grey Zone
20	MAYA	0,42	0,07	0,00	0,12	0,61	Distress Zone
21	BINA	-2,88	0,05	0,07	0,20	-2,56	Distress Zone
22	BKSW	1,79	-1,46	-0,16	0,41	0,57	Distress Zone
23	BMAS	-2,85	0,06	0,07	0,28	-2,44	Distress Zone
23	BMAS	-3,83	-0,02	0,05	0,35	-3,45	Distress Zone
25	BMRI	-2,47	0,27	0,19	0,17	-1,84	Distress Zone
26	BNBA	1,79	1,20	0,04	0,63	3,67	Safe Zone
27	BNGA	0,68	1,68	2,09	2,33	6,79	Safe Zone
28	MEGA	-3,61	0,45	0,24	0,18	-2,74	Distress Zone
29	BNII	-3,83	0,26	0,09	0,24	-3,24	Distress Zone
30	BNLI	-3,45	0,16	0,07	0,18	-3,05	Distress Zone
31	BSIM	1,44	0,11	0,04	0,23	1,81	Grey Zone
32	NISP	-4,31	0,30	0,12	0,18	-3,71	Distress Zone

Source: Data processed by Microsoft Excel 25

The 2022 Altman Z-Score calculation shows that the majority of Indonesia's 32 conventional banks are still under pressure in terms of liquidity, profitability, and leverage. X1 is mostly negative, X2 is low, X3 is weak, and X4 varies with some banks being at high risk. Overall, the post-pandemic recovery has been uneven and the risk of financial distress remains high.

Table 4. Calculation of Financial Distress in Conventional Banking in 2023

NO	KODE	X1	X2	X3	X4	Altman Z Score	Zona
1	AGRO	-3,72	-0,73	0,07	0,40	-3,98	Distress Zone
2	ARTO	2,08	1,28	0,03	0,69	4,07	Safe Zone
3	BACA	-0,89	0,17	0,05	0,22	-0,45	Distress Zone
4	BSWD	1,07	-0,02	0,18	1,29	2,52	Grey Zone
5	NOBU	0,40	0,08	0,05	0,15	0,67	Distress Zone
6	AMAR	1,30	0,04	0,34	3,19	4,87	Safe Zone
7	BABP	0,63	-0,07	0,04	0,26	0,86	Distress Zone
8	BBCA	-0,41	0,52	0,29	0,22	0,61	Distress Zone
9	BVIC	-3,41	0,13	0,03	0,16	-3,10	Distress Zone
10	PNBN	-3,17	0,33	0,11	0,33	-2,39	Distress Zone
11	BBHI	-0,31	0,08	0,30	1,23	1,31	Grey Zone
12	BBMD	-4,01	0,24	0,22	0,46	-3,09	Distress Zone

13	BBNI	0,45	0,42	0,16	0,17	1,20	Distress Zone
14	INPC	0,22	0,09	0,05	0,20	0,55	Distress Zone
15	SDRA	2,41	0,19	0,11	0,24	2,96	Safe Zone
16	BBRI	-3,53	0,39	0,26	0,20	-2,69	Distress Zone
17	BBTN	1,25	0,14	0,07	0,08	1,55	Grey Zone
18	BBYB	1,15	-0,22	-0,21	0,24	0,95	Distress Zone
19	BGTG	1,98	-0,41	0,09	0,55	2,21	Grey Zone
20	MAYA	-0,81	0,07	0,00	0,13	-0,60	Distress Zone
21	BINA	-0,14	0,05	0,07	0,18	0,17	Distress Zone
22	BKSW	2,42	-2,26	0,04	0,70	0,90	Distress Zone
23	BMAS	-2,42	0,05	0,03	0,55	-1,79	Distress Zone
23	BMAS	-3,32	-0,03	0,07	0,32	-2,95	Distress Zone
25	BMRI	-2,61	0,30	0,23	0,18	-1,90	Distress Zone
26	BNBA	1,88	1,25	0,05	0,67	3,85	Safe Zone
27	BNGA	0,95	1,76	1,83	8,91	13,45	Safe Zone
28	MEGA	-3,19	0,50	0,22	0,21	-2,26	Distress Zone
29	BNII	-2,86	0,27	0,09	0,23	-2,27	Distress Zone
30	BNLI	-3,35	0,18	0,09	0,19	-2,89	Distress Zone
31	BSIM	1,48	0,11	0,01	0,22	1,82	Grey Zone
32	NISP	-2,44	0,32	0,14	0,18	-1,80	Distress Zone

Source: Data processed by Microsoft Excel 25

The 2023 Altman Z-Score shows that the majority of banks are still under pressure in terms of liquidity and debt, although large banks have stronger capital. X1 is mostly negative, X2 is healthy in large banks but low in other banks, X3 is moderate with some losses, and X4 shows significant differences between large and small banks. Overall, the post-pandemic recovery has been uneven, with small banks being more vulnerable to financial distress.

Table 5. Calculation of Financial Distress in Conventional Banking in 2024

NO	KODE	X1	X2	X3	X4	Altman Z Score	Zona
1	AGRO	-1,56	-0,68	0,03	0,37	-1,84	Distress Zone
2	ARTO	-0,24	0,97	0,04	0,45	1,22	Distress Zone
3	BACA	0,11	0,16	0,04	0,44	0,75	Distress Zone
4	BSWD	0,79	0,00	0,24	1,08	2,12	Grey Zone
5	NOBU	0,37	0,09	0,09	0,13	0,67	Distress Zone
6	AMAR	0,99	0,14	0,38	2,29	3,81	Safe Zone
7	BABP	0,42	-0,05	0,03	0,22	0,63	Distress Zone
8	BBCA	-0,63	0,55	0,32	0,23	0,47	Distress Zone
9	BVIC	-3,63	0,12	0,03	0,15	-3,32	Distress Zone
10	PNBN	-2,81	0,33	0,10	0,31	-2,07	Distress Zone
11	BBHI	-0,16	0,13	0,29	1,14	1,39	Grey Zone

12	BBMD	-4,06	0,31	0,21	0,47	-3,08	Distress Zone
13	BBNI	1,21	0,44	0,16	0,18	1,99	Grey Zone
14	INPC	0,25	0,08	0,04	0,18	0,55	Distress Zone
15	SDRA	2,53	0,22	0,08	0,32	3,14	Safe Zone
16	BBRI	-3,54	0,45	0,26	0,20	-2,63	Distress Zone
17	BBTN	1,12	0,15	0,05	0,08	1,41	Grey Zone
18	BBYB	1,33	-0,35	0,01	0,27	1,25	Grey Zone
19	BGTG	1,90	-0,39	0,17	0,52	2,20	Grey Zone
20	MAYA	-0,98	0,08	0,00	0,13	-0,77	Distress Zone
21	BINA	0,37	0,06	0,03	0,18	0,64	Distress Zone
22	BKSW	2,20	-2,27	0,05	0,62	0,58	Distress Zone
23	BMAS	-3,08	0,06	-0,09	0,43	-2,69	Distress Zone
23	BMAS	-3,41	-0,14	0,08	0,27	-3,20	Distress Zone
25	BMRI	-2,80	0,30	0,21	0,18	-2,11	Distress Zone
26	BNBA	1,91	1,25	0,07	0,67	3,89	Safe Zone
27	BNGA	0,94	1,97	1,01	2,36	6,27	Safe Zone
28	MEGA	-2,78	0,52	0,16	0,20	-1,91	Distress Zone
29	BNII	-2,19	0,25	0,05	0,20	-1,69	Distress Zone
30	BNLI	-4,11	0,20	0,12	0,21	-3,59	Distress Zone

Source: Data processed by Microsoft Excel 25

The 2024 Altman Z-Score shows that the majority of banks are still under pressure in terms of liquidity and debt. X1 is mostly negative, X2 is positive for large banks but negative for some small banks, X3 is moderate with Bank Amar excelling, and X4 varies from solid to negative leverage. Overall, despite the recovery, most banks remain vulnerable to financial distress.

D. CONCLUSIONS

This study analyzes the estimated financial distress of 32 conventional banking sectors in Indonesia for the period 2020–2024 using the Altman Z-Score. The results show that around 70% of banks are in the grey area or distress zone, especially during the 2020–2021 pandemic due to weak liquidity and low profitability. Large banks such as BCA and CIMB Niaga have shown recovery since 2022, while small and medium-sized banks are still under pressure from negative working capital, low profits, and high leverage. The Z-Score factor analysis confirms the main weaknesses in liquidity, profit accumulation, operational profitability, and debt dependence. These conditions make small and medium-sized banks more vulnerable than large banks, which are more

efficient. The implication is that banking management needs to strengthen liquidity, core capital, efficiency, and risk management in order to maintain stability and public confidence.

E. SUGGESTIONS

For banks, management needs to strengthen liquidity and core capital, improve efficiency through digitalization, and tighten credit and market risk management. Regulators can utilize the Altman Z-Score as an additional supervisory indicator, set stricter capital and risk standards, and conduct periodic evaluations. For investors, the Z-Score results serve as a reference for assessing the prospects and risks of banks, thereby encouraging more selective investment while promoting transparency and public trust.

REFERENCES

Ahn, C. Y. (2001). Financial and corporate sector restricting in South Korea: accomplishments and agenda. *Japanese Economic Https://Doi.Org/10.1111/1468-5876.00206*.

Altman, E. I., Sabato, G., & Wilson, N. (2002). The Value of Bankruptcy Prediction Models: The Z-Score and Zeta Models. *Journal of Banking and Finance, 26(4), 943-957*.

Altman, E. I. (1968). Financial ratios discriminate analysis and the prediction of corporate bankruptcy". *Papers and Proceedings of the Twenty-Ninth Annual Meeting of the American Finance Association, Detroit, Michigan December 28-30, The Journal of Finance, 23(4), 589-609.*

Altman, E. I. (2000a). Predicting financial distress of companies: Revisiting the Z- Score and Zeta® Models. Updated from E. Altman, Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Banking & Finance, 1*.

Altman, E. I. (2000b). Predicting Financial Distress of Companies: Revisiting the Z-Score and Zeta Models. *Credit and Financial Management Review, 13(1), 22-27.*

Altman, E. I. (2005). An emerging market credit scoring system for corporate bonds. E. *Merging Markets Review, 6(4), 311-323.*

Altman, E. I., Haldeman, & R. G., & Narayanan, P. (1977). ZETATM analysis a new model to identify the bankruptcy risk of corporations. *Journal of Banking & Finance, 1(1), 29 54. Doi:10.1016/0378-4266(77)90017-6.*

Apriani, M., Lestari, N. E. P., & Hidayat, A. (2023). ANALISIS LAPORAN KEUANGAN UNTUK MENILAI KINERJA KEUANGAN PERUSAHAAN TELEKOMUNIKASI. Jurnal Pariwisata Bisnis Digital dan Manajemen, 2(2), 82–89. https://doi.org/10.33480/jasdim.v2i2.4628

Carolina Verani, Marpaung Elyzabet I., & Pratama Derry. (t.t.). *Efektifitas Penerapan Sistem Akuntabilitas Kinerja Instansi Pemerintah (SAKIP) pada Pemerintahan Daerah*.

Crutzen, N., & Caille, D. V. (2008). The Business Failure Process. An Integrative Model of the Literature. *Review of Business and Economic Literature, 3, 287-316.*

Gyawali, S. (2023). Exploring financial distress through Altman Z" score: example of selected private commercial banks in Nepal. *Journal of Emerging Management Studies*, *1*(1), 94–107. https://doi.org/10.3126/jems.v1i1.60165

Johnsen, T., & Melicher, R. (1994). Predicting corporate bankruptcy and financial distress: Information value added by multinomial logit models. *Journal of Economics and Business, 46(4), 269-286. Https://Doi.Org/10.1016/0148-6195(94)90038-8*.

Kasmir. (2015). *Analisis Laporan Keuangan. Jakarta: PT RajaGrafindo Persada*.

Koksal, A., & Arditi, D. (2004). An input/output model for business failures in the construction industry. *Journal of Construction Research, 5(1), 1–16. Https://Doi.Org/10.1142/S1609945104000024*.

Levratto, N. (2013). From failure to corporate bankruptcy:A review. *Journal of Innovation and Entrepreneurship, 2(1), 20. Https://Doi.Org/10.1186/2192-5372-2-20*.

McKee, T. (2003). Rough sets bankruptcy prediction models versus auditor signaling rates. *Journal of Forecasting, 22(8), 569-586. DOI:10.1002/for.875*.

Meeks, G., & Meeks, J. (2009). Self-Fulfilling Prophecies of Failure: The Endogenous Balance Sheets of Distressed Companies. *Abacus, 45(1), 22-43. Https://Doi.Org/10.1111/j.1467-6281.2009.00276.X*.

Mendrofa, R., Wahyuni, A., Isnaini, P., & Aliah, N. (2024). Menilai Kinerja Keuangan Dengan Analisis Laporan Keuangan. *Jurnal Bisnis Mahasiswa*, *4*(1), 35–43. https://doi.org/10.60036/jbm.v4i1.art4

Nurdin, & Irsyad. (2012). Peranan Analisis Metode Z-Score dalam Memprediksi Kebangkrutan Suatu Perusahaan dan Kaitannya Terhadap Harga Saham (Studi Pada Perusahaan Perbankan Yang Go Public Di Bursa Efek Indonesia). *Jurnal Skripsi Fakultas Ekonomi Jurusan Akuntansi. Universitas Siliwangi. Terpublikasikan Melalui Link: Journal.Unsil.Ac.Id/Download.Php/. Diunduh Pada Tanggal 25 April 2016.*

Ooghe, H., & De Prijcker, S. (2008). Failure processes and causes of company bankruptcy: a typology. *Management Decision, 46(2), 223-242. Https://Doi.Org/10.1108/00251740810854131*.

Paudel, N. P. (2020). Covid-19: Impact on the banking sector. *The Kathmandu Post, 2020*

July26.Https://Kathmandupost.Com/Columns/2020/04/26/Covid-19-Impact-on-the Banking-Sector.

Rais Sani Muharrami1, S. (2018). Analisis Prediksi Kebangkrutan dan Rasio Keuangan Bank Umum Syariah dengan Metode Altman Z-Score pada Tahun 2011-2015. *Ihtifaz Journal of Islamic Academic,Finance and Banking*, *Vol 1 no 1*.

Ropega, J. (2011). The reasons and symptoms of failure in SME. *International Advances in Economic Research, 17(4), 476-483. Https://Doi.Org/10.1007/S11294-011-9316-1*.

Saeful Falah, A., Sari Dewi, L., & Latifah Mubarokiyah, S. (2022). *Graduate Program Universitas Galuh Master Manajemen Studies Program ANALISIS LAPORAN KEUANGAN DALAM MENGUKUR KINERJA KEUANGAN (STUDI KASUS PADA PT. ARTHAVEST TBK YANG TERDAFTAR DI BURSA EFEK INDONESIA PERIODE TAHUN 2016-2020). 6*. https://doi.org/10.25157/mr.v6i1.7316

Sriminingsih, O., & Isnawati, I. (2024). The Impact of Financial Statement Fraud on Bankruptcy Banking Companies in Indonesia. *Asian Journal of Management …*, *04*(02), 874–889. http://ajmesc.com/index.php/ajmesc/article/view/818%0Ahttp://ajmesc.com/index.php/ajmesc/article/download/818/522

Wu, W. (2010). Beyond business failure prediction. *Expert Systems with Applications, 37(3), 2371-2376. Https://Doi.Org/10.1016/j.Eswa.2009.07.056*.

Wulandari, H. (2020). Pengaruh Rasio Keuangan Terhadap Financial Distress (Studi Empiris pada Perusahaan Sektor Perdagangan Eceran yang Terdaftar di Bursa Efek Indonesia Tahun 2015-2018). *Fakultas Ekonomi Universitas Semarang 2020*.

Zefanya Aprilia. (2024). 20 Bank Bangkrut di RI Sepanjang 2024, Ini Daftar Lengkap & Alasannya. *CNBC Indonesia*, *https://ww*.

Zulaecha, H., & Mulvitasari., A. (2018). Pengaruh Likuiditas, Leverage, dan Sales Growth Terhadap Financial Distress. *Jurnal Manajemen Bisnis, Vol 9 No 1 ISSN 2302-3449 e-ISSN 2580-9490.*