BANKRUPTCY PREDICTION ANALYSIS USING ALTMAN Z-SCORE MODEL ON IDX RETAIL COMPANIES FOR 2021–2023

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Abstract: This study analyzes the bankruptcy prediction of retail subsector companies listed on the Indonesia Stock Exchange (IDX) for the 2021-2023 period using the Modified Altman Z-Score model. The retail sector plays a crucial role in Indonesia's economy but faces challenges such as intense competition, changing consumer behavior, and macroeconomic factors that may affect the financial stability of companies. Using a descriptive quantitative method and secondary data from annual financial reports, this study employs purposive sampling to select 22 companies as samples. The analysis results show that 16 companies fall into the healthy category, 2 into the vulnerable category, and 4 into the highly vulnerable category, with PT Yelooo Integra Datanet Tbk (YELO) recording the highest Z-Score and PT Globe Kita Terang Tbk (GLOB) the lowest. The Z-Score trend indicates fluctuations in most companies throughout the study period. In conclusion, the Modified Altman Z-Score model can serve as an effective bankruptcy prediction tool, benefiting investors in decision-making and assisting companies in improving financial performance and mitigating bankruptcy risks.

Keywords: Bankruptcy Prediction, Modified Altman Z-Score, Retail Sector

INTRODUCTION
Introduction

The Indonesian retail sector is a vital contributor to national economic growth, accounting for a substantial share of employment and GDP. According to the Indonesian Central Bureau of Statistics, this sector encompasses a wide array of consumer-focused businesses, ranging from convenience stores to large department stores. However, over the past few years, the industry has encountered multiple disruptions. The post-pandemic recovery brought structural shifts in consumer spending, with more emphasis on e-commerce and digital platforms. This has led to a competitive imbalance between traditional retailers and digitally adaptive businesses.

Moreover, macroeconomic factors such as inflation, unstable purchasing power, and global supply chain issues have added pressure to the financial sustainability of these firms. Companies listed on the IDX must navigate these uncertainties while maintaining profitability, liquidity, and solvency to protect investor trust.

In this context, financial distress and bankruptcy emerge as pressing risks. Bankruptcy not only implies legal consequences but also results in the dissolution of shareholder value and a loss of public trust. Therefore, employing early detection mechanisms is essential. The

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Altman Z-Score model has been recognized for its predictive capabilities in identifying firms at risk of bankruptcy using a combination of financial ratios. This study applies the Modified Altman Z-Score model, specifically designed for non-manufacturing firms in emerging markets like Indonesia, to analyze retail companies listed on the IDX during the period of 2021 to 2023.

Research purposes

This research aims to:

1. To identify the potential bankruptcy of retail sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2023 period using the Altman ZScore analysis.
2. To analyze the trend of Altman Z-Score values among retail sub-sector companies listed on the IDX throughout 2021–2023.
3. To provide relevant insights into the financial condition of retail companies for investors, particularly those at higher bankruptcy risk, in order to support wiser investment decision-making.

This study aims to thoroughly examine the financial performance of several retail companies listed on the IDX, with a focus on identifying firms that may face financial difficulties potentially leading to bankruptcy. It also aims to pinpoint companies with strong and stable growth prospects. The findings are expected to provide accurate recommendations for investors, helping them minimize bankruptcy risk and maximize the profitability of their chosen investments.

LITERATURE REVIEW

Financial Distress

According to Pertiwi & Putri (2021), financial distress and bankruptcy are terms used to indicate that a company's financial performance is poor. Financial distress occurs when a company is faced with two problems. First, the company experiences a shortage of cash. Second, total liabilities are greater than total assets so that the company has difficulty in paying off its obligations. Bankruptcy indicates a more serious problem than financial distress. Bankruptcy can cause company ownership to change hands from investors to creditors, and creditors become new shareholders or in other words creditors become company owners.

Financial Statements

Financial statements are reports that explain the financial status and development of a business in the present and specific circumstances (Aini et al., 2022). This financial report is useful for providing information for users in making economic decisions.

Bankruptcy

According to Rosmalinda; et al (2022) bankruptcy is a condition when a company experiences a lack or insufficiency of funds to run its business. According to Law No. 37 of 2004 concerning Bankruptcy and Postponement of Debt Obligations states that bankruptcy is a general confiscation of all assets of the Bankrupt Debtor whose management and management is carried out by the Curator under the supervision of the Supervisory Judge as regulated in the Law. Bankruptcy prediction analysis is an analysis that can help companies to anticipate the possibility that the company will experience bankruptcy caused by financial problems (Putri et al., 2023).

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Modified Altman Z-Score Model

In this model, Altman conducted research on the potential bankruptcy of companies other than manufacturing companies, both those that went public and those that did not. In this study, Altman produced a formula that was considered flexible. The resulting formula is:

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

Description:

Z = Bankruptcy index
X1 = Working Capital/Total Assets
X2 = Retained Earnings/Total Assets
X3 = Earnings Before Interest and Taxes/Total Assets
X4 = Book Value of Equity/Book Value of Debt

Z-Score

Quoted from CFI, Z-Score means that the lower the Z-Score, the higher the probability of bankruptcy. For a modified Z-Score, a Z-Score lower than 1.1 indicates that the company is struggling financially and bankruptcy is likely, whereas if the Z-Score is at 2.6 and above, it can be said that the company is in the safe zone, meaning that bankruptcy is unlikely to occur in the company (StableBread, 2024).

RESEARCH METHODOLOGY Type and Source of Data

This research employs a descriptive quantitative approach using secondary data from annual financial reports (balance sheets and income statements) of retail sub-sector companies listed on IDX (2021-2023) from www.idx.co.id.

Population & Sample

The population consists of 44 retail subsector companies listed on the Indonesia Stock Exchange for the 2021-2023 period. The sample was selected using the purposive sampling method, resulting in 22 chosen retail companies for non-primary consumer goods.

Data Collection Technique

This research uses document analysis, collecting secondary data from annual financial reports of retail sub-sector companies listed on IDX (2021-2023) from www.idx.co.id.

Data Analysis Method

This research uses a data analysis method with Modified Altman Z-Score. The Modified Altman Z-Score model is as follow:

$$Z = 6,56(X1) + 3,26(X2) + 6,72(X3) + 1,05(X4)$$

Explanation:

Z = Bankruptcy Index

X1 = Working Capital to Total Assets

X2 = Retained Earnings to Total Assets

X3 = Earnings Before Interest and Taxes to Total Assets

X4 = Book Value of Equity to Book Value of Liabilities

Interpretations:
- Companies with a Z-Score greater than 2.6 are categorized as financially healthy or in the safe zone.

- Companies with a Z-Score between 1.1 and 2.6 are categorized as vulnerable or in the grey zone. This indicates that the company may face some financial issues or risks that require further monitoring.
- Companies with a Z-Score below 1.1 are categorized as highly vulnerable or in the dangerous zone. This indicates severe financial distress and a high risk of bankruptcy.

RESULTS AND ANALYSIS
The Average Value of the Modified Altman Z-Score

Out of 22 retail company samples listed on the Indonesia Stock Exchange (IDX) for the 2021-2023 period, 16 companies are in the safe zone with healthy financial conditions. Two companies, are in the vulnerable zone, facing financial instability and requiring further monitoring. Meanwhile, four companies are in the dangerous zone, facing a high risk of bankruptcy.

Table 1
The Average Value of the Modified Altman Z-Score

No.	Company and Code	2021	2022	2023	Average and Category
1	PT Aspirasi Hidup Indonesia Tbk (ACES)	14,36419 (Safe Zone)	16,90224 (Safe Zone)	15,45404 (Safe Zone)	15,57349 Healthy
2	Catur Sentosa Adiprana Tbk (CSAP)	1,29937 (Grey Zone)	1,17223 (Grey Zone)	1,18098 (Grey Zone)	1,21753 Vulnerable
3	PT Electronic City Indonesia Tbk (ECII)	5,46811 (Safe Zone)	4,51219 (Safe Zone)	3,98091 (Safe Zone)	4,65374 Healthy
4	Enjaya Swasembada Tbk (ERAA)	4,76601 (Safe Zone)	3,09132 (Safe Zone)	2,77243 (Safe Zone)	3,54326 Healthy
5	PT Globe Kita Terang (GLOB)	-552,67929 (Dangerous Zone)	-948,93256 (Dangerous Zone)	-1202,1861 (Dangerous Zone)	-901,26598 Highly Vulnerable
6	Indomobil Sukses Internasional (IMAS)	-0,58109 (Dangerous Zone)	-0,35223 (Dangerous Zone)	0,14417 (Dangerous Zone)	-0,26305 Highly Vulnerable
7	Matahari Department Store (LPPF)	3,4048 (Safe Zone)	3,49274 (Safe Zone)	1,17883 (Safe Zone)	2,69213 Healthy
8	PT Mitra Adiperkasa Tbk (MAPI)	2,30222 (Grey Zone)	3,7745 (Safe Zone)	3,45009 (Safe Zone)	3,1756 Healthy
9	PT Mitra Pinasthika Mustika Tbk (MPMX)	5,2337 (Safe Zone)	5,28064 (Safe Zone)	5,41503 (Safe Zone)	5,30679 Healthy
10	Ramayana Lestari Sentosa Tbk (RALS)	8,20281 (Safe Zone)	8,70494 (Safe Zone)	9,12231 (Safe Zone)	8,67669 Healthy
11	Sona Topas Tourism Industry Tbk (SONA)	13,46007 (Safe Zone)	5,69662 (Safe Zone)	7,07869 (Safe Zone)	8,74813 Healthy
12	PT Omni Inovasi Indonesia Tbk (TELE)	-100,59221 (Dangerous Zone)	-203,32119 (Dangerous Zone)	-348,6944 (Dangerous Zone)	-217,53593 Highly Vulnerable
13	Trikomsel Oke Tbk (TRIO)	-373,61361 (Dangerous Zone)	-388,13917 (Dangerous Zone)	-370,92997 (Dangerous Zone)	-377,56092 Highly Vulnerable
14	PT Bintang Oto Global Tbk (BOGA)	3,68842 (Safe Zone)	3,41675 (Safe Zone)	5,69422 (Safe Zone)	4,1998 Healthy
15	PT Map Aktif Adiperkasa Tbk (MAPA)	5,71992 (Safe Zone)	6,80668 (Safe Zone)	5,47881 (Safe Zone)	6,0018 Healthy
16	PT Yelooo Integra Datanet Tbk (YELO)	159,28173 (Safe Zone)	2,43591 (Grey Zone)	36,72452 (Safe Zone)	66,14738 Healthy
17	PT Mega Perintis Tbk (ZONE)	3,67979 (Safe Zone)	4,9256 (Safe Zone)	5,61504 (Safe Zone)	4,74014 Healthy
18	PT Gaya Abadi Sempurna Tbk (SLIS)	5,63037 (Safe Zone)	6,89729 (Safe Zone)	9,45537 (Safe Zone)	7,32768 Healthy
19	PT Putra Mandiri Jember Tbk (PMJS)	4,50338 (Safe Zone)	5,49681 (Safe Zone)	5,20652 (Safe Zone)	5,0689 Healthy
20	PT Damai Sejahtera Abadi Tbk (UFOE)	0,84502 (Dangerous Zone)	1,5799 (Grey Zone)	1,53851 (Grey Zone)	1,32115 Vulnerable
21	PT Caturkarda Depo Bangunan Tbk (DEPO)	5,70144 (Safe Zone)	5,91316 (Safe Zone)	4,35126 (Safe Zone)	5,32196 Healthy
22	PT Mitra Angkasa Sejahtera Tbk (BAUT)	3,90782 (Safe Zone)	9,09135 (Safe Zone)	8,47416 (Safe Zone)	7,15778 Healthy

Source: Processed Data, 2025.

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Identification of Companies with Bankruptcy Potential
Based on the Modified Altman Z-Score analysis (2021-2023), retail companies on the IDX fall into three zones:
- Safe (73%) – 16 companies (e.g., ACES, ECII) with Z-Scores > 2.6, showing strong financial health.
- Vulnerable (9%) – 2 companies (e.g., CSAP) with Z-Scores 1.1–2.6, facing financial instability.
- Dangerous (18%) – 4 companies (e.g., GLOB, TRIO) with Z-Scores < 1.1, at high bankruptcy risk.

Most are financially stable, but struggling companies must improve financial management and debt control.

Table 2
Identification of Companies with Bankruptcy Potential

No.	Company	Classification	%
1.	PT Ace Hardware Indonesia Tbk. (ACES)	Safe Zone	73%
2.	PT Electronic City Indonesia Tbk. (ECII)		
3.	Erajaya Swasembada Tbk. (ERAA)		
4.	Matahari Department Store (LPPF)		
5.	PT Mitra Adiperkasa Tbk (MAPI)		
6.	PT Mitra Pinasthika Mustika Tbk (MPMX)		
7.	Ramayana Lestari Sentosa Tbk (RALS)		
8.	Sona Topas Tourism Industry Tbk. (SONA)		
9.	PT Bintang Oto Global Tbk. (BOGA)		
10.	PT Map Aktif Adiperkasa Tbk. (MAPA)		
11.	PT Saloka Integra Datanet Tbk. (YELO)		
12.	PT Mega Perintis Tbk. (ZONE)		
13.	PT Gaya Abadi Sempurna Tbk. (SLIS)		
14.	PT Putra Mandiri Jembar Tbk. (PMJS)		
15.	PT Cahayaputra Depo Bangunan Tbk. (DEPO)		
16.	PT Mitra Angkasa Sejahtera Tbk. (BAUT)		
17.	Catur Sentosa Adiprana Tbk. (CSAP)	Grey Zone	9%
18.	PT Dayaindo Sejahtera Abadi Tbk. (UFOE)		
19.	PT Globe Kita Terang (GLOB)	Dangerous Zone	18%
20.	Indomobil Sukses Internasional (IMAS)		
21.	PT Omni Inovasi Indonesia Tbk. (TELE)		
22.	Trikomsel Oke Tbk. (TRIO)		

Source: Processed Data, 2025.

The Trend of the Modified Altman Z-Score Value in the Three Zones
The Altman Z-Score trend (2021-2023) for IDX retail companies shows financial health directions:
- Increasing Trend – Companies like RALS, ZONE, and SLIS improved finances, with rising Z-Scores.
- Decreasing Trend – ERAA, ECII, LPPF, and TELE faced weakening finances, with declining Z-Scores due to lower profits or higher debt.

- Fluctuating Trend – YELO and SONA saw ups and downs in financial stability.

Most companies in the safe zone remain stable or improving, while those with declining or fluctuating trends must refine financial strategies to mitigate bankruptcy risks.
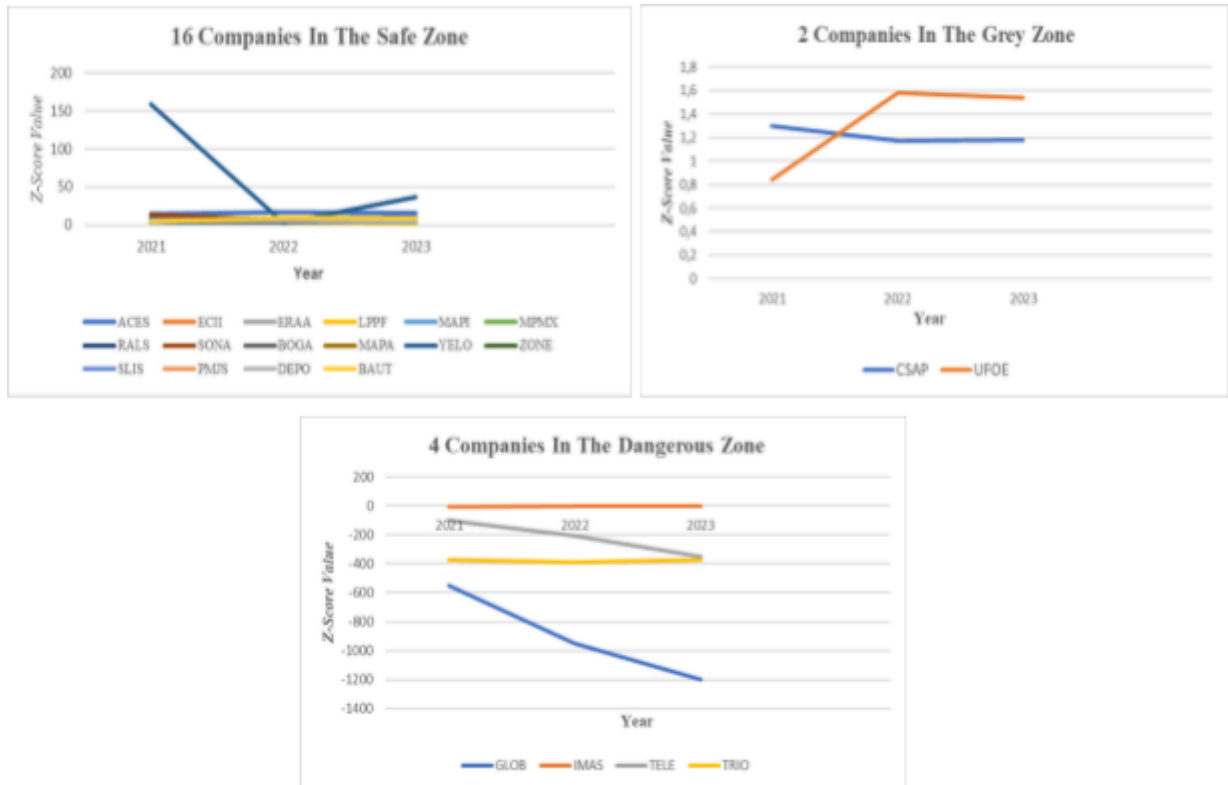
Picture 1
The Trend of the Modified Altman Z-Score Value in the Three Zones
Source: Processed Data, 2025.

CONCLUSION
Based on the Analysis of Bankruptcy Prediction using the Altman Z-Score Method in Retail Sub-Sector Companies Listed on the Indonesia Stock Exchange (IDX) for the 2021-2023 Period with the results of research that has been conducted on 22 companies, it can be concluded that:
- Financial Condition: 16 companies (73%) are in the safe zone, indicating good financial health with Z-Scores above 2.6. Two companies (9%) are in the grey zone, showing financial risks and requiring closer monitoring. Meanwhile, 4 companies (18%) are in the dangerous zone with Z-Scores below 1.1, indicating serious financial difficulties and bankruptcy risks.
- Z-Score Trend: Most companies experienced fluctuating Z-Score trends. Companies in the safe zone tend to maintain high Z-Scores, while companies in the dangerous zone saw significant declines.
- Financial Health Indicators: Financial ratios such as WCTA, RETTA, EBITTA, and BVEBVL proved effective in identifying company financial health. Companies with high ratios show good health, while low or negative ratios indicate bankruptcy risks.

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