SIMPATIK
(SIMPOSIUM NASIONAL PERBANKAN, AKUNTANSI DAN KEUANGAN)

ANALYSIS OF BANKRUPTCY PREDICTION USING ALTMAN Z-SCORE METHOD IN COSMETIC SUBSECTOR COMPANIES IN 2020-2024

SHERLYNDA RIZKI RORENCIA*
ALVIANITA GUNAWAN PUTRI
MOHAMAD HASANUDIN

Managerial Accounting Study Program, Accounting Departement, Semarang State Polytechnic
Jl. Prof. Sudarto, Tembalang, Kec. Tembalang, Kota Semarang, Jawa Tengah 50275
*E-mail: sherlyndarz@gmail.com

Abstract: *This study aims to analyze the potential bankruptcy of cosmetics subsector companies listed on the Indonesia Stock Exchange for the 2020-2024 period using the Altman Z-Score method. This study uses a descriptive quantitative method with secondary data in the form of annual financial reports of cosmetics subsector companies obtained from the Indonesia Stock Exchange, with an analytical tool in the form of the Altman Z-Score model to classify company conditions into healthy, gray area, and unhealthy categories. The results of the study indicate that most cosmetics subsector companies were in the healthy financial condition category during the study period. However, there were several companies that in certain years were in the gray area and unhealthy zone due to declining performance in profitability, liquidity, and efficiency of asset use. Fluctuations in the Z-Score value indicate financial risks that require more attention from company management. Theoretically, this study supports the use of the Altman Z-Score model as a relevant bankruptcy prediction tool for cosmetics subsector manufacturing companies in Indonesia, while practically the results of this study can be utilized by management and investors in strategic decision-making. The novelty of this research lies in the use of the latest post-pandemic financial data and the focus on the cosmetics subsector, which has been relatively limited in research using the Altman Z-Score model in Indonesia.*

Keywords: *Cosmetics, Bankruptcy, Altman Z-Score*

INTRODUCTION

The cosmetics industry in Indonesia is experiencing rapid growth in line with increasing public awareness of self-care. Population growth and lifestyle changes make Indonesia a potential market for the cosmetics industry (Putri & Linggasari, 2024). Furthermore, the market value of the national cosmetics industry continues to increase year after year, supported by product innovation and increasing consumer demand.

The growth of the cosmetics industry is not always accompanied by stable financial performance for each company. Increased industry sales coincide with increasingly fierce competition between companies, both local and international brands (Azzahra et al., 2025). This condition leads to increased marketing and distribution costs, which can squeeze company profit margins (Ratsetyo & Febriana, 2025).

External factors such as inflation also impact company performance. General inflation is a sustained and persistent price increase that can reduce purchasing power and increase production costs (Rizani et al., 2023). As a result, companies are more vulnerable to declining sales and profits. As reported by CNBC Indonesia, in 2021, cosmetics company PT Martina Berto (MBTO) experienced losses and even sold some of its assets to facilitate working capital, which was hampered by declining sales. This situation continued into 2022, when PT Mustika Ratu Tbk. (MRAT) also recorded sales losses due to increased operating costs. PT Mandom Indonesia (TCID) also suffered a loss of 124.74 billion rupiah in 2024. The company announced that rising promotional and distribution costs, and fluctuations in raw material prices were the main factors in the decline in profits (Amelia & Yasin, 2025). Companies in the cosmetics subsector have even experienced losses in some periods. This condition indicates potential financial difficulties, which can lead to bankruptcy if not addressed early (Pertiwi & Putri, 2021). Therefore, a method is needed to detect a company's financial condition early.

One method that can be used is the Altman Z-Score, a model that combines several financial ratios to predict a company's potential for bankruptcy (Rozi & Damayanti, 2022). This method, proposed by Altman (1968), has become the most popular method for predicting corporate bankruptcy or health, known as the Altman Z-Score (Tuzahri & Munandar, 2022). This method is considered to have a high level of accuracy in classifying a company's financial condition into safe zones, gray zones, and difficulty zones (Ridhawati & Suryantara, 2023)

The rapid growth of the cosmetics industry in Indonesia is experiencing increasingly fierce competition, requiring companies to maintain stable financial performance. However, the rise in profits and rising operating costs in some companies indicate potential financial difficulties that could lead to bankruptcy. Some companies have even gone bankrupt, such as PT Cattonindo Ariesta Tbk in 2023. This situation serves as an important warning for other companies to conduct early detection of bankruptcy risk.

Therefore, this study aims to analyze the financial condition of cosmetics subsector companies listed on the Indonesia Stock Exchange for the 2020–2024 period using the Altman Z-Score method, classifying companies into safe zone, grey zone, and distress zone categories, and analyzing Z-Score value trends.

.

THEORETICAL FRAMEWORK AND HYPOTHESES

Understanding Bankruptcy

According to Hanafi (2016), a company is considered bankrupt if it experiences various types of financial pressures, ranging from short-term difficulties such as liquidity problems to serious problems such as insolvency, which occurs when a company's debts exceed its assets. Meanwhile, Sumolang & Mangindaan (2021) define bankruptcy as a condition in which a company fails to carry out its operational activities to generate profits.

Causes of Bankruptcy

According to Kristanti (2019), the causes of corporate bankruptcy are divided into internal and external factors. Internal factors include the quality of human resources, products, technological capabilities, marketing strategies, and ineffective distribution. Meanwhile, external factors include socio-cultural conditions, macroeconomic conditions, technological developments, and legal aspects that can impact a company's financial performance.

Understanding Altman Z-Score

The Altman Z-Score model is one of the most popular bankruptcy prediction approaches due to its ability to summarize a company's financial condition through a combination of five financial ratios (Lestari & Fajriah, 2023). This model uses the following formula:

$$Z = 1{,}2X1 + 1{,}4X2 + 3{,}3X3 + 0{,}6X4 + 1{,}0\ X5$$

Information:

Z = Indeks Altman Z-Score

X1 = Working Capital / Total Assets

X2 = Retained Earnings / Total Assets

X3 = Earnings Before Interest and Taxes / Total Assets

X4 = Market Value of Equity / Total Liabilities

X5 = Sales / Total Assets

Based on the ratios from the Altman Z-Score method above, an Z-Score criterion can be identified which can be seen in Table 1 below

Table 1. Criteria of Z-Score

Assessment Standards	Interpretation
Z > 2,99	Safe Zone
1,81 < Z < 2,99	Grey Zone
Z < 1,81	Distress Zone

Source: Lestari & Fajriah (2023)

RESEARCH METHODS

Types and Objects of Research

Descriptive research is a type of research that systematically and accurately describes the characteristics, conditions, or phenomena being studied (Sugiyono, 2023). The type of research used in this study is descriptive research with a quantitative approach by examining secondary data obtained from the balance sheets and income statements of automotive and component sub-sector companies listed on the Indonesia Stock Exchange for 2020-2024, sourced from the official websites of each company and the Indonesia Stock Exchange website www.idx.co.id.

Population and Sample

The population in this study was all cosmetics sub-sector companies listed on the Indonesia Stock Exchange from 2020 to 2024. This study used a purposive sampling method with the following criteria:

1. Cosmetics Sub-sector Companies actively listed on the IDX during the 2020-2024 period.
2. Cosmetics Sub-sector Companies that consistently published complete and audited financial reports during the 2020-2024 period.
3. Cosmetics Sub-sector Companies that consistently published complete and audited financial reports during the 2020-2024 period that did not use the rupiah currency.

Based on the criteria described above, out of 11 companies, 7 companies were used as research samples, namely as follows.

Table 2. Sample of Companies

No.	Company Code	Company Name
1	KINO	PT Kino Indonesia Tbk
2	MBTO	PT Martina Berto Tbk
3	MRAT	PT Mustika Ratu Tbk
4	TCID	PT Mandom Indonesia Tbk
5	UCID	PT Uni-Charm Indonesia Tbk
6	UNVR	PT Unilever Indonesia Tbk
7	VICI	PT Victoria Care Indonesia Tbk

Source: Processed Data, 2026

RESULTS AND DISCUSSION

The following calculations are based on data obtained from the financial reports of 7 sample companies listed on the Indonesia Stock Exchange for 2020-2024 using multiple discriminant analysis.

Table 3. Z-Score Value

Stock Code	2020	2021	2022	2023	2024
KINO	2,414	2,067	0,657	1,450	1,488
MBTO	-0,594	- 0,428	- 0,092	-0,050	0,063
MRAT	1,867	1,963	2,550	2,088	1,695
TCID	3,881	3,592	3,938	3,840	3,025
UCID	3,329	3,643	3,240	3,386	3,113
UNVR	14,419	9,785	11,009	9,551	5,886
VICI	6,364	11,246	8,114	14,421	12,989

Source: Secondary data processed, 2026

In 2020, 1 (one) company in the cosmetics subsector, namely PT Martina Berto Tbk, indicated bankruptcy distress zone. Meanwhile, 2 (two) companies were in the gray zone, namely PT Kino Indonesia Tbk and PT Mustika Ratu Tbk, 4 (four) companies in the cosmetics subsector were in a healthy financial condition safe zone, namely PT Mandom Indonesia Tbk, PT Uni-Charm Indonesia Tbk, PT Unilever Indonesia Tbk, and PT Victoria Care Indonesia Tbk.

In 2021, 1 (one) company in the cosmetics subsector indicated bankruptcy distress zone, namely PT Martina Berto Tbk. Meanwhile, 2 (two) companies were in the gray zone, namely PT Kino Indonesia Tbk and PT Mustika Ratu Tbk. Meanwhile, 4 (four) other companies, namely PT Mandom Indonesia Tbk, PT Uni-Chram Tbk, PT Unilever Indonesia Tbk, and PT Victoria Care Indonesia Tbk, are in a healthy financial condition safe zone.

In 2022, 2 (two) companies in the cosmetics subsector were indicated as experiencing bankruptcy distress zone, namely PT Kino Indonesia Tbk and PT Martina Berto Tbk. Meanwhile, 1 (one) company, namely PT Mustika Ratu Tbk, is in the grey zone. The other 4 (four) companies, namely PT Mandom Indonesia Tbk, PT Uni-Chram Indonesia Tbk, PT Unilever Indonesia Tbk, and PT Victoria Care Indonesia Tbk, are in a healthy financial condition safe zone.

In 2023, 2 (two) companies in the cosmetics subsector were indicated as experiencing bankruptcy distress zone, namely PT Kino Indonesia Tbk and PT Martina Berto Tbk. Meanwhile, 1 (one) company, namely PT Mustika Ratu Tbk, is in the grey zone. The other 4 (four) companies, PT Mandom Indonesia Tbk, PT Uni-Chram Indonesia Tbk, PT Unilever Indonesia Tbk, and PT Victoria Care Indonesia Tbk, are in a healthy financial condition safe zone.

In 2024, 3 (three) companies in the cosmetics subsector were indicated to be in the distress zone, namely PT Kino Indonesia Tbk, PT Martina Berto Tbk, and PT Mustika Ratu Tbk. Meanwhile, 4 (four) other companies in the cosmetics subsector, namely PT Mandom Indonesia Tbk, PT Uni-Chram Tbk, PT Unilever Indonesia Tbk, and PT Victoria Care Indonesia Tbk are in a healthy financial condition safe zone.

After knowing the calculation and data analysis using the Altman Z-Score method, the average condition of the cosmetic subsector companies in 2020-2024 is obtained as follows.

Table 4. Bankruptcy Prediction Results for Cosmetic Companies

Year	Financial Condition	Count of Companies	Average Conditions
	Safe Zone	4	
2020	Grey Zone	2	Safe Zone
	Distress Zone	1	
	Safe Zone	4	
2021	Grey Zone	2	Safe Zone
	Distress Zone	1	
	Safe Zone	4	
2022	Grey Zone	1	Safe Zone
	Distress Zone	2	
	Safe Zone	4	
2023	Grey Zone	1	Safe Zone
	Distress Zone	2	
	Safe Zone	4	
2024	Grey Zone	0	Safe Zone
	Distress Zone	3	

Source: Secondary data processed, 2026

Based on the classification results, a relatively consistent pattern of financial conditions is evident across several companies for five consecutive years, with PT Martina Berto Tbk being in the distress zone from 2020 to 2024. This condition indicates that the company is experiencing ongoing financial pressure and has a high level of bankruptcy risk, based on the Altman Z-Score method.

CONCLUSION

Based on the analysis using the Altman Z-Score method for companies in the cosmetics subsector for the 2020-2024 period, the average company's financial condition is in the safe zone. However, there are differences between companies and an increasing number of companies in the distress zone. This indicates that the financial condition of companies in the cosmetics subsector varies significantly, depending on how efficiently the company operates and how it manages its funding sources and capital structure.

Based on the limitations of this study, the following recommendations are proposed: 1. Future research could extend the study period to obtain a picture of long-term financial condition trends. 2. Future research could use other analytical methods, such as conventional financial ratio analysis and other bankruptcy prediction models.

REFERENCES

Amelia, S., & Yasin, M. (2025). Pengaruh Beban Pokok Penjualan Terhadap Laba Bersih pada PT Mandom Indonesia Tbk. Cerdika: Jurnal Ilmiah Indonesia. Volume 5. Nomor 8.

Azzahra, S. A., Azzaki, M. R., Setiawan, A. P., Suko, F., Faiz, M., Fawwaz, A., Studi, P., Syariah, E., & Ekonomi, F. (2025). Persaingan Kosmetik Halal Lokal dan Internasional : Peluang, Tantangan, dan Strategi Dominasi Pasar. *Jurnal Penelitian Ilmiah Multidisipliner*. Volume 2. Nomor 4.

CNBC Indonesia. 2021, 4 Agustus. Rugi Gede & Terlilit Utang Induk Sariayu Jual Tanah Rp 180 M.

Hanafi, M. M. (2016). *Analisis Laporan Keuangan.* UPP STIM YKPN

Kristanti, F. T. (2019). *Financial Distress Teori dan Perkembangannya dalam Konteks Indonesia.* Malang: Inteligensia Media.

Lestari, N. E. P. L., & Fajriah, F. (2023). Analisis Rasio Keuangan Dengan Metode Altman Z Score untuk Memprediksi Kebangkrutan (Studi Kasus pada Perusahaan Kosmetik dan Peralatan Rumah Tangga-Terdaftar Bursa Efek Indonesia Periode 2017-2021. *Moneter: Jurnal Akuntansi dan Keuangan.* Volume 10. Nomor 2.

Pertiwi, D., & Putri, A. G. (2021). Analisis Prediksi Financial Distress Dengan Menggunakan Model Altman Z-Score Pada Perusahaan Ritel Tahun 2018-2020. *JURNAL KEUNIS (Keuangan Dan Bisnis)*. Volume 9. Nomor 2.

Putri, K. A. S., & Linggasari, F. S. (2024). Reference group , personality dan social class : perannya terhadap keputusan belanja produk skincare : Studi pada konsumen gen Z di TikTok shop. *Journal of Management and Digital Business.* Volume 4. Nomor 2.

Ratsetyo, K., & Febriana, H. (2025). Pengaruh Biaya Produksi Dan Biaya Promosi Terhadap Laba Bersih PT Industri Jamu Dan Farmasi Sido Muncul Tbk. Periode 2014-2024. *Jurnal Rumpun Manajemen dan Ekonomi.* Volume 2 Nomor 5.

Ridhawati, R., & Suryantara, A. B. (2023). Menakar Tingkat Keakuratan Prediksi Financial Distress melalui Tiga Model Prediksi Pada Industri Otomotif. *Valid Jurnal Ilmiah*. Volume 20 Nomor 2.

Rizani, A., Norrahman, R. A., Harsono, I., Yahya, A. S., & Syifa, D. M. (2023). Efek Inflasi terhadap Daya Beli Masyarakat pada Tinjauan Ekonomi Makro. *Journal Of International Multidisciplinary Research.* Volume 1. Nomor 2.

Rozi, F., & Damayanti. (2022). Analisis Kebangkrutan Melalui Perbandingan antara Model Altman Z-Score dan Springate pada Perusahaan Industri Makanan dan Minuman Yang Terdaftar Di Bursa Efek Indonesia. *Journal Bisman*. Volume 5. Nomor 2.

Sugiyono, D. (2023). *Metode Penelitian pendidikan pendekatan Kuantitatif, Kualitatif dan R&D.*

Sumolang, R. J., & Mangindaan, J. V. (2021). Analisis Prediksi Kebangkrutan Perusahaan Properti yang Terdaftar di BEI Dengan Model Altman Z-Score. *Jurnal Akuntansi dan Keuangan (JAK).* Volume 2. Nomor 1.

Tuzahri, E. A., & Munandar, A. (2022). Analisis Penilaian Financial Distress Menggunakan Model Altman (Z-Score) Pada Empat Perusahaan Kosmetik Yang Terdaftar Di Bursa Efek Indonesia. Jurnal Ekonomi & Bisnis. Volume 10. Nomor 2.