


Financial Distress Analysis Using the Altman Z-Score Model in the Household Equipment Sub-Sector Listed on the Indonesian Stock Exchange

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Article Info	ABSTRACT
Keywords: Financial, Altman Z-Score, Bankruptcy Prediction	This research aim is to analyze financial distress using the Altman Z-Score model which is seen as a method used to predict company's sustainability by combining several financial ratios in household equipment sub-sector listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022. Qualitative approach is used in this research with descriptive analysis method to solve the problem. Secondary data used in this research is in the form of historical reports from companies that have been created, compiled and published. Secondary data collection used includes company financial report data. The data analysis technique uses the first Altman Z-Score Model (AZM). The research results show that an average Z-Score value of 2.03, means that the company is in a bankruptcy-prone condition or gray area.
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INTRODUCTION

The impact of Covid 19 not only affects aspects of public health, but also has an impact on economic conditions in Indonesia in particular. Based on data from the Central Statistics Agency (BPS) in the Article of the Ministry of Finance of the Republic of Indonesia (2022), "Indonesia experienced a contraction in economic growth in 2020 of -2.07 percent". This causes the Indonesian economy in 2020 to experience deflation or a drastic decline because economic development in Indonesia has an unstable movement. Next is data from BPS (2020). That "the impact of the Covid-19 pandemic resulted in only 58.95% of companies being able to operate normally, even as many as 82.45% of companies experienced a decline in revenue". Apart from that, it was also caused by various policies implemented by the government during the pandemic.

We know that one of the driving factors in the economic structure in Indonesia is industry. As well as national manufacturing performance experiencing a decline. Ministry of Industry Agus Gumiwang Kartasasmita (2020), "national manufacturing performance is starting to decline, namely with the manufacturing Purchasing Managers's Index weakening from a level of 51.9 in February 2020 to 45.3 in March 2020, and dropping to the lowest level of 27.5 in April 2020".

A company experiences a decline in financial performance caused by various events or circumstances such as a lack of capital, large debt and interest burdens, and experiences a loss which will lead to financial distress. Financial distress is a stage of decline in a company's

financial condition before bankruptcy, and can be an "early warning" for the company's system as a sign of a bad situation in the company's business. Therefore, to maintain the company's financial performance to avoid financial distress, it is related to the company's ability to earn profits, liquidity and the level of debt in the capital structure.

With increasing understanding of existing individuals and investment institutions, companies are required to be able to generate as much added value as possible from the shares owned by investors. It can be understood that since shareholders invest their capital in the company, they actually own the company depending on how much value they have.

Based on the phenomenon mentioned above, the aim of this research is to analyze financial distress using the Altman Z-Score in household equipment sub-sector manufacturing companies listed on the Indonesia Stock Exchange (Period 2018 to 2022)

Financial Ratio Analysis

Ratio analysis is a tool for analyzing financial performance, and is useful for internal analysts in helping management make evaluations regarding operating results, identify and correct errors and to avoid situations that can cause financial difficulties. Financial ratios are calculated based on available financial reports, which consist of a balance sheet or balance sheet and a profit and loss statement or profit and loss statement. Munawir (2010:37) defines ratio analysis as "an analytical method to determine the relationship of certain items in the balance sheet or income statement individually or as a combination of two reports".

To predict the company's financial distress condition, namely by looking for information and data on the company's financial reports. The analytical tools that can be used to predict a company's financial distress are financial ratios.

Financial Distress

Karen Wruk (1990), in Ahmad Rodoni and Herni Ali (2010: 173) defines financial distress as "a situation where the company's operating cash flow is insufficient to meet the company's obligations (such as trade credit or interest costs) and the company is pressured to carry out improvement activities". Meanwhile, Altman (1993) in Ahmad Rodoni and Herni Ali (2010: 172) defines that "financial distress is related to the inability to pay debts". Likewise, Nagar, (2016: 15) states that: "Financial distress represents a state where firms are facing financial distress difficulties with respect to poor cash flows and profitability and is a condition where a company meets, or has difficult paying off, its financial obligations to its creditors, typically due to high fixed costs, illiquid assets or revenues cannot be sensitive to economic downturns".

The implementation of company activities is a fund flow process, which begins with the process of withdrawing funds and ends with returns. In This case, financial distress can occur due to various factors, namely internal company factors, which are related to the company's finances. Ahmad Rodoni and Herni Ali (2010: 176), mention three conditions that cause financial distress, namely:

1. Factor of capital insufficiency or lack of capital
2. The size of the debt and interest burden
3. Suffering a loss

Next are the company's external factors which are related to macroeconomic factors such as the composite stock price index, inflation and exchange rates which are one of the

causes of financial distress. Brigham, 1997 in Ahmad Rodoni and Herni Ali (2010: 182), "reveals that uncertainty in macroeconomic conditions is an example of systematic risk that affects all stocks at various levels."

METHODOLOGY

In this research, the method used is a descriptive analysis method with a qualitative approach. The object of this research is financial distress analysis using the Altman Z-Score in household equipment sub-sector manufacturing companies listed on IDX (Period 2018 to 2022). Data collection techniques use secondary data types. Secondary data collection used includes financial report data from manufacturing companies in the household equipment sub-sector listed on IDX.

The stages of data analysis in this research used qualitative descriptive analysis techniques by collecting, processing and interpreting the data obtained. The data analysis technique used is AZM. In this research, the first AZM will be used, because this model is specifically intended for companies operating in the manufacturing sector. For manufacturing companies, this model shows the bankruptcy criteria shown in Table 1. The first Altman model is as follows:

$$Z = 1.2 (X1) + 1.4 (X2) + 3.3 (X3) + 0.6 (X4) + 1.0 (X5).....(1)$$

with:

Z = Financial Distress Index(FDI)

X1 = Working Capital(WC) to Total Assets(TA)

X2 = Retained Earning(RE) to Total Assets(TA)

X3 = Earning Before Interest and Taxes(EBIT) to Total Assets(TA)

X4 = Market Value of Equity(MVE) to Book Value of Debt(BVD)

X5 = Sales(S) to Total Assets(TA)

Table 1 Revised Z-Score Model Cutoff Point Criteria

Criteria	Z-Score
Not bankrupt(Healthy)	>2.90
Areas prone to bankruptcy(grey area)	1.20-2.90
Bankrupt	<1.20

DISCUSSION

Financial Ratio Analysis Results and Altman Z-Score Model Prediction Results for 4 Household Equipments Companies

Table 2
 Financial Ratio Analysis Results of PT. Chitose International Tbk (CINT)

Ratio		Period				
		2018	2019	2020	2021	2022
X1	=	0.282	0.279	0.284	0.079	0.107
X2	=	0.251	0.242	0.251	0.054	0.049
X3	=	0.043	0.026	0.012	-0.202	-0.003
X4	=	3.784	2.956	3.420	2.441	2.237
X5	=	0.754	0.781	0.664	0.583	0.889
Z		5.114	4.284	4.631	2.955	3.279

Table 3
Altman Z-Score Results of PT. Chitose International Tbk (CINT)

Altman Z-Score			Period				
			2018	2019	2020	2021	2022
X1	=	1.2	0.338	0.334	0.340	0.095	0.128
X2	=	1.4	0.351	0.339	0.351	0.076	0.068
X3	=	3.3	0.143	0.086	0.041	-0.666	-0.011
X4	=	0.6	2.271	1.774	2.052	1.465	1.342
X5	=	1.0	0.754	0.781	0.664	0.583	0.889
Z			3.86	3.31	3.45	1.55	2.42
Category			Healthy	Healthy	Healthy	Grey Area	Grey Area

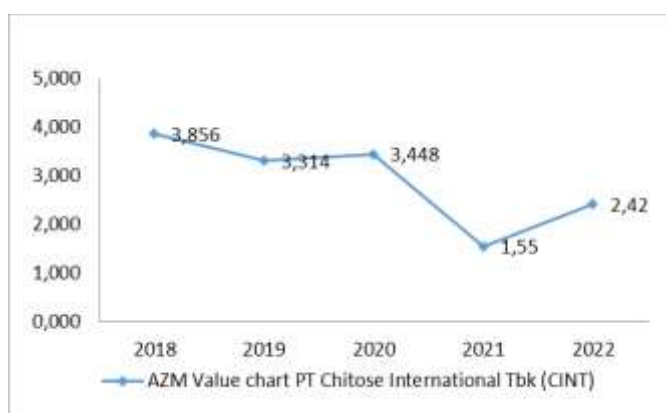


Figure 1. Altman Z-Score value chart
 PT. Chitose International Tbk (CINT)

PT. Chitose International Tbk (CINT) is a company operating in the furniture industry and trade sector. Based on prediction results using the AZM, PT. Chitose International Tbk (CINT) experienced decline from 2018 to 2022 with Z-Score values(ZV) ranging from 3.86, 3.31, 3.45, 2.88 and 2.44. In 2018-2020 with a ZV of 3.86–3.31, the company was categorized as healthy/not bankrupt, even though there was a decline of -0.41. Meanwhile, in 2021 the company's condition will continue to decline with a ZV of 1.55, so the company is categorized as a gray area. The decrease from 2020 to 2021 was -1.90, due to a decrease in revenue, a decrease in EBIT and an increase in current liabilities. In 2022 the ZV will increase by 0.86 with a ZV of 2.42 in the gray area category.

Table 4
Financial Ratio Results of PT. Kedaung Indah Can Tbk (KICI)

Ratio		Period				
		2018	2019	2020	2021	2022
X1	=	0.528	0.545	0.576	0.592	0.632
X2	=	0.000	0.000	0.000	0.000	0.000
X3	=	-0.003	-0.024	0.011	0.151	0.008
X4	—	1.592	1.334	1.326	1.553	1.705
X5	=	0.564	0.596	0.576	0.677	0.454
Z		2.681	2.451	2.490	2.973	2.799

Table 5
Altman Z-Score Results of PT. Kedaung Indah Can Tbk (KICI)

Altman Z-Score			Periode				
			2018	2019	2020	2021	2022
X1	=	1.2	0.633	0.654	0.692	0.710	0.758
X2	=	1.4	0.000	0.000	0.000	0.000	0.000
X3	=	3.3	-0.010	-0.078	0.036	0.500	0.028
X4	=	0.6	0.955	0.801	0.795	0.932	1.023
X5	=	1.0	0.564	0.596	0.576	0.677	0.454
Z			2.14	1.97	2.10	2.82	2.26
Category			Grey Area	Grey Area	Grey Area	Grey Area	Grey Area



Figure 2. Altman Z-Score value chart
 PT. Kedaung Indah Can Tbk (KICI)

PT. Kedaung Indah Can Tbk (KICI), the scope of the Entity's activities mainly includes the metal kitchen equipment industry and similar products as well as the can industry and similar products. From the calculations above, the prediction results use the AZM, from 2018 to 2022, with ZV ranging from 2.14, 1.97, 2.10, 2.82 and 2.26. Companies are successively categorized as gray areas. In 2018 with a ZV of 2.14, in 2019 there was a decrease of -0.17, with a ZV of 1.97. In 2020 the company experienced an increase of 0.13 with a ZV of 2.10. Next, in 2021, the company rose again by 0.72 with a ZV of 2.80. Meanwhile, in 2022 the company experienced another decline of -0.56 with a ZV of 2.26.

Table 6
Financial Ratio Results of PT. Langgeng Makmur Industri Tbk (LMPI)

Ratio			Period				
			2018	2019	2020	2021	2022
X1	=	0.186	0.103	0.073	0.101	0.092	
X2	=	0.000	0.000	0.000	0.000	0.000	
X3	=	-0.040	-0.042	-0.070	-0.015	-0.036	
X4	=	0.724	0.645	0.546	0.479	0.422	
X5	=	0.579	0.702	0.736	0.808	0.829	
Z			1.449	1.409	1.284	1.372	1.306

Table 7
Altman Z-Score Results of PT. Langgeng Makmur Industri Tbk (LMPI)

Altman Z-Score			Period				
			2018	2019	2020	2021	2022
X1	=	1.2	0.223	0.124	0.087	0.121	0.110
X2	=	1.4	0.000	0.000	0.000	0.000	0.000
X3	=	3.3	-0.132	-0.138	-0.232	-0.050	-0.120
X4	=	0.6	0.435	0.387	0.327	0.287	0.253
X5	=	1.0	0.579	0.702	0.736	0.808	0.829
Z			1.10	1.07	0.92	1.17	1.07
Category			Bankrupt	Bankrupt	Bankrupt	Bankrupt	Bankrupt



Figure 3. Altman Z-Score value chart
 PT. Lasting Makmur Industri Tbk (LMPI)

In accordance with the basic budget and scope of PT. Langgeng Makmur Industri Tbk (LMPI) covers the household furniture industry made of plastic and aluminum, non-stick cooking utensils, plastic sacks, Polyvinyl Chloride (PVC) pipes and other products related to this field. From the calculation above, the bankruptcy level of PT. Langgeng Makmur Industri Tbk (LMPI) from 2018 to 2022, measured by the AZM, is in the bankruptcy category. In 2018 with a Z-Score value of 1.10, in 2019 there was an increase of -0.03 with a ZV of 1.07. Next, in 2020, it decreased by -0.16 with a ZV of 0.92. in 2021 the company experienced an increase of 0.25 with a ZV of 1.17. Meanwhile in 2022 it will experience a decrease again of -0.10 with a ZV of 1.07. As previously stated, PT. Langgeng Makmur Tbk (LMPI) for five consecutive years was classified as bankrupt, where the company experienced repeated losses, and indicated the existence of a material uncertainty which could cause significant doubt over the company's ability to maintain its business continuity.

Table 8
Financial Ratio Results of PT. Integra Indocabinet Tbk (WOOD)

Ratio		Period				
		2018	2019	2020	2021	2022
X1	=	0.115	0.126	0.142	0.327	0.376
X2	=	0.000	0.000	0.000	0.245	0.262
X3	=	0.105	0.051	0.069	0.103	0.033
X4	=	1.141	0.958	1.038	1.153	1.177
X5	=	0.458	0.387	0.499	0.796	0.651
Z		1.818	1.523	1.748	2.625	2.498

Table 9
Altman Z-Score Results of PT. Integra Indocabinet Tbk (WOOD)

Altman Z-Score		Period					
		2018	2019	2020	2021	2022	
X1	=	1.2	0.138	0.152	0.170	0.393	0.451
X2	=	1.4	0.000	0.000	0.000	0.343	0.367
X3	=	3.3	0.345	0.169	0.229	0.340	0.109
X4	=	0.6	0.685	0.575	0.623	0.692	0.706
X5	=	1.0	0.458	0.387	0.499	0.796	0.651
Z		1.63	1.28	1.52	2.56	2.28	
Category		Grey Area	Grey Area	Grey Area	Grey Area	Grey Area	



Figure 4. Altman Z-Score value chart
 PT. Integra Indocabinet Tbk (WOOD)

PT. Integra Indocabinet Tbk (WOOD) is a company engaged in industry, trade and wood-based furniture processing services, including import and export trade. With calculations using the AZM, PT. Langgeng Makmur Industri Tbk (WOOD) from 2018 to 2022, with a ZV ranging from 1.63 to 2.28. while in 2019 it experienced a decrease of -0.34 with a ZV of 1.28. In 2020 there was an increase of 0.23 with a ZV of 1.52. Next, in 2021, it will increase again by 1.04 with a ZV of 2.56. meanwhile in 2022 PT. Langgeng Makmur Industri TBK (WOOD) experienced another decline of -0.28, with a ZV of 2.28. Thus, even though the Z-Score value fluctuates, this company has remained in the Grey Area category for 5 years.

CONCLUSION

From the results of the research above, it can be concluded that the financial distress analysis using the Altman Z-Score model in household equipment sub-sector manufacturing companies listed on the Indonesia Stock Exchange (Period 2018 to 2022) is as follows: Prediction of PT's bankruptcy. Chitose Tbk (CINT) for three consecutive years from 2018 to 2020, predicts an average Z-Score of 3.54, meaning the company is in a healthy condition. Meanwhile in 2021 to 2022, the average ZV is 1.99, meaning the company is in a gray zone or crisis condition. Prediction of bankruptcy of PT. Kedaung Indah Can Tbk (KICI) for five consecutive years from 2018 to 2022, predicts that with an average ZV of 2.26, the company is in a gray zone or crisis condition. Prediction of bankruptcy of PT. Langgeng Makmur Industri Tbk (LMPI) for five consecutive years from 2018 to 2022, with an average Z-Score of 1.07, where the company experienced financial distress or bankruptcy. Prediction of bankruptcy of PT. Integra Indocabinet Tbk (WOOD) for five consecutive years from 2018 to 2022, predicts that with an average Z-Score of 1.86, the company is in a gray zone or crisis condition. Recommendation for further research can be carried out regarding other factors and methods that can see the impact of company bankruptcy besides the z-score method.

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