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The Analysis of Bankruptcy Prediction Model with Adjustment of Earning Management on Textile and Garment Sub-Sector in Indonesia Stock Exchange

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ABSTRACT

The phenomenon of bankruptcy increase in Indonesia's commercial business. Not only external factors that influence such as macroeconomic conditions, business competition, government policies, etc. Nevertheless, also internal factors that affect the company. Board of Management tends to manipulate earning. Sometimes it could late be anticipated by third parties. The Altman Z Score prediction model is the most preferred model by investors and creditors to analyze the potential bankruptcy of issuers, but this model tends to bias depend on accounting methods used by the company. Earnings management is one factor that can distort the z score. This study found that the adjustment of earnings management models can improve the accuracy of the z score bankruptcy prediction model by 5.5%. Including the adjusted z score model can provide better accuracy than the Ohlson O Score prediction logistic model. This study shows that earnings management adjustments can improve bankruptcy prediction models so that they can anticipate bankruptcy in the textile and garment sub-sector in Indonesia.

Keywords: Altman Z Score, Bankruptcy, Earning Management, Financial Distress, Logistic Regression, Ohlson O Score.

INTRODUCTION

The phenomenon of financial distress to the bankruptcy in companies is often late to predict. Investors and creditors sometimes did not caught indications of the bankruptcy of a company where their funds are invested. According to Scoot (2009), sometimes one party in the market, such as a seller is more aware of a thing or object being traded than another party, in this case, it is a buyer. When this happens, the information asymmetry occurs in the market. Information asymmetry is what has happened in financial markets, especially in Indonesia, with weak-form market efficiency (Ady and Mulyaningtyas, 2017).

One case of bankruptcy that occurred in Indonesia is a case of payment failure PT Delta Merlin World's international bonds, or known as Duniatex. Duniatex has defaulted on its syndicated loans and defaulted on dollar-denominated bonds issued by the company. Previously, the company had a BB rating from Standard and Poor's (S&P) Global Ratings and in July 2019 the company rating fell six levels to CCC- which means the company was out of the investment-grade category. Two months later, the company's rating was downgraded to id D. The investors did not anticipate this failure. This case makes the community pay special attention to the textile sector in Indonesia. The high import of clothing, especially from China, was allegedly the cause of the current sluggish textile industry. Nevertheless, in addition to external influences, it is also necessary to analyze the company's internal conditions. The company's internal resilience makes the company better prepared to deal with external conditions that can occur and can affect business.

Investors and creditors need to understand the condition of the issuer

company carefully so that it is not mistaken to provide financing funds. Investors and creditors must understand the company's financial reporting methods, one of which is related to how accruals are recognized in the issuer's financial statements. The use of financial statements as a means of analyzing bankruptcy prediction models has a weakness of bias. For certain purposes, management often manipulates earnings or commonly known as earnings management. Earnings management is a managerial practice that is reflected in a company's financial statements to give the impression of either smoothing annual (periodic) profits or to show high profits in a particular year so that future earnings look low or to show low profits now and look high in the future (Biger & Academic, 2013). In general, earnings management is used by management to intervene and influence the information on the financial statements so that stakeholders do not know the company's actual performance and condition to provide personal benefits to the company. This can reduce the transparency of financial statements as a tool for making decisions, one of which is to predict the company's potential bankruptcy.

Bankruptcy analysis model can be an appropriate analysis tool for companies and investors where this analysis model can be used as a tool to predict the condition of a company in the future, so companies with unfavorable conditions can anticipate things that will happen in the future (Main et al. 2018). Associated with the use of financial statements that are prone to bias, companies need to take into account earnings management in prediction models to reduce the effects of bias.

Generally, the method of financial ratio analysis or credit analysis uses the components of financial statements in measuring the company's business risk. This is applied in the Altman Z score, which is the most popular method used to measure the risk of bankruptcy. However, the different accounting systems used cause interpretations of financial parameters to be different, especially in recognition of profit and loss and retained earnings (Cho et al., 2012) depending on the predicted shape and business of the company.

Research conducted by Cho et al. (2012) found that earnings management improved Altman Z score bankruptcy predictions in developed countries. Several previous studies have shown that earnings management corrects the distortion of subjective Z scores. Where earning management improves the current Z score by including qualitative elements in it in the form of judgment (judgment) adjustments to accrual items. The next research was conducted by Rachim (2018) with the object of research in ASEAN countries, where the research gave results that were in line with the research of Cho et al. (2012). However, it is different from the study of Manab et al. (2015), who made adjustments to the existing Z score model in developing countries, Malaysia. The results of his research show an anomaly that earnings management predictions cannot improve bankruptcy predictions with the Z score model that exists in companies in Malaysia.

Based on this background, this research is expected to obtain relevant information on whether earnings management can improve the prediction model of Z Score in Indonesia, especially in the textiles and IHSG manufacturing sectors. Then the results of this study will also compare the accuracy of the adjusted Z score model with the Ohlson O score prediction model, which is known to have the most superior accuracy. Thus the results of the study can find a more accurate bankruptcy prediction model for companies in Indonesia. The objectives to be achieved in this study include (1) Analyzing the effect of earnings management on the accuracy of the Altman Z Score bankruptcy prediction on listed companies in the textile and garment sub-sector in the JCI. (2) Analyzing the accuracy of the Altman Z Score best bankruptcy prediction model compared to the Ohlson O Score bankruptcy prediction model

The scope of this study will focus on the effect of adjusting the earnings management model on the Altman Z Score model, which will henceforth be called the adjusted Altman Z Score. Then the adjusted Altman Z Score model will be compared with other prediction models which, based on previous research, are considered more accurate, namely the Ohlson O Score model. The purpose of this study will compare the adjusted Altman Z Score bankruptcy prediction model with the earnings management against the bankruptcy prediction model with logit analysis, the Ohlson O score model.

LITERATURE REVIEW

Earnings management is a managerial practice that is reflected in a company's financial statements to give a good impression in improving periodic earnings or to show high profits in a particular year so that future earnings look low or show low profits so that future earnings look higher (Biger& Academic, 2013).

According to Schipper (1989), earnings management is a deliberate intervention carried out in the process of external financial reporting to obtain personal benefits. In general, earnings management is used by management to intervene and influence the information on financial statements so that stakeholders do not know the company's actual performance and condition to provide personal benefits to the company (Scott, 1997). In some cases, management uses various accounting methods to convey personal information to readers of financial statements. Earnings management can find out stakeholders about the company's actual information and financial performance. The intervention was not illegal but under existing accounting methods and standards

According to Scott (1997), there are four main patterns of earnings management, namely:

1) Taking a bath

Management removes some assets and imposes future costs on the current report. This makes profits reflected in the coming period increase due to initial loading, in some cases even done the apparent (concealment of existing evidence)

2) Income Minimization

This management pattern is carried out when the company's profit level is high. This is, so companies do not get political exposure. The actions taken are the removal of intangible assets and capital goods, advertising costs, and R&D.

3) Income Maximization

This management pattern is the opposite of income minimization, which is done when company profits decline. The action taken by management is to manipulate accounting data in the financial statements, so that management gets a bigger bonus.

4) Income Smoothing

In management that many companies do by leveling profits on the financial statements so that the company's profit looks consistent and stable.

There is one method in measuring earnings management that is by calculating total accruals. Where the measurement of earnings management uses total accruals. The estimation model for calculating with the Hribar and Collins (2002), Jiambalvo (1996) and Kothari et al. (2005) models is carried out in three stages,ie:

a) Total Accruals Before Adjustment

The formula for calculating total accruals before earnings management adjustments are shown in equation (1) below:

$TA_{it} = EBXI_{it} – CFO_{it}$ .... (1)

Where:

TAit = Total Accrual for a company i in year t

EBXIit = Earning Before Extraordinary items for a company i in year t

CFOit = Cash Flow from Operation for company i in year t

b) Total Accrual Regression

Regression to determine total accruals based on year and industry is shown in equation (2) below:

$TA_{it} = \beta_0 + \beta_1 (\Delta Sales_{it} - \Delta AR_{it}) + \beta_2 PPE_{it} + \varepsilon_{it}$ ....(2)

Where :
TAit = Total accruals for a company i in year t
ΔSalesit = Changes in company sales revenue i in year t
ΔARit = Change in company receivables i in year t
PPEit = Property, plant, equipment of company i in year t
c) Determine the portion of Earning Management (EM)
Determining the portion of Earning Management (EM) or Abnormal Accrual shown in equation (3) follows:

$EM_{it} = TA_{it} - [\beta_0 + \beta_1 (\Delta Sales_{it} - \Delta AR_{it}) + \beta_2 PPE_{it}]$ ....(3)

The amount above is the value of earnings management in the company after adjusting the total accruals.
Where :
TAit = Total accruals for a company i in year t
ΔSalesit = Changes in company sales revenue i in year t
ΔARit = Change in company receivables i in year t
PPEit = Property, plant, and equipment of company i in year t
According to Asquith et al. (1994), the sign if the company experiences financial distress by doing bank debt restructuring, bond restructuring, and asset sales. On average, companies experiencing financial distress will sell 12% of their assets for restructuring planning purposes, such as long-term bond payments.

The first study raised by the author is a study conducted by Cho et al. (2012). Cho et al. suggested that the z score had been used for decades to account for the possibility of bankruptcy, but the conventional Z Score did not consider income manipulation that could change accounting figures and decision making by investors. In the research model, the conventional z score model is included in the earnings management model. Thus the results of the study show that the adjusted Z score can display a better value than the conventional z score model.

Manab, Theng, and Rus (2015) by referring to the research of Cho et al. (2012), also researched publicly listed companies in Malaysia. However, the results were contradictory to the research of Cho et al. The unadjusted model and adjusted Z score are the same, resulting in the same level of accuracy in predicting bankruptcy. Then the logistic regression results show that Error Type I still shows the same accuracy, then Error Type II shows that unadjusted models can provide better accuracy than adjusted models. According to researchers, this can occur because of the accrual basis method used to calculate the portion of earnings management.

The Altman Z score is the measurement most often used in measuring the probability of a company's bankruptcy. According to Cho et al. (2012), the Altman Z score has various applications in industry and academia as an illustration of credit risk measurement. Altman method Multi Discriminant Analysis (MDA) using five ratios ie, the liquidity ratio, profitability, productivity ratio, leverage ratio, and asset turnover ratios to compare public company bankruptcy prediction (Rachim. 2018).For developing markets, the prediction model of the Z score is adjusted by eliminating the T5 variable.

The following equation shows the Z score model for the Emerging Market Score.

Z-score = 3,25 +6,56 T1 + 3,26T2 +6,72T3 + 1,05T4 ..... (4)

Where:
T1 = *working capital / total asset (liquidity ratio)*
T2 = *retained earnings / total asset (profitability ratio)*
T3 = *earnings before interest and taxes / total asset (productivity ratio)*
T4 = *market value of equity/total liabilities (leverage ratio)*

T5 = *sales / total asset (activity ratio)*

Table 2. 2 Grouping the results of the Altman Z EMS score

Z-Score	Explanation
Z > 2,6	*" Safe" Zone*
1,1< Z < 2,6	*"Grey" Zone*
Z < 1,1	*"Distress" Zone*

Source: Ross et al (2013) p. 941

In this study, the object to be examined is the textile and garment sub-sector in Indonesia which is a developing country. So the model that will be used in the study is the Altman Z score Emerging Market Score model. James Ohlson invented the Ohlson O bankruptcy prediction model in 1980. The O Score model was inspired by previous studies that also conducted bankruptcy studies. Ohlson introduces an alternative measurement method that uses the logit analysis approach. However, as with other logit approaches, Ohlson does not provide a scale for converting values into bankruptcy probabilities (Wu, 2009). The O score model claims that coefficient estimates and O score calculations predict failure within one year. Of the nine independent variables used, two of them are dummy variables. The use of quantitative variables is another advantage of the logit model compared to discriminant analysis.

$O_{score} = -1.32 - 0{,}407X_1 + 6.03X_2 - 1.43X_3 + 0.0757X_4 - 2.37X_5 - 1.83X_6 + 0.286\ X_7 - 1.72X_8 - 0.521X_9$

There are nine variables used, two of which are dummy, including the following:
X1 = log (Total Asset / GNP Price Level)
X2 = Total liabilities / total assets
X3 = Working Capital / Total Assets
X4 = Current liabilities / current assets
X5 = dummy variable, value 1 if the value of total liabilities exceeds the value of total assets and value 0 if it does not exceed the value of total assets
X6 = Net income / Total Assets
X7 = Cash flow from operating activities / total liabilities
X8 = dummy variable, value 1 if net income is negative in the last two years, value 0 if not
X9 = (NIt - NIt-1) / (| NIt | + | NIt-1 |), where NI is net income

Ohlson's model states that this model has an optimal cutoff point of 0.038. The higher the O score, the higher the risk of failure (Outecheva, 2004). Some literature states that the company is predicted to bankrupt if the O score is more than the cutoff point of 0.038. Conversely, the company is said not to go bankrupt if the O score is less than 0.038.

Rachim and Rokhim (2018) conducted a study similar to the object of research in developing countries incorporated in ASEAN. The results of this study indicate that by including earnings management in the Altman z score model, the model is produced better than before. Earnings management improved the Altman Z bankruptcy prediction score of 8.31% in countries in the ASEAN region.

Analysis of two financial distress prediction models, namely the Altman model and the Ohlson model conducted by Imelda and Alodia (2017), provide arguments and reference literature in research. In this study, the results showed that the Ohlson model is more accurate than the Altman prediction model on research objects of manufacturing companies listed on the Stock Exchange during 2010-2014. The results of this study also suggest that logit analysis can provide more accurate results than Multiple Discriminant analysis in predicting financial distress.

METHODS

The object of this research is secondary data, which is data of public companies or issuers in the textile and garment sub-sector constituents on the Indonesia Stock Exchange (BEI) for 5.5 years, namely from 2013 - Q2 2019. Company data that have been obtained are grouped into distress firms and non-distress firms based on cumulative earnings (retained earnings). According to Zhang et al. (2010) distressed firm is a company that has negative cumulative earnings for two

years in a row while the non-distressed firm is a company that has not experienced it.

Data processing methods used in this study are quantitative methods and statistical analysis methods using multiple regression equations (multiple regression). The analysis was carried out with the help of the SPSS 24.0 program. The sample selection is made by a purposive sampling method. The characteristics of the sampling selection by considering listing time on Indonesian stock exchange where the assets of these ten issuers have been able to represent around 80% of the market capitalization of the issuers of the constituents of the textile and garment sub-sector in Indonesia. The selected company must also be able to represent issuers that are categorized as healthy and distressed so that testing can be objective on various types of samples

The model used is in the form of two models that have been used by Cho et al. (2012), and Manab et al. (2015), namely the Adjusted Distress Risk and Non Adjusted distress Risk models. Independent variables include liquidity ratios, profitability ratios, productivity ratios, leverage ratios, and asset turnover ratios. While the dependent variable is a binary number from the following categorization.

0: If the company is classified as non-distressed (healthy), this is when the cumulative earnings value is negative for two years in a row

1: If the company is classified as distressed when the cumulative earnings value is not negative for two years in a row

The model will also be used as the dependent variable for the Ohlson O Score prediction model. The difference will be obtained from the independent variables between the z score and o score models. Both models will be processed by logistic regression.

Based on research Cho et al. (2012) shows that earnings management adjustments can improve the bankruptcy prediction model z score in developed countries. This model will be applied to the financial statements of listed textile and garment sub-sectors in Indonesia. If the results are the same, then the study will proceed by comparing the adjusted z score with the Ohlson o score model.

RESULT

After testing the classical assumptions on earnings management data, the earnings management model can be regressed using the SPSS application. The dependent variable of the earnings management regression model is obtained from the calculation of TAit = EBXIit - CFOit, while the independent variable (ΔSales - ΔAR), from now on referred to as the ΔSAR variable and the other variable, the PPE variable.

As the regression results will show the value of the coefficient of determination between zero and one. If the adjusted value of r^2 is small, it can be interpreted that the ability of the independent variables in explaining the dependent variable is minimal or in a relatively small value. Based on the results of the regression of the earnings management model, it can be seen that the adjusted r^2 value of the earnings management model is 29.5%, which means the independent variable on the earnings management model can explain the dependent variable by 29.5%.

Z Score Prediction Model with Earnings Management Adjustments

Before processing statistical tests on listed data of the textile and garment sector in Indonesia, researchers performed mathematical calculations to categorize companies under distress or non-distress conditions. Issuer's financial data will be calculated based on the previous prediction formula. Z Score formulation results for Emerging Market Scoring are as follows.

Table 1. Comparison of Mean Z scores with Earning Management

Company	*Unadjusted Z Score (A)*	*Adjusted Z Score (B)*	Difference (A-B)	Category
ADMG	8,0159	7,8116	-0,2043	*Healthy*
ARGO	-6,6702	-5,5672	1,1031	*Distress*
ESTI	-0,2313	0,9002	1,1314	*Distress*
ERTX	4,3730	4,3141	-0,0589	*Healthy*
MYTX	-1,5415	-0,7609	0,7806	*Distress*
PBRX	8,5088	8,0057	-0,5030	*Healthy*
POLY	-48,1267	-46,9560	1,1707	*Distress*
RICY	5,3488	5,5968	0,2480	*Healthy*
SRIL	6,8052	6,8854	0,0803	*Healthy*
SSTM	6,8052	5,5570	-1,2482	*Healthy*
Aggregate	-2,04726	-1,59413	0,4531	*Distress*

Source: Processed Researcher (2019)

The data above shows that the mean value is different in the two models for each issuer. The mean value in the adjusted model is higher than in the unadjusted model in companies with health classification, while for the distress classification, the adjusted mean value is lower than the unadjusted mean.

This change in mean means that in some companies where earnings management effects reduce the value of bankruptcy predictions. This can be interpreted that earnings management carried out by issuers who experience financial distress is income maximization. Conversely, the effect of earnings management, which decreases the adjusted z score means the company or issuer performs income minimization on its financial statements.

The logistic regression results of the z score model give the accuracy value between the contribution of each variable in the model with the Y variable inputted into the z score model. The unadjusted z score prediction model shows the average value in distress company predictions. For the type I error category, it is misclassified distress firm into the healthy firm in 17 cases or representing 6.7%. Whereas the type for type II error is the classification of the healthy firm into distress firms, there are 4 cases or represent 1.6%. With the adjustment of earnings management in the adjusted z score model, it shows a decrease in type I error, which is 5 cases or 2.0%. For type II errors in the adjusted z score model also decreased to 2 cases representing 0.8% of errors in the whole model.

Table 2. Levels of Accuracy of the Model Z Score

Observation	Prediction							
	Unadjusted Z Score				*Adjusted Z Score*			
	Healthy	Distress	Total	%	Healthy	Distress	Total	%
Healthy	111	4	115	96,5%	132	2	134	98,5%
Distress	17	122	139	87,8%	5	115	120	95,8%
Percentage			254	91,7%			254	97,2%

Source: SPSS, reprocessed (2019)

On average, the overall accuracy of the bankruptcy prediction model on the adjusted z score model has a higher percentage of accuracy of 5.5% compared to the unadjusted z score model. Thus earnings management can improve the adjusted z score model so that the model can be more favored.

Ohlson O Score Prediction Model

Based on previous research literature, the Ohlson O score prediction model is claimed to be a prediction model with a modification of the Altman z score model. Researchers perform mathematical calculations to categorize companies in distress or health conditions. Issuer's financial data will be calculated based on the previous prediction formula. The results of the Ohlson o score formulation are as follows.

After knowing that the effect of earnings management can improve the bankruptcy z score prediction model, then the adjusted z score model will be compared

with the model that is considered to have improved the conventional z score model, the Ohlson o score model.

Table3. Levels of Accuracy of the Model O Score

Observation	Prediction							
	Adjusted Z Score				Ohlson O Score			
	Non Distress	*Distress*	Total	%	*Non Distress*	*Distress*	Total	%
Non Distress	132	2	134	98,5%	99	16	115	86.1%
Distress	5	115	120	95,8%	26	112	138	81.2%
Persentasi			254	97,2%			253	83.4%

Source: SPSS, reprocessed (2019)

In the logistical regression model of the Ohlson o score, the accuracy value between the contribution of the variables in the model o score against the categorization of the Y variable is included in the o score model. For the type I error category, it is misclassified distress firm to healthy firm in 26 cases or representing 10.3%. Whereas the type for type II error is the classification of the healthy firm into distress firms, there are 16 cases or represent 6.3%. Overall accuracy score of the Ohlson o score is 83.4%

Table 4. Recap of the Value of Accuracy and Correlation of Bankruptcy Prediction Models

Model	Accuracy before input Variable X	Accuracy after input Variable X	R-Square Model
Unadjusted Z Score	54,7%	91,7%	59,5%
Adjusted Z Score	52,8%	97,2%	95,5%
Ohlson O Score	54,5%	83,4%	76,0%

Source: SPSS, reprocessed (2019)

The logistic regression results show that the effect of earnings management adjustments can improve the accuracy of the bankruptcy prediction model z score of 5.5%. In terms of r^2 the logistic model obtained by Nagelkerke R Square data also shows that the value of r^2 adjusted z score is better than the unadjusted z score model with a difference of 36% better than the adjusted z score model. On the other hand, the adjusted z score model can also exceed the accuracy and correlation of the Ohlson model, where the Ohlson model has a prediction accuracy of 83.4% and r2 of 76%.Thus the estimated earnings management can improve the z score bankruptcy prediction model, including the predictive model with the logit method, the Ohlson o score. The adjusted z score model can be a more accurate and reliable predictor model.

DISCUSSION

The most popular bankruptcy prediction model used by creditors and investors is the conventional Z score model. However, some previous studies and supported by this research have proven that the conventional z score model has a lower accuracy in predicting bankruptcy and is also prone to bias against the accounting methods used. If creditors and investors still like to use the z score model as a bankruptcy prediction model, it is necessary to estimate the value of earnings management to adjust the accrual recording methods used by management to improve the value of bankruptcy predictions.

Accuracy assessment using logistic regression proves that the adjusted z score model can have better accuracy in predicting bankruptcy than the prediction model that is more favored in previous research, the Ohlson o score model. The z score accuracy level that has been adjusted to earnings management is proven to be higher than the Ohlson o score, as shown in the results of this study.

Along with the increase in the number of bankruptcies in companies engaged in the manufacturing sector of the textile and garment sub-sector in Indonesia, the urgency of bankruptcy anticipation is increased by using a better and more reliable bankruptcy prediction model. Z score is the most popular bankruptcy prediction model used by management and investors to anticipate bankruptcy, but this

model relies heavily on accounting. This research shows how earnings management can improve bankruptcy predictions. Then if it can be improved, how its accuracy when compared with the model that is claimed to improve the bias of the Altman z score model, the Ohlson o score. Based on this research, we can conclude, among others:

By including earnings management adjustments in the Altman z score model, a better model than before with an increase in accuracy of 5.5% compared to without earnings management adjustments

If a comparison is made between the z score prediction model with earnings management adjustments to the Ohlson o score prediction model, this study reveals that there is a difference of 13.8% accuracy rate in the adjusted z score model.

Managerial implications for the management of the textile and garment subsector company in Indonesia need to carry out a rescue strategy so that bankruptcy does not occur in the company. As we know that some companies in the textile and garment sector are experiencing pressure and shocks that cause financial distress for the company, both sourced from the external and internal company. Based on the estimated value of earnings management, some companies have certain accruals that can come from receivables, debts, or expenses. The higher the value of a company's earnings management can indicate that the company has low liquidity to meet the company's obligations and expenses caused by the high value of the company's accruals. Management needs to more quickly understand this condition by increasing competitive advantage and preparing alternative strategies in dealing with pressure conditions on textiles and garments in order to remain able to go concern. Issuers need to continue to maximize the utilization of systems and technologies that can help and expedite production to remain competitive in global markets and increase exports.

For third parties who use financial statements, in this case, investors and creditors can adjust the methodology in mitigating credit risk to a company. This research shows that the prediction model z score can be improved its accuracy by adjusting earnings management. The condition of financial distress in the textile and garment sub-sector, investors need to increase their awareness of investment in issuers, which in this study are categorized as experiencing financial distress. Thus the possibility of being late in detecting bankruptcy can be minimized.

Regulators need to anticipate the potential bankruptcy of large issuers that can disrupt the stability of the textile and garment industry sector. If a sector experiences a business turmoil to bankruptcy can have an impact on closely related sectors, one of which is the financial sector. This can be a domino effect on a country's economy in Indonesia.

CONCLUSION

This study found supporting evidence that the Altman Z Score prediction model can be improved its accuracy by adjusting earnings management estimates. The accuracy of the prediction of the adjusted Altman z score can increase by 5.5% compared to the conventional z score model. In this study only looked at the effect of earnings management on the Z score for one sub-sector in listed companies in Indonesia, so there is no full validation of the effect of earnings management in other sectors and other countries that have different characteristics from the objects in this study. It is hoped that further research can show the effect of earnings management in developed countries and the whole sector in Indonesia. Good Corporate Governance and Macroeconomics on the z score model to improve the validity and accuracy of the prediction model.

Limitation in this study is that there is no validation of time prediction that can be used as a forecasting or early warning system in bankruptcy prediction models. This model will be more useful when making predictions related to the latest

financial statements, where previously the earnings management model was known. Testing the earnings management regression model in this study is only based on financial information on Issuers IHSG in the textile and garment sub-sector in Indonesia.

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