

Financial Distress Analysis of Manufacturing Companies Listed In Indonesia Stock Exchange, 2014 - 2018

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ABSTRACT: *This study aimed to determine the effect of WCTA, RETA, EBITTA, MVEBVL and STA to the financial distress in manufacturing companies in Indonesia Stock Exchange using Logistic Regression, samples were selected using purposive sampling method. 25 manufacturing companies were selected with the criteria listed in the Indonesia Stock Exchange (BEI) and the financial statements which were published in 2014-2019 consecutively. Secondary data came from www.idx.co.id. The results show that using logistic regression models could predict the financial distress in manufacturing companies. Besides, the results indicate There is no significant negative effect between WCTA on financial distress. There is a very significant negative effect between RETA on financial distress. There is no significant positive effect between EBITTA on financial distress. There is no insignificant negative effect between MVEBVL on financial distress. There is a very significant negative effect between STA on financial distress.*

KEYWORDS: *The financial distress, Financial Ratios, Logistic Regression*

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I. INTRODUCTION AND LITERATURE REVIEW

One of the evidences that shows the progress of the Indonesian economy is the existence of free market competition in Southeast Asia which is called the ASEAN Economic Community (MEA) in 2015 (muhlihah: 2017). MEA encourages companies to be able to make improvements of management in order to maintain their performances so that they can compete with companies in ASEAN and in the International. The company performance can be measured by the profits produced. When a company can generate high profits, it has high cash flow too; so that it can avoid financial difficulties or bankruptcy. One of the sectors affected by the MEA is the Manufacturing sector related to capital/funding, goods and services as well as labors. So, if a company is unable to maintain its performance, it will eventually experience the financial distress.

According Patunrui (2017) the financial distress in general is condition in which a company experience financial difficulties and in danger of bankruptcy. Bankruptcy is generally defined as situation in which a company fails to run its activities or operational so that it does not generate profits. Meanwhile, according Ferbiansari (2012) the financial distress is a very severe liquidity problem that can't be solved without changing the size of the operation or structure of the company. This information can be used as an early warning of bankruptcy so that management can take action to prevent bankruptcy.

Hapsari (2012) states that there are four independent variables which are considered to affect the financial distress of a company namely: Liquidity (Current Assets to Current Liability) Profitability (Net Income to Total Assets, Net Income to Total Sales) and Leverage (Current assets to Total Assets). Meanwhile, study by Christianti Ari (2013) examined the accuracy of prediction of the financial distress comparing Altman and Ohlson model with results that were consistent evidently, where the prediction with the modified Ohlson model proved accurate in predicting the financial distress. Another study conducted by IkaYunita (2010), who examined a similar case related to the financial distress, shows that the ratio of CA/CL, the ratio NI/Sales, the ratio CL/TA, and the ratio of NI/TA-Growth can be used as a predictor of financial difficulties condition or the financial distress on companies in the textile and garment industry listed on the Indonesia Stock Exchange (BEI). The level of accuracy of logistic regression model, which was used to explain the classification of company state/condition in the financial distress prediction, is more accurate to be used to predict company state/condition which is non-distress as compared to company state/condition which is experiencing the financial distress. But overall, the results of the classification indicated by this study model are able to explain the company state/condition quite well.

Factors that can be used to predict the financial distress at companies delisted from the Jakarta Islamic Index 2012-2016 period prove that the operating capacity may influence the financial distress, Ratna (2018). Whereas, leverage and profit margins have not been able to influence the financial distress condition. Companies that have high total liabilities have not been able to influence the financial distress, because

most companies experiencing the financial distress still have high total assets so that they are able to pay the liabilities using their assets. While profit margins have not been able to influence the financial distress because companies still have enough equity to bear the risk and also have large total assets and still be able to control their loads, therefore the profit margins do not significantly affect the financial distress. Andre (2013) regarding the effect of profitability, liquidity and leverage in predicting the financial distress in various industrial companies listed on the Indonesia Stock Exchange (BEI), proved that various industrial companies which were experiencing the financial distress in general had negative profitability. Profitability shows the efficiency and effectiveness of the assets used in generating company profits. Liquidity does not have a significant effect in predicting the financial distress as there is no significant difference between the liquidity of companies experiencing the financial distress and companies which do not experience the financial distress. Leverage can be used to predict the financial distress. Companies which experience the financial distress in general have debt that is almost as large as the total assets.

This study differs from the previous ones as the authors chose manufacturing companies as the research objects because manufacturing companies consist of various industry sectors so as to reflect the overall market reaction. This aims to predict manufacturing companies listed in Indonesia Stock Exchange (which will probably) experience bankruptcy.

1.2 Research Objectives

The purpose of this study is to identify factors that directly or indirectly affect financial distress in manufacturing companies listed on the Indonesia Stock Exchange. Do WCTA, RETA, EBITTA, MVEBVL, STA affect the financial distress.

1.3 Research Methodology and Data Analysis

The financial distress The financial distress by Hapsari (2012) is a situation where a company operating cash flow is not sufficient/enough to repay short-term obligations, so it needs improvement. Meanwhile, according Prastyo (2014) the financial distress arises because of the influence from within the company or outside the company, such as cash flow difficulties, the significant amount of debt, and losses in the operations of the company for several years. In contrast to Munawir (2010) who defines the financial distress or bankruptcy as a company's failure in carrying out operations to generate profits. According Harahap (2009) internal indicators of the company's financial distress are:

1. The decline in sales volume as the management is not able to implement policies and strategies;
2. The company's ability to generate gains or profit of the company declined;
3. Depending on the creditors, the company has a very large debt, so that their obligations are becoming increasingly high in the Financial Statements.

Financial Ratio Analysis Financial ratios which are used for analyzing the financial distress with binary logit models are (Patunrui: 2017)

1. Net Working Capital to Total Assets (WCTA)

This ratio indicates the company ability to generate net working capital of the whole of its total assets. Negative net working capital are likely to face problems in covering the short-term obligations because of the unavailability of sufficient liquid assets to cover its obligations and in contrast, company with positive net working capital rarely encounter difficulties in paying off its obligations. WCTA formula is as follows:

$$WCTA = \frac{\text{working capital}}{\text{total asset}}$$

2. Retained Earnings to Total Assets (RETA)

This ratio indicates the company ability to generate retained profits of the total assets of the company. Financial ratio formula is as follows:

$$RETA = \frac{\text{retained earning}}{\text{total assets}}$$

3. Earnings Before Interest and Tax to Total Assets (EBITTA)

This ratio indicates the company ability to generate profits from the assets of the company, before interest and taxes payments. Financial ratio formula is as follows:

$$EBITTA = \frac{\text{earning before interest and taxes}}{\text{total Assets}}$$

4. Market Value of Equity to Book Value of Debt (MVEBVL)

This ratio indicates the company ability to meet the obligations of the market value of equity (common stock). Financial ratio formula is as follows:

$$\text{MVEBVL} = \frac{\text{market value of equity}}{\text{Book Value of Total Debt}}$$

5. Sales to Total Assets (STA)

This ratio reflects the overall management efficiency in using the company assets to generate sales and profits. Financial ratio formula is as follows:

$$\text{STA} = \frac{\text{Sales}}{\text{Total Assets}}$$

Previous Studies Khristina Curry’s study (2018) stated that CR can show a negative effect on the financial distress. ROA negatively affect the financial distress. DAR does not affect the financial distress. DER negatively affect the financial distress. Sales growth has no effect on the occurrence of the financial distress. EPS has a positive influence on the financial distress. Mas’ud and Srengga (2010) show that the liquidity and financial leverage do not affect the financial distress. Profitability and operating cash flows affect the financial distress. Ida and Santoso (2011) explain that the company conditions may change, such as PT Bakrie did not experience any problems that would have lead to bankruptcy (the financial distress), while in 2009 this condition changed significantly which eventually lead the company to bankruptcy, different from PT Gozco, in 2007 the company were in the brink of bankruptcy (in the bankruptcy zone), while in 2008 – 2009 the company could improve this condition so that it could get out from the bankruptcy zone.

The objects of this study were manufacturing companies listed in Indonesia Stock Exchange (BEI) in 2014 to 2018 period, companies were chosen based on their financial condition during 2014-2018 period. There are 84 companies with 25 samples taken randomly.

The data analysis in this study used binary logit model to see the financial distress in companies listed on the Indonesia Stock Exchange (BEI) in 2014-2018 period (<http://www.idx.co.id>).

Independent variables used consist of Net Working Capital to Total Assets (WCTA), Retained Earnings to Total Assets (RETA), Earnings Before Interest and Tax to Total Assets (EBITTA), Market Value of Equity to Book Value of Debt (MVEBVL), and Sales to Total Assets (STA).

Dependent variables in this study were classified as dummy variables. In this study, companies were determined as to experience the financial distress if the operating profit and negative company retained profits suffered losses. The measurement of these variables used dummy variables 0= NonFinancial Distress while 1 = (experience) the Financial Distress. The hypothesis testing in this study used logistic regression analysis by the following equation

$$\text{Ln} \frac{p}{(1-p)} = b_0 + b_1\text{WCTA} + b_2\text{RETA} + b_3\text{EBITTA} + b_4\text{MVEBVL} + b_5\text{STA} + e$$

Notes:

- P / (1-p) = Probability of companies experiencing the financial distress (t)
- B0 = a Constant
- b1WCTA = Net Working Capital to Total Assets
- b2RETA = Retained Earnings to Total Assets
- b3EBITTA = Earnings Before Interest and Tax to Total Assets
- b4MVEBVL = Market Value of Equity to Book Value of Debt
- b5STA = Sales to Total Assets
- e = Error

Tabel 1 Statistics

		WCTA	RETA	EBITTA	MVEBVL	STA
N	Valid	125	125	125	125	125
	Missing	0	0	0	0	0
Mean		12.5916	14.3664	41.3077	66.8813	99.7711
Median		17.4300	21.7400	28.2400	36.6200	98.5100
Std. deviation		17.56320	49.57833	58.97287	118.92570	55.09533
Minimum		-105.63	-228.75	-59.18	2,95	, 84
Maximum		17.43	70.45	470.45	871.08	284.31

Data Source: SPSS processed data

The average value (mean) that is greater than the standard deviation value of $17.4300 < 17.56320$ means that the distribution of the WCTA data isn't good. The average value (mean) that is smaller than the standard deviation value of $14.3664 < 49.57833$ means that the distribution of the RETA data isn't good. The average value (mean) that is smaller than the standard deviation value of $66.8813 < 118.92570$ means that the distribution of the EBITTA data isn't good. The average value (mean) that is smaller than the standard deviation value of $99.7711 > 55.09533$ means that the distribution of the MVEBVL data is very good.

Table 2 Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	8	1.000

Data Source: SPSS processed data

Inequality test results of the predictive logistic regression model showed chi-square value amounted to .000 with a significant value of 1.000 greater than 0.05, means that there wasn't any difference between the logistic regression model predictions with data of observation. This means that the model is able to predict its observation value or it can be said that the model has been accepted as it is in accordance with the results of the observation.

Table 3 Classification Table^a

Observed		predicted			
		FD		Percentage Correct	
		non financial distress	the financial distress		
Step 1	FD	non the financial distress	110	0	100
		the financial distress	15	0	.0
Overall Percentage					88.0

Data Source: SPSS processed data

Based on the table above shows from 125 samples of observational data that did not experience non-financial distress as many as 15 observations that did not match the results of observations, based on the overall prediction of observational data 125 samples of observational data were only 88% which could be predicted accurately by the logistic regression model.

Table 4 Model Summary

Step	-2 log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	.000a	.520	1.000

Data Source: SPSS processed data

Value -2 log likelihood end -2 log likelihood values obtained 0,000. This allows the relationship between independent variables and the dependent variable. In addition to the table in two sizes R square namely Cox & Snell R Square and Nagelkerke R Square. Cox & Snell R Square using maximum value less than 1 so that it is difficult to interpret. Furthermore, the value of Nagelkerke R Square is a modification of Cox & Snell R Square with values varying from 0 to 1. The value of Nagelkerke R Square is 1,000, this means that 100% financial distress can be influenced by WCTA, RETA, EBITTA, MVEBVL and STA previous year. The significance of the overall regression coefficient (overall model) of the 5 predictors as a whole was carried out using the omnibus test of model coefficient.

Table 5 Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	91.731	5	.000
	Block	91.731	5	.000
	Model	91.731	5	.000

Data Source: SPSS processed data

The test results of the omnibus test coefficient models showed that the value of chi-square (-2 log likelihood of impairment) of 91.731 with significant value of 0.000. With the value of -2 Log Likelihood Value block number = 0 greater than the value of -2 Log Likelihood Value block number = 1, the regression model is getting better. With a significant value smaller than 0.05, it can be concluded that financial distress can be influenced by WCTA, RETA, EBITTA, MVEBVL and STA. This means that the use of independent variables

in research together can explain the occurrence of financial distress. This result explains that the hypothesis can be accepted and can be affected by the financial distress WCTA, RETA, EBITTA, MVEBVL and STA.

Table 6 Variables in the Equation

		B	SE	Wald	df	Sig.	Exp (B)
Step 1a	WCTA	-2,085	466,193	,000	1	,996	,124
	RETA	-,006	157,396	,000	1	1,000	,994
	EBITTA	-,035	104,047	,000	1	1,000	,965
	MVEBVL	,026	41,092	,000	1	1,000	1,026
	STA	-,003	59,189	,000	1	1,000	,997
	Constant	16,490	5972,077	,000	1	,998	14502469,351

Data Source: SPSS processed data

Based on the test results above, (it) shows a partial test results using logistic regression analysis, the significance influence of each of these variables can be seen in the table above and has the following significance:

$$FD = 3,946 - 0,282X1 + 0,164X2 - 0,213X3 - 0,011X4 + 0,127X5$$

Based on the notation of the regression model formed is then obtained the relation between each independent variable (WCTA, RETA, EBITTA, MVEBVL and STA) with the dependent variables of the financial distress which can be explained as follows:

Constant values marked positive state that if there are no activities of the five independent variables that affect Financial Distress (FD), then Financial Distress is positive.

1. WCTA regression coefficient with a negative sign of -2.085 states, that the WCTA variable has a negative influence on Financial Distress (FD). These results mean that the relationship between WCTA and FD has a reverse relationship direction, the higher the value of WCTA will cause the lower value of FD.
2. The RETA regression coefficient with a negative sign of -0.006 states that the RETA variable has a negative effect on Financial Distress (FD). These results mean that the relationship between RETA and FD has a reverse relationship direction, the higher the value of RETA will cause the lower value of FD.
3. The EBITTA regression coefficient with a negative sign of 0.035 states that the EBITTA variable has a negative effect on Financial Distress (FD). These results mean that the relationship between EBITTA and FD has a reverse relationship direction, the higher the value of EBITTA will cause the lower value of FD.
4. The MVEBVL regression coefficient with a positive sign of 0.026 states that the MVEBVL variable has a positive effect on Financial Distress (FD). These results mean that the relationship between MVEBVL and FD has a direct relationship, the higher the MVEBVL value will cause the higher FD value.
5. The STA regression coefficient with a negative mark of 0.003 states that the STA variable has a negative effect on Financial Distress (FD). These results mean that the relationship between STA and FD has a reverse relationship direction, the higher the value of STA will cause the lower value of FD.

Based on the partial test results, it can be seen that all independent variables, namely WCTA, RETA, EBITTA, MVEBVL and STA, have significance values greater than 0.05 ($\alpha = 5\%$). Sig. WCTA of 0.996 > 0.05, Sig. RETA of 1,000 > 0.05, Sig. EBITTA of 1,000 > 0.05, Sig. MVEBVL of 1,000 > 0.05, Sig. STA of 1,000 > 0.05. From these results it can be concluded that the WCTA, RETA, EBITTA, MVEBVL and STA variables have no effect on financial distress in the Manufacturing Companies on the Indonesia Stock Exchange for the period 2014-2018

II. FINDINGS AND INTERPRETATION

Based on the theory of the ratio of Working Capital to Total Assets (WCTA) according to Riyanto (2008) is the liquidity of total capital and working capital. The working capital agreed here is net working capital, which is the majority of expenditure that is actually used to finance the company's operations without disrupting liquidity. The ratio of Working Capital to Total Assets (WCTA) which is higher determines the greater the capital needed by the company from its total assets. With a large working capital, it is expected that the company's operational activities will become faster and the income earned will increase and this will result in increased profits. This result is supported by research from D Baimwera Bernard and Antony MurimiMuriuki (2014) which states that liquidity ratios do not affect financial distress. The same thing was also produced by Fitriyah and Hariyati's research in 2013 which stated that WCTA had no effect on financial distress. This result is because each company has a different composition of current assets.

Based on research Listantri (2015) This ratio indicates the ability to bring out the retained earnings of the total assets. In other words, retained earnings shows how much company income is not paid in the form of dividends to shareholders. Retained earnings occur because shareholders can allow the company to reinvest profits that are not distributed as dividends. This study shows that the high and low RETA ratio does not affect the likelihood of companies experiencing financial distress. Retained earnings are not assets, but an element of shareholder equity. One of the reasons for the distribution of retained earnings is that one of them is caused by the policy of the company leadership.

according Listantri (2015) This ratio measures the company's ability to generate profits from assets used. Some indicators that can be used in detecting are problems with the company's ability to profitability including increased trade receivables, decreased sales, late collection of accounts receivable, the company's credibility is reduced. This research is supported by the research of Oktariyani, Amanda (2019) That EBITTA has a negative effect on financial distress. this means that the company's EBITTA increases, the probability of the company experiencing financial distress decreases, and vice versa if the company's EBITTA decreases, the probability of the company experiencing financial distress gets higher. The results of this study are in line with those conducted by Plat & Platt (2002) which states that EBITTA has no effect on financial distress.

Based on the theory of Market Value of Equity to Book Value of Debt illustrates how confident or confident the market is to the company. On the other hand it also illustrates how much the company's market value will fall to cover its obligations. This ratio is used in measuring how much the company's assets can go down in value before the amount of debt is greater than its assets and the company becomes bankrupt. This research is supported by research Minda (2013) states that the MVEBVL ratio affects financial distress. it shows that the higher the MVE value, the better the company in accounting treatment of the assets owned is appropriate, it will affect the value of the assets presented in the financial statements because the value of the assets presented in the financial statements will affect whether or not the company's financial condition The company's financial condition is very influential on financial distress. Fitriyani's research (2016) states that MVEBVL also has no effect on financial distress that occurs in transportation sector companies. The high MVEBVL produced shows that the company is able to manage the company's capital well. Companies with low MVEBVL means that the company accumulates more debt than equity.

According Harahap (2009) Sales to Total Assets illustrates the total asset turnover when seen from the volume of sales or describe the extent to which the ability of all assets in creating sales. The higher this ratio, the better, because it shows the ability of all assets to create high sales so that small companies are likely to experience financial distress

This study is in line with the study of Hazem and Alaa (2014) in companies listed in Jordan where sales to total assets have a significant negative effect on financial distress. Where the higher the value of the ratio of sales to total assets will have a positive impact on mining companies because the risk of companies experiencing financial distress will be reduced amid the decline in commodity prices. The high ratio of sales to total assets indicates the company has a good ability in managing assets.

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