THE EFFECT OF FINANCIAL RATIO IN PREDICTING THE CONDITION OF FINANCIAL POLICY WITH FIRM SIZE AS A VARIABLE MODERATING IN MANUFACTURING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE (IDX) PERIOD 2012-2017

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Abstract
The objective of this study was to identify and analyse the effect of financial ratios in predicting financial distress conditions in manufacturing companies listed on the Indonesian stock exchange (IDX) for the period 2012-2017. The variables in this study are return on assets, current ratio, debt to equity ratio, total asset turnover and firm size. The population in this study were all manufacturing companies listed on the Indonesia stock exchange for the period 2012-2017. Sampling in this study used purposive sampling, so sample of 384 companies that met the criteria was obtained. The analytical method used in this research is descriptive statistical analysis using logistic regression analysis and interaction test to test the moderating variable. The results of this study indicate that simultaneous return on assets, current ratio, debt to equity ratio, and total asset turnover have a significant effect on predict financial distress, and firm size can moderate the effect of return on assets, current ratio, debt to equity ratio, and total asset turnover in predicting financial distress. Partially, return on assets, current ratio and total asset turnover have a negative and significant effect in predicting financial distress conditions. While the variable debt to equity ratio has a positive and significant influence in predicting the condition of financial distress. Firm Size is able to moderate the effect of Total Asset Turnover in predicting the condition of Financial Distress. However Firm Size weakens the influence of Return On Asset, Current Ratio and Debt to Equity Ratio in predicting the condition of Financial Distress.

Keywords: Financial Distress, Return On Asset, Current Ratio, Debt to Equity Ratio, Total Asset Turnover, Firm Size

I. Introduction
In the current era of globalization, companies are required to improve company performance in the face of increasingly fierce business competition. With the implementation of the ASEAN Economic Community (MEA) in 2015, companies must be prepared to compete with countries in ASEAN. The company must prepare a strategy that can maintain the viability of its business in the long term. Companies that cannot compete indicate that they are ready to face the risk of bankruptcy, but companies that are able to face competition will survive. One of the companies that experienced financial distress in Indonesia was the Century Bank case.

The Century Bank case began with its determination as a failed bank due to liquidity problems. Century Bank lost its clearing or could not pay the request funds from its customers. Century Bank applied for emergency funding facilities on the grounds that it was difficult to get funding. And it is known that the capital adequacy ratio or CAR of Bank Century is minus 3.52 percent through data as of October 31,
2008 (quoted from: thexqnelson.wordpress.com/2013). Bank Century recorded a loss of Rp7.8 trillion in 2008. Its assets were eroded to Rp.5.58 trillion from Rp.14.26 trillion in 2007 (thexqnelson.wordpress.com, 2013). The bailout was disbursed to Bank Century in the amount of 6.7 trillion Rupiah through the Deposit Insurance Corporation. But this fund is not fully used to handle the case. Weak supervision is also one factor in the occurrence of financial distress.

Predicting financial distress is very important for companies to avoid bankruptcy. Financial distress conditions occur before a company experiences bankruptcy. Financial distress is a condition of the company's financial difficulties in fulfilling its obligations. The results of financial distress predictions can provide signals for external and internal parties.

Companies experiencing financial distress are categorized as companies whose performance shows negative operating profit, negative equity book value, and companies that merge (Brahmana, 2007). This study uses financial ratios as a measure in predicting financial distress in a company. The financial ratios chosen are profitability ratios, liquidity, leverage and activity. Profitability ratios are proxied by return on assets (ROA). According to Alfianto's research (2017), profitability has a positive and significant effect on financial distress. It shows that a decrease in profitability causes the condition of the company to experience financial distress. Conversely, the higher the profitability, the less likely the company will experience financial distress. The liquidity ratio is proxied by the current ratio (CR). This current ratio shows the company's ability to meet its short-term debt obligations in the next year. The leverage ratio is proxied by the debt to equity ratio (DER), is the ratio used to assess debt with equity and the activity ratio that is proxied by total asset turnover (TATO) is a ratio that compares sales with average total assets. Researchers also add size company (firm size) as a moderating variable. Based on this background, the title of this research is: “The Influence of Financial Ratios in Predicting the Condition of Financial Distress in Manufacturing Companies Listed on the Indonesia Stock Exchange Period 2012-2017”.

II. Literature Review

Signaling Theory

Signaling theory is a theory that suggests how an entity signals to financial users. The signal given can be either a positive signal (good news) or a negative signal (bad news) about what has been done by management to realize the wishes of the owner. The quality of information presented by companies greatly influences investors' decisions. Such information is important for investors and business people because information essentially presents information, notes or descriptions, both for past, present and future conditions for the survival of the company and how the effects to companies (Brigham and Houston, 2001).

Financial Distress

Financial distress shows a decrease in financial performance of the company. Financial distress can be seen through indications of the company's performance that is declining, continuous operational losses, cash flow problems, liquidity difficulties, inability to pay obligations, cessation of dividend payments, and a reduction in labor (Platt and Platt, 2002). According to Sirait (2017) financial distress or financial difficulties can be interpreted as the inability of companies to pay their financial obligations at maturity.
which causes corporate bankruptcy. Financial distress occurs before a company experiences bankruptcy so that financial distress models need to be developed further in order to form a prediction about corporate finance conditions in the future.

According to Altman and Hotchkiss (2006), financial distress is classified into four general terms, namely:

a. Economic Failure: occurs when a company's income cannot cover total costs including capital costs.
b. Business Failure: refers to a company stopping operations because of its inability to generate profits or bring in enough income to cover expenses. A profitable business can fail if it does not produce sufficient cash flow to meet expenses.
c. Insolvency: is the company's inability to pay its obligations if it is due.
   1) Technical insolvency: conditions where the company is unable to fulfill its obligations that are due as a result of insufficient cash flows.
   2) Insolvency in Bankruptcy Sense: conditions where total liabilities are greater than the market value of the company's total assets and therefore have negative equity.
d. Legal Bankruptcy: A formal form of bankruptcy and legally endorsed.

Financial statements
Financial statements are a medium of communicating financial information to parties outside the company. According to PSAK No.1 (2015:1), “Financial statements are structured presentations of financial positions and financial performance of an entity”. Based on the above definition it can be concluded that financial statements are records of financial information of a company that can be used by users, both internal and external with the aim of obtaining information that can be used to make the right decisions.

Financial Ratio Analysis
The use of analysis tools in the form of ratios can explain the assessment of good and bad financial position in the company, especially if the ratio is compared with the comparison ratio figures that are used as standards (Maith, 2013).

Return On Asset
Return on assets is a ratio used to determine the company's ability to generate profits. In other words, this ratio is used to measure how much profit is generated from each fund embedded in total assets. The higher the yield of return on assets means the higher the amount of net income generated from each rupiah fund embedded in total assets. Conversely, the lower the return on assets means the lower the amount of net income generated from each rupiah fund embedded in total assets (Hery, 2016).

Debt to Equity Ratio
The debt to equity ratio is a ratio used to determine the amount of capital provided by creditors with the amount of capital that comes from the owner of the company. That is, to find out what part of each capital is used as collateral for debt.

Total Asset Turnover
The total asset turnover ratio is a ratio that measures the total asset's ability to generate sales. High total assets indicate that the total assets of the company have been used effectively in generating sales. Conversely, low total assets indicate that many excess assets are not used effectively in generating high sales. If sales are high, the profits generated by the company will also be high. High profits are highly expected by every company. A high profit consonant signifies that the company is in a healthy state or not having financial distress.

**Firm Size**

Firm size is an illustration of the size of a company. Large companies will be looked at by investors. The larger a company, the easier it is to access information, in other words the possibility of obtaining more funds than companies classified as having less information.

**Conceptual Framework**

The conceptual framework in this research is as follows:

![Conceptual Framework Diagram]

- **Return On Asset (X1)**
- **Current Ratio (X2)**
- **Debt to Equity Ratio (X3)**
- **Total Assets Turnover (X4)**

Return On Assets is a ratio used to see the profits obtained (net income) from the overall assets owned by a company. In other words, ROA is a ratio that measures how efficient a company is in managing its assets to generate profits for a certain period. Thus, a company is said to be experiencing financial distress if the return on assets of a company decreases in a row. Conversely, if the return on assets of a company is high, it is unlikely that the company will experience financial distress. Therefore, return on assets has a negative effect in predicting financial distress conditions.

Current Ratio is a ratio that measures the financial performance of a company's liquidity. This Current Ratio shows the company's ability to meet its short-term debt obligations in the next year. A company that has higher liquidity, then the possibility of the company experiencing financial distress will be smaller. This means that the company is able to pay its short-term obligations. Therefore, the current ratio has an effect on predicting financial distress conditions.

The leverage ratio emphasizes the large proportion of debt used in funding company assets. Companies with high debt levels will cause a signal that is not good for investors. The survival of the company is in the hands of the agent whether the agent decides to make funding from a third party. The higher the DER ratio the lower the
corporate funding provided by shareholders. From the perspective of the ability to pay long-term obligations, the lower the ratio, the better the company's ability to pay long-term obligations. Therefore, the debt to equity ratio has a positive effect in predicting financial distress conditions.

This activity ratio that is proxied by total asset turnover illustrates the ability of a company to use assets owned to generate sales. By looking at this ratio, it can be seen the effectiveness of the use of assets in generating sales. If assets are used to the maximum extent possible for operating activities, it can increase production so that corporate profits increase. Therefore, total asset turnover has a negative effect on predicting financial distress.

Firm size is a description of the size of the company that can be seen from the number of assets the company has in generating profits. The larger the size of the company means the company is able to manage assets owned to generate profits for the company. Firm size can moderate the effect of return on assets, current ratio, debt to equity ratio and total asset turnover in predicting financial distress conditions.

Research Hypothesis
Based on the formulation of the problem, the theoretical basis and the conceptual framework, the hypothesis in this study is
H1: Return On Assets, Current Ratio, Debt to Equity Ratio and Total Asset Turnover have an effect on the prediction of Financial Distress conditions simultaneously and partially.
H2: Firm Size can moderate the effect of Return On Asset in predicting Financial Distress conditions.
H3: Firm Size can moderate the influence of Current Ratio in predicting the condition of Financial Distress.
H4: Firm Size can moderate the influence of Debt to Equity Ratio in predicting the condition of Financial Distress.
H5: Firm Size can moderate the effect of Total Asset Turnover in predicting the condition of Financial Distress.

Research Methods
Types of research
This research was conducted in 2018 and is a causal associative study, namely research that explains the influence between research variables using secondary data.

Place and time of research
This research was conducted by analyzing the annual report of manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2012-2017.

Population and Samples
The population in this study were manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2012-2017, which were 129 companies. The sampling technique in this study was carried out by purposive sampling method. The criteria set by the author are as follows:
  a. Registered and not delisted manufacturing companies on the Indonesia Stock Exchange (IDX) during the 2012-2017 observation period;
b. The company has published audited financial statements in the Rupiah currency for the period 2012-2017;
c. Companies that have negative earnings 2 years in a row during the research year, namely 2012-2017 and companies that have positive profits 2 years in a row during the research year, namely 2012-2017.

Based on the purposive sampling method it is known that 129 manufacturing companies are listed on the Stock Exchange and with the above criteria there are 64 companies. Thus the number of observation data is 384 (64 companies x 6 years).

**Method of collecting data**
The method of data collection in this study is the library and documentation method.

**Data analysis method**

**Hypothesis testing**
The method used in this study is statistical tests, logistic regression analysis and multiple regression analysis to test the moderating variables. Independent variables do not require multivariate normality and homocedasticity assumptions are not needed. Dependent variables must be dichotomous or categorical.

The logistic regression equation used in this study is:

\[
\text{Logit} \left( \frac{FD}{1-FD} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e
\]

(1)

\[
\text{Logit} \left( \frac{FD}{1-FD} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 Z X_1 + \beta_6 Z X_2 + \beta_7 Z X_3 + \beta_8 Z X_4 + e
\]

(2)

**Information:**

\[
\ln \left( \frac{FD}{1-FD} \right) = \text{Probability of bankruptcy / financial distress}
\]

\[
\beta_0 = \text{Constants}
\]

\[
\beta_1-6 = \text{Regression coefficient}
\]

\[
X_1 = \text{Current Ratio}
\]

\[
X_2 = \text{Return On Asset}
\]

\[
X_3 = \text{Debt to Equity Ratio}
\]

\[
X_4 = \text{Total Asset Turnover}
\]

\[
Z = \text{Firm Size}
\]

\[
e = \text{Error}
\]

**Assessing Logistics Feasibility**
Hosmer and Lemeshow Test is a Goodness of fit test (GoF) test, which is a test to determine whether the formed model is correct or not. It is said that it is appropriate if there is no significant difference between the model and the value of its observations.

**Multicollinearity Test**
Logistic regression analysis ignores normality and heterocedasticity tests. Researchers only test multicollinearity to test whether the regression model found correlation between independent variables.

**Assessing the Overall Model**
To assess the overall model (overall model fit) that has been hypothesized to have been fit or not with the data, it is necessary to do this test.

**Coefficient of Determination (Nagelkerke R Square)**
To test how far the ability of the research model to explain the dependent variable, namely by calculating the coefficient of determination (adjusted R2).

**Testing the Significance of the Regression Coefficient**
In logistic regression a wald test is used, which serves to test the significance of constants from each independent variable that enters the model, the significance value
of which is smaller than 0.05, then the regression coefficient is significant at the 5% confidence level. This study also uses moderating variables using moderated regression analysis (MRA).

IV. Result and Discussion
Logistic Regression Analysis
Assessing Logistics Feasibility (Hosmer and Lemeshow Test)
The Hosmer and Lemeshow Test value with a significant value of 0.080 is greater than 0.05, the model is able to predict the value of its observations or it can be said that the model is acceptable because it matches the observational data.

Multicollinearity Test
From the results of the above processing, the VIF value of each independent variable is <10 and the tolerance value is > 0.1, so it can be concluded that there is no correlation between the independent variables in this study.

Assessing the Overall Model (Overall Fit Test Model)
Return on assets, current ratio, debt to equity ratio and total asset turnover can predict financial distress conditions simultaneously.

Nagelkerke R Square analysis
The independent variables in this study (Return on Assets, Current Ratio, debt to equity ratio, total asset turnover) are able to explain the dependent variable (Financial Distress) by 45% and the remaining 55% is explained by other variables.

Testing the Significance of the Regression Coefficient
Regression models in this study are:

\[
\text{Logit} (\text{FD}/1-\text{FD}) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e
\]

\[
\text{Logit} (\text{FD}/1-\text{FD}) = 0.902 - 0.172\text{ROA} - 0.003\text{CR} + 0.002\text{DER} - 0.013\text{TATO} + e
\]

Interaction Test (Moderated Regression Analysis)
Regression models in this study are:

\[
\text{Logit} (\text{FD}/1-\text{FD}) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5\text{Z}X_1 + \beta_6\text{Z}X_2 + \beta_7\text{Z}X_3 + \beta_8\text{Z}X_4 + e
\]

\[
\text{Logit} (\text{FD}/1-\text{FD}) = -5.543 - 0.483\text{ROA} + 0.004\text{CR} + 0.003\text{DER} - 0.104\text{TATO} + 0.243\text{FS} + 0.007\text{Interaction}_X_1 + 0.000\text{Interaction}_X_2 + 0.000\text{Interaction}_X_3 + 0.003\text{Interaction}_X_4 + e
\]

Discussion
Effect of Return On Assets, Current Ratio, Debt to Equity Ratio, Total Asset Turnover in Predicting Simultaneous Financial Distress Conditions
Based on the results of the tests conducted by researchers it can be concluded that the four independent variables in this study are able to predict conditions before the company experiences bankruptcy (financial distress) together (simultaneous). Furthermore, the influence of these variable factors will be explained partially as shown below.

Effect of Return On Assets in Predicting the Condition of Financial Distress
The results of the logistic regression analysis state that return on assets has a negative and significant influence in predicting financial distress, which means that high return
on assets indicates the possibility of companies experiencing financial difficulties will be lower. The results of this study indicate the effect of return on assets has a negative and significant effect in predicting financial distress conditions, which means that high return on assets indicates the possibility of companies experiencing financial difficulties will be lower. This result is in line with signaling theory, if high return on assets shows a good signal for investors who will invest their capital in the company. This is because the profits generated by the company will be high. But companies that have low return on assets will cause a bad signal for investors because of the high level of bankruptcy of the company. This result is consistent with the research conducted by Andre (2013) and Hapsari (2012) which states that the variable return on assets has a negative and significant effect.

**Effect of Current Ratio in Predicting the Condition of Financial Distress**

The results of the logistic regression analysis test states that the current ratio has a negative and significant influence in predicting financial distress. The higher current ratio owned by the company indicates that the company has enough funds to pay obligations that will soon be due so that the possibility of the company experiencing financial difficulties will be lower. In accordance with signal theory, this shows a good signal for investors who will invest their capital in the company because they consider the company to have funds to fulfill the company's financial obligations. But companies that have a low current ratio will cause a bad signal for investors because of the high level of bankruptcy of the company. This result is consistent with the research conducted by Hidayat (2013) which states that the current ratio variable has an influence and is significant.

**Effect of Debt to Equity Ratio in Predicting the Condition of Financial Distress**

From the results of data processing it can be concluded that partially the debt to equity ratio (DER) variable does not significantly influence predicting financial distress (FD). This is because the company's own capital is greater than the debt. Companies in managing their operations tend to use their own capital rather than outside parties so that the company does not have a heavy burden in fulfilling its long-term obligations. So the hypothesis can be rejected. This result is consistent with the research conducted by Srengga (2012) and which states that the variable debt to equity ratio does not have a significant effect in predicting financial distress conditions.

**Effect of Total Asset Turnover in Predicting the Condition of Financial Distress**

The results of the logistic regression analysis state that the total asset turnover (TATO) variable has a negative and significant effect on predicting financial distress (FD). The results of this study indicate that the effect of total asset turnover has a negative and significant effect, which means high total asset turnover can increase corporate profits by managing its assets properly so that the possibility of financial distress will be small. In line with signal theory, this shows a good signal for investors who will invest their capital in the company because profits are generated from high sales. But companies that have a low total asset turnover will cause a bad signal for investors because of the high level of bankruptcy of the company. In line with signal theory, this shows a good signal for investors who will invest their capital in the company because profits are generated from high sales. This result is consistent with the research conducted by
Hanifa (2013) and that the variable total asset turnover has a negative and significant effect.

**Effect of Firm Size Moderation on the role of Return on Assets in Predicting Financial Distress Conditions**

Firm size (FS) as a moderating variable is not able to moderate the effect of return on assets in predicting financial distress (FD) conditions. Firdiana, 2016 states that economic conditions in Indonesia are changing every year so that companies experience economic pressures in terms of finance or in terms of resources such as natural resources and human resources and these events are independent of the size or smallness of the company. If the assets owned are able to be managed properly by the agency, the possibility that the company will experience bankruptcy (financial distress) is getting smaller.

**Firm Size is able to Moderate the Effect of Current Ratio in Predicting the Condition of Financial Distress**

Firm size (FS) as a moderating variable is not able to moderate the effect of the current ratio (CR) in predicting financial distress (FD) conditions. The current ratio level does not determine the company will avoid the conditions of financial difficulties, both for companies with large and small size. Based on Kariman's research, 2016 there were a number of companies that had a high current ratio but the company experienced delisting, while companies that were considered to have a small current ratio in the following period did not experience delisting.

**Firm Size is able to Moderate the Effects of Debt to Equity Ratio in Predicting the Condition of Financial Distress**

Firm size (FS) as a moderating variable is not able to moderate the influence of the debt to equity ratio (DER) in predicting financial distress (FD) conditions. This is because both large and small companies if managed properly will not cause financial distress conditions. According to Fahmi (2013: 128): “In the matter of the total debt to equity ratio that needs to be understood, there is no limit on the total debt to equity ratio that is safe for a company, but for conservatives usually the total debt to equity ratio exceeds 66% or 2/3 is considered noisy.

**Firm Size is able to Moderate the Effect of Total Asset Turnover in Predicting Financial Distress Conditions**

Firm size (FS) as a moderating variable can moderate the effect of total asset turnover (TATO) in predicting financial distress (FD) conditions. This is because large companies are considered capable of managing assets owned to increase revenue through sales so that companies avoid bankruptcy. Companies that are able to manage these assets effectively will increase the company's revenue from sales. However, if a company is not able to manage these assets properly, it will reduce income and increase the company's debt. The size of the company that is large and has a high total asset turnover is a good signal for investors.

**V. Conclusion and Suggestion**

**Conclusion**
a. Simultaneously, Return on assets, Current Ratio, Debt to Equity Ratio, and Total Asset Turnover have a significant effect in predicting the condition of Financial Distress. Partially, only the Debt to Equity Ratio variable is not influential in predicting financial distress conditions. While the variables Return on Assets, Current Ratio and Total Asset Turnover have an effect on predicting financial distress conditions.

b. Firm Size is not able to moderate the effect of Return On Asset in predicting the condition of Financial Distress.

c. Firm Size is not able to moderate the influence of the Current Ratio in Predicting the Condition of Financial Distress.

d. Firm Size is not able to moderate the influence of Debt to Equity Ratio in predict the condition of Financial Distress.

e. Firm Size Can Moderate the Effect of Total Asset Turnover in predicting the condition of Financial Distress.

Research Limitations

a. This study only uses financial variables consisting of profitability, liquidity, leverage and activity ratios, so that the ability of variables to predict financial distress is only 45%, which means there are many other financial and non-financial variables that can predict financial distress.

b. The researcher only uses one proxy of each financial ratio. The profitability ratio is only proxied by Return on Assets, the liquidity ratio is proxied by Current Ratio, the leverage ratio is proxied by the Debt to Equity Ratio and the activity ratio is proxied by Total Asset Turnover.

c. Based on the results of the study, it can be concluded that firm size cannot be used as a moderating variable in predicting financial distress conditions. This is because, the size of a large company cannot guarantee that the company avoids the conditions of financial distress and small companies may not necessarily experience financial distress.

Suggestions

a. It is expected that the next researcher will not only use financial variables, but can add non-financial variables such as the number of commissioners, the age of the company, and others in predicting financial distress conditions.

b. The next researcher does not only use one proxy from each financial ratio so that the indicators in predicting financial distress can be known more widely.

c. Further researchers are also expected to use other variables if they want to use moderating variables.

d. The next researcher can also add the observation period to increase the number of samples.

e. For companies, the independent variables in this study can be indicators in predicting bankruptcy conditions.

f. For investors, this research can be taken into consideration in making decisions to invest their capital.

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