# CHAPTER III RESEARCH METHODOLOGY

## 3.1 Type of The Research

The types and sources on the data used are secondary data, namely annual report and consolidated financial statement from food industry companies listed in Indonesia Stock Market and Taiwan Stock Market during the period from 2015 – 2017.

## 3.2 Data Collection Method

Data collection method in this research is documentary technique. This teachnique can be done by tracing the annual report of the companies and the data related to the variables.

## 3.3 Population and Sample

### 3.3.1 Population

According to Sugiyono's (2011) research, Population is a generalized area consisting of Object / Subject that has a certain quantity and characteristics set by the researcher to be studied. The populations in this research is food industry companies listed in Indonesia Stock Market and Taiwan Stock Market.

### 3.3.2 Sample

Sample is a part of number and characteristics possessed by population. The samples in this research is financial statement and annual report of food industry companies listed in Indonesia Stock Market and Taiwan Stock Market.

## 3.4 Operational Definition of Variable

### 3.4.1 Dependent Variables

Dependent Variables is the variable which is selected, manipulated and measured by the researcher (Hatch & Farhady , 1982). Dependent variable in this research is

the company's value of food industry companies listed in Indonesia Stock Market and Taiwan Stock Market. In this research, company's value can be represented by Price Earning Ratio (PER) of the food industry in IDX and TWSE from 2015 – 2017.

### 3.4.2 Independent Variables

Hatch & Farhady (1982) described that independent variables is the variable that may affected the dependent variable determined by a researcher. Independent Variable in this research is the Current Ratio ($X_1$), Debt Ratio ($X_2$) and Return on Assets ($X_3$) of Food industry companies listed in Indonesia Stock Market and Taiwan Stock Market.

Current Ratio ($X_1$) is a ratio to measure the company's ability to pay short term and long term obligation by dividing the current assets and current liability. The formula to calculate the current ratio as follows :

$$\text{Current Ratio (CR)} = \frac{Current\ Assets}{Current\ Liabilities}$$

Debt Ratio ($X_2$) is a ratio to measure the extent of a company's leverage by dividing the Total Debt and Total Asset, and it can be formuated by :

$$\text{Debt Ratio (DR)} = \frac{Total\ Debt}{Total\ Assets}$$

Return on assets is a profitability ratio that provides how much profit a company is able to generate from its assets, and it can be formulated by :

$$\text{Return On Assets (ROA)} = \frac{Net\ Income\ After\ Taxes}{Total\ Sales}$$

**Table 3.1 Operational Variable**

| Variable | Formula |
|---|---|
| Current Ratio | $CR = \frac{Current\ Assets}{Current\ Liabilities}$ |
| Debt Ratio | $DR = \frac{Total\ Debt}{Total\ Assets}$ |

| | |
|---|---|
| Return On Assets | ROA= $\frac{Net\ Income\ After\ Taxes}{Total\ Sales}$ |
| Price Earning Ratio | PER = $\frac{Stock\ Price}{Earning\ Per\ Share}$ |

### 3.5 Analysis Method

We used SPSS to process the data and find the conclusion. The purpose on this analysis is to find if there's an effect of Current Ratio ($X_1$), Debt Ratio ($X_2$) and Return on Assets ($X_3$) on company's value in Food Industry in Indonesia Stock Market and Taiwan Stock Market from 2015 – 2017.

#### 3.5.1 Descriptive Statistics Analysis

Descriptive statistics is the analysis that summarize a given data set, which can be either a representation of the entire or a sample of a population.

#### 3.5.2 Classical Assumption Test

The purpose of Classical Assumption Test is to make sure if there are no specification error in the sample. The Classical Assumption Test we uses in this research is Normality Test, Autocorrelation Test, Multicollinearity Test and Heteroscedasticity Test.

##### 3.5.2.1 Normality Test

Ghozali (2013) stated that normality test is the test if the residual data is normally distributed or not. In this research we uses Normal P-P Plot and Kolmogorov-Smirnov statistics to test the normality data. The decision making according to Ghozali (2013) is as follows :

1. If the Kolmogorov-Smirnov shows the sig>0,05 , that is mean residual data is normally distributed.
2. If the Kolmogorov-Smirnov shows the sig<0,05 , that is mean residual data is not normally distributed.

##### 3.5.2.2 Autocorrelation Test

According to Rizka (2013), The purpose of Autocorrelation Test will shows if there are correlations between the observation's sample based on the *time series*,

and it can be detect by Durbin Watson Test which is if dU<DW<(4-dU) that is mean there are no autocorrelation.

#### 3.5.2.3 Multicollinearity Test

According to Ghozali (2013), Multicollinearility Test will shows if there are correlation between independent variables, if the Variance Inflation Factor (VIF) < 10, that is mean there are no multicollinearity.

#### 3.5.2.4 Heteroscedasticity Test

Heteroscedaticity test will shows if the regression model occurs inequality of variance from the one to another residual observer (Ghozali, 2013).

### 3.5.3 Regression Analysis

Regression Analysis ia a set of statistical processes to estimate the relationship between independent and dependent variable. According to Ghozali's study (2012), Regression analysis is a study of the relationship between the dependent variable and one or more independent variables which the purpose is to estimate the mean of population or dependent variable based on the independent variable.

This research uses Multiple Linear Regression to show if there is a significant effect of Current Ratio ($X_1$), and Debt Ratio ($X_2$) on company's value in Food Industry in IDX and TWSE which can be formulated by:

$$PER = a_0 + a_1CR + a_2DR + a_3ROA + \varepsilon$$

PER = Company's Value (Price Earning Ratio)

$a_0$ = Constant

$a_1CR$ = Current Ratio

$a_2DR$ = Debt Ratio

$a_3ROA$ = Return on Assets

$\varepsilon$ = Error

### 3.5.4 Test of Hypothesis

#### 3.5.4.1 $R^2$ Test

$R^2$ or Coefficient of Determination is a statistical test that represents the variance's proportion for dependent variables that is explained by an independent variable (Ghozali , 2012). $R^2$ values range from 0 to 1 and commonly stated as percentages from 0% to 100%. $R^2$ test can be formulated by :

$$R^2 = 1 - \frac{Explained\ Variation}{Total\ Variation}$$

#### 3.5.4.2 F – Test

According to Ghozali (2012), F – Test shows that if all the independent variable in the research affected the dependent variable. If the significance more than 0,05 , that is mean all the independent variable affected the dependent variable, and if the significance less than 0,05 that means all the independent variable are not affected the dependent variable. F – Test can be formulated by :

$$F = \frac{R2/(K-1)}{(1-R2)/(n-K)}$$

$R^2$ = Coefficient of Determination
$1 – R^2$ = Residual Sum of Square
n = Total of Samples
K = Total of Variables

#### 3.5.4.3 t – Test

t – Test shows if one independent variable individually affected the dependent variable (Ghozali , 2012). If the significance more than 0,05 , that means all the independent variable affected the dependent variable, and if the significance less

than 0,05 , that means all the independent variable are not affected the dependent variable. According to Gujarati (1993), t – Test can be formulated by :

$$t = \frac{b}{\sigma b}$$

b = Coefficient Regression of Independent Variable

$\sigma b$ = Standard Definition Coefficient Regression of Independent Variable

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