CHAPTER III
RESEARCH METHOD

3.1 Population and Sample

The population used in this research are all of manufacturing companies that are listed in the Indonesia Stock Exchange (IDX) and *Otoritas Jasa Keuanga*n (OJK) for the period of 2013-2017. The researcher chose manufacturing companies due to the importance of the information that will be gathered. The sample taken by the researcher in this research is by purposive sampling method which the sample is chosen based on the characteristics of the population and not randomly. The samples used in this research are manufacturing companies listed in Indonesia Stock Exchange which met the following criteria:

1. Manufacturing companies that are listed in Indonesia Stock Exchange in the period of 2013-2017.

2. Manufacturing companies that provide annual reports and financial statements during the period of 2013-2017.

3. Manufacturing companies that provide adequate information and data that can be used for this study.

4. Manufacturing companies that did not having a negative equity in their financial statements during the period of 2013-2017 due to potentially excessive risk-taking behaviour.

3.2 Data Collection Method

This research is a quantitative research which means that the data collected used secondary data. The data collected was in the forms of annual reports of manufacturing companies listed in Indonesia Stock Exchange (IDX) during the period of 2013-2017.

The research data was obtained from the website of Indonesia Stock Exchange (IDX), www.idx.co.id, website of OJK www.ojk.go.id, and websites of the manufacturing companies.

The data information included in this research were annual financial statements and also the company profiles during the period of 2013-2017.

3.3 Research Variables

The variables in this research consist of dependent variable and independent variables. The dependent variable in this research is company's risk-taking. Meanwhile, the independent variable in this research is corporate governance with several sub-variables.

3.3.1 Dependent Variable

The dependent variable is the variable being affected by the other variables. The dependent variable in this research is company's risk-taking.

Company's risk-taking is an important stipulation that the aim is to improve the efficiencies in the usage of assets and the resulting profitable opportunities, returns, and firm growth (Zhao & Xiao, 2016). The measurement of the risk-taking here was based on *John et al.* (2008), where corporate risk-taking

estimations are based on a firm's earning volatility. The measurement of corporate risk-taking was symbolized as RISK and expressed in the following equation:

$$RISK_{i,c} = \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(\frac{EBITDA_{i,c,t}}{TA_{i,c,t}} - \frac{1}{T}\sum_{t=1}^{T}\frac{EBITDA_{i,c,t}}{TA_{i,c,t}}\right)^2}$$

$RISK_{i,c}$: Corporate risk-taking of firm i within country c

$TA_{i,c,t}$: Total assets of firm i and year t within country c

$EBITDA_{i,c,t}$: Earnings before interest, tax, depreciation and amortization of firm i and year t within country c

T   : 5 years of earning volatility

3.3.2 Independent Variable

Independent variable is the variable affecting the dependent variable. The independent variable in this research is corporate governance, with sub-variables which are board of director size, audit committee size, managerial compensations, and ownership concentration.

a. Board of Director Size

Board of director size refers to the total number of directors on the board of firms which is inclusive of the CEO and Chairman for each accounting period. The board of director size here will include outside directors, executive directors

and non-executive directors (Venuti & Alfiero, 2016). The proxy to measure this variable is:

$$BODS = Number\ of\ members\ in\ the\ Board\ of\ Directors$$

b. Managerial Compensations

Managerial compensations here refer to the both financial and non-financial compensation that managers get as a repayment from the service that they did for the firms. It can be in terms of bonuses, benefits, shares or call options on the firm's stock and also mixture of salary. In this study, the indicator used as the measurement is remuneration received by the key management during the period of 2013-2017. The measurement is:

$$COMP = Ln\ of\ total\ remuneration\ of\ all\ key\ management\ (Rupiah)$$

c. Ownership Concentration

Ownership concentration refers to the amount of stock owned by individual investors and large-block shareholders (investors that hold at least 5 percent of equity ownership within the firm). The calculation of ownership concentration is based on Koerniadi *et al.*,(2014). The proxy used in measuring ownership concentration is as follows:

$$OWN = Cumulative\ percentage\ held\ by\ shareholders\ with\ ownership$$
$$\geq 5\%$$

d. Audit Committee Size

Adams & Jiang (2016) believed that the existence of audit committee can perform important corporate governance functions, such as strengthening board of directors' independence, especially outside directors, providing advice to the operation of the company, and of course auditing. The audit committee size will be calculated with proxy:

$$ACS = Number\ of\ members\ in\ audit\ committee$$

3.4 Data Analysis Method

Data collected in this research was processed by using SPSS version 20.0 and the analysis method used were descriptive statistics, multiple linear regression, classical assumption test, and hypothesis testing.

3.4.1 Descriptive Statistics

Descriptive statistics analysis is the analysis used to identify the characteristics of sample used and describe the variable in the study. It is also aiming at summarizing the data that the researcher used in the study. The descriptive statistics analysis processes resulted the statistical information such as median, mean, variance standard deviation, mode, kurtosis, and others (Ghozali, 2002) (in Efrianti, 2012).

3.4.2 Classical Assumption Test

It is a test used to test the feasibility of the regression model in order to achieve good data and generate good model. The classical assumption test is divided into heteroscedasticity test, normality test, multicollinearity test.

a. Heteroscedasticity Test

Heteroscedasticity test is used in statistics analysis, especially in the context of linear regression or for time series analysis, to describe the case where the variance of errors or the model is not the same for all observations, while often one of the basic assumptions in modeling is that the variances are homogeneous and that the errors of the model are identically distributed (Ghozali, 2013: 139). Regression analysis result which is not heteroscedastic means that the regression model is a good one. If the errors have constant variance, it is called homoscedastic. One of test in Heteroscedasticity test can be done by looking at the scatterplot graphs. If the resulting points are formed randomly, formed a certain pattern, and the direction of the dots are spread above and below number 0 on the Y axis, it does not occur heteroscedasticity symptoms in the regression so that regression models are good.

b. Normality Test

A normality test is used to determine whether the sample data have been drawn from a normally distributed population (within some tolerance). A number of statistical tests, such as the t-test and the one-way and two-way ANOVA require a normally distributed sample population (Ghozali, 2013:

160). If the assumption of normality is not valid, the results of the tests will be unreliable. The test used in this research is Kolmogorov-Smirnov test to identify the normality based on the maximum difference between the observed distribution and expected cumulative-normal distribution. When the significant value is > 0.05, it means that the data is normally distributed.

c. **Multicollinearity Test**

Multicollinearity test is used to test whether there is a correlation between independent variables that results in high correlation in the regression model. It generally occurs when there are high correlations between two or more predictor variables. In other words, one predictor variable can be used to predict the others (Ghozali, 2013: 105). Detecting the presence of multicollinearity in a regression model can be seen from the tolerance value and the opposite is the Variance Inflation Factor (VIF). The VIF was used to detect the availability of the inter-correlation between variables. IF VIF < 10 and the tolerance > 0.10, the result means that the variables are not inter-correlated (Ghozali, 2013: 105).

3.4.3 Multiple Linear Regression

Multiple linear regression analysis is a statistical methodology aiming at measuring the strength and direction of the relationship between independent variables and the dependent variable (Firdaus & Adhariani, 2017). The research conducted in this study analysed the effect of audit committee size, ownership

concentration, board of director size, and managerial compensations to the corporate risk-taking. The model of the analysis in this research is as follows:

$$RISK = \alpha + \beta_1 COMP + \beta_2 OWN - \beta_3 ACS - \beta_4 BODS + e$$

RISK   : Corporate risk-taking

COMP   : Managerial compensations

OWN   : Ownership concentration

ACS   : Audit committee size

BODS   : Board of director size

α : Constant value

β_n : Independent variables

e   : Error value

3.4.4   Hypothesis Testing

The data analysis method is used to test the influence of independent variables on dependent variable.

a.   Coefficient Determination (R^2)

This statistical analysis is used to determine how the dependent variable is influenced by the independent variables. The R^2 value is in between 0 and 1. The closer the R^2 value to 1, the greater the model can describe the dependent variable (Firdaus & Adhariani, 2017).

b. T-test

T-test is used in this study to identify the influence of independent variables to dependent variable. The test is conducted to determine whether the independent variables are significantly affected by the dependent variable or not (Ghozali, 2013: 98). It is concluded based on the following criteria:

- Hypothesis is accepted if p-value < 5%, means that the dependent variables are significantly affected by the independent variable.
- Hypothesis is rejected if p-value > 5%, means that the dependent variables are not significantly affected by the independent variable.