CHAPTER 3

RESEARCH METHODOLOGY

1.1 Research Approach

A study requires accurate data, therefore a research approach that will be support from the writing of a scientific work. Approach can be things that explain a problem or in the form of numbers - the number of results of data processing.

There are two types of research approaches:

1. Qualitative approach, a series of information extracted from the results of research that is verbal facts or in the form of explanations and explanations.
2. Quantitative approach, which is a series of information extracted and processed from the data in the form of numbers and the results of processing qualitative data into quantitative.

The approach used in this research is a quantitative approach because the measurement is done mathematics. Measurements are made based on the Financial Statements and Annual Reports of Banking companies listed on the Indonesia Stock Exchange and Malaysia.

1.2 Sampling Technique

The data taken in this research is Indonesian and Malaysian banking data from 2012 to 2016. The sample determination in this study is using the Purposive Sampling Method.

The Criteria used to select the Sample are as follows:

1. Banks listed in Indonesia Stock Exchange and Bursa Malaysia.
2. Banks that publish financial reports and annual reports for the period of 31 December 2012 - 2016 on the Indonesia Stock Exchange and Bursa Malaysia completely.
3. Banks disclosing Information on ownership structure and financial ratios in its Annual Report.
4. Bank that distributes dividends every year for the period 2012-2016.

1.3 Techniques Data Collection

Data collection techniques in this study using documentation method. The method used for recording, studying the literature, and references of books related to the research undertaken. The data source of this study secondary data got from the financial statements of banking companies in Osiris database and listed on the stock exchange of Indonesia and Malaysia in 2012-2016.

1.4 Variables and Measurements

The dependent variable used in this study is Company Value (PBV), while Independent Variables on this Research are Leverage, Profitability (ROE), Policy of Dividend (DPR) and Investment Opportunity (PER).

Table 3.1 Measurements

Variables	Proxy	Measurements
Dependent		
Company Value	Price Book Value (PBV)	PBV = $\frac{Market\ price\ per\ share}{Book\ Value\ per\ share}$
Indevenden		
Leverage	Leverage	leverage = $\frac{Total\ amoun\ of\ debt}{Total\ Assets}$
Profitability	Return On Equity (ROE)	ROE = $\frac{Net\ Profit}{Equity}$
Dividend Policy	Dividend Payout Ratio (DPR)	DPR = $\frac{Dividend\ Per\ Share}{Earning\ per\ Share} \times 100\%$
Investment Opportunity	Price Earning Ratio (PER)	PER = $\frac{Stock\ Price}{Earning\ per\ Share}$

1.5 Types and Sources of Data

Data used in this research is secondary data got from Indonesian Stock Exchanges year 2012-2016 (www.idx.com) and from Bursa Malaysia in 2012-2016 (www.bursamalaysia.com). The reason the researcher uses secondary data is that secondary data is easier to get, the cost is cheaper, there is already research with this data, and more reliable its validity because its financial statements have audited by public accountant.

1.6 Method of Data Analysis

The method of analysis is doing by multiple linear regression statistic method to test the hypothesis. This is because there are two independent variables that have an influence relationship to one variable dependent. Gujarati (1999) says the basis of regression analysis is the dependence of one dependent variable with one or more dependent variables, to estimate and / or predict the average population or the mean value of the independent variable based on the value of the

independent variable. Kuncoro (2001) argues that regression analysis is used with analysis is the prediction of causal relations between independent and dependent variables.

Estimate cause-effect relationships, the researcher must measure or determine the value of Y (variables independent) to estimate the values associated with X as independent variables (Ibn, 2000). Thus, the essence of regression analysis is to explain and test the relationship between one or more independent variables to one dependent variable (Ghozali, 2009). Before the hypothetical test, first classic assumption test is done. Classic classical assumptions will comprise: multicollinearity test normality test, autocorrelation test and heteroscedasticity test and dependent test.

1.6.1 Classic Assumption Test

This research will be tested using multiple linear regression method to know the influence of the variables related in the research. In the regression model, not only arametric variables affect the dependent variable, but there are other factors that can cause errors in the observation, which is called the disturbance error (Supranto, 2001). Multiple regression methods can an unbiased estimation tool if it meets Best Linear Unbiased Estimation (BLUE) requirements. To model the regression analysis used in this research, produces arametric value which is a valid first will tested classical assumption of regression which includes Normality test, multicollinearity, autocorrelation and heteroscedasticity.

1.6.2 Normality Test

Normality test aims to test whether in the regression method, dependent variables and independent variables both have a normal

distribution or not (Ghozali, 2009). A good regression model is data that is normally distributed or close to normal. In this study to detect whether the data is normally distributed or not using two ways is through graph analysis and statistical analysis.

1.6.3 Multicollinearity Test

Multicollinearity occurs when there is a perfect or near perfect linear relationship between some or all of the independent variables in the regression model. Multicollinearity test aims to test whether the regression model found the correlation between independent variables (independent). A good regression model should not be correlated among the independent variables (Ghozali, 2009). To test the existence of multicollinearity can be done by analyzing the correlation between variables and calculation of tolerance values and variance inflation factor (VIF). Multicollinearity occurs when tolerance values are less than 0.1, which means that there is no correlation between independent variables with values greater than 95%.

3.6.4 Autocorrelation Test

Statistical tests from Durbin Watson to detect whether there is a serial correlation (Autocorrelation) or not in the time series data used. Serial correlation is a problem wherein a set of observations for a variable between one observation with another there is a relationship or correlation. The initial step of this detection is to find the valued of the regression analysis and then to find the value of d1 and du in the table with the criterion (Imam Ghozali, 2009). Decision-making whether there is an autocorrelation:

1. If the DW value lies between the upper bound (du) and (4-du), then the autocorrelation coefficient is zero, meaning there is no autocorrelation.
2. If the DW value is lower than the lower bound (dl), then the autocorrelation coefficient is greater than zero, meaning there is a positive correlation.
3. If the DW value is greater than (4-dl), then the autocorrelation correlation coefficient is less than zero, meaning there is negative autocorrelation.

If the DW value is between the upper bound (du) and the lower limit (dl) or DW is between (4-du) and (4-dl), the result can not be concluded.

3.6.5 Heteroscedasticity

The heteroscedasticity test aims to test whether in the gradient model there is an inequality of variance of the residual of one observation of another. If the variance of one residual observation remains the other, then it is called homoscedasticity and if different is called heteroscedasticity. A good regression model is homoscedasticity or no heteroscedasticity (Ghozali, 2009). To detect whether heteroscedasticity is done by looking for a certain pattern on the scatter plot chart between SRESID and ZPRED where Y is predicted Y, and the x axis is the unstandardized residual (Y-predicted Y). The basic analysis is:

1. If there is a certain pattern, such dots that exist form a certain pattern that regular (wavy, widened and narrowed) will indicate there has been heteroscedasticity.

2. If there is no clear pattern, as well as the spreading points above and below the number 0 on the Y axis, there will be heteroscedasticity.

To further ensure the accuracy of the results then do the statistical test using parks test. Park test suggests that variance (S2) is a function of independent variables expressed in equations (Ghozali, 2009). If the beta parameter coefficient of the regression equation is significant (probability level of significance above 5%), it shows that in the empirical model data which is estimated there is heteroscedasticity. Conversely, if the beta parameter is not significant, then the assumption of homoscedasticity in the model data can not be rejected.

3.6.6 Hypothesis Testing

To test the hypothesis in this research, multiple linear regression method, model feasibility test, coefficient of determination, simultaneous significance test (F statistical test), and test of significance of individual parameter (t test statistic):

3.6.6.1 Linear Regression Equation

Multiple linear regression method, the method used to test the influence of two or more independent variables on the dependent variable with the measuring or ratio scale in a linear equation (Indriantoro and Supomo, 2002). The independent variables in this research are the intensity of R & D and profitability, while the dependent variable is the index of corporate social responsibility disclosure. The equation to test the overall hypothesis in this study is:

Regression equation:

$$PBV_{it} = \beta 0 + \beta_1 LEV_{it-1} + \beta_2 ROE_{it-1} + \beta_3 DPR_{it-1} + \beta_4 PER_{it-1} + \epsilon i$$

Information :

PBVit = Price Book Value

$\beta_1 LEV_{-1}$ =Leverage

$\beta_2 ROE_{it-1}$ =Profitability Proxy ROE

$\beta_3 DPR_{it-1}$ =Dividend Policy Proxy DPR

$\beta_4 PER_{it-1}$ = Investment Opportunity Proxy PER

Єi = Error term

β_0 = constanta

3.6.6.2 Simultaneous Significance Test (F statistical tests)

The F-test basically shows all the independent variables included in this model have a mutual influence on the dependent variable (Amirullah, 2015). F test is used to know the relationship and influence between an independent variable and dependent variable as a whole or simultaneously.

The test procedure is after doing the calculation of F arithmetic then compares the value of F arithmetic with F table. The criteria for decision-making are:

- If F arithmetic> F table and level of significance (α) <0.05 then H_0 states that all independent variables have no effect simultaneously on dependent variable rejected. This means that simultaneously all the independent variables significantly affect the variable dependent
- If F arithmetic <F table and significance level (α)> 0.05 then H_o is accepted, which means simultaneously all independent variables have no significant effect on the dependent variable.

3.6.6.3 Individual Parameter Significance Test

The t test is a statistical test to determine whether individual independent variables have an influence on the dependent variable. If the probability level is smaller than 0.05, then it can be said independent variables affect the dependent variable.

Testing procedure is after doing the calculation of t arithmetic and then compares the value of t arithmetic with t table. Criteria for decision-making are:

- If t arithmetic> of t table and level of significance (α) <0.05, then Ho stating that there is no influence of independent variables partially to dependent variable rejected. This means that partially independent variables have a significant effect on the dependent variable.
- If t arithmetic <t table and level of significance (α)> 0.05 then Ho accepted, which means partially independent variables have no significant effect on the dependent variable.

3.6.6.4 Coefficient of Determination

The coefficient of determination (R2) essentially measures how far away the ability of the model to explain the variation of the dependent variable. The value of the determination coefficient is between zero and one. The small value of R2 means the ability of independent variables to explain the dependent variable is very limited. A value close to one means independent variables give almost all the information needed to predict variations of independent variables (Ghozali, 2009).

The data in this research will be processed by using the program Statistical Package for Social Sciences (SPSS) 20. The hypothesis in this study is influenced by the value of the significance of the corresponding variable coefficients after being tested. The conclusion of the hypothesis is based on t-test and F test to test the significance of independent variables against independent variables.