

## **CHAPTER III**

### **RESEARCH METHOD**

#### **A. Research's Object**

Object used in this research are banking companies in Indonesia and Malaysia. The banking companies should be listed in Indonesia Stock Exchange (IDX) and Bursa Malaysia (BM) in 2013-2016.

#### **B. Type and Source of Data**

This research is using secondary data. Secondary data is obtained and collected from the existing resources. The secondary data in this research is financial statements of banking companies listed in Indonesia Stock Exchange (IDX) and Bursa Malaysia (BM) in 2013-2016.

#### **C. Sampling Technique**

Population used in this research is all companies listed in Indonesia Stock Exchange (IDX) in 2013-2016 and Bursa Malaysia (BM) in 2013-2016. The sample used is all banking companies with intellectual intensive, a company which gives good service to the customer with their knowledge, skill, and human resource ability intellectually.

Sampling technique used in this research is purposive sampling. It is a technique where the determination is not random with information and criteria are obtained with certain consideration.

Sample used in this research is based on a certain criteria:

- a) The company used as sample should be listed consistently as a banking company in Indonesia Stock Exchange (IDX) and Bursa Malaysia (BM) in 2013-2016.
- b) The banking company published its audited financial statements in the course of 4 years, 2013-2016.
- c) The banking company disclosed their intangible assets in the course of 4 years, 2013-2016.

#### **D. Data Collection Technique**

The data collection technique undertaken in this research is documentation method. This method was done by searching and collecting data from banking company's audited financial statement listed in Indonesia Stock Exchange (IDX) and Bursa Malaysia (BM) in 2013-2016. The resource of the data is obtained from Pojok Bursa Efek Indonesia (BEI) Universitas Muhammadiyah Yogyakarta and official website from related companies.

#### **E. Research Variable and Its Operational Definition**

##### **1. Independent Variable**

Independent variable is a variable which affects or become the reason why dependent variable arises. Independent variable used in this research is Intellectual Capital (IC) that is measured using Value Added Intellectual Coefficient (VAIC) model. Based on the developed Value Added in IC, it consists of three components: Value Added Human Capital

(VAHU), Value Added Capital Employee (VACA), and Structural Capital Value Added (STVA). Ulum (2009) stated that formulae used in measuring VAIC are:

**a. Value Added (VA)**

VA is a difference between operating income and non-labored operating expense. Labor expense is out from the calculation because labor expense is entity in creating value. Non-labored operating expense is the residual from operating expense deducted by employee expense/labor expense.

$$VA = \text{Operating income} - \text{Non-labored operating expense}$$

**b. Value Added Human Capital (VAHU)**

VAHU is a comparison between VA and Human capital (HC). VAHU shows how much cost disbursed for labor investment in creating value for the company.

$$VAHU = VA/HC$$

Explanation:

VA : Value Added

HC : Human Capital/Employee Expense

VAHU : Value Added Human Capital

**c. Value Added Capital Employed (VACA)**

VACA is the comparison between VA and Capital Employed (CE). This ratio shows the contribution of everyone in the unit CE towards organization Value Added (Ulum, 2009).

$$VACA = VA/CE$$

Explanation

VA	:	Value Added
CE	:	Capital Employed (Total Asset – Intangible Asset)
VAHU	:	Value Added Human Capital

#### **d. Structural Capital Value Added (STVA)**

STVA is a comparison between VA and Structural Capital (SC). This ratio is to measure the company' success in creates value for the company.

$$STVA = SC/VA$$

Explanation:

STVA	:	Structural Capital Value Added
SC	:	Structural Capital (VA-HC)
VA	:	Value Added

#### **e. Value Added Intellectual Capital (VAIC)**

VAIC identifies intellectual ability as an indicator (Business Performance Indicator) and VAIC can be calculated with 3 components: *Value Added Human Capital* (VAHU), *Value Added Capital Employed* (VACA), and *Structural Capital Value Added* (STVA).

$$VAIC = VAHU + VACA + STVA$$

Explanation:

VAIC	:	Value Added Intellectual Capital
VAHU	:	Value Added Human Capital
VACA	:	Value Added Capital Employed
STVA	:	Structural Capital Value Added

## 2. Dependent Variable

Dependent variable is a variable that is affected by the free variable (independent variable). In this research, it is measured with Return on Assets (ROA).

### a. Return on Assets (ROA)

ROA is a profitability ratio used to measure company' ability in making profit with the existing total assets. ROA shows the business profit and company efficiency in utilizing the total assets (Chen et al, 2005).

ROA can be calculated with the following formulae:

$$\text{ROA} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

### b. Market to Book Value (M/B)

M/B can be measured with comparing the market value and the book value.

Market Value : Outstanding stock  $\times$  stock price  
(31<sup>st</sup> December)

Book Value : Total assets book value

M/B : Market value/ Book value

## F. Instrument and Data Testing

### 1. Descriptive Statistics Test

Descriptive Statistics Analysis test give the general picture of a data in form of table. There is mean and data distribution such as deviation standard, minimum, maximum, and range (Ghozali, 2009).

## **2. Classical Assumption Test**

In Classical Assumption Test, the tests done are Normality Test, Autocorrelation Test, Heteroskedastisity Test, and Multicollinearity Test.

### **a. Normality Test**

Normality test is used for determining the collected data whether it is distributed normally or taken from normal population. Classical method used in this test is Kolmogorov-Smirnov (K-S) Test. If the data used more than 30 numbers, it can be assumed that the data is distributed normally (Nazaruddin & Basuki, 2017). Other than that, if sig value  $> 0.05$  it can be assumed that the data is distributed normally, and in the reverse if the sig value  $< 0.05$  means that the data is not distributed normally.

### **b. Autocorrelation Test**

Autocorrelation test is used to find out the classical autocorrelation deviation, the correlation between two residuals on an observation with another observation in regression model. The often used testing method is Durbin Watson Test (D-W Test) with some conditions:

**Table 3.1**  
Decision related to Autocorrelation

NULL HYPOTHESES	DECISION	IF
No positive autocorrelation	Rejected	$0 < d < dl$
No positive autocorrelation	No decision	$dl \leq d \leq du$
No negative autocorrelation	Rejected	$4dl < d < 4$
No negative autocorrelation	No decision	$4du \leq d \leq dl$
No autocorrelation, positive or negative	Accepted	$du < d < 4-du$

*Source: Ghozali (2011)*

### c. Heteroskedastisity Test

Heteroskedastisity Test is used to find out the variance dissimilarity from the residual for researching all regression models. Heteroskedastisity Test is used to discover the deviation from classical assumption conditions in regression model, where in regression model, heteroskedastisity should be fulfilled. Heteroskedastisity Test is undertaken with Glejser Test. In this test, the absolute residual value from the dependent variables is regressed (Nazarudin & Basuki, 2017). Regression model is heteroskedastisity free when the sig value  $> 0.05$ .

### d. Multicollinearity Test

Multicollinearity Test is used to ascertain whether there is a correlation between the independent variables in the regression model. This test is for the research with more than one independent variable. Multicollinearity Test can be found by analyzing the Variance-Inflation

Factor (VIF) value. A regression model indicate multicollinearity if the Tolerance value  $> 0.10$  or VIF value  $< 10$ .

## G. Hypotheses Testing

Hypotheses testing is undertaken to find out how independent variable' significance level influence the dependent variable. In this test, hypothesis is tested with Regression Analysis, Determinant Coefficient ( $R^2$ ), T Test, and Independent Sample T Test.

### 1. Regression Analysis

Moderating Regression Analysis is a measurement of hypotheses testing undertaken along with statistic linear model to find out that is there any relation or influence of independent variable denoted as X variable towards the dependent variable denoted as Y.

Regression model used in this research is:

#### Regression Model $H_1$ and $H_2$

$$\text{PER} : \alpha + \beta_1 \text{VAIC} + \varepsilon \dots\dots\dots (1)$$

$$\text{MV} : \alpha + \beta_1 \text{VAIC} + \varepsilon \dots\dots\dots (2)$$

Explanation :

PER : Financial Performance (ROA)

MV : Market Value (M/B)

VAIC : Intellectual Capital

E : Error



## **2. Coefficient Determination Test ( $R^2$ )**

Determination coefficient declared in  $R^2$ . It functions to measure how far the model's able to elucidate the variation of independent variable. The influence of independent variable can be seen on the value of Adjusted R Square. Determination coefficient is between 0 and 1. Small  $R^2$  value means that the independent variable's ability can explain the dependent variable limitedly.

## **3. T Test (Partial Regression Coefficient Test)**

T test is used to find out the significant influence of each independent variable towards the dependent. This test is done with  $\alpha = 0.05$ . Independent variable significantly influence the dependent variable if the significant  $t < 0.05$ .

Criteria used in T test:

- a.) If the value of significant  $t < \alpha (0.05)$  and beta coefficient is in the same direction, the hypotheses is accepted.
- b.) If the value of significant  $t > \alpha (0.05)$  and beta coefficient is not in the same direction, the hypotheses is not accepted.

## **4. Independent Sample T Test**

This research is using independent sample t test. The test is undertaken to perceive the difference of financial performance and firm value in Indonesia and Malaysia. Before executing the t test, homogeneity test and F test should be done first. If the variance is same, the t test will use Equal Variance Assumed. If the variance is different, the test will use

Equal Variance Not Assumed. Hypotheses is accepted if  $H_0 > 0.05$ . If the  $H_0 < 0.05$ , it means that the hypotheses will be not accepted.